

CITY AND COUNTY OF DENVER
STATE OF COLORADO



Department of Public Works
Contract Documents
Contract Number: 201734070



Mill Levy 7B
April 13, 2017



NOTICE OF APPARENT LOW BIDDER

**W.L. Contractors, Inc.
5920 Lamar Street
Arvada, CO 80003**

The EXECUTIVE DIRECTOR OF PUBLIC WORKS has considered the Bids submitted on **May 25, 2017**, for work to be done and materials to be furnished in and for:

201734070 – Mill Levy 7B

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: **Eighty Two (82) bid items (202-00039 through 700-70592)** the total estimated cost thereof being: **One Million Two Hundred Fifty-Four Thousand Sixty-Eight Dollars and Thirty Cents (\$1,254,068.30)**.

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 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).

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795



NOTICE OF APPARENT LOW BIDDER

CONTRACT NO. 201734070

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 5th day of June 2017.

CITY AND COUNTY OF DENVER

By

George Delaney

Interim Executive Director of Public Works

cc: Kristen Moore (CAO), Cynthia Bills (Treasury/Tax Compliance), Cindy Ackerman, (DSBO),
Rebecca LaFond, (PM), (PW-Aud), File.

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
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CITY AND COUNTY OF DENVER
STATE OF COLORADO



Department of Public Works

Bid Form

Contract Number: 201734070



Mill Levy 7B

April 13, 2017

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

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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.) Legal name, address, Acknowledgment signature and attestation (if 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"/>
	c.) Legal name required	
BF-7	a.) Write out bid total or bid totals in words and figures in the blank form space(s) provided	<input type="checkbox"/>
	b.) Calculate Textura® Construction Payment Management System Fee from chart on pg. BF-3 and write % and fee in the space provided	
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 Minority /Woman 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 Participation	<input type="checkbox"/>
BF-16	a.) If applicable, fully complete Joint Venture Affidavit (Submit 10 days prior to Bid Opening date)	<input type="checkbox"/>
BF-17 – BF-19	a.) If applicable, fully complete Joint Venture Eligibility Form (Submit 10 days prior to Bid Opening date)	<input type="checkbox"/>
BF-20	a.) Fill in all Bid Bond blanks	<input type="checkbox"/>
	b.) Signatures required	<input type="checkbox"/>
	c.) Corporate Seal if required	<input type="checkbox"/>
	d.) Dated	<input type="checkbox"/>
	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 Contract Number.	<input type="checkbox"/>
BF-21- BF-24	a.) Each bidder, as a condition of responsiveness to this solicitation, shall <u>complete and return</u> the "Diversity and Inclusiveness in City Solicitations Information Request Form" with their Bid.	<input type="checkbox"/>

Textura® Construction Payment Management System (CPM System)

Contractor recognizes and agrees that it shall be required to use the Textura® Construction Payment Management System (CPM System) for this Project. All fees associated with the CPM System are to be paid by the Contractor for billings for work performed. Bidders are required, when preparing a bid, to enter the price of the CPM service on the line provided for the service. The fee is all inclusive of all subcontractor, project and subscription fees associated with the CPM system. The bidder will calculate the fee based on a percentage of their total bid, and then should include it on the line item provided in the bid form labeled “Textura® Construction Payment Management System Fee”. This expense becomes part of the contract and billable to the City. All costs including but not limited to costs associated with training, entering data or utilizing Textura other than the Textura Construction Payment Management System Fee are overhead and shall not be reimbursed by the City. Contractor is responsible for any tax on Textura fee. As with other taxes, the City will not reimburse Contractor for this cost and therefore this cost should be included in Contractor’s bid. Textura will invoice the awarded contractor directly.

PROJECT SIZE	FEE (% OF BID)
< \$1,000,000	0.22% (.0022)
\$1,000,001 - \$5,000,000	0.17% (.0017)
\$5,000,001 - \$20,000,000	0.12% (.0012)
\$20,000,001 - \$50,000,000	0.10% (.0010)
\$50,000,001 - \$100,000,000	0.08% (.0008)
\$100,000,001 - \$500,000,000	0.05% (.0005)
> \$500,000,000	CONTACT TEXTURA FOR PROGRAM PRICING

For more information:

<http://www.denvergov.org/content/denvergov/en/contract-administration/bidding-process.html>

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

BID FORM AND SUBMITTAL PACKAGE ACKNOWLEDGMENT

CONTRACT NO. 201734070

Mill Levy 7B Package

BIDDER: WL CONTRACTORS, INC.
(Legal Name per Colorado Secretary of State)

ADDRESS: 5920 LAMAR STREET
ARVADA, CO
80003

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. 201734070, Mill Levy 7B Package**, made available to the undersigned bidder pursuant to Notice of Invitation for Bids dated April 13, 2017.

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 Minority/Woman Owned Business Enterprise(s)
- Commitment to Minority/Woman Owned Business Enterprise Participation
- Minority/Woman Owned Business Enterprise(s) of Intent
- Joint Venture Affidavit (if applicable)
- Joint Venture Eligibility Form (if applicable)
- Bid Bond
- Certificate of Insurance

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

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:

Name: WL CONTRACTORS, INC.

By: *Dei Ann Stenker*

Title: PRESIDENT

ATTEST:

By: *[Signature]*

[SEAL]

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

BID FORM

**CONTRACT NO. 201734070
Mill Levy 7B Package**

BIDDER WL CONTRACTORS, INC.

(Legal Name per Colorado Secretary of State)

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

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 **April 13, 2017**, to furnish all required materials, tools, appliances, equipment and plant; to perform all necessary labor and to undertake and complete: **CONTRACT NO. 201734070, Mill Levy 7B Package**, 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*
- Commitment to M/WBE Participation*
- Article III, Divisions 1 and 3 of Chapter 28, D.R.M.C.*
- Bid Bond*
- Addenda (as applicable)*
- Equal Employment Opportunity Provisions (Appendix A and Appendix F)*
- Bid Form*
- 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 Drawing*
- Accepted Shop Drawings*
- Certificate of Insurance*

Item No.	Description and Price	Estimated Quantity	Estimated Cost
202-00039	Removal of Bollard at the unit price of \$ <u>185.00</u> per EACH.	5 EACH	\$ <u>925.00</u>
202-00195	Removal of Median Cover at the unit price of \$ <u>23.00</u> per SQUARE YARD.	8 SY	\$ <u>184.00</u>
202-00200	Removal of Sidewalk at the unit price of \$ <u>23.00</u> per SQUARE YARD.	368 SY	\$ <u>8,464.00</u>
202-00203	Removal of Curb and Gutter at the unit price of \$ <u>11.00</u> per LINEAR FOOT.	686 LF	\$ <u>7,546.00</u>
202-00206	Removal of Concrete Curb Ramp at the unit price of \$ <u>23.00</u> per SQUARE YARD.	163 SY	\$ <u>3,749.00</u>
202-00210	Removal of Concrete Pavement at the unit price of \$ <u>23.00</u> per SQUARE YARD.	147 SY	\$ <u>3,381.00</u>
202-00220	Removal of Asphalt Mat at the unit price of \$ <u>23.00</u> per SQUARE YARD.	59 SY	\$ <u>1,357.00</u>
202-00810	Removal of Ground Sign at the unit price of \$ <u>145.00</u> per EACH.	3 EACH	\$ <u>435.00</u>
202-00828	Removal of Traffic Signal Equipment at the unit price of \$ <u>18,600.00</u> per LUMP SUM.	1 LS	\$ <u>18,600.00</u>
203	Potholing at the unit price of \$ <u>230.00</u> per EACH.	120 EACH	\$ <u>27,600.00</u>
208-00002	Erosion Log (12 Inch) at the unit price of \$ <u>10.00</u> per LINEAR FOOT.	200 LF	\$ <u>2,000.00</u>
208-00035	Aggregate Bag at the unit price of \$ <u>13.00</u> per LINEAR FOOT.	500 LF	\$ <u>6,500.00</u>
208-00045	Concrete Washout Structure at the unit price of \$ <u>1,300.00</u> per EACH.	4 EACH	\$ <u>5,200.00</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
208-00051	Storm Drain Inlet Protection (Type 1) at the unit price of \$ 20.00 per LINEAR FOOT.	40 LF	\$ 800.00
208-00052	Storm Drain Inlet Protection (Type 2) at the unit price of \$ 22.00 per LINEAR FOOT.	40 LF	\$ 880.00
208-00103	Removal and Disposal of Sediment (Labor) at the unit price of \$ 85.00 per HOUR.	240 HOUR	\$ 20,400.00
208-00105	Removal and Disposal of Sediment (Equipment) at the unit price of \$ 165.00 per HOUR.	240 HOUR	\$ 39,600.00
208-00106	Sweeping (Sediment Removal) at the unit price of \$ 175.00 per HOUR.	48 HOUR	\$ 8,400.00
208-00205	Erosion Control Supervisor at the unit price of \$ 110.00 per HOUR.	240 HOUR	\$ 26,400.00
210-00890	Reset Intersection Detection System (Camera) at the unit price of \$ 770.00 per EACH.	1 EACH	\$ 770.00
210-04010	Adjust Manhole at the unit price of \$ 500.00 per EACH.	1 EACH	\$ 500.00
210	Reset Spread Spectrum Radio at the unit price of \$ 685.00 per EACH.	1 EACH	\$ 685.00
210	Reset Trash Receptacle at the unit price of \$ 165.00 per EACH.	2 EACH	\$ 330.00
304-06000	Aggregate Base Course (Class 6) at the unit price of \$ 80.00 per TON.	44 TON	\$ 3,520.00
403-00721	Hot Mix Asphalt (Patching) (Asphalt) at the unit price of \$ 415.00 per SQUARE YARD.	2 SY	\$ 830.00

Item No.	Description and Price	Estimated Quantity	Estimated Cost
412-00800	Concrete Pavement (8 Inch) at the unit price of \$ <u>105.00</u> per SQUARE YARD.	145 SY	\$ <u>15,225.00</u>
503-00036	Drilled Caisson (36 Inch) at the unit price of \$ <u>300.00</u> per LINEAR FOOT.	122 LF	\$ <u>36,600.00</u>
503	Vacuumed Caisson (36 Inch) at the unit price of \$ <u>325.00</u> per LINEAR FOOT.	101 LF	\$ <u>32,825.00</u>
504	Landscape Wall at the unit price of \$ <u>75.00</u> per LINEAR FOOT.	64 LF	\$ <u>4,800.00</u>
607-11525	Fence (Plastic) at the unit price of \$ <u>3.50</u> per LINEAR FOOT.	400 LF	\$ <u>1,400.00</u>
608-00006	Concrete Sidewalk (6 Inch) at the unit price of \$ <u>80.00</u> per SQUARE YARD.	449 SY	\$ <u>35,920.00</u>
608-00010	Concrete Curb Ramp at the unit price of \$ <u>223.00</u> per SQUARE YARD.	191 SY	\$ <u>42,593.00</u>
609-21020	Curb and Gutter Type 2 (Section II-B) at the unit price of \$ <u>33.00</u> per LINEAR FOOT.	690 LF	\$ <u>22,770.00</u>
613-00206	2 Inch Electrical Conduit (Bored) at the unit price of \$ <u>25.00</u> per LINEAR FOOT.	1,545 LF	\$ <u>38,625.00</u>
613-00306	3 Inch Electrical Conduit (Bored) at the unit price of \$ <u>22.00</u> per LINEAR FOOT.	2,650 LF	\$ <u>58,300.00</u>
613-07000	Pull Box (Special) at the unit price of \$ <u>1,225.00</u> per EACH.	2 EACH	\$ <u>2,450.00</u>
613-10000	Wiring at the unit price of \$ <u>16,500.00</u> per LUMP SUM.	1 LS	\$ <u>16,500.00</u>
613	Electrical Meter Pedestal Cabinet and Base at the unit price of \$ <u>3,775.00</u> per EACH.	4 EACH	\$ <u>15,100.00</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
614-00011	Sign Panel (Class I) at the unit price of \$ 30.00 per SQUARE FOOT.	241 SF	\$ 7,230.00
614-00020	Luminaire (5300 LED) at the unit price of \$ 835.00 per EACH	16 EA	\$ 13,360.00
614-00035	Sign Panel (Special) at the unit price of \$ 33.00 per SQUARE FOOT.	188 SF	\$ 6,204.00
614-00216	Steel Sign Post (2x2 Inch Tubing) at the unit price of \$ 16.00 per LINEAR FOOT.	40 LF	\$ 640.00
614-70150	Pedestrian Signal Face (16) (Countdown) at the unit price of \$ 550.00 per EACH.	32 EACH	\$ 17,600.00
614-70200	Accessible Pedestrian Signal at the unit price of \$ 1,320.00 per EACH.	8 EACH	\$ 10,560.00
614-70336	Traffic Signal Face (12-12-12) at the unit price of \$ 680.00 per EACH.	62 EACH	\$ 42,160.00
614-70448	Traffic Signal Face (12-12-12-12) at the unit price of \$ 996.00 per EACH.	10 EACH	\$ 9,960.00
614-72855	Traffic Signal Controller Cabinet (Install Only) at the unit price of \$ 2,100.00 per EACH.	4 EACH	\$ 8,400.00
614-72860	Pedestrian Push Button at the unit price of \$ 240.00 per EACH.	24 EACH	\$ 5,760.00
614-72866	Fire Preemption Unit and Timer at the unit price of \$ 9,435.00 per EACH.	4 EACH	\$ 37,740.00
614-72886	Intersection Detection System (Camera) at the unit price of \$ 8,360.00 per EACH.	16 EACH	\$ 133,760.00

Item No.	Description and Price	Estimated Quantity	Estimated Cost
614-81125	Traffic Signal-Light Pole Steel (1-25 Mast Arm) (Install Only) at the unit price of \$ 850.00 per EACH.	1 EACH	\$ 850.00
614-81130	Traffic Signal-Light Pole Steel (1-30 Mast Arm) (Install Only) at the unit price of \$ 850.00 per EACH.	3 EACH	\$ 850.00
614-81135	Traffic Signal-Light Pole Steel (1-35 Mast Arm) (Install Only) at the unit price of \$ 950.00 per EACH.	7 EACH	\$ 6,650.00
614-81140	Traffic Signal-Light Pole Steel (1-40 Mast Arm) (Install Only) at the unit price of \$ 1,055.00 per EACH.	2 EACH	\$ 2,110.00
614-81145	Traffic Signal-Light Pole Steel (1-45 Mast Arm) (Install Only) at the unit price of \$ 1,100.00 per EACH.	1 EACH	\$ 1,100.00
614-81150	Traffic Signal-Light Pole Steel (1-50 Mast Arm) (Install Only) at the unit price of \$ 1,200.00 per EACH.	1 EACH	\$ 1,200.00
614-81155	Traffic Signal-Light Pole Steel (1-55 Mast Arm) (Install Only) at the unit price of \$ 1,400.00 per EACH.	1 EACH	\$ 1,400.00
614-84100	Traffic Signal Pedestal Pole Aluminum at the unit price of \$ 1,350.00 per EACH.	24 EACH	\$ 32,400.00
614-86105	Telemetry (Field) at the unit price of \$ 3,155.00 per EACH.	4 EACH	\$ 12,620.00
622-00066	Sign Panel (Install Only) at the unit price of \$ 90.00 per EACH.	2 EACH	\$ 180.00
625-00000	Construction Surveying at the unit price of \$ 21,250.00 per LUMP SUM.	1 LS	\$ 21,250.00

Item No.	Description and Price	Estimated Quantity	Estimated Cost
626-00000	Mobilization at the unit price of \$ 73,000.00 per LUMP SUM.	1 LS	\$ 73,000.00
627-00005	Epoxy Pavement Marking at the unit price of \$ 330.00 per GALLON.	12 GAL	\$ 3,960.00
627-00070	Preformed Thermoplastic Pavement Marking at the unit price of \$ 20.00 per SQUARE FOOT.	3,205 SF	\$ 64,100.00
630-00000	Flagging at the unit price of \$ 34.00 per HOUR.	480 HOUR	\$ 16,320.00
630-00003	Uniformed Traffic Control at the unit price of \$ 130.00 per HOUR.	160 HOUR	\$ 20,800.00
630-00007	Traffic Control Inspection at the unit price of \$ 70.00 per DAY.	48 DAY	\$ 3,360.00
630-00012	Traffic Control Management at the unit price of \$ 755.00 per DAY.	104 DAY	\$ 78,520.00
630-80335	Barricade (Type 3 M-A) (Temporary) at the unit price of \$ 69.00 per EACH.	10 EACH	\$ 690.00
630-80341	Construction Traffic Sign (Panel Size A) at the unit price of \$ 69.00 per EACH.	56 EACH	\$ 3,864.00
630-80342	Construction Traffic Sign (Panel Size B) at the unit price of \$ 69.00 per EACH.	32 EACH	\$ 2,208.00
630-80355	Portable Message Sign Panel at the unit price of \$ 4,125.00 per EACH.	2 EACH	\$ 8,250.00
630-80356	Advance Warning Flashing or Sequencing Arrow Panel (A TY) at the unit price of \$ 685.00 per EACH.	2 EACH	\$ 1,370.00

Item No.	Description and Price	Estimated Quantity	Estimated Cost
630-80360	Drum Channelizing Device at the unit price of \$ <u>48.00</u> per EACH.	100 EACH	\$ <u>4,800.00</u>
630-80380	Traffic Cone at the unit price of \$ <u>7.00</u> per EACH.	200 EACH	\$ <u>1,400.00</u>
630-85041	Mobile Attenuator at the unit price of \$ <u>345.00</u> per DAY.	10 DAY	\$ <u>3,450.00</u>
700-70010	Minor Contract Revisions Allowance at the unit price of \$25,000.00	ALLOWANCE	\$ <u>25,000.00</u>
700-70082	Furnish & Install Electrical Service Allowance at the unit price of \$20,000.00	ALLOWANCE	\$ <u>20,000.00</u>
700-70310	Landscaping Allowance at the unit price of \$8,000.00	ALLOWANCE	\$ <u>8,000.00</u>
700-70380	Erosion Control Allowance at the unit price of \$5,000.00	ALLOWANCE	\$ <u>5,000.00</u>
700-70589	Environmental Health and Safety Management Allowance at the unit price of \$5,000.00	ALLOWANCE	\$ <u>5,000.00</u>
700-70592	Survey Monumentation Allowance at the unit price of \$15,000.00	ALLOWANCE	\$ <u>15,000.00</u>

Bid Items Total Amount (202-00039 through 700-70592 (Eighty Two (82) Total bid items) \$ 1,251,940.00
Textura ® Fee from table on Page BF-3 .17 % of Bid Items \$ 2,128.30
Total Amount

Bid Items Total Amount plus Textura® Fee equals Total Bid Amount \$ 1,254,068.30

<p>Total Bid Amount: ONE MILLION, TWO HUNDRED FIFTY-FOUR THOUSAND, SIXTY-EIGHT DOLLARS AND 30 CENTS.</p> <hr/> <p style="text-align: right;">Dollars (\$ <u>1,254,068.30</u>)</p>

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 or bonds in the sum of the full amount of this bid, executed by a surety company acceptable to the Manager.

The LIBERTY MUTUAL INSURANCE CO., a corporation of the State of MASS, 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% OF THE BID. 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: NA Name: NA

Address: _____ Address: _____

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



DENVER
OFFICE OF ECONOMIC
DEVELOPMENT

**List of Proposed
MWBE
Bidders, Subcontractors,
Suppliers (Manufacturers) or
Brokers**

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

City & County of Denver Contract No.: 201734070

The undersigned Bidder proposes to utilize all listed firms. The following MWBE(s) firms listed are CURRENTLY certified by the City and County of Denver. Only the level of MWBE participation listed at the bid opening will count toward satisfaction of the project goal. Only bona fide commissions may be counted for Brokers. MWBE prime bidders must detail their bid information below. Please copy and attach this page to list additional MWBE.

Prime Bidder

Business Name: WL CONTRACTORS, INC.

Address: 5920 LAMAR STREET, ARVADA CO. 80003

Contact Person: MATT BERNARDI

Type of Service: TRAFFIC SIGNALS

Dollar Amount: \$ 825,031.00

Percent of
Project: 70.28

Certified MWBE 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"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
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Business Name: CHATO'S CONCRETE, LLC

Address: 8326 QUIVAS WAY, DENVER CO 80221

Type of Service: CONCRETE & ASPHALT

Contact Person:
MARLENE ANDRADE

Dollar Amount: \$:
126,012.00

Percent of
Project: 10.73

<input type="checkbox"/>	Subcontractor (✓)	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
--------------------------	-------------------	--------------------------	--------------	--------------------------	------------------	--------------------------	------------

Business Name: AMERICAN STRIPING COMPANY

Address: 3075 S. TEJON ST. ENGLEWOOD, CO. 80110

Type of Service: PAVEMENT MARKING

Contact Person:
ALAJANDRA HARVEY

Dollar Amount: \$:
59,045.00

Percent of
Project: 5.03

<input type="checkbox"/>	Subcontractor (✓)	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
--------------------------	-------------------	--------------------------	--------------	--------------------------	------------------	--------------------------	------------

Business Name:

Address:

Type of Service:

Contact Person:

Dollar Amount: \$:

Percent of
Project:

Rev 031816JE

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

Rev 031816JE

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 M/WBE(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 W/MBE "Letter of Intent" in three working days (3) on each of its M/WBE 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 works 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: WL CONTRACTORS, INC.

City, State, Zip Code: 5920 LAMAR STREET, ARVADA COLORADO, 80003

Telephone Number of Bidder: 303-422-7985 Fax No. 303-422-1634

Social Security or Federal Employer ID Number of Bidder: 841044047

Name and location of the last work of this kind herein contemplated upon which the Bidder was engaged:
SHE 2013 - COLFAX & SHERIDAN, FEDERAL & EVANS

For information relative thereto, please refer to:

Name: JOHN YU

Title: PROJECT ENGINEER

Address: CCD

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

Addenda Number 1 Date 5/16/2017

Addenda Number _____ Date _____

Addenda Number _____ Date _____

Dated this 24TH day of MAY, 2017.

Signature of Bidder:

If an Individual: NA doing business
NA
as _____.

If a Partnership: _____
by: NA General Partner.

If a Corporation: WL CONTRACTORS, INC.
a COLORADO Corporation,
by: Joni Ann Henker, its President.

Attest: [Signature]
Secretary (Corporate Seal)

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

Firm: NA

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

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

Firm: NA

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

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

Firm: NA

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

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



**COMMITMENT TO MWBE
PARTICIPATION**

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

The Bidder/Proposer is committed to the minimum 14 % **MWBE** utilization on the project, and will submit Letters of Intent (LOI) for each subcontractor/subconsultant listed in the Bid Forms as follows:
Hard Bids: **Three (3)** business days after the bid opening.
Request for Proposals/Qualifications: With the proposal when due.
Compliance Plans: With each task/work order

The Bidder/Proposer is unable to meet the project goal of _____ % **MWBE**, but is committed to a minimum of _____ % **MWBE** utilization on the project. The Bidder/Proposer understands that they must submit a detailed statement of their good faith effort under sealed bid procedures, as a matter of responsiveness, or with initial proposals, under contract negotiation procedures; or no later than **three (3)** days after bid opening as a matter of responsibility as in accordance with DRMC Section 28-62 and 28-67 of Ordinance 85 to the Division of Small Business Opportunity.

The Bidder/Proposer is a certified **MWBE** 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): WL CONTRACTORS, INC.

Firm's Representative (Please print): TONI WINKLER

Signature (Firm's Representative):

Title: PRESIDENT

Address: 5920 LAMAR STREET

City: ARVADA

State: CO

Zip: 80003

Phone: 303-422-7985

Fax: 303-422-1634

Email: twinkler@teamwl.com

A copy of the MWBE Certification letter must be attached to each Letter of Intent (LOI).



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

LETTER OF INTENT (LOI)
INSTRUCTIONS FOR COMPLETION & SUBMISSION:

- All lines must be completed or marked N/A for Not Applicable
- Certification Letter must be submitted with LOI
- Submit the attached completed checklist with this letter
- Email to dfbo@denvergov.org
- FOR RFPs and RFQs: LOIs should be included with Submittal

Contract No.: 201734070	Project Name: MILL LEVY 7B
-------------------------	----------------------------

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, EBE or DBE

Name of Bidder/Consultant: WL CONTRACTORS, INC.	Self-Performing: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Phone: 303-422-7985
Contact Person: MATT BERNARDI	Email: mbercardi@teamwl.com	Fax: 303-422-1634
Address: 5920 LAMAR STREET	City: ARVADA	State: CO Zip: 80003

B. The Following Section is To Be Completed by the M/WBE, SBE, EBE or DBE, at any Tier
This Letter of Intent Must be Signed by the M/WBE, SBE, EBE or DBE and Bidder/Consultant

Name of Certified Firm: AMERICAN STRIPING COMPANY	Phone: 303-495-5950								
Contact Person: ALEJANDRA HARVEY	Email: alejandra@americanstripingcompany.com Fax: NONE								
Address: 3075 SOUTH TEJON STREET	City: ENGLEWOOD State: CO Zip: 80110								
Please check the designation which applies to the certified firm.	<table border="1"> <tr> <td>M/WBE (✓)</td> <td>X</td> <td>SBE (✓)</td> <td>X</td> <td>EBE (✓)</td> <td>X</td> <td>DBE (✓)</td> <td>X</td> </tr> </table>	M/WBE (✓)	X	SBE (✓)	X	EBE (✓)	X	DBE (✓)	X
M/WBE (✓)	X	SBE (✓)	X	EBE (✓)	X	DBE (✓)	X		

Indirect Utilization: If this M/WBE, SBE, EBE 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, EBE 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. On unit price bids only, identify which bid line items the M/WBE/SBE/EBE/DBEs scope of work or supply corresponds to.

626-00000, 627-00005, 627-00070

X	Subcontractor/Subconsultant (✓)	Supplier (✓)	Broker (✓)
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Bidder intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE, EBE or DBE bid amount is:

\$ 59,045.00 5.03 %

Consultant intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The percentage of the work of the total sub consultant M/WBE, SBE, EBE 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: *Matt C. Bernardi* Date: 5/25/2017

Title: ESTIMATOR

M/WBE, SBE, EBE or DBE or Self-Performing Firm's Signature: *[Signature]* Date: 5/26/17

Title: *President / CEO*

If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void.



Office of Economic Development
 Division of Small Business Opportunity
 Compliance Unit
 201 West Colfax Ave., Dept. 907
 Denver, CO 80202
 Phone: 720-615-1226

LETTER OF INTENT (LOI)
INSTRUCTIONS FOR COMPLETION & SUBMISSION:

- All items must be completed or marked N/A for Not Applicable
- Certification Letter must be submitted with LOI
- Submit the attached completed checklist with this letter
- Email to scop@denvergov.org
- FOR RFPs and RFQs, LOIs should be included with Submittal

Contract No.: 201734070		Project Name: MILL LEVY 7B	
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, EBE or DBE			
Name of Bidder/Consultant: WL CONTRACTORS, INC.		Self-Performing: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Phone: 303-422-7985
Contact Person: MATT BERNARDI		Email: mbernardi@teamwl.com	Fax: 303-422-1634
Address: 5920 LAMAR STREET		City: ARVADA	State: CO Zip: 80003
B. The Following Section is To Be Completed by the M/WBE, SBE, EBE or DBE, at any Tier This Letter of Intent Must be Signed by the M/WBE, SBE, EBE or DBE and Bidder/Consultant			
Name of Certified Firm: CHATO'S CONCRETE LLC.		Phone: 720-252-7959	
Contact Person: MARLENE ANDRADE		Email: marlene@chatosconcrete.com	Fax: 303-427-7156
Address: 8326 QUITAS WAY		City: DENVER	State: CO Zip: 80221
Please check the designation which applies to the certified firm.		M/WBE (✓) <input checked="" type="checkbox"/>	SBE (✓) <input checked="" type="checkbox"/>
		EBE (✓) <input checked="" type="checkbox"/>	DBE (✓) <input checked="" type="checkbox"/>
Indirect Utilization: If this M/WBE, SBE, EBE 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, EBE 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/EBE/DBE's scope of work or supply corresponds to.</u> 202-00195, 202-00200, 202-00203, 202-00206, 202-00210, 202-00220, 208-00045, 304-06000, 412-00800, 504, 608-00006, 608-00010, 609-21020, 626-00000			
<input checked="" type="checkbox"/>	Subcontractor/Subconsultant (✓)	<input type="checkbox"/>	Supplier (✓)
<input type="checkbox"/>		<input type="checkbox"/>	Broker (✓)
Bidder intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE, EBE or DBE bid amount is:		\$126,012.00	10.73%
Consultant intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The percentage of the work of the total subconsultant M/WBE, SBE, EBE 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: <i>Matt C. Bernardi</i>		Date: 5/25/2017	
Title: ESTIMATOR			
M/WBE, SBE, EBE or DBE or Self-Performing Firm's Signature: <i>[Signature]</i>		Date: 5.25.17	
Title: <i>Owner/Partner</i>			
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, EBE 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, EBE or DBE
<input type="checkbox"/>	Line items performed, if line-item bid.
<input type="checkbox"/>	Copy of M/WBE, SBE, EBE 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, EBE or DBE Firm's Signature, Title and Date

Select One ✓	SUBMITTED VIA... For Construction Hard Bids ONLY, Bidders are strongly urged to deliver the LOI via one of the methods below. (The preferred method is to scan/email completed forms to email address below. Delivery to any other point cannot be guaranteed timely delivery.)
<input type="checkbox"/>	Email to DSBO@denvergov.org

The complete and accurate information that is required for the Letter of Intent is based on the following sections of the Ordinance 85: 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.



Joint Venture Affidavit

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

The Undersigned swears 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 initialing 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 Seal
Notary Signature: _____		
Notary Commission #: _____		
Address: _____		

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 Seal
Notary Signature: _____		
Notary Commission #: _____		
Address: _____		



JOINT VENTURE ELIGIBILITY 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
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, EBEs, 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/E/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/E/M/W or DBE)	
Type of Work for which Certification was granted:			

General Information

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

Describe the portion of the work or elements of the business controlled by non-SBE/EBE/MBE/WBE or DBE: (attach additional sheets if necessary)

JOINT VENTURE ELIGIBILITY FORM

General information

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

Describe the SBE/EBE/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/EBE/MBE/WBE or DBE joint venture participant:

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

b. Non- SBE/EBE/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 S/E/MWBE/DBE, non- S/E/MWBE/DBE or joint venture:

	Non- SBE/EBE/M/WBE/DBE	SBE/EBE/M/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? Yes (✓) 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

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

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT W.L. Contractors, Inc., as Principal, and Liberty Mutual Insurance Company, a corporation organized and existing under and by virtue of the laws of the State of Massachusetts, and authorized to do business within the State of Colorado, as Surety, are held and firmly bound unto the City and County of Denver, Colorado, as Obligee, in full and just sum of Five Percent of Bid Amount Dollars, (5% of Bid Amount) lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents:

WHEREAS, the said Principal is herewith submitting its bid, dated _____, 20____, for the construction of: **Contract No. 201734070, MILL LEVY 7B PACKAGE**, as set forth in detail in the Contract Documents for the City and County of Denver, Colorado, and said Obligee has required as a condition for receiving said bid that the Principal deposit specified bid security in the amount of not less than five percent (5%) of the amount of said bid, as it relates to work to be performed for the City, conditioned that in event of failure of the Principal to execute the Contract, for such construction and furnish required Performance and Payment Bond if the contract is offered him that said sum be paid immediately to the Obligee as liquidated damages, and not as a penalty, for the Principal's failure to perform.

The condition of this obligation is such that if the aforesaid Principal shall, within the period specified therefore, on the prescribed form presented to him for signature, enter into a written contract with the Obligee in accordance with his bid as accepted and give Performance and Payment Bond with good and sufficient surety or sureties, upon the form prescribed by the Obligee, for the faithful performance and the proper fulfillment of said Contract, or in the event of withdrawal of said bid within the time specified, or upon the payment to the Obligee of the sum determined upon herein, as liquidated damages and not as penalty, in the event the Principal fails to enter into said contract and give such Performance and Payment Bond within the time specified, then this Obligation shall be null and void, otherwise to remain in full force and effect.

Signed, sealed and delivered this 17th day of May, 2017.

ATTEST


Secretary

Seal if Bidder is Corporation
(Attach Power-of-Attorney)

W.L. Contractors, Inc.

Principal

By 

Title President

Liberty Mutual Insurance Company

Surety

By 

Jennifer E. Koch, Attorney-in-fact

[SEAL]

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7397063

American Fire and Casualty Company
The Ohio Casualty Insurance Company

Liberty Mutual Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Andrew W. Denlinger; Fred R. Lautenbach; Jennifer E. Koch; Sharon L. Disterlic

all of the city of Littleton, state of CO each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 17th day of June, 2016.



American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 17th day of June, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute 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 have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 16th day of May, 2017.



By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

Diversity and Inclusiveness * in City Solicitations Information Request Form

Type in your response, print out, sign and date; or print out and complete manually. Please print legibly.

Denver Executive Order No. 101 establishes strategies between the City and private industry to use diversity and inclusiveness to promote economic development in the City and County of Denver and to encourage more businesses to compete for City contracts and procurements. The Executive Order requires, among other things, the collection of certain information regarding the practices of the City's contractors and consultants toward diversity and inclusiveness and encourages/requires City agencies to include diversity and inclusiveness policies in selection criteria where legally permitted in solicitations for City services or goods.

Answer each question below. Missing or incomplete responses will be recorded as "no", "not applicable", or "none". **A proposal or response to a solicitation by a contractor/consultant that does not include this completed form shall be deemed non-responsive and rejected.**

Business Email Address: mbernardi@teamwl.com

Please include the Email address of the contact person facilitating this solicitation for the City and County of Denver: Brenda.Hageman@denvergov.org

Agency Name:

- | | | |
|---|---|--|
| <input type="checkbox"/> Arts and Venue | <input type="checkbox"/> Purchasing Division | <input type="checkbox"/> Sheriff Department |
| <input type="checkbox"/> Auditor Office | <input type="checkbox"/> Human Services | <input type="checkbox"/> Technology Services |
| <input type="checkbox"/> Community Planning | <input type="checkbox"/> Economic Development | <input type="checkbox"/> Other |
| <input type="checkbox"/> Denver International Airport | <input type="checkbox"/> Parks and Recreation | |
| <input type="checkbox"/> Environmental Health | <input type="checkbox"/> Police Department | |
| <input type="checkbox"/> Fire Department | <input type="checkbox"/> Public Works | |

Project Name: MILL LEVY7B

BID / RFP No.: 201731070

Name of Contractor/Consultant: WL CONTRACTORS, INC.

What industry is your business? TRAFFIC SIGNALS

Address:
5920 LAMAR STREET
ARVADA, COLORADO, 80003

Business Phone No.: 303-422-7985

Business Facsimile No.: 303-422-1634

GED - Executive Order No. 101
Diversity and Inclusiveness in City Solicitations Information Request Form
Rev. 12/29/2015

1. How many employees does your company employ?

- | | |
|--------------------------------|--|
| <input type="checkbox"/> 1-10 | <input type="checkbox"/> 51-100 |
| <input type="checkbox"/> 11-50 | <input checked="" type="checkbox"/> over 100 |

1.1. How many of your company's employees are:

Full-time 125 Part-Time _____

2. Do you have a Diversity and Inclusiveness Program? Yes No

If No, and your company size is less than 10 employees continue to question 11. Complete and sign the form.

If Yes, does it address:

- | | | |
|--|------------------------------|-----------------------------|
| 2.1 Employment and retention? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2.2 Procurement and supply chain activities? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2.3 Customer service? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

3. Provide a detailed narrative of your company's diversity and inclusiveness principles and programs. This may include, for example, (i) diversity and inclusiveness employee training programs, equal opportunity policies, and the budget amount spent on an annual basis for workplace diversity; or (ii) diversity and inclusiveness training and information to improve customer service.

NONE

4. Does your company regularly communicate its diversity and inclusiveness policies to employees?

If Yes, how does your company regularly communicate its diversity and Inclusiveness policies to employees? (select all that apply)

- Employee Training
- Pamphlets
- Public EEO postings
- Other
- Not Applicable

5. If you responded that you do not have a diversity and inclusiveness program, describe any plans your company may have to adopt such a program.

NONE

6. How often do you provide training in diversity and inclusiveness principles?

- Monthly Annually
 Quarterly Not Applicable Other _____

6.1 What percentage of the total number of employees generally participate?

- 0 - 25% 51 - 75%
 26 - 50% 76 - 100% Not Applicable

7. State how you achieve diversity and inclusiveness in supply and procurement activities. This may include, for example, narratives of training programs, equal opportunity policies, diversity or inclusiveness partnership programs, mentoring and outreach programs, and the amount and description of budget spent on an annual basis for procurement and supplier diversity and inclusiveness.

NONE

8. Do you have a diversity and inclusiveness committee? Yes No

8.1 If Yes, how often does it meet?

- Monthly Annually No Committee
 Quarterly Other _____

8.2 If you responded that you do not have a diversity and inclusiveness committee, describe any plans your company may have to establish such a committee.

NA

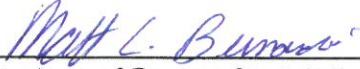
9. Do you have a budget for diversity and inclusiveness efforts? Yes No

10. Does your company integrate diversity and inclusion competencies into executive/manager performance evaluation plans? Yes No

11. Would you like information detailing how to implement a Diversity and Inclusiveness program? Yes No

If yes, please email XO101@denvergov.org.

I attest that the information represented herein is true, correct and complete, to the best of my knowledge.



Signature of Person Completing Form

5/24/2017

Date

MATT BERNARDI

Printed Name of Person Completing Form

NOTE: Attach additional sheets or documentation as necessary for a complete response.

*"Diversity and inclusiveness program" means a program that invites values, perspectives and contributions of people from diverse backgrounds, and integrates diversity into its hiring and retention policies, training opportunities, and business development methods to provide an equal opportunity for each person to participate, contribute, and succeed within the organization's workplace. "Diversity" encompasses a wide variety of human differences, including differences such as race, age, gender, gender identity, sexual orientation, ethnicity, physical disabilities, appearance, historically underutilized and disadvantaged persons, as well as social identities such as religion, marital status, socio-economic status, lifestyle, education, parental status, geographic background, language ability, and veteran status."

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

CONTRACT NO: 201734070
PROJECT NAME: Mill Levy 7B

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:

BID FORM PACKAGE

1. Replace existing sheets BF-6.1 through BF-7 with attached ADD #1 – BF-6.1 through BF-7.

BID DOCUMENT PACKAGE

1. Replace existing sheets SQ-1 through SQ-5 with ADD #1 – SQ-1 through SQ-5
2. Replace existing sheet BDP-27 with sheet ADD #1 BDP-27.

TECHNICAL SPECIFICATION

1. Addition to Section 614 – Accessible Pedestrian Signal. Add Sheets ADD #1 55A - 55D.

Q1. Since the City is ordering all the poles and mast arms for the project, will the city also be ordering "touch up paint" from the manufacture? Will the city be responsible for coordinating with the manufacture if the poles are delivered damaged?

A1. The City will not be ordering "touch up paint" for the poles and mast arms. The city will not will be responsible for coordinating with the manufacturer if poles and mast arms are deemed damaged upon delivery.

Q2. On print page 38, note 2 refers to "Accessible Pedestrian Signal" for the intersection of Alameda Ave. and Cherokee St. However, the Specifications only list the requirements of a standard push button. Does the city have a preference or certain requirements for an Audible Push button?

A2. The City does have specifications for Accessible Pedestrian Signals, these will be provided in the Addenda.

Q3. Will the City confirm that there are no trees to be removed or trimmed?

A3. No trees shall be removed or trimmed and should be protected per Forestry Standards and Specifications throughout demolition and construction.

Q4. Is there a plan in place at the intersections of E. Evans and Dahlia St and Evans and Holly St, for Xcel to lower the existing overhead power lines?

A4. The City is currently working on the design with Xcel to underground utilities along Evans Ave at Dahlia St and Holly St. The contractor shall coordinate with Xcel and should anticipate installing the caissons before Xcel's undergrounding work.

Q5. It is shown on the prints that all traffic signal poles will be full height (meeting CCD requirements) with Luminaire extension arms and luminaire fixtures. With the luminaires being part of "traffic signal pole install only" pay item, are we to assume that all intersection poles will not be modified and all luminaire extensions and fixtures will be installed?

A5. The luminaires will be included as a bid item in the Addenda, intersection poles will not be modified and all luminaire extensions and fixtures will be installed.

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



Lesley B. Thomas
City Engineer

5/17/17
Date

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



Contractor

ADDENDUM NO. 1

DATE: 5/25/2017

CITY AND COUNTY OF DENVER
STATE OF COLORADO



Department of Public Works
Bid Documents Package
Contract Number: 201734070




Mill Levy 7B

April 13, 2017

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

TABLE OF CONTENTS FOR CONTRACT DOCUMENTS


BID FORM AND SUBMITTAL PACKAGE	<u>PAGE</u>
Bid Form and Submittal Package (bound separately and attached as part of these Bid Documents)	
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Bid Form and Submittal Package Acknowledgment Form	BF-4 through BF-5
Bid Form	BF-6 through BF-8
List of Proposed Minority and Woman Business Enterprise(s)	BF-9 through BF-12
Commitment to Minority and Woman Business Enterprise Participation	BF-13
Minority and Woman Business Enterprise Letter(s) of Intent & Checklist	BF-14 through BF-15
Joint Venture Affidavit	BF-16
Joint Venture Eligibility Form	BF-17 through BF-19
Bid Bond	BF-20
Diversity and Inclusiveness in City Solicitations Form	BF-21 through BF-24
BID DOCUMENTS	
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Appendix A	
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Index of the General Contract Conditions	BDP-31 through BDP-35
Special Contract Conditions	BDP-36 through BDP-44
Final/Partial Release and Certificate of Payment Forms (Samples)	BDP-39 through BDP-41
Performance and Payment Bond Form	BDP-45 through BDP-46
Performance and Payment Bond Surety Authorization letter (Sample)	BDP - 47
Notice to Apparent Low Bidder (Sample)	BDP-48 through BDP-49
Notice To Proceed (Sample)	BDP-50
Certificate of Contract Release (Sample)	BDP-51
Prevailing Wage Rate Schedule	8 pages
Technical Specifications	145 pages
Construction Plan Set	43 pages



DENVER
THE MILE HIGH CITY
CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES


Item No.	Description	Estimated Quantity	
202-00039	Removal of Bollard	5	EACH
202-00195	Removal of Median Cover	8	SY
202-00200	Removal of Sidewalk	368	SY
202-00203	Removal of Curb and Gutter	686	LF
202-00206	Removal of Concrete Curb Ramp	163	SY
202-00210	Removal of Concrete Pavement	147	SY
202-00220	Removal of Asphalt Mat	59	SY
202-00810	Removal of Ground Sign	3	EACH
202-00828	Removal of Traffic Signal Equipment	1	LS
203	Potholing	120	EACH
208-00002	Erosion Log (12 Inch)	200	LF
208-00035	Aggregate Bag	500	LF
208-00045	Concrete Washout Structure	4	EACH
208-00051	Storm Drain Inlet Protection (Type 1)	40	LF
208-00052	Storm Drain Inlet Protection (Type 2)	40	LF
208-00103	Removal and Disposal of Sediment (Labor)	240	HOUR
208-00105	Removal and Disposal of Sediment (Equipment)	240	HOUR
208-00106	Sweeping (Sediment Removal)	48	HOUR
208-00205	Erosion Control Supervisor	240	HOUR



DENVER
THE MILE HIGH CITY
CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES


Item No.	Description	Estimated Quantity	
210-00890	Reset Intersection Detection System (Camera)	1	EACH
210-04010	Adjust Manhole	1	EACH
210	Reset Spread Spectrum Radio	1	EACH
210	Reset Trash Receptacle	2	EACH
304-06000	Aggregate Base Course (Class 6)	44	TON
403-00721	Hot Mix Asphalt (Patching) (Asphalt)	2	SY
412-00800	Concrete Pavement (8 Inch)	145	SY
503-00036	Drilled Caisson (36 Inch)	122	LF
503	Vacuumed Caisson (36 Inch)	101	LF
504	Landscape Wall	64	LF
607-11525	Fence (Plastic)	400	LF
608-00006	Concrete Sidewalk (6 Inch)	449	SY
608-00010	Concrete Curb Ramp	191	SY
609-21020	Curb and Gutter Type 2 (Section II-B)	690	LF
613-00206	2 Inch Electrical Conduit (Bored)	1,545	LF
613-00306	3 Inch Electrical Conduit (Bored)	2,650	LF
613-07000	Pull Box (Special)	2	EACH
613-10000	Wiring	1	LS
613	Electrical Meter Pedestal Cabinet and Base	4	EACH



DENVER
THE MILE HIGH CITY
CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES


Item No.	Description	Estimated Quantity	
614-00011	Sign Panel (Class I)	241	SF
614-00020	Luminaire (5300 LED)	16	EA
614-00035	Sign Panel (Special)	188	SF
614-00216	Steel Sign Post (2x2 Inch Tubing)	40	LF
614-70150	Pedestrian Signal Face (16) (Countdown)	32	EACH
614-70200	Accessible Pedestrian Signal	8	EACH
614-70336	Traffic Signal Face (12-12-12)	62	EACH
614-70448	Traffic Signal Face (12-12-12-12)	10	EACH
614-72855	Traffic Signal Controller Cabinet (Install Only)	4	EACH
614-72860	Pedestrian Push Button	24	EACH
614-72866	Fire Preemption Unit and Timer	4	EACH
614-72886	Intersection Detection System (Camera)	16	EACH
614-81125	Traffic Signal-Light Pole Steel (1-25 Mast Arm) (Install Only)	1	EACH
614-81130	Traffic Signal-Light Pole Steel (1-30 Mast Arm) (Install Only)	3	EACH
614-81135	Traffic Signal-Light Pole Steel (1-35 Mast Arm) (Install Only)	7	EACH
614-81140	Traffic Signal-Light Pole Steel (1-40 Mast Arm) (Install Only)	2	EACH
614-81145	Traffic Signal-Light Pole Steel (1-45 Mast Arm) (Install Only)	1	EACH



DENVER
THE MILE HIGH CITY
CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES

Item No.	Description	Estimated Quantity	
614-81150	Traffic Signal-Light Pole Steel (1-50 Mast Arm) (Install Only)	1	EACH
614-81155	Traffic Signal-Light Pole Steel (1-55 Mast Arm) (Install Only)	1	EACH
614-84100	Traffic Signal Pedestal Pole Aluminum	24	EACH
614-86105	Telemetry (Field)	4	EACH
622-00066	Sign Panel (Install Only)	2	EACH
625-00000	Construction Surveying	1	LS
626-00000	Mobilization	1	LS
627-00005	Epoxy Pavement Marking	12	GAL
627-00070	Preformed Thermoplastic Pavement Marking	3,205	SF
630-00000	Flagging	480	HOUR
630-00003	Uniformed Traffic Control	160	HOUR
630-00007	Traffic Control Inspection	48	DAY
630-00012	Traffic Control Management	104	DAY
630-80335	Barricade (Type 3 M-A) (Temporary)	10	EACH
630-80341	Construction Traffic Sign (Panel Size A)	56	EACH
630-80342	Construction Traffic Sign (Panel Size B)	32	EACH
630-80355	Portable Message Sign Panel	2	EACH
630-80356	Advance Warning Flashing or Sequencing Arrow Panel (A TY)	2	EACH



DENVER
 THE MILE HIGH CITY
 CITY AND COUNTY OF DENVER
 DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES

Item No.	Description	Estimated Quantity	
630-80360	Drum Channelizing Device	100	EACH
630-80380	Traffic Cone	200	EACH
630-85041	Mobile Attenuator	10	DAY
700-70010	Minor Contract Revisions Allowance	1	N/A
700-70082	Furnish & Install Electrical Service Allowance	1	N/A
700-70310	Landscaping Allowance	1	N/A
700-70380	Erosion Control Allowance	1	N/A
700-70589	Environmental Health and Safety Management Allowance	1	N/A
700-70592	Survey Monumentation Allowance	1	N/A

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

**NOTICE FOR INVITATION FOR BIDS
FOR CONTRACT NO. 201734070**

MILL LEVY 7B PACKAGE

**BID SCHEDULE:
11:00 AM, Local Time
MAY 25, 2017**

Sealed bids will be received in Room 6.G.7, 201 W. Colfax Ave., Denver, CO 80202, beginning at 10:30 a.m., no later than 11:00 a.m., on bid day. All properly delivered bids will then be publicly opened and read aloud.

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 W. Colfax Ave., Department 614, Denver, CO 80202.

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

GENERAL STATEMENT OF WORK:

The City and County of Denver has confirmed the need to upgrade (4) existing traffic signals and will oversee the redesign and reconstruction of these intersections. The project consists of the following intersections: (1) Evans Avenue & Holly Street (2) Evans Avenue & Dahlia Street (3) University Boulevard & Dartmouth Avenue (4) Alameda Avenue & Cherokee Street. The overall combined scope is to remove the old traffic signals at the 4 locations including poles, signal heads, pedestrian indications and associated equipment, and replace them with new traffic signals and equipment. Rebuilt signals shall be installed in accordance with City and County of Denver standards, i.e. new poles and mast arms, multiple 12-12-12 overhead indications, accessible countdown pedestrian signals, video detection and associated equipment. Project work also includes upgrade of ADA ramps, sidewalk, and curb & gutter at all locations. No geometric changes will be made to intersection layouts.

ESTIMATED CONSTRUCTION COST:

The estimated cost of construction for this project is between \$1,096,000 and \$1,339,000.

TEXTURA CONSTRUCTION PAYMENT MANAGEMENT:

Bidders are required, when preparing a bid, to agree that it shall use the Textura® Construction Payment Management System (CPM System) for this Project and recognizes that all fees associated with the CPM System are to be paid by the awarded Contractor for billings for work performed. Use the pricing scale provided in Instructions to Bidders to price the Textura service appropriately. For details on the company and service contact the Textura® Corporation 866-TEXTURA or www.texturacorp.com.

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 #5013084. 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 1:30 PM, local time, on April 26, 2017. This meeting will take place at: Webb Building, 201 W. Colfax Avenue, Conference Room 4.I.5, Denver, Colorado 80202.

DEADLINE TO SUBMIT QUESTIONS: May 11, 2017 by 2:00 p.m. local time.

PREQUALIFICATION REQUIREMENTS:

Each bidder must be prequalified as a 1D(1) Traffic Signals 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 W. Colfax Ave., Department 614, Denver, CO 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.

MINORITY AND WOMAN BUSINESS ENTERPRISE PARTICIPATION:

Construction, reconstruction and remodeling contracts made and entered into by the City and County of Denver are subject to Article III, Divisions 1 and 3 of Chapter 28 of the Denver Revised Municipal Code, (Sections 28-31 to 28-36 and 28-52 to 28-90 D.R.M.C) and all Minority and Woman Business Enterprise and Equal Employment Opportunity Rules and Regulations adopted by the Director of the Division of Small Business Opportunity.

Article III, Division 3 of Chapter 28 of the D.R.M.C. directs the Director of the Division of Small Business Opportunity to establish a project goal for expenditures on construction, reconstruction, and remodeling work contracted by the City and County of Denver. The specific goal for this project is:

14% Minority and Woman Business Enterprise (M/WBE) Participation

Project goals must be met with certified participants as set forth in Section 28-60, D.R.M.C. or through the demonstration of a sufficient good faith effort under Section 28-62 D.R.M.C. For compliance with good faith requirements under Section 28-62(b), **the M/WBE percentage solicitation level required for this project is 100%.**

The Director of the Division of Small Business Opportunity urges all participants in City construction, reconstruction and remodeling projects to assist in achieving these goals.

MISCELLANEOUS:

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.

A modified version of this Notice of Invitation for Bids and the project’s Statement of Quantities is available on the City and County of Denver’s website at: www.work4denver.com.

Publication Dates: April 13, 14, 17, 2017
Published In: The Daily Journal

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

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, interlineations, 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 properly executed bid guarantee, on the form provided herein may, in the City's sole discretion, 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 at 201 W. Colfax, 2nd Floor, Denver, CO 80202, in the Wellington E. Webb Municipal Office Building.

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, 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 rebid 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 nonresponsive 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 contracts documents are ready for execution the Apparent Low Bidder 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 a material purchased prior to the issuance of 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 in accordance with the instructions contained herein.

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 PREVAILING WAGE REQUIREMENTS

Contractor shall comply with, and agrees to be bound by, all requirements, conditions and City determinations regarding the Payment of Prevailing Wages Ordinance, Sections 20-76 through 20-79, D.R.M.C. including, but not limited to, the requirement that every covered worker working on a City owned or leased building or on City-owned land shall be paid no less than the prevailing wages and fringe benefits in effect on the date the bid or request for proposal was advertised. In the event a request for bids, or a request for proposal, was not advertised, Contractor shall pay every covered worker no less than the prevailing wages and fringe benefits in effect on the date funds for the contract were encumbered.

Date bid or request for qualifications/proposals was advertised: April 13, 2017.

Prevailing wage and fringe rates will adjust on, and only on, the anniversary of the date the Contract was fully executed. Unless expressly provided for in this Agreement, Contractor will receive no additional compensation for increases in prevailing wages or fringe benefits.

Contractor shall provide the Auditor with a list of all subcontractors providing any services under the contract.

Contractor shall provide the Auditor with electronically-certified payroll records for all covered workers employed under the contract.

Contractor shall prominently post at the work site the current prevailing wage and fringe benefit rates. The posting must inform workers that any complaints regarding the payment of prevailing wages or fringe benefits may be submitted to the Denver Auditor by calling 720-913-5000 or emailing auditor@denvergov.org.

If Contractor fails to pay workers as required by the Prevailing Wage Ordinance, Contractor will not be paid until documentation of payment satisfactory to the Auditor has been provided. The City may, by written notice, suspend or terminate work if Contractor fails to pay required wages and fringe benefits.

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 are subject to such tax.

IB-24 DIVERSITY AND INCLUSIVENESS IN CITY SOLICITATIONS

Each bidder shall, as a condition of responsiveness to this solicitation, complete and return the “Diversity and Inclusiveness in City Solicitations Information Request Form” with their Bid.

Using the “Diversity and Inclusiveness in City Solicitations Information Request Form” provided, please state whether you have a diversity and inclusiveness program for employment and retention, procurement and supply chain activities, or customer service and provide the additional information requested on the form. The information provided on the “Diversity and Inclusiveness in City Solicitations Information Request Form” will provide an opportunity for City contractors to describe their own diversity and inclusiveness practices. Contractors are not expected to conduct intrusive examinations of its employees, managers, or business partners in order to describe diversity and inclusiveness measures. Rather, the City simply seeks a description of the contractor’s current practices, if any.

Diversity and Inclusiveness information provided by City contractors in response to City solicitations for services or goods will be collated, analyzed, and made available in reports consistent with City Executive Order No. 101. However, no personally identifiable provided by or obtained from contractor’s will be in such reports.

IB-25 MINORITY AND WOMAN BUSINESS ENTERPRISE (M/WBE) REQUIREMENTS

Article III, Divisions 1 and 3 of Chapter 28, Denver Revised Municipal Code (D.R.M.C.), designated as Sections 28-31 – 28-36 and 28-52 – 28-90 D.R.M.C. and referred to in these Bid Documents as the “M/WBE Ordinance” and any Rules or Regulations promulgated pursuant thereto apply to this Project and are incorporated into these Bid Documents by reference. Generally, the M/WBE Ordinance provides for the adoption of a good faith goals program, to be administered by the Division of Small Business Opportunity (DSBO), devised to provide increased bidding opportunities for Minority and Woman Business Enterprises (M/WBEs). As such, each bidder must comply with the terms and conditions of the M/WBE Ordinance in making its bid and, if awarded the Contract, in performing all Work thereunder. A bidder’s failure to comply with the M/WBE Ordinance, any Rules or Regulations promulgated pursuant thereto, or any additional requirement contained herein shall render the bid non-responsive and shall constitute cause for rejection. Failure by the contractor awarded the contract to comply with M/WBE Ordinance requirements during the performance of the contract is a material breach of the contract, which may result in the in the imposition of sanctions on the Contractor, as deemed appropriate by DSBO. Copies of the M/WBE Ordinance and its accompanying Rules and Regulations are available for the use and review of bidders from DSBO. In order to comply with the bid requirements of the M/WBE Ordinance, a bidder shall either meet the established project goal or, in the alternative, demonstrate that the bidder has made sufficient good faith efforts to meet the goal in accordance with the M/WBE Ordinance.

Meeting Established Goal

In preparing a bid to meet the established Project goal, bidders should consider the following instructions relating to compliance with the M/WBE Ordinance:

1. Under the M/WBE Ordinance, the Director of DSBO (“Director”) is directed to establish project goals for expenditures on construction, reconstruction, and remodeling work performed for the City and County of Denver. 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 MWBE Bidders, Subcontractors, Suppliers, Manufacturers, Manufacturers' Representatives or Brokers" the name, address, work description/supply, committed level of participation and other required information for each M/WBE of any tier which the bidder intends to use in performing the work on this Project. **Only the M/WBEs identified and the precise levels of participation listed for each on the 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.** M/WBE bidders may count self-performance or joint venture activity in meeting the M/WBE project goal, but only for the scope of work performed as a commercially useful function and at a percentage level the M/WBE will be performing itself.
3. If a bidder/proposer is participating in a joint venture with a certified M/WBE firm, complete the Joint Venture Eligibility Form and Joint Venture Affidavit contained in this bid document/RFP. Submit the aforementioned forms with the firm’s Joint Venture Agreement, to the DSBO Director, **at least 10 working days prior to the proposal submittal.** The Joint Venture must be approved prior to the bid opening or proposal submittal by the DSBO Director. Approval by the DSBO Director includes determining the amount the Joint Venture will count towards meeting the project goal.
4. All M/WBEs listed on the Bid Form must be properly certified by the City on or before the date bids are opened in order to count towards meeting the designated goal. DSBO maintains an M/WBE Directory (“Directory”), which is a current listing of M/WBEs that have been certified by the City. A copy of the DSBO Directory is located at DSBO web site at <https://www.denvergov.org/dsbo>. Bidders are encouraged to use the Directory to assist in locating M/WBEs for the work and supplies required on the Project. Bidders are reminded that changes may be made to the Directory at anytime in accordance with the City's M/WBE Ordinance and procedures established to administer this program and a current copy of the Directory must always be used in preparing a bid. M/WBE

certification or listing in the Directory is not a representation or warranty by the City as to the qualifications of any listed M/WBE.

5. In accordance with the provisions of the M/WBE Ordinance, DSBO will evaluate each bid to determine the responsiveness of the bid to the requirements of the M/WBE Ordinance. In determining whether a bidder's committed level of participation meets or exceeds the stated M/WBE goal, DSBO shall 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 M/WBE percentage established for the project to determine the exact dollar amount of required M/WBE participation for the Project. This amount will then be compared against the exact dollar amounts for the M/WBE committed for participation by the bidder. If the total dollar amount of participation listed meets or exceeds the established M/WBE dollar amount goal listed, then DSBO will determine that the goal has been met.
 - b. In addition, DSBO will determine the exact commitment percentage for each listed M/WBE by dividing the dollar amount listed for each M/WBE by the total base bid dollar amount submitted by the bidder. These individual percentages, when totaled for all listed M/WBE, will establish the total committed percentage level of M/WBE participation that the bidder must comply with during the life of the contract. In all cases, the committed percentage level of M/WBE participation must equal or exceed the assigned M/WBE goal for the Project.
 - c. In providing the exact dollar amount of participation for each listed M/WBE, 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 dollar amounts and percentages in order for DSBO to determine that the bidder has met or exceeded the applicable M/WBE goal.
 - d. As previously mentioned, compliance with the M/WBE 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 goal. However, should any designated alternate be selected by the City for inclusion in the contract ultimately awarded, the M/WBE 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.
 - d. On projects where force account or allowance bid items have been included, bidders must meet the M/WBE goal percentage based upon the total base bid, including all such items that are 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 M/WBE goal on the remaining reduced amount.
 - e. On bids which, at the time of bid opening, are equal to or exceed Five Million Dollars (\$5,000,000.00), including any alternates which may be selected, only sixty percent (60%) of the value of the commercially useful function performed by M/WBE suppliers shall count toward satisfaction of the Project goal. On Projects under Five Million (\$5,000,000.00) the value of the commercially useful function of M/WBE supplier(s) will count at a one hundred percent (100%) level. Manufacturer's representatives and packagers shall be counted in the same manner as brokers.
 - f. In utilizing the M/WBE participation of a Broker only the bona fide commissions earned by such Broker for its performance of a commercially useful function will count toward

meeting the Project goals. The bidder must separate the bona fide brokerage 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 third (3rd) working day after bid opening, all of the Bidders are required to submit an executed "Letter of Intent" for each M/WBE listed on the Bid Form as a joint venture member, subcontractor, supplier, manufacturer, manufacturers' representative or broker of any tier. **An MBE or WBE Prime Bidder needs to submit a Letter of Intent for itself for self performed work**, and must identify their level of participation on the designated M/WBE participation page bound herein. A Letter of Intent shall be submitted only for the M/WBEs listed at the time of bid opening, since this is the only participation that will be counted toward satisfaction of the project goal. A form for the M/WBE Letter of Intent is included with the Bid Form. The M/WBE 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 M/WBE or that its subcontractor(s) and supplier(s), manufacturer(s), manufacturers' representative(s) and broker(s) will do so. Each M/WBE Letter of Intent shall be accompanied by a copy of the City and County of Denver's M/WBE certification letter for each proposed M/WBE 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.

Good Faith Effort.

In preparing a bid to demonstrate a good faith effort, bidders should consider the following instructions relating to compliance with the M/WBE Ordinance:

1. If the bidder or proposer has not fully met the project goal as provided in section 28-60, then it shall demonstrate that it has made good faith efforts to meet such goal. The bidder or proposer shall furnish to the director, within three (3) working days after bid opening by the City or on or before the time of the final project-specific proposal submitted to and authorized by the City pursuant to a competitive selection process, or bid selection by a private owner, a detailed statement of its good faith efforts to meet the project goal set by the director. This statement shall address each of the items in subsection (b) and any additional criteria that the director may establish by rule or regulation consistent with the purposes of this division 3. Good faith efforts must be demonstrated to be meaningful and not merely for formalistic compliance with this Division 3. The scope and intensity of the efforts will be considered in determining whether the bidder or proposer has achieved a good faith effort.
2. The statement of good faith efforts shall include a specific response and verification with respect to each of the following good faith effort categories, which may be further defined by rule or regulation. A bidder or proposer may include any additional information it believes may be relevant. Failure of a bidder or proposer to show good faith efforts as to any one (1) of the following categories shall render its overall good faith effort showing insufficient and its bid or proposal non-responsive:
 - a. If prebid or preselection meetings are scheduled by the City at which MBEs and WBEs may be informed of subcontracting or joint venture opportunities under a proposed contract to be bid, or procured pursuant to the competitive selection process, attendance at such prebid or preselection meetings is not mandatory; however, bidders and proposers are responsible for the information provided at these meetings.
 - b. The bidder or proposer must solicit through all reasonable and available means, the interest of all MBEs and WBEs certified in the scopes of work of the contract. The bidder or proposer must solicit the interest of such MBEs and WBEs within sufficient time, prior to the bid opening or date of final project-specific proposal in the case of a competitive selection process, to allow such MBEs and WBEs to respond to the solicitation. The bidder or proposer must determine with certainty if the MBEs and WBEs are interested by demonstrating appropriate steps to follow up initial solicitations.
 - c. The bidder or proposer must select portions of the work of the contract to be performed by MBEs and WBEs in order to increase the likelihood that the project goal will be achieved. This includes, where appropriate, breaking out contract

work items into economically feasible units to facilitate MBE and WBE participation as subcontractors or joint venturers, and for bidder or proposer self-performed work, as suppliers, manufacturers, manufacturer's representatives and brokers, all reasonably consistent with industry practice, even when the bidder or proposer would otherwise prefer to perform these work items with its own forces. The bidder or proposer must identify what portions of the contract will be self-performed and what portions of the contract will be opened to solicitation of bids, proposals and quotes from MBE and WBEs. All portions of the contract not self-performed must be solicited for MBE and WBE participation. The ability or desire of a bidder or proposer to perform the work of a contract with its own forces does not relieve the bidder or proposer of the responsibility to meet the project goal or demonstrate good faith efforts to do so.

- d. The bidder or proposer, consistent with industry practice, must provide MBEs and WBEs at a clearly stated location with timely, adequate access to and information about the plans, specifications, and requirements of the contract, including bonding and insurance requirements, if any, to assist them in responding to a solicitation.
 - e. The bidder or proposer must negotiate in good faith with interested MBEs and WBEs and provide written documentation of such negotiation with each such MBE or WBE.
 - f. For each MBE or WBE which contacted the bidder or proposer or which the bidder or proposer contacted or attempted to subcontract or joint venture with, consistent with industry practice, the bidder or proposer must supply a statement giving the reasons why the bidder or proposer and the MBE or WBE did not succeed in negotiating a subcontracting, supplier, manufacturer, manufacturer's representative, broker or joint venture agreement, as applicable.
3. The bidder or proposer must provide verification that it rejected each non-utilized MBE and WBE because the MBE or WBE did not submit the lowest bid or it was not qualified. Such verification shall include a verified statement of the amounts of all bids received from potential or utilized subcontractors, suppliers, manufacturers, manufacturer's representatives, brokers or joint venturers on the contract, whether or not they are MBEs or WBEs. In making such a determination of not being qualified, the bidder or proposer shall be guided by the definition of qualified in section 28-54(42), but evidence of lack of qualification must be based on factors other than solely the amount of the MBE's or WBE's bid. For each MBE or WBE found not to be qualified by the bidder or proposer, the verification shall include a statement giving the bidder's or proposer's reasons for its conclusion. A bidder's or proposer's industry standing or group memberships may not be the cause of rejection of an MBE or WBE. A bidder or proposer may not reject an MBE or WBE as being unqualified without sound reasons based on a reasonably thorough investigation and assessment of the MBE's or WBE's capabilities and expertise.
 4. If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining bonding, lines of credit, or insurance as required by the City or by the bidder or proposer, provided that the bidder or proposer need not provide financial assistance toward this effort.
 5. If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining necessary and competitively priced equipment, supplies, materials, or related assistance or services for performance under the contract, provided that the bidder or proposer need not provide financial assistance toward this effort.
 6. The bidder or proposer must use the DSBO MBE/WBE directories to identify, recruit, and place MBEs and WBEs.
 7. In determining whether a bidder or proposer has satisfied good faith efforts as to a project goal, the success or failure of other bidders or proposers on the contract in meeting such project goal may be considered.

Continuing Commitments.

In accordance with the provisions of the M/WBE Ordinance, the bidder agrees that it is committed to meeting either the M/WBE participation goal or the M/WBE participation set forth in its statement of good faith. This commitment must be expressly indicated on the "Commitment to MWBE SBE Participation" form included with the Bid Form. This commitment includes the following understandings:

1. The bidder understands it must maintain M/WBE goals throughout the performance of the Contract pursuant to the requirements set out in D.R.M.C. 28-72.
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 in achieving the M/WBE participation goal.
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, upon any of the bases discussed in Section 28-73 of the M/WBE Ordinance, 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 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 an M/WBE at the time of contract award, such change orders or contract modification shall be immediately submitted to DSBO for notification purposes. 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 contractor shall be subject to a goal for M/WBEs equal to the original goal on the contract which was included in the bid. The contractor shall satisfy such goal with respect to such changed scope of work by soliciting new M/WBEs in accordance with Section 28-73 of the M/WBE Ordinance as applicable, or the contractor must show each element of modified good faith set out in Section 28-75(c) of the M/WBE Ordinance. The contractor shall supply to the director the documentation described in Section 28-75(c) of the M/WBE Ordinance with respect to the increased dollar value of the contract.

All bidders are charged with knowledge of and are solely responsible for complying with each and every provision of the M/WBE Ordinance in making a bid and, if awarded, in performing the work described in the Contract Documents. Failure to comply with these provisions could constitute cause for rejection of a bid or subject the selected contractor to sanctions set forth in the M/WBE Ordinance. 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 the M/WBE Ordinance or contact the Project's designated DSBO representative at (720) 913-1999.

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 www.work4denver.com for information, both general and project specific. The Contract Administrator assigned to this project is Brenda Hageman who can be reached via email at Brenda.Hageman@denvergov.org.

IB-28 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. All fees associated with the CPM System are to be paid by the Contractor for billings for work performed. Bidders are required, when preparing a bid, to enter the price of the CPM service on the line provided for the service. The fee is all inclusive of all subcontractor, project and subscription fees associated with the CPM system. The bidder will calculate the fee based on a percentage of their total bid, and then should include it on the line item provided in the bid form labeled “Textura® Construction Payment Management System Fee”. This expense becomes part of the contract and billable to the City. Textura will invoice the awarded contractor directly. All costs including but not limited to costs associated with training, entering data or utilizing Textura other than the Textura Construction Payment Management System Fee are overhead and shall not be reimbursed by the City. Contractor is responsible for tax on Textura fee. As with other taxes, the City will not reimburse Contractor for this cost and therefore this cost should be included in Contractor’s bid. Textura will invoice the awarded contractor directly.

PROJECT SIZE
< \$1,000,000
\$1,000,001 - \$5,000,000
\$5,000,001 - \$20,000,000
\$20,000,001 - \$50,000,000
\$50,000,001 - \$100,000,000
\$100,000,001 - \$500,000,000
> \$500,000,000

For more information:

<http://www.denvergov.org/content/denvergov/en/contract-administration/bidding-process.html>

**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.

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

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

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 Division of Small Business Opportunity (DSBO). 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.

B. 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 Office of Contract Compliance 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.

C. 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.

D. 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**

CONTRACT NO. 201734070

Mill Levy 7B Package

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

**W.L. CONTRACTORS, INC.
5920 Lamar Street
Arvada, Colorado 80003**

WITNESSETH, Commencing on **April 13, 2017**, 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:

CONTRACT NO. 201734070

Mill Levy 7B Package

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
Commitment to M/WBE Participation
Article III, Divisions 1, 2, and 3 of Chapter 28, D.R.M.C.
Bid Bond
Addenda (as applicable)*

Equal Employment Opportunity Provisions (Appendix A and Appendix F)
Bid Form
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 202-00039 through 700-70592 (Eighty Two (82) Total bid items)**, the total estimated cost thereof being **One Million Two Hundred Fifty Four Thousand Sixty Eight Dollars and Thirty Cents (\$1,254,068.30)**. 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. COMPLIANCE WITH M/WBE REQUIREMENT

This Contract is subject to all applicable provisions of Divisions 1 and 3 of Article III, of Chapter 28, Denver Revised Municipal Code (D.R.M.C.), designated as Sections 28-31 – 28-36 and 28-52 – 28-90 D.R.M.C. and referred to in this Contract as the "M/WBE Ordinance". Without limiting the general applicability of the foregoing, the Contractor acknowledges its continuing duty, pursuant to Sections 28-72, 28-73 and 28-75 of the D.R.M.C., to maintain throughout the duration of this Contract, compliance with the level of minority and Woman business enterprise participation, upon which the City approved the award of this Contract to the Contractor and the Contractor further acknowledges that failure to maintain such participation commitments or otherwise comply with the requirements of the M/WBE Ordinance shall subject the

Contractor to sanctions in accordance with Section 28-77 of the D.R.M.C. Nothing contained in this provision or in the M/WBE Ordinance shall negate the City's right to prior approval of subcontractors, or substitutes therefore, under this Contract

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 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., or, as applicable, Section 28-33 D.R.M.C. for Minority and Woman Business Enterprise disputes. 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.

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 _____



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: 201734070

Vendor Name: W.L. Contractors, Inc.

By: Toni Ann Winkler

Name: Toni Ann Winkler
(please print)

Title: President
(please print)

ATTEST: [if required]

By: Larry Winkler

Name: Larry Winkler
(please print)

Title: Secretary
(please print)



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

General Contract Conditions

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CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

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.

Transportation Standards and Details for the Engineering Division

City and County of Denver Traffic Standard Drawings

Wastewater Management Division

– *Standard Detail Drawings*

– *Public Works Wastewater Capital Projects Management Standard Construction 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: <https://www.denvergov.org/content/denvergov/en/contract-administration/contractor-resources.html>. *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 DEPUTY MANAGER / CITY ENGINEER

General condition 109 DEPUTY MANAGER is hereby deleted in its entirety and replaced with the following:

The “Deputy Manager” means the official who reports directly to the Manager and exercises supervisory responsibility in the City agency defined in Title 2 herein that is responsible for the Project. The Manager hereby designates the City Engineer as the Deputy Manager for purposes of this Contract. The City Engineer shall have responsibility for this Project and shall undertake all duties, responsibilities, rights and authority, including specific actions and decisions, delegated to the Deputy Manager under the various terms and conditions of this Contract.

SC-3 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 other 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-4 WASTEWATER MANAGEMENT DIVISION

The Wastewater Management Division is a unit of the Department of Public Works and is supervised by the Deputy Manager of Public Works for Wastewater Management, who is subordinate to the Manager of Public Works. This Division is responsible for the operation and maintenance of the City's wastewater facilities.

SC-5 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 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 City Engineer 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>
City Project Manager	Rebecca LaFond	(720) 865-3117
<u>Consultant</u>	<u>Name</u>	<u>Telephone</u>
Design Consultant		Consultant Contact
Apex Design		(303) 945-2356

SC-6 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-7 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-8 RESERVED

SC-9 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	Rebecca LaFond	(720) 865-3117

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.
4. Applications for Payment must be accompanied by completed Partial or Final Claim Release Form, as appropriate, from EACH subcontractor and supplier, **AND** the Contractors' Certification of Payment Form (CCP), unless an exception is approved pursuant to General contract condition 907.

The forms, Final/Partial Release and Certificate of Payment (Subcontractor/Supplier) and the Contractor's Certification of Payment (CCP), both of which must be used are attached below. If subcontractor or supplier payments are disbursed via Textura® CPM, those systems generated Release and CCP forms are acceptable.

**DEPARTMENT OF PUBLIC WORKS
Engineering Division**

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

(PROJECT NO. and NAME)	Date: _____, 20__.
(NAME OF CONTRACTOR)	Subcontract #: _____.
(NAME OF SUBCONTRACTOR/SUPPLIER)	Subcontract Value: \$ _____.
Check Applicable Box:	Last Progress Payment: \$ _____.
<input type="checkbox"/> MBE <input type="checkbox"/> WBE	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 save 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) ss. 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
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. Please complete an additional CCP if there is second tier-ing involved.

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/E/DBEs use the exact name listed in the DSBO Directory.

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

Rev 031816

SC-10 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)
3. Final/Partial Lien Release.

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-11 CONSTRUCTION INSPECTION BY THE CITY

General Condition 1701, CONSTRUCTION INSPECTION BY THE CITY, is modified as follows:

.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-12 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-13 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-14 WAIVER OF: PART 8 OF ARTICLE 20 OF TITLE 13, COLORADO REVISED STATUTES.

The Contractor specifically waives all the provisions of Part 8 of Article 20 of Title 13, Colorado Revised Statutes regarding defects in the Work under this Construction Contract.

SC-15 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-16 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) 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-17 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 W.L. Contractors, Inc., 5920 Lamar Street, Arvada, Colorado 80003, a corporation organized and existing under and by virtue of the laws of the State of Colorado, hereafter referred to as the "Contractor", and Liberty Mutual Insurance Company, a corporation organized and existing under and by virtue of the laws of the State of Massachusetts, 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 Two Hundred Fifty Four Thousand Sixty Eight Dollars and Thirty Cents (\$1,254,068.30), 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. 201734070 MILL LEVY 7B PACKAGE**, 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;

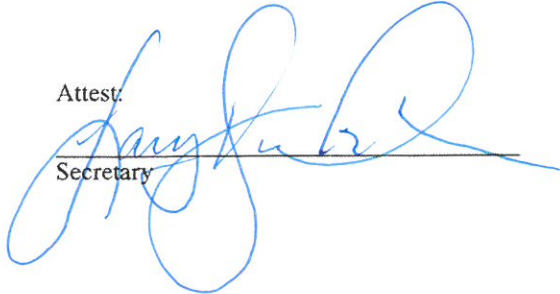
PROVIDED FURTHER, that if the said Contractor shall satisfy all claims and demands incurred by the Contractor in the performance of said Contract, and shall fully indemnify and save harmless the City from all damages, claims, demands, expense and charge of every kind (including claims of patent infringement) 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;

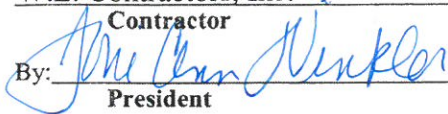
PROVIDED FURTHER, that if said Contractor shall at all times promptly make payments of all amounts lawfully due to all persons supplying or furnishing it or its subcontractors with labor and materials, rental machinery, tools or equipment used or performed in the prosecution of work provided for in the 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;

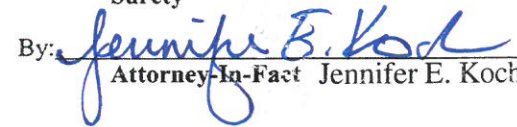
PROVIDED FURTHER, that if the said Contractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, provender, gasoline, lubricating oils, fuel oils, grease, coal, or any other supplies or materials used or consumed by said Contractor or its subcontractors in performance of the 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;

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 June, 2017

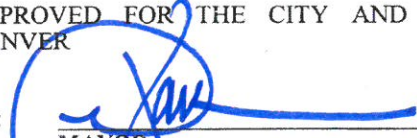
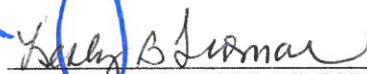
Attest:

Secretary

W.L. Contractors, Inc.
Contractor
By: 
President

Liberty Mutual Insurance Company
Surety
By: 
Attorney-In-Fact Jennifer E. Koch

(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: 
Assistant City Attorney

APPROVED FOR THE CITY AND COUNTY OF
DENVER
By: 
MAYOR
By: 
INTERIM EXECUTIVE DIRECTOR OF PUBLIC
WORKS

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7397070

American Fire and Casualty Company
The Ohio Casualty Insurance Company

Liberty Mutual Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Andrew W. Denlinger; Fred R. Lautenbach; Jennifer E. Koch; Sharon L. Disterlic

all of the city of Littleton, state of CO each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 17th day of June, 2016.



American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 17th day of June, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute 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 have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this _____ day of _____, 20_____.



By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



INSURANCE AGENCY, LLC

"Service is the Difference"

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

Assistant City Attorney
201 W. Colfax Ave. Dept. 1207
Denver, CO 80202

Re: W. L. Contractors, Inc.

Contract No.: 201734070
Project Name: Mill Levy 7B Package
Contract Amount: \$1,254,068.30
Performance & Payment Bond No.: 906005366

Dear Assistant City Attorney:

The Performance and Payment Bonds covering the above captioned project were executed by this agency, through Liberty Mutual Insurance Company, on June 6, 2017.

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,

Jennifer E. Koch
Attorney-in-fact





CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

6/6/2017

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 Lautenbach Insurance Agency, LLC 5721 S. Nevada St. Littleton, CO 80120	CONTACT NAME: Fred Lautenbach PHONE (A/C, No, Ext): (303) 798-2534 E-MAIL ADDRESS: fred@lautenbachinsurance.com	FAX (A/C, No): (303) 798-2536
	INSURER(S) AFFORDING COVERAGE	
INSURED W. L. Contractors, Inc. 5920 Lamar St. Arvada, CO 80003	INSURER A: Travelers Property Casualty Co.	NAIC # 25674
	INSURER B: Liberty Mutual Insurance	NAIC # 23043
	INSURER C:	
	INSURER D:	
	INSURER E:	

COVERAGES

CERTIFICATE NUMBER: Certificate 2017-2018

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 SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:		DT-CO-7B904627-PHX-17	05/01/2017	05/01/2018	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 Employee Benefits \$ 1,000,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS		DT-810-7B904627-TIL-17	05/01/2017	05/01/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ Hired/borrowed \$ 1,000,000
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10,000		CUP-4J513886-17-26	05/01/2017	05/01/2018	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input checked="" type="checkbox"/> N <input type="checkbox"/> N/A	DTSUB-7F30998-6-17	01/01/2017	01/01/2018	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	Leased and Rented Equipment		QT-660-1H850054-COF-17	05/01/2017	05/01/2018	Limit: \$50,000 Ded. \$1,000
B	Installation Floater		01-CI-307344-8	01/01/2017	01/01/2018	Limit: \$1,000,000 Transit \$10,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
 City and County of Denver, its elected and appointed officials, employees and volunteers are listed as Additional Insured with regards to the General Liability and Automobile Liability. A Waiver of Subrogation applies to all policies in favor of the City and County of Denver.
 Re: Contract No. 201734070; Mill Levy 7B
 WL Job No. 10057

CERTIFICATE HOLDER**CANCELLATION**

City and County of Denver Department of Public Works 201 West Colfax Avenue Dept. 608 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 Fred Lautenbach/JENN
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**PERFORMANCE AND PAYMENT BOND
SURETY AUTHORIZATION
(SAMPLE)**

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

Assistant City Attorney
201 W. Colfax Ave. Dept 1207
Denver, Colorado 80202

RE: (Company name)

Contract No: 201734070
Project Name: Mill Levy 7B Package
Contract Amount:
Performance and Payment Bond No.:

Dear Assistant City Attorney,

The Performance and Payment Bonds covering the above captioned project were executed by this agency, through _____ insurance company, on _____, 20__.

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 at _____.

Thank you.

Sincerely,

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

311 | POCKETGOV.COM | DENVERGOV.ORG | DENVER 8 TV



NOTICE OF APPARENT LOW BIDDER
(SAMPLE)

Current Date

To:

Gentlemen:

The MANAGER OF PUBLIC WORKS has considered the Bids submitted on May 25, 2017 for work to be done and materials to be furnished in and for:

PROJECT No. 201734070 MILL LEVY 7B PACKAGE

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 614, Denver, Colorado 80202, to receive the said Contract Documents, execute the same and return them to the Department of Public Works, Finance and Administration, 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. Insurance Certificates: General Liability and Automotive Liability, Workman's Compensation and Employer Liability; or any other coverage required by the contract; and
- b. One original plus four copies of the Power of Attorney relative to Performance and/or Payment Bond;

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. 201734070

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

Executive Director of Public Works

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

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Current Date

**NOTICE TO PROCEED
(SAMPLE)**

Name
Company
Street
City/State/Zip

CONTRACT NO. 201734070, MILL LEVY 7B PACKAGE

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 _____ with the work of constructing contract number 201734070, as set forth in detail in the contract documents for the City and County of Denver.

With a contract time of _____ 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.

Sincerely,

Lesley B. Thomas
City Engineer

cc:

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

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Certificate of Contract Release
(SAMPLE)

Date

Name
Company
Street
City/State/Zip

RE: Certificate of Contract Release for
201734070, MILL LEVY 7B PACKAGE

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.

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

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CITY AND COUNTY OF DENVER
STATE OF COLORADO



Department of Public Works

Addenda

Contract Number: 201734070



Mill Levy 7B

April 13, 2017

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

CONTRACT NO: 201734070
PROJECT NAME: Mill Levy 7B

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:

BID FORM PACKAGE

1. Replace existing sheets BF-6.1 through BF-7 with attached ADD #1 – BF-6.1 through BF-7.

BID DOCUMENT PACKAGE

1. Replace existing sheets SQ-1 through SQ-5 with ADD #1 – SQ-1 through SQ-5
2. Replace existing sheet BDP-27 with sheet ADD #1 BDP-27.

TECHNICAL SPECIFICATION

1. Addition to Section 614 – Accessible Pedestrian Signal. Add Sheets ADD #1 55A - 55D.

Q1. Since the City is ordering all the poles and mast arms for the project, will the city also be ordering "touch up paint" from the manufacture? Will the city be responsible for coordinating with the manufacture if the poles are delivered damaged?

A1. The City will not be ordering "touch up paint" for the poles and mast arms. The city will not will be responsible for coordinating with the manufacturer if poles and mast arms are deemed damaged upon delivery.

Q2. On print page 38, note 2 refers to "Accessible Pedestrian Signal" for the intersection of Alameda Ave. and Cherokee St. However, the Specifications only list the requirements of a standard push button. Does the city have a preference or certain requirements for an Audible Push button?

A2. The City does have specifications for Accessible Pedestrian Signals, these will be provided in the Addenda.

Q3. Will the City confirm that there are no trees to be removed or trimmed?

A3. No trees shall be removed or trimmed and should be protected per Forestry Standards and Specifications throughout demolition and construction.

Q4. Is there a plan in place at the intersections of E. Evans and Dahlia St and Evans and Holly St, for Xcel to lower the existing overhead power lines?

A4. The City is currently working on the design with Xcel to underground utilities along Evans Ave at Dahlia St and Holly St. The contractor shall coordinate with Xcel and should anticipate installing the caissons before Xcel's undergrounding work.

Q5. It is shown on the prints that all traffic signal poles will be full height (meeting CCD requirements) with Luminaire extension arms and luminaire fixtures. With the luminaires being part of "traffic signal pole install only" pay item, are we to assume that all intersection poles will not be modified and all luminaire extensions and fixtures will be installed?

A5. The luminaires will be included as a bid item in the Addenda, intersection poles will not be modified and all luminaire extensions and fixtures will be installed.

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

Lesley B. Thomas

Lesley B. Thomas
City Engineer

5/17/17
Date

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

Contractor

ADDENDUM NO. 1

DATE: _____

Item No.	Description and Price	Estimated Quantity	Estimated Cost
202-00039	Removal of Bollard at the unit price of \$ _____ per EACH.	5 EACH	\$ _____
202-00195	Removal of Median Cover at the unit price of \$ _____ per SQUARE YARD.	8 SY	\$ _____
202-00200	Removal of Sidewalk at the unit price of \$ _____ per SQUARE YARD.	368 SY	\$ _____
202-00203	Removal of Curb and Gutter at the unit price of \$ _____ per LINEAR FOOT.	686 LF	\$ _____
202-00206	Removal of Concrete Curb Ramp at the unit price of \$ _____ per SQUARE YARD.	163 SY	\$ _____
202-00210	Removal of Concrete Pavement at the unit price of \$ _____ per SQUARE YARD.	147 SY	\$ _____
202-00220	Removal of Asphalt Mat at the unit price of \$ _____ per SQUARE YARD.	59 SY	\$ _____
202-00810	Removal of Ground Sign at the unit price of \$ _____ per EACH.	3 EACH	\$ _____
202-00828	Removal of Traffic Signal Equipment at the unit price of \$ _____ per LUMP SUM.	1 LS	\$ _____
203	Potholing at the unit price of \$ _____ per EACH.	120 EACH	\$ _____
208-00002	Erosion Log (12 Inch) at the unit price of \$ _____ per LINEAR FOOT.	200 LF	\$ _____
208-00035	Aggregate Bag at the unit price of \$ _____ per LINEAR FOOT.	500 LF	\$ _____
208-00045	Concrete Washout Structure at the unit price of \$ _____ per EACH.	4 EACH	\$ _____

Item No.	Description and Price	Estimated Quantity	Estimated Cost
208-00051	Storm Drain Inlet Protection (Type 1) at the unit price of \$ _____ per LINEAR FOOT.	40 LF	\$ _____
208-00052	Storm Drain Inlet Protection (Type 2) at the unit price of \$ _____ per LINEAR FOOT.	40 LF	\$ _____
208-00103	Removal and Disposal of Sediment (Labor) at the unit price of \$ _____ per HOUR.	240 HOUR	\$ _____
208-00105	Removal and Disposal of Sediment (Equipment) at the unit price of \$ _____ per HOUR.	240 HOUR	\$ _____
208-00106	Sweeping (Sediment Removal) at the unit price of \$ _____ per HOUR.	48 HOUR	\$ _____
208-00205	Erosion Control Supervisor at the unit price of \$ _____ per HOUR.	240 HOUR	\$ _____
210-00890	Reset Intersection Detection System (Camera) at the unit price of \$ _____ per EACH.	1 EACH	\$ _____
210-04010	Adjust Manhole at the unit price of \$ _____ per EACH.	1 EACH	\$ _____
210	Reset Spread Spectrum Radio at the unit price of \$ _____ per EACH.	1 EACH	\$ _____
210	Reset Trash Receptacle at the unit price of \$ _____ per EACH.	2 EACH	\$ _____
304-06000	Aggregate Base Course (Class 6) at the unit price of \$ _____ per TON.	44 TON	\$ _____
403-00721	Hot Mix Asphalt (Patching) (Asphalt) at the unit price of \$ _____ per SQUARE YARD.	2 SY	\$ _____


Item No.	Description and Price	Estimated Quantity	Estimated Cost
412-00800	Concrete Pavement (8 Inch) at the unit price of \$ _____ per SQUARE YARD.	145 SY	\$ _____
503-00036	Drilled Caisson (36 Inch) at the unit price of \$ _____ per LINEAR FOOT.	122 LF	\$ _____
503	Vacuumed Caisson (36 Inch) at the unit price of \$ _____ per LINEAR FOOT.	101 LF	\$ _____
504	Landscape Wall at the unit price of \$ _____ per LINEAR FOOT.	64 LF	\$ _____
607-11525	Fence (Plastic) at the unit price of \$ _____ per LINEAR FOOT.	400 LF	\$ _____
608-00006	Concrete Sidewalk (6 Inch) at the unit price of \$ _____ per SQUARE YARD.	449 SY	\$ _____
608-00010	Concrete Curb Ramp at the unit price of \$ _____ per SQUARE YARD.	191 SY	\$ _____
609-21020	Curb and Gutter Type 2 (Section II-B) at the unit price of \$ _____ per LINEAR FOOT.	690 LF	\$ _____
613-00206	2 Inch Electrical Conduit (Bored) at the unit price of \$ _____ per LINEAR FOOT.	1,545 LF	\$ _____
613-00306	3 Inch Electrical Conduit (Bored) at the unit price of \$ _____ per LINEAR FOOT.	2,650 LF	\$ _____
613-07000	Pull Box (Special) at the unit price of \$ _____ per EACH.	2 EACH	\$ _____
613-10000	Wiring at the unit price of \$ _____ per LUMP SUM.	1 LS	\$ _____
613	Electrical Meter Pedestal Cabinet and Base at the unit price of \$ _____ per EACH.	4 EACH	\$ _____

Item No.	Description and Price	Estimated Quantity	Estimated Cost
614-00011	Sign Panel (Class I) at the unit price of \$ _____ per SQUARE FOOT.	241 SF	\$ _____
614-00020	Luminaire (5300 LED) at the unit price of \$ _____ per EACH	16 EA	\$ _____
614-00035	Sign Panel (Special) at the unit price of \$ _____ per SQUARE FOOT.	188 SF	\$ _____
614-00216	Steel Sign Post (2x2 Inch Tubing) at the unit price of \$ _____ per LINEAR FOOT.	40 LF	\$ _____
614-70150	Pedestrian Signal Face (16) (Countdown) at the unit price of \$ _____ per EACH.	32 EACH	\$ _____
614-70200	Accessible Pedestrian Signal at the unit price of \$ _____ per EACH.	8 EACH	\$ _____
614-70336	Traffic Signal Face (12-12-12) at the unit price of \$ _____ per EACH.	62 EACH	\$ _____
614-70448	Traffic Signal Face (12-12-12-12) at the unit price of \$ _____ per EACH.	10 EACH	\$ _____
614-72855	Traffic Signal Controller Cabinet (Install Only) at the unit price of \$ _____ per EACH.	4 EACH	\$ _____
614-72860	Pedestrian Push Button at the unit price of \$ _____ per EACH.	24 EACH	\$ _____
614-72866	Fire Preemption Unit and Timer at the unit price of \$ _____ per EACH.	4 EACH	\$ _____
614-72886	Intersection Detection System (Camera) at the unit price of \$ _____ per EACH.	16 EACH	\$ _____

Item No.	Description and Price	Estimated Quantity	Estimated Cost
614-81125	Traffic Signal-Light Pole Steel (1-25 Mast Arm) (Install Only) at the unit price of \$ _____ per EACH.	1 EACH	\$ _____
614-81130	Traffic Signal-Light Pole Steel (1-30 Mast Arm) (Install Only) at the unit price of \$ _____ per EACH.	3 EACH	\$ _____
614-81135	Traffic Signal-Light Pole Steel (1-35 Mast Arm) (Install Only) at the unit price of \$ _____ per EACH.	7 EACH	\$ _____
614-81140	Traffic Signal-Light Pole Steel (1-40 Mast Arm) (Install Only) at the unit price of \$ _____ per EACH.	2 EACH	\$ _____
614-81145	Traffic Signal-Light Pole Steel (1-45 Mast Arm) (Install Only) at the unit price of \$ _____ per EACH.	1 EACH	\$ _____
614-81150	Traffic Signal-Light Pole Steel (1-50 Mast Arm) (Install Only) at the unit price of \$ _____ per EACH.	1 EACH	\$ _____
614-81155	Traffic Signal-Light Pole Steel (1-55 Mast Arm) (Install Only) at the unit price of \$ _____ per EACH.	1 EACH	\$ _____
614-84100	Traffic Signal Pedestal Pole Aluminum at the unit price of \$ _____ per EACH.	24 EACH	\$ _____
614-86105	Telemetry (Field) at the unit price of \$ _____ per EACH.	4 EACH	\$ _____
622-00066	Sign Panel (Install Only) at the unit price of \$ _____ per EACH.	2 EACH	\$ _____
625-00000	Construction Surveying at the unit price of \$ _____ per LUMP SUM.	1 LS	\$ _____

Item No.	Description and Price	Estimated Quantity	Estimated Cost
626-00000	Mobilization at the unit price of \$ _____ per LUMP SUM.	1 LS	\$ _____
627-00005	Epoxy Pavement Marking at the unit price of \$ _____ per GALLON.	12 GAL	\$ _____
627-00070	Preformed Thermoplastic Pavement Marking at the unit price of \$ _____ per SQUARE FOOT.	3,205 SF	\$ _____
630-00000	Flagging at the unit price of \$ _____ per HOUR.	480 HOUR	\$ _____
630-00003	Uniformed Traffic Control at the unit price of \$ _____ per HOUR.	160 HOUR	\$ _____
630-00007	Traffic Control Inspection at the unit price of \$ _____ per DAY.	48 DAY	\$ _____
630-00012	Traffic Control Management at the unit price of \$ _____ per DAY.	104 DAY	\$ _____
630-80335	Barricade (Type 3 M-A) (Temporary) at the unit price of \$ _____ per EACH.	10 EACH	\$ _____
630-80341	Construction Traffic Sign (Panel Size A) at the unit price of \$ _____ per EACH.	56 EACH	\$ _____
630-80342	Construction Traffic Sign (Panel Size B) at the unit price of \$ _____ per EACH.	32 EACH	\$ _____
630-80355	Portable Message Sign Panel at the unit price of \$ _____ per EACH.	2 EACH	\$ _____
630-80356	Advance Warning Flashing or Sequencing Arrow Panel (A TY) at the unit price of \$ _____ per EACH.	2 EACH	\$ _____


Item No.	Description and Price	Estimated Quantity	Estimated Cost
630-80360	Drum Channelizing Device at the unit price of \$ _____ per EACH.	100 EACH	\$ _____
630-80380	Traffic Cone at the unit price of \$ _____ per EACH.	200 EACH	\$ _____
630-85041	Mobile Attenuator at the unit price of \$ _____ per DAY.	10 DAY	\$ _____
700-70010	Minor Contract Revisions Allowance at the unit price of \$25,000.00	ALLOWANCE	\$ <u>25,000.00</u>
700-70082	Furnish & Install Electrical Service Allowance at the unit price of \$20,000.00	ALLOWANCE	\$ <u>20,000.00</u>
700-70310	Landscaping Allowance at the unit price of \$8,000.00	ALLOWANCE	\$ <u>8,000.00</u>
700-70380	Erosion Control Allowance at the unit price of \$5,000.00	ALLOWANCE	\$ <u>5,000.00</u>
700-70589	Environmental Health and Safety Management Allowance at the unit price of \$5,000.00	ALLOWANCE	\$ <u>5,000.00</u>
700-70592	Survey Monumentation Allowance at the unit price of \$15,000.00	ALLOWANCE	\$ <u>15,000.00</u>



DENVER
THE MILE HIGH CITY
CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES


Item No.	Description	Estimated Quantity	
202-00039	Removal of Bollard	5	EACH
202-00195	Removal of Median Cover	8	SY
202-00200	Removal of Sidewalk	368	SY
202-00203	Removal of Curb and Gutter	686	LF
202-00206	Removal of Concrete Curb Ramp	163	SY
202-00210	Removal of Concrete Pavement	147	SY
202-00220	Removal of Asphalt Mat	59	SY
202-00810	Removal of Ground Sign	3	EACH
202-00828	Removal of Traffic Signal Equipment	1	LS
203	Potholing	120	EACH
208-00002	Erosion Log (12 Inch)	200	LF
208-00035	Aggregate Bag	500	LF
208-00045	Concrete Washout Structure	4	EACH
208-00051	Storm Drain Inlet Protection (Type 1)	40	LF
208-00052	Storm Drain Inlet Protection (Type 2)	40	LF
208-00103	Removal and Disposal of Sediment (Labor)	240	HOUR
208-00105	Removal and Disposal of Sediment (Equipment)	240	HOUR
208-00106	Sweeping (Sediment Removal)	48	HOUR
208-00205	Erosion Control Supervisor	240	HOUR



DENVER
THE MILE HIGH CITY
CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES


Item No.	Description	Estimated Quantity	
210-00890	Reset Intersection Detection System (Camera)	1	EACH
210-04010	Adjust Manhole	1	EACH
210	Reset Spread Spectrum Radio	1	EACH
210	Reset Trash Receptacle	2	EACH
304-06000	Aggregate Base Course (Class 6)	44	TON
403-00721	Hot Mix Asphalt (Patching) (Asphalt)	2	SY
412-00800	Concrete Pavement (8 Inch)	145	SY
503-00036	Drilled Caisson (36 Inch)	122	LF
503	Vacuumed Caisson (36 Inch)	101	LF
504	Landscape Wall	64	LF
607-11525	Fence (Plastic)	400	LF
608-00006	Concrete Sidewalk (6 Inch)	449	SY
608-00010	Concrete Curb Ramp	191	SY
609-21020	Curb and Gutter Type 2 (Section II-B)	690	LF
613-00206	2 Inch Electrical Conduit (Bored)	1,545	LF
613-00306	3 Inch Electrical Conduit (Bored)	2,650	LF
613-07000	Pull Box (Special)	2	EACH
613-10000	Wiring	1	LS
613	Electrical Meter Pedestal Cabinet and Base	4	EACH



DENVER
THE MILE HIGH CITY
CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES


Item No.	Description	Estimated Quantity	
614-00011	Sign Panel (Class I)	241	SF
614-00020	Luminaire (5300 LED)	16	EA
614-00035	Sign Panel (Special)	188	SF
614-00216	Steel Sign Post (2x2 Inch Tubing)	40	LF
614-70150	Pedestrian Signal Face (16) (Countdown)	32	EACH
614-70200	Accessible Pedestrian Signal	8	EACH
614-70336	Traffic Signal Face (12-12-12)	62	EACH
614-70448	Traffic Signal Face (12-12-12-12)	10	EACH
614-72855	Traffic Signal Controller Cabinet (Install Only)	4	EACH
614-72860	Pedestrian Push Button	24	EACH
614-72866	Fire Preemption Unit and Timer	4	EACH
614-72886	Intersection Detection System (Camera)	16	EACH
614-81125	Traffic Signal-Light Pole Steel (1-25 Mast Arm) (Install Only)	1	EACH
614-81130	Traffic Signal-Light Pole Steel (1-30 Mast Arm) (Install Only)	3	EACH
614-81135	Traffic Signal-Light Pole Steel (1-35 Mast Arm) (Install Only)	7	EACH
614-81140	Traffic Signal-Light Pole Steel (1-40 Mast Arm) (Install Only)	2	EACH
614-81145	Traffic Signal-Light Pole Steel (1-45 Mast Arm) (Install Only)	1	EACH



DENVER
THE MILE HIGH CITY
CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES

Item No.	Description	Estimated Quantity	
614-81150	Traffic Signal-Light Pole Steel (1-50 Mast Arm) (Install Only)	1	EACH
614-81155	Traffic Signal-Light Pole Steel (1-55 Mast Arm) (Install Only)	1	EACH
614-84100	Traffic Signal Pedestal Pole Aluminum	24	EACH
614-86105	Telemetry (Field)	4	EACH
622-00066	Sign Panel (Install Only)	2	EACH
625-00000	Construction Surveying	1	LS
626-00000	Mobilization	1	LS
627-00005	Epoxy Pavement Marking	12	GAL
627-00070	Preformed Thermoplastic Pavement Marking	3,205	SF
630-00000	Flagging	480	HOUR
630-00003	Uniformed Traffic Control	160	HOUR
630-00007	Traffic Control Inspection	48	DAY
630-00012	Traffic Control Management	104	DAY
630-80335	Barricade (Type 3 M-A) (Temporary)	10	EACH
630-80341	Construction Traffic Sign (Panel Size A)	56	EACH
630-80342	Construction Traffic Sign (Panel Size B)	32	EACH
630-80355	Portable Message Sign Panel	2	EACH
630-80356	Advance Warning Flashing or Sequencing Arrow Panel (A TY)	2	EACH



DENVER
 THE MILE HIGH CITY
 CITY AND COUNTY OF DENVER
 DEPARTMENT OF PUBLIC WORKS

STATEMENT OF QUANTITIES

Item No.	Description	Estimated Quantity	
630-80360	Drum Channelizing Device	100	EACH
630-80380	Traffic Cone	200	EACH
630-85041	Mobile Attenuator	10	DAY
700-70010	Minor Contract Revisions Allowance	1	N/A
700-70082	Furnish & Install Electrical Service Allowance	1	N/A
700-70310	Landscaping Allowance	1	N/A
700-70380	Erosion Control Allowance	1	N/A
700-70589	Environmental Health and Safety Management Allowance	1	N/A
700-70592	Survey Monumentation Allowance	1	N/A

Equal Employment Opportunity Provisions (Appendix A and Appendix F)
Bid Form
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 202-00039 through 700-70592 (Eighty Two (82) Total bid items)**, the total estimated cost thereof being **(\$ _____)**. 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. COMPLIANCE WITH M/WBE REQUIREMENT

This Contract is subject to all applicable provisions of Divisions 1 and 3 of Article III, of Chapter 28, Denver Revised Municipal Code (D.R.M.C.), designated as Sections 28-31 – 28-36 and 28-52 – 28-90 D.R.M.C. and referred to in this Contract as the "M/WBE Ordinance". Without limiting the general applicability of the foregoing, the Contractor acknowledges its continuing duty, pursuant to Sections 28-72, 28-73 and 28-75 of the D.R.M.C., to maintain throughout the duration of this Contract, compliance with the level of minority and Woman business enterprise participation, upon which the City approved the award of this Contract to the Contractor and the Contractor further acknowledges that failure to maintain such participation commitments or otherwise comply with the requirements of the M/WBE Ordinance shall subject the Contractor to sanctions in accordance with Section 28-77 of the D.R.M.C. Nothing contained in this

**REVISION OF SECTION 614
ACCESSIBLE PEDESTRIAN SIGNAL**

Section 614 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

This work consists of the construction of an accessible pedestrian signal at locations as shown on the plans.

MATERIALS

The Accessible Pedestrian Signal (APS) shall be an audible-tactile pedestrian signal system and shall consist of all electronic control equipment, mounting hardware, push buttons and signs designed to provide both a pushbutton with a raised, vibrating tactile arrow on the button as well as a variety of audible indications for differing pedestrian signal functions.

The APS shall meet the following requirements:

- (1) 2009 Manual of Uniform Traffic Control Devices (MUTCD), Chapter 4E – Pedestrian Control Features.
- (2) NEMA TS 2 Section 2.1 requirements for Temperature and Humidity, Transient Voltage Protection and Mechanical Shock and Vibration.
- (3) IEC 61000-4-4; 4-5 Transient Suppression requirements.
- (4) FCC Title 47, Part 15, Class A, Electronic Noise requirements.

The APS pushbutton enclosure shall meet the NEMA 250 – Type 4X enclosure requirement.

Upon installation the APS shall have the following functional requirements:

(a) *APS functional requirements.* The APS shall have the following functional features:

- (1) The APS shall be programmable and adjustable. Programming and adjustments shall be made using a laptop computer or vendor supplied programmer. No additional hardware or equipment shall be required. The APS shall be fully compatible with the three latest versions of the Windows operating platform. The programmable features shall be:
 - A. Push-button locator tone
 - B. Walk and Wait audible message
 - C. Audible push-button informational message
 - D. Audible crossing beacon
 - E. Vibrating tactile arrow
 - F. Independent minimum and maximum volume limits for the Locator Tone, Walk and Audible Beacons features.
- (2) All audible features shall emanate from the pedestrian pushbutton housing. The APS shall utilize digital audio technology, having a minimum 12-bit sample at a 16k Hz sample rate. Total harmonic distortion shall be less than 3 percent at 75 decibels. The APS shall provide independent ambient sound adjustment for the Locator Tone feature. The APS shall allow for Locator Tone volume to be set below the ambient noise level. The system shall have, at a minimum, three programmable locator tones. All sound levels shall adjust automatically utilizing an internally mounted, interval ambient sensing microphone, in accordance with the MUTCD.

**REVISION OF SECTION 614
ACCESSIBLE PEDESTRIAN SIGNAL**

- (3) The APS shall monitor the Walk condition for conflict operation. As a standalone unit, the APS shall disable the Walk functionality should a conflict be detected.
- (4) The APS system shall log cumulative call data. The data shall be date and time stamped, and shall be accessible via laptop.
- (5) The system shall have a programmable Extended Push Activation feature with the ability to extend the Walk time and provide an informational audible message. Activation shall be programmable from one to six seconds.
- (6) The system shall provide a programmable audible Wait message when the button is pushed. The message shall only annunciate once per actuation.

(b) Power Control Unit (PCU):

- (1) The PCU shall be mounted in the pedestrian signal head and shall be powered by the activation of Walk or Don't Walk using 120 Volts Alternating Current (VAC).
- (2) The PCU shall utilize separate power inputs for Walk and Don't Walk. The PCU shall not require more than four wires from the PCU to the corresponding push button.
- (3) The voltage at the push button shall not exceed 24 VAC.

(c) Push Button Assembly (PBA):

- (1) The PBA shall be a single assembly containing an ADA compliant, vibro-tactile, directional arrow button, weatherproof audible speaker and informational sign with optional placard braille messages. The PBA shall housing shall not incorporate any plastic or polycarbonate parts.
- (2) The PBA tactile arrow shall be 2 inches in length and shall be field adjustable to two directions.
- (3) The pushbutton shall utilize Piezo switch technology rated at greater than twenty million operations. Vibro-tactile operation shall pulse at 20 Hz with a minimum 0.003-inch displacement against a 2 pound applied force.
- (4) The PBA assembly shall be capable of mounting on a curved or flat surface utilizing either machine screws or bolts or banding type mounting hardware. The PBA shall accommodate mounting to a minimum 2-inch diameter pole.

CONSTRUCTION REQUIREMENTS

Prior to start of the installation of the APS, The Contractor shall submit a sample unit for testing. Installation of the APS shall not begin until written approval of the sample has been received from the Engineer. If the unit fails to pass testing, the Contractor shall repair or replace the subsequent units at his expense.

**REVISION OF SECTION 614
ACCESSIBLE PEDESTRIAN SIGNAL**

A field test of a single APS shall be performed in the presence of the Engineer. All repairs or replacements required to ensure a fully operational system shall be at the Contractor's expense.

The APS shall be installed in accordance with manufacturer's recommendations.

METHOD OF MEASUREMENT

The Accessible Pedestrian Signal (APS) will be measured as the actual number that are installed and accepted.

**REVISION OF SECTION 614
ACCESSIBLE PEDESTRIAN SIGNAL**

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Accessible Pedestrian Signal	Each

Payment will be full compensation for all work, materials and equipment required to install a fully operational APS in accordance with these specifications.

The sample APS will not be measured and paid for separately, but shall be included in the work.

Testing will not be measured and paid for separately, but shall be included in the work.

CITY AND COUNTY OF DENVER
STATE OF COLORADO



Department of Public Works
Prevailing Wage Rates
Contract Number: 201734070



Mill Levy 7B

April 13, 2017



DENVER
THE MILE HIGH CITY

Career Service Authority

Denver's Human Resource Agency

201 W. Colfax, Department 412

Denver, CO 80202

p: 720.913.5751

f: 720.913.5720

www.denvergov.org/csa

TO: All Users of the City of Denver Prevailing Wage Schedules
FROM: Susan Keller, Human Resources Technician
DATE: Friday, January 27, 2017
SUBJECT: Latest Change to Prevailing Wage Schedules

Please be advised, prevailing wage rates for some building, heavy, and highway construction trades have not been updated by the United States Department of Labor (DOL) since March 1, 2002. The Career Service Authority Board, in their meeting held on April 21, 2011, approved the use of the attached supplemental wage rates until prevailing wage rates for these classifications of work are again published by the United States Department of Labor in accordance with the Davis-Bacon Act.

The effective date for this publication is **Friday, January 27, 2017** and applies to the City and County of Denver for **HIGHWAY CONSTRUCTION PROJECTS** in accordance with the Denver Revised Municipal Code, Section 20-76(c).

General Wage Decision No. CO170019
Superseded General Decision No. CO20160019
Modification No. 1
Publication Date: 1/27/2017
(8 pages)

Unless otherwise specified in this document, apprentices shall be permitted only if they are employed pursuant to, and individually registered in, a bona fide apprenticeship program registered with the U.S. Department of Labor (DOL). The employer and the individual apprentice must be registered in a program, which has received prior approval, by the DOL. Any employer, who employs an apprentice and is found to be in violation of this provision, shall be required to pay said apprentice the full journeyman scale.

For questions call (720) 913-5726.

Attachments as listed above.

General Decision Number: CO170019 01/27/2017 CO19

Superseded General Decision Number: CO20160019

State: Colorado

Construction Type: Highway

Counties: Denver and Douglas Counties in Colorado.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017
1	01/27/2017

* CARP9901-008 11/01/2016

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 25.50	7.47

ELEC0068-016 03/01/2011

	Rates	Fringes
TRAFFIC SIGNALIZATION:		
Traffic Signal Installation		
Zone 1.....	\$ 26.42	4.75%+8.68
Zone 2.....	\$ 29.42	4.75%+8.68

TRAFFIC SIGNAL INSTALLER ZONE DEFINITIONS

Zone 1 shall be a 35 mile radius, measured from the following addresses in each 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
All work outside of these areas shall be paid Zone 2 rates.

ENGI0009-008 10/23/2013

Rates	Fringes
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POWER EQUIPMENT OPERATOR:

(3)-Hydraulic Backhoe (Wheel Mounted, under 3/4 yds), Hydraulic Backhoe (Backhoe/Loader combination), Drill Rig Caisson (smaller than Watson 2500 and similar), Loader (up to and including 6 cu. yd.).....\$ 24.73	9.15
(3)-Loader (under 6 cu. yd.) Denver County.....\$ 24.73	9.15
(3)-Motor Grader (blade- rough) Douglas County.....\$ 24.73	9.15
(4)-Crane (50 tons and under), Scraper (single bowl, under 40 cu. yd).....\$ 24.88	9.15
(4)-Loader (over 6 cu. yd) Denver County.....\$ 24.88	9.15
(5)-Drill Rig Caisson (Watson 2500 similar or larger), Crane (51-90 tons), Scraper (40 cu.yd and over),.....\$ 25.04	9.15
(5)-Motor Grader (blade- finish) Douglas County.....\$ 25.04	9.15
(6)-Crane (91-140 tons).....\$ 25.19	9.15

SUCO2011-004 09/15/2011

	Rates	Fringes
CARPENTER (Excludes Form Work)....\$ 19.27		5.08
CEMENT MASON/CONCRETE FINISHER		
Denver.....\$ 20.18		5.75
Douglas.....\$ 18.75		3.00
ELECTRICIAN (Excludes Traffic Signal Installation).....\$ 35.13		6.83
FENCE ERECTOR (Excludes Link/Cyclone Fence Erection).....\$ 13.02		3.20
GUARDRAIL INSTALLER.....\$ 12.89		3.20
HIGHWAY/PARKING LOT STRIPING:Painter		
Denver.....\$ 12.62		3.21
Douglas.....\$ 13.89		3.21
IRONWORKER, REINFORCING (Excludes Guardrail Installation).....\$ 16.69		5.45
IRONWORKER, STRUCTURAL (Includes Link/Cyclone Fence Erection, Excludes Guardrail		

Installation).....	\$ 18.22	6.01
LABORER		
Asphalt Raker.....	\$ 16.29	4.25
Asphalt Shoveler.....	\$ 21.21	4.25
Asphalt Spreader.....	\$ 18.58	4.65
Common or General		
Denver.....	\$ 16.76	6.77
Douglas.....	\$ 16.29	4.25
Concrete Saw (Hand Held)....	\$ 16.29	6.14
Landscape and Irrigation....	\$ 12.26	3.16
Mason Tender-		
Cement/Concrete		
Denver.....	\$ 16.96	4.04
Douglas.....	\$ 16.29	4.25
Pipelayer		
Denver.....	\$ 13.55	2.41
Douglas.....	\$ 16.30	2.18
Traffic Control (Flagger)...	\$ 9.55	3.05
Traffic Control (Sets Up/Moves Barrels, Cones, Install Signs, Arrow Boards and Place Stationary Flags)(Excludes Flaggers).....		
	\$ 12.43	3.22
PAINTER (Spray Only).....	\$ 16.99	2.87
POWER EQUIPMENT OPERATOR:		
Asphalt Laydown		
Denver.....	\$ 22.67	8.72
Douglas.....	\$ 23.67	8.47
Asphalt Paver		
Denver.....	\$ 24.97	6.13
Douglas.....	\$ 25.44	3.50
Asphalt Roller		
Denver.....	\$ 23.13	7.55
Douglas.....	\$ 23.63	6.43
Asphalt Spreader.....	\$ 22.67	8.72
Backhoe/Trackhoe		
Douglas.....	\$ 23.82	6.00
Bobcat/Skid Loader.....	\$ 15.37	4.28
Boom.....	\$ 22.67	8.72
Broom/Sweeper		
Denver.....	\$ 22.47	8.72
Douglas.....	\$ 22.96	8.22
Bulldozer.....	\$ 26.90	5.59
Concrete Pump.....	\$ 21.60	5.21
Drill		
Denver.....	\$ 20.48	4.71
Douglas.....	\$ 20.71	2.66
Forklift.....	\$ 15.91	4.68
Grader/Blade		
Denver.....	\$ 22.67	8.72
Guardrail/Post Driver.....	\$ 16.07	4.41
Loader (Front End)		
Douglas.....	\$ 21.67	8.22
Mechanic		
Denver.....	\$ 22.89	8.72
Douglas.....	\$ 23.88	8.22
Oiler		

Denver.....	\$ 23.73	8.41
Douglas.....	\$ 24.90	7.67
Roller/Compactor (Dirt and Grade Compaction)		
Denver.....	\$ 20.30	5.51
Douglas.....	\$ 22.78	4.86
Rotomill.....	\$ 16.22	4.41
Screed		
Denver.....	\$ 22.67	8.38
Douglas.....	\$ 29.99	1.40
Tractor.....	\$ 13.13	2.95

TRAFFIC SIGNALIZATION:

Groundsman

Denver.....	\$ 17.90	3.41
Douglas.....	\$ 18.67	7.17

TRUCK DRIVER

Distributor

Denver.....	\$ 17.81	5.82
Douglas.....	\$ 16.98	5.27

Dump Truck

Denver.....	\$ 15.27	5.27
Douglas.....	\$ 16.39	5.27

Lowboy Truck.....\$ 17.25 5.27

Mechanic.....\$ 26.48 3.50

Multi-Purpose Specialty &
Hoisting Truck

Denver.....	\$ 17.49	3.17
Douglas.....	\$ 20.05	2.88

Pickup and Pilot Car

Denver.....	\$ 14.24	3.77
Douglas.....	\$ 16.43	3.68

Semi/Trailer Truck.....\$ 18.39 4.13

Truck Mounted Attenuator....\$ 12.43 3.22

Water Truck

Denver.....	\$ 26.27	5.27
Douglas.....	\$ 19.46	2.58

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

Office of Human Resources
Supplemental rates
(Specific to the Denver Projects)
(Supp 35, Date: 01-13-2012)

<u>Classification</u>		<u>Base</u>	<u>Fringe</u>
Millwrights		\$28.00	\$10.00
Line Construction:			
	Lineman, Gas Fitter/Welder	\$36.88	\$9.55
	Line Eq Operator/Line Truck Crew	\$25.74	\$8.09
Power Equipment Operators (Tunnels Above and Below Ground, shafts and raises):			
	GROUP 1	\$25.12	\$10.81
	GROUP 2	\$25.47	\$10.85
	GROUP 3	\$25.57	\$10.86
	GROUP 4	\$25.82	\$10.88
	GROUP 5	\$25.97	\$10.90
	GROUP 6	\$26.12	\$10.91
	GROUP 7	\$26.37	\$10.94
Power Equipment Operators:			
	GROUP 1	\$22.97	\$10.60
	GROUP 2	\$23.32	\$10.63
	GROUP 3	\$23.67	\$10.67
	GROUP 4	\$23.82	\$10.68
	GROUP 5	\$23.97	\$10.70
	GROUP 6	\$24.12	\$10.71
	GROUP 7	\$24.88	\$10.79
Ironworkers (Ornamental)		\$24.80	\$10.03
Laborers (Removal of Asbestos)		\$21.03	\$8.55
Plumbers		\$30.19	\$13.55
Pipefitters		\$30.45	\$12.85
Truck Drivers:			
	GROUP 1	\$18.42	\$10.00
	GROUP 2	\$19.14	\$10.07
	GROUP 3	\$19.48	\$10.11
	GROUP 4	\$20.01	\$10.16
	GROUP 5	\$20.66	\$10.23
	GROUP 6	\$21.46	\$10.31

POWER EQUIPMENT OPERATOR CLASSIFICATIONS
(TUNNELS ABOVE AND BELOW GROUND, SHAFTS, AND RAISES):

GROUP 1 - Brakeman

GROUP 2 - Motorman

GROUP 3 - Compressor

GROUP 4 - Air Tractors; Grout Machine; Gunnite Machine; Jumbo Form

GROUP 5 - Concrete Placement Pumps; Mucking Machines and Front End Loaders, Underground, Slusher; Mine Hoist Operator; Mechanic

GROUP 6 - Mechanic Welder

GROUP 7 - Mole

NOTE: Any equipment listed below being used in tunnel work, below or above ground shall be paid not less than \$2.00 per hour above the listed wage rates.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1 - Air compressor, brakeman, drill operator -smaller than Watson 2500 and similar, operators of 5 or more light plants, welding machines, generators, single unit conveyor, pumps, vacuum well point system, tractor, under 70 hp with or without attachments compressors, 360 C.F.M. or less

GROUP 2 - Conveyor, handling building materials, ditch witch and similar trenching machine, forklift, haulage motor man, pugmill, portable screening plant with or without a spray bar, screening plants, with classifier, self-propelled roller, rubber-tires under 5 tons.

GROUP 3 - asphalt plant, backfiller; cableway signalman; C.M.I. and similar, concrete batching plants, concrete finish machine, concrete gang saw on concrete paving, concrete mixer, less than 1 yd., under 8 inches, distributors, bituminous surfaces dozer, drill, diamond or core, elevating graders, elevator operator, lubricating and service engineer, grout machine, gunnite machine, hoist, 1 drum, horizontal directional drill operator, hydraulic backhoes; road stabilization machine, sandblasting Machine, single unit portable crusher, with or without washer, Tie tamper, wheel mounted, trenching machine operator, winch on truck.

GROUP 4 - Cable operated power shovels, draglines, articulated truck operator, clamshells, 5 cubic yards and under, concrete mixer over 1 Cubic yard, concrete pavers 34E or similar, grade Checker, hoist, 2 drums, mechanic, mixer mobile, Portable crusher, with or without washer; tractor with sideboom, roto-M ill and similar, welder.

GROUP 5 - Cable operated power shovels, draglines, clamshells and Backhoes over 5 cubic yards, caisson drill Watson 2500 similar or larger, motor grader blade-finish, hoist 3 drum or more.

GROUP 6 - Cableway, derrick, quad nine push unit, wheel excavator, belt or elevating loader.

GROUP 7 - tower cranes all types.

TRUCK DRIVER CLASSIFICATIONS:

GROUP 1 - Greasemen, Servicemen and Ambulance Drivers, Battery Men, Shuttle Truck or Bus, Flat Rack Tandem Axle.

GROUP 2 - Fork Lift Driver, Straddle Truck Driver, Lumber Carrier, Liquid and Bulk Tankers Single Axle, Combination, Euclid Electric or Similar, Specialty and Hoisting, Truck Drivers Fuel Truck, Grease Truck, Combination Fuel and Grease.

GROUP 3 - Truck Driver Snow Plow, Truck Driver Dump or Type Jumbo and similar type equipment.

GROUP 4 - Cement Mixer Agitator Truck over 10 cubic yards to and including 15 cubic yards, Tire Man, Cab Operated Distributor Truck Driver.

GROUP 5 - Heavy Duty Diesel Mechanic, Body Man, Welders or Combination Men.

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

CITY AND COUNTY OF DENVER
STATE OF COLORADO



Department of Public Works
Technical Specifications
Contract Number: 201734070



Mill Levy 7B

April 13, 2017

**CITY AND COUNTY OF DENVER
SPECIAL PROVISIONS
TRAFFIC SIGNAL REBUILD – MILL LEVY 7B PACKAGE
PROJECT NO. 2016-PROJMSTR-0000211**

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

The Standard Construction Specifications for this Project shall consist of the applicable sections and subsections, numbered Section 200 through Section 700, of the “Colorado Department of Transportation Standard Specifications for Road and Bridge Construction” adopted in 2011 and as hereinafter modified. The City and County of Denver, Department of Public Works, “Standard Specifications for Construction General Contract Conditions,” 2011 edition shall prevail over any conflicting sections and subsections of this document.

The following Project Special Provisions supplement or amend the referenced “Standard Specifications for Road and Bridge Construction” adopted in 2011 by the Colorado Department of Transportation.

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 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 follow 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: www.denvergov.org

The Colorado Department of Transportation (CDOT) Special Provisions, Standard Special Provisions are to be used for the project. Use CDOT Project Special Provisions that revise the above described documents, and prevail over above described documents.

**CITY AND COUNTY OF DENVER
SPECIAL PROVISIONS
TRAFFIC SIGNAL REBUILD – MILL LEVY 7B PACKAGE
PROJECT NO. 2016-PROJMSTR-0000211**

The Colorado Department of Transportation’s Standard Specifications for Road and Bridge Construction, dated 2011, controls construction of this project. The following Special Provisions supplement or modify the Standard Specifications and take precedence over the Standard Specifications and Plans.

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CITY AND COUNTY OF DENVER
SPECIAL PROVISIONS
TRAFFIC SIGNAL REBUILD – MILL LEVY 7B PACKAGE
PROJECT NO. 2016-PROJMSTR-0000211

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**CITY AND COUNTY OF DENVER
SPECIAL PROVISIONS
TRAFFIC SIGNAL REBUILD – MILL LEVY 7B PACKAGE
PROJECT NO. 2016-PROJMSTR-0000211**

CDOT STANDARD SPECIAL PROVISIONS

Name	Date	No. of Pages
Revision of Section 106, 627 and 713 – Glass Beads for Pavement Marking	(February 23, 2017)	1
Revision of Section 202, 627 and 708 – Pavement Marking Paint	(May 12, 2016)	3
Revision of Sections 203, 206, 304 and 613 - Compaction	(November 10, 2016)	1
Revision of Sections 206 and 601 – Maturity Meters and Concrete Form and Falsework Removal	(December 18, 2015)	3
Revision of Section 208 – Erosion Control	(September 22, 2016)	23
Revision of Section 250 – Environmental, Health and Safety Management	(January 15, 2015)	14
Revision of Section 401 – Compaction of Hot Mix Asphalt	(April 26, 2012)	1
Revision of Sections 412 – Portland Cement Concrete Pavement Finishing	(February 3, 2011)	1
Revision of Sections 412, 601, and 711 - Liquid Membrane-Forming Compounds for Curing Concrete	(May 5, 2011)	1
Revision of Section 601 – Class B, BZ, D, DT, and P Concrete	(February 18, 2016)	2
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 Slump Acceptance	(October 29, 2015)	1
Revision of Section 601 – Structural Concrete Strength Acceptance	(April 30, 2015)	1
Revision of Sections 601 and 701 – Cements and Pozzolans	(November 6, 2014)	4
Revision of Sections 613 and 715 – LED Roadway Luminaire	(January 30, 2014)	5
Revision of Section 614 – Accessible Pedestrian Signal	(November 1, 2012)	3
Revision of Section 614 – Pedestrian Push Button Assembly	(July 19, 2012)	1
Revision of Sections 614 and 713 – Sign Panel Sheeting	(August 11, 2016)	2
Revision of Section 630 and 713 – Retroreflective Sheeting	(January 12, 2017)	2
Revision of Section 703 - Aggregate for Bases (Without RAP)	(October 31, 2013)	1
Revision of Section 703 – Aggregate for Hot Mix Asphalt	(November 1, 2012)	2
Revision of Section 703 – Classification for Aggregate Base Course	(October 20, 2016)	1
Revision of Section 703 – Concrete Aggregate	(July 28, 2011)	1
Revision of Section 709 – Epoxy Coated Reinforcing Bars	(February 18, 2016)	1
Revision of Section 712 – Water for Mixing or Curing Concrete	(February 3, 2011)	1
Affirmative Action Requirements – Equal Employment Opportunity	(February 3, 2011)	10

**REVISION OF SECTION 202
REMOVAL OF CONCRETE PAVEMENT**

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

In subsection 202.02 delete the seventh paragraph and replace with the following:

The existing concrete pavement, which varies in thickness, shall be removed in a manner that minimizes contamination of the removed concrete with underlying material. The removed pavement shall become the property of the Contractor and be disposed of by any one or more of the following described methods:

1. Use in embankment construction in accordance with subsection 203.06.
2. Place material in bottom of fills as approved by the Engineer.
3. Place material in subgrade soft spots outside of the roadway prism as directed by the Engineer.

Subsection 202.11 shall include the following:

The removal of the existing concrete pavement will be measured by the area, in square yards, completed to the required depth and accepted.

Subsection 202.12 shall include the following:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Removal of Concrete Pavement	Square Yard

**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT**

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

In subsection 202.02 delete the seventh paragraph and replace with the following:

The existing asphalt mat, which varies in thickness, shall be removed in a manner that minimizes contamination of the removed mat with underlying material. The removed mat shall become the property of the Contractor and be disposed of by any one or more of the following described methods:

1. Use in embankment construction in accordance with subsection 203.06.
2. Place material in bottom of fills as approved by the Engineer.
3. Place material in subgrade soft spots outside of the roadway prism as directed by the Engineer.

Subsection 202.11 shall include the following:

The removal of the existing asphalt mat will be measured by the area, in square yards, completed to the required depth and accepted.

Subsection 202.12 shall include the following:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Removal of Asphalt Mat	Square Yard

**REVISION OF SECTION 202
REMOVAL OF PAVEMENT MARKING**

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

In subsection 202.11, delete the second paragraph and add the following:

Removal of pavement marking will not be measured but shall be included in the work. Sandblasting of pavement that is to be covered with pavement marking material will not be measured and paid for separately but shall be included in the cost of the work.

**REVISION OF SECTION 202
REMOVAL OF TRAFFIC SIGNAL EQUIPMENT**

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

Subsection 202.03 shall include the following:

The Contractor shall safeguard any salvageable materials designated by Denver Traffic, and shall be responsible for the expense of repairing or replacing damaged or missing material until it is delivered to the City and County of Denver Traffic Maintenance Yard at 5440 Roslyn Street.

Designation of salvageable equipment and times for delivery of such items shall be coordinated with Denver Traffic (contact Chris Lillie at 720-865-4066 or Greg Salazar at 303-591-7146).

Signal operations shall be maintained at each of the project intersections throughout construction.

Subsection 202.04 shall include the following:

Removal of the traffic signal equipment shall include signal poles (without luminaires), pedestal poles, footings, span wire cable, traffic signal controller and cabinet, pedestrian push button, cabinet footings, all attachment hardware, and all incidental equipment, except as noted on plans. All existing foundations and pull boxes shall be removed and back-filled. All wiring shall be removed from existing conduit and the conduit shall be abandoned in place.

Xcel Energy shall remove all signal poles with luminaires attached. Xcel Energy will remove only the signal pole and luminaire, and the Contractor shall remove the remainder of the traffic signal equipment, as noted in the plans. The Contractor shall coordinate with Xcel Energy for these removals and is referred to the Project Special Revision "Utilities" herein.

All "Light Emitting Diode" (LED) signal lenses in existing signal faces shall be removed prior to the removal of the signal face. These LED lenses shall be protected from damage and delivered to 5440 Roslyn Street, Denver. This work shall be included in the cost of Removal of Traffic Signal Equipment and will not be paid for separately.

Times for delivery to the maintenance yard shall be coordinated with Denver Traffic Engineering Services at (720) 865-4000.

Subsection 202.12 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Removal of Traffic Signal Equipment	Lump Sum

Payment includes all labor, equipment, and materials necessary to complete the work.

**REVISION OF SECTION 203
EXCAVATION AND EMBANKMENT**

Section 203 of the Standard Specifications is hereby revised for this Project to read as follows:

Subsection 203.03 shall include the following:

(c) *Subgrade Preparation.* Subgrade preparation is the preparation of the underlying subgrade directly below and prior to placement of any new subbase, base course layers, pavement, and/or structure.

In Subsection 203.09, third paragraph, delete the first sentence.

Subsection 203.13 Item (f) is hereby deleted in its entirety and replaced with the following:

Proof Rolling. Proof Rolling will not be measured or paid for separately but will be considered incidental to other items in the work.

Subsection 203.13 is hereby revised to include the following:

(g) *Subgrade Preparation.* Subgrade preparation will not be measured or paid for separately, but will be considered incidental to the work item of the overlying structure.

Subsection 203.14 is hereby revised to include the following:

Stockpiling of embankment material utilized for utility backfill will not be measured or paid for separately but shall be considered incidental to other work items.

**REVISION OF SECTION 203
POTHOLING**

Section 203 of the Standard Specification is hereby revised for this project as follows:

Delete Subsection 203.13(e) and replace with the following:

(e) Potholing. Potholing will be measured by each. All other related work, including removal of existing pavement, backfilling, shoring and labor will not be measured and paid for separately, but shall be included in the work. All surface material disturbed by potholing shall be restored in kind in accordance with the provisions of the Standards and Details for the City and County of Denver (Latest Revision).

Subsection 203.14 of the Standard Specifications shall be modified as follows:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Potholing	Each

**REVISION OF SECTION 208
SWEEPING (SEDIMENT REMOVAL)**

Section 208 of the Standard Specification is hereby revised for this project as follows:

Subsection 208.01 shall include the following:

This work is for sweeping paved surfaces during construction as part of the project Best Management Practices (BMP).

Subsection 208.04 shall include the following:

Paved surfaces adjacent to the construction site shall be swept by the close of business day and during the day as needed when sediment and other materials are tracked or discharged onto them. Sweeping shall be completed with a pickup broom or equipment capable of collecting sediment. Sweeping with a kick broom will not be allowed. Street sweepers using water while sweeping is preferred in order to minimize dust. Flushing off paved surfaces with water is prohibited.

Subsection 208.11 shall include the following:

Sweeping, when used as a BMP as shown in the Contract, will be measured by the number of hours that a pickup broom or equipment capable of collecting sediment, authorized by the Engineer, is used to remove sediment from the roadway or other paved surfaces. Each week the Contractor shall submit to the Engineer a statement detailing the type of sweeping equipment used and the number of hours it was used to pick up sediment. Operator will not be measured and paid for separately, but shall be included in the work.

Subsection 208.12 of the Standard Specifications shall be modified as follows:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Sweeping (Sediment Removal)	Hour

Payment for Sweeping shall be full compensation for all work necessary to complete this item.

**REVISION OF SECTION 208
EROSION CONTROL**

Section 208 of the Standard Construction Specifications is hereby removed in its entirety and replaced with the following:

PART I: DEFINITIONS

Definitions used for this Section shall consist of those listed in Title 1 of the City and County of Denver “Standard Specifications for Construction, General Contract Conditions”, 2011 edition.

Definitions used for this Section hereby incorporate those identified within the City and County of Denver Construction Activities Stormwater Manual (CASM).

Additional Definitions applicable to this Section are listed heretofore:

Basis of Payment: The terms under which “Work” is paid, as a designated “Pay Item” in accordance with the quantity measured and the “Pay Unit.”

Best Management Practices (BMPs): Schedules of activities, prohibitions of practices, installation of devices, maintenance procedures, and other management practices deployed to stabilize the construction site to prevent or reduce the pollution of State Waters (see definition below). Stormwater BMPs can be classified as "structural" (i.e., devices installed or constructed on a site) or "non-structural" (procedures, such as modified landscaping practices).

Colorado Department of Health and Environment (CDPHE): State of Colorado, Water Quality Control Division responsible for issuance of State Construction Stormwater Permit.

Construction Activities Stormwater Discharge Permit (CASDP): Permit issued by the City for compliance with City & County of Denver Revised Municipal Code and Department of Public Works Rules & Regulations concerning the discharge of pollutants in storm generated runoff from construction sites to Municipal Separate Storm Sewer System (MS4, see definition below) or State Waters, via the Municipal Separate Storm Sewer System (MS4).

Construction Activities Stormwater Manual (CASM): City and County of Denver Construction Activities Stormwater Manual (CASM), 2010 edition.

Colorado Department of Transportation (CDOT): State agency that has published standards for Erosion Control with accompanying Erosion Control Supervisor certification courses.

Erosion Control Supervisor (ECS): The Erosion Control Supervisor is assigned by the Contractor to perform duties as described in this Section. The ECS shall be properly trained in BMPs per requirements of Part V below, and shall be under the direction of a Professional Engineer licensed in the State of Colorado when performing any modifications to the Project Stormwater Management Plan (SWMP).

Final Stabilization: Point of construction when all ground surface disturbing activities at the site have been completed and uniform vegetative cover has reached 70% of pre-disturbance vegetative cover, or equivalent permanent features have been employed. At this point, all temporary BMPs can be removed, all construction and equipment maintenance wastes have been disposed of properly; and all elements of the Stormwater Management Plan have been completed.

REVISION OF SECTION 208 EROSION CONTROL

Major SWMP Modification: Changes to the original SWMP that removes or adds additional area to the Project, or modifies the final hydrology or drainage of the Project. A Major SWMP Modification requires the submission of revised Stormwater Management Plan (SWMP) elements to the Permit Authority for review and approval. Any adjustments to a SWMP must be performed either by or under the direction of a Professional Engineer licensed in the State of Colorado.

Municipal Separate Storm Sewer System (MS4): A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- a) Owned or operated by a State, city, town, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of stormwater or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under Section 208 of the Federal Clean Water Act that discharges to State Waters;
- b) Designed or used for collecting or conveying stormwater;
- c) Which is not a combined sewer; and
- d) Which is not part of a Publicly Owned Treatment Works (POTW).

Permit Authority: The Department authorized by the City to review and process CASDP Applications for Capital and/or governmental sponsored Projects. The responsible City department serving as the Permit Authority is the Public Works Project Controls Office. As a clarification, the Development Services Department of the City serves as the point of intake and permit processing center.

Permit Enforcement Authority: The Department authorized by the City to inspect and enforce CASDP Rules and Conditions for all construction Projects within the City's MS4 Boundary. The responsible City department serving as the Permit Enforcement Authority is the Wastewater Management Division of the Department of Public Works.

State Construction Stormwater Permit: Colorado Revised Statutes require that all construction sites/development Projects, which, by definition, disturb one or more acres in area, shall be covered by a State issued general permit for construction activities. Information on the application requirements for the State permit can be obtained by phone at 303-692-3500; or by visiting their offices located at 4300 Cherry Creek Drive South, Denver, CO 80246-1530; or on the Web at: www.cdphs.state.co.us

State Waters: Any and all surface waters which are contained in or flow in or through this State, not to include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.

Examples of State Waters include, but are not limited to, perennial streams, intermittent or ephemeral gulches and arroyos, ponds, lakes, reservoirs, irrigation canals or ditches, wetlands, stormwater conveyances (when they discharge to a surface water), and groundwater.

**REVISION OF SECTION 208
EROSION CONTROL**

Stormwater Management Plan (SWMP): The Stormwater Management Plan contains the requirements necessary to accomplish all of the following:

The SWMP establishes a minimum standard to construct, install, maintain, and remove required BMPs during the life of the Contract to prevent or minimize pollution of stormwater due to erosion, sediment transport, and construction related pollutant generated during all phases of the Project. A SWMP consists of the following elements:

- (i) CASDP Narrative Worksheet with Narrative Report. The Narrative Report and supporting documents should fully address the methods to be used to prevent sediment, debris, and other pollutants from entering the MS4 and/or State Waters in and around the Project area. Proposed structural and non-structural BMPs should be described with sufficient implementation detail to insure that the logical phases of the proposed construction Project meet the performance standards listed in the CASM.
- (ii) Proposed site drawings and Best Management Practice (BMP) installation details as they apply to the site conforming to the Urban Storm Drainage Criteria Manual, Vol. 3, "Best Management Practices", most current version as issued by the Urban Drainage and Flood Control District (UDFCD), or those established by the City's Department of Public Works. If erosion control drawings were included within the bid documents for the Project, they shall be used for bid purposes and initial planning/deployment of BMPs on the Project. If provided drawings are signed/ sealed by a Professional Engineer, they have been pre-approved by the Permit Authority and may be used without revision for purposes of submitting for CASDP. If provided drawings do not have signature/seal of a Professional Engineer licensed by the State of Colorado, they will require revision by the Contractor with Professional Engineer signature/seal prior to submission to the City and County of Denver for CASDP.
- (iii) Supporting documentation related to proposed BMPs that are not currently identified in UDFCD Vol. 3 or as otherwise published by the City.

SWMP elements submitted to the City shall also meet currently established criteria of the CDPHE as the SWMP must meet all local, State and Federal requirements.

Substantial Completion of Erosion Control: Point of construction when permanent BMPs have been installed, initial growth is in place, and the site is waiting for vegetative cover to reach 70% of pre-disturbance vegetative cover.

**REVISION OF SECTION 208
EROSION CONTROL**

PART II: DESCRIPTION

This Work shall consist of constructing, installing, maintaining, and removing when required, BMPs during the life of the Contract until Final Stabilization to prevent or minimize erosion, sedimentation, and pollution of any waters including storm, drainageways, MS4, State Waters, and/or wetlands. Work under this Section includes the Contractor obtaining required Permits, utilizing SWMP elements provided in the Contract, and/or SWMP elements specifically prepared by the Contractor as defined herein. The work shall also consist of providing on-going maintenance and monitoring of the SWMP as may be necessary due to the specific and/or dynamic needs of the Project as well as meet all requirements set forth within the CASM.

The Contractor shall coordinate the construction of temporary BMPs with the construction of permanent BMPs to assure economical, effective, and continuous erosion and sediment control and water pollution prevention throughout the construction period until Final Stabilization is achieved

When a provision of this Section or an order by the Permit Enforcement Authority requires that an action be immediate or taken immediately, it shall be understood that the Contractor shall at once begin effecting completion of the action and pursue it to completion in a manner acceptable to the Permit Enforcement Authority, and in accordance with applicable Permitting requirements.

PART III: MATERIALS

Materials to be used for BMPs shall conform to each specific detail as set forth within the Project SWMP or as noted on the Contract Drawings.

PART IV: EROSION CONTROL PERMIT STATUS

The current SWMP status for the Project is as follows:

A CDPS-SCP is currently not required for this project as the proposed disturbed area and/or proximity to stream does not meet the minimum criteria for requiring a CASDP. All provisions of the following Parts V-VIII of this Section are hereby deleted and shall not be made part of the Project. However, the responsibilities for minimizing sediment pollution from the Project have not been waived, and as such, the City hereby requires the Contractor to perform as specified in the following notes.

“A CASDP Permit will not be required for this project, however, the Contractor and/or their authorized agents shall ensure that all potential pollutants generated during demolition, excavation, trenching, boring, grading, or other construction Work associated with this permit, be prevented from discharge to stormwater conveyance systems in the vicinity of the Project.

The Contractor and/or their authorized agents shall remove all sediment, mud, construction debris, or other potential pollutants that may have been discharged to or, accumulate in the flow lines of storm drainage appurtenances and public rights of ways of the City and County of Denver and City of Englewood as a result of construction activities associated with this Project. All removals shall be conducted in a timely manner.

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**REVISION OF SECTION 208
EROSION CONTROL**

The Contractor shall be held responsible for remediation of any adverse impacts to the CCD or City of Englewood MS4, State Waters, waterways, wetlands, and or other public or private properties, resulting from work done as part of this Project.

The Contractor and/or their authorized agents shall insure that all loads of cut and fill material imported to or exported from the Project shall be properly covered to prevent loss of the material during transport on public rights of way.” (Sec.49-552; Revised Municipal Code)

The use of rebar to anchor best management practices, other than portable toilets, is prohibited.

Approved erosion and sediment control ‘Best Management Practices’ shall be maintained and kept in good operating condition for the duration of the Project. All necessary maintenance and repair shall be completed immediately upon discovery of any deficiency or defect.

The Contractor and/or their authorized agents shall implement the following Best Management Practices (BMPs) on site during construction:

1. **VEHICLE TRACKING CONTROL:** This BMP is required at all access points for ingress/egress from off-site impervious surfaces to construction site pervious areas that are used by vehicular traffic or construction equipment.
2. **INLET PROTECTION:** This BMP is required on all existing or proposed storm sewer inlets in the vicinity of the construction site that may receive site runoff. The BMP must be appropriate to the type of storm inlet and appropriate for the ground surface at the inlet.
3. **INTERIM SITE STABILIZATION:** This BMP is required to provide a measure for preventing the discharge of sediment from construction sites where overlot grading or other site disturbance has occurred. This BMP is particularly necessary on sites where construction activities/disturbance will be limited to small areas of the project site. Acceptable BMPs include:
 - a) Preserving existing vegetation
 - b) Seeding and planting
 - c) Mulching
 - d) Mulching and seeding
 - e) Temporary/Permanent re-vegetation operations
 - f) Chemical soil stabilizer application (requires WMD approval)
4. **WASTE MANAGEMENT/CONTAINMENT:** This BMP requires that all construction wastes, fuels, lubricants, chemical wastes, trash, sanitary wastes, contaminated soils or debris shall be contained on site, protected from contact with precipitation or surface runoff, periodically removed from the construction site, and properly disposed of.

**REVISION OF SECTION 208
EROSION CONTROL**

5. **SPILL PREVENTION /CONTAINMENT:** This BMP defines the measures proposed for preventing, controlling, or containing spills of fuel, lubricants, or other pollutants; and protecting potential pollutants from contact with precipitation or runoff.
6. **CHUTE WASHOUT CONTAINMENT:** Water used in the cleaning of cement truck delivery chutes shall be discharged into a predefined, bermed containment area on the job site. The required containment area is to be bermed so that wash water is totally contained. Wash water discharged into the containment area shall be allowed to infiltrate or evaporate. Dried cement waste shall be removed from the containment area and properly disposed of.
 - a) The direct or indirect discharge of water containing waste concrete to the storm sewer system is prohibited (Sec.56-102a, c; Revised Municipal Code, City and County of Denver).
7. **SWEEPING:** This BMP requires that impervious surfaces which are adjacent to or contained within construction sites be swept on a daily basis or as needed during the day when sediment and other materials are tracked or discharged on to them. Either sweeping by hand or use of Street Sweepers is acceptable. Street sweepers using water while sweeping is preferred in order to minimize dust. Flushing off paved surfaces with water is prohibited.
8. **PERIMETER CONTROL:** This BMP requires that a construction site install a perimeter control measure along the edge of the construction site, to prevent, or filter the discharge of surface runoff from the construction site. The type of perimeter control used shall be determined based on site conditions and location. Maintenance and repair of the control measure shall occur as needed, in a timely manner.
9. **STOCK PILES:** Soils that will be stockpiled for more than thirty (30) days shall be protected from wind and water erosion within fourteen (14) days of stockpile construction. Stabilization of stockpiles located within 100 feet of receiving waters, or with slopes 3 to 1 or greater shall be completed within seven (7) days following stockpile construction. Stabilization and protection of the stockpile may be accomplished by any of the following: Mulching, Temporary/Permanent Revegetation Operations, Chemical Soil Stabilizer Application (requires Denver Public Works approval), or erosion control matting/Geotextiles. If stockpiles are located within 100 feet of receiving waters, a drainageway or the site perimeter, additional sediment controls shall be required.

**REVISION OF SECTION 208
EROSION CONTROL**

10. SAW CUTTING OPERATIONS: The Contractor shall protect all storm sewer facilities adjacent to any location where pavement cutting operations involving wheel cutting, saw cutting, or abrasive water jet cutting are to take place. The Contractor shall remove and properly dispose of all waste products generated by said cutting operations on a daily basis or as needed throughout the work day. The discharge of any water contaminated by waste products from cutting operations to the storm sewer system is prohibited. (Sec.56-102a, c; Revised Municipal Code, City and County of Denver).

PART V: BASIS OF PAYMENT

Erosion Control items as specified in Part V shall be paid in accordance with Section 208. All other Erosion Control items will not be measured and paid for separately but shall be included in the project Allowances for Erosion Control.

Payment will be full compensation for all work, materials and equipment required to complete the item, including surface preparation, maintenance throughout the project, and removal upon completion of work.

<u>Pay Item</u>	<u>Pay Unit</u>
Erosion Log (12 Inch)	Linear Foot
Aggregate Bag	Linear Foot
Concrete Washout Structure	Each
Storm Drain Inlet Protection (Type 1)	Linear Foot
Storm Drain Inlet Protection (Type 2)	Linear Foot
Removal and Disposal of Sediment (Labor)	Hour
Removal and Disposal of Sediment (Equipment)	Hour
Erosion Control Supervisor	Hour

**REVISION OF SECTION 209
WATERING AND DUST PALLIATIVES**

Section 209 of the Standard Specifications is hereby revised for this project as follows:

Subsection 209.07 paragraph 1 shall be deleted and replaced with the following:

Water for moisture-density control, landscaping, pre-wetting, and for dust palliatives will not be measured and paid for separately but shall be included in the cost of the work.

**REVISION OF SECTION 210
RESET STRUCTURES**

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

Subsection 210.02 is hereby revised to include the following:

Resetting of structures is to be done in accordance with the plans. It is the Contractor's responsibility to document the condition of the structure prior to its removal. This includes but is not limited to photographs, videotapes and measurements. Any existing damage or condition that may be disputable after the structure is replaced should be brought to the Engineers attention prior to removal. If necessary, new material shall be used at the direction of the Engineer.

Subsection 210.12 is hereby revised as follows:

Any structure that is to be reset shall be measured per each, length, etc. and paid for under section 210 Reset Structure (Type).

Subsection 210.13 is hereby revised to as follows:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Reset Intersection Detection System (Camera)	Each
Reset Spread Spectrum Radio	Each

Payment shall be full compensation for all work and materials necessary to complete this item including, but not limited to documentation of existing structure and stockpiling of structure as required.

**REVISION OF SECTION 210
RESET TRASH RECEPTACLE**

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

Subsection 210.02 is hereby revised to include the following:

Resetting of trash receptacle is to be done as directed by the Engineer. It is the Contractor's responsibility to document the condition of the receptacle prior to its removal. This includes but is not limited to photographs, videotapes and measurements. Any existing damage or condition that may be disputable after the receptacle is reset should be brought to the Engineer's attention prior to removal. If necessary, new material shall be used at the direction of the Engineer.

Subsection 210.13 is hereby revised to as follows:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Reset Trash Receptacle	Each

Payment shall be full compensation for all work and materials necessary to complete this item including, but not limited to documentation of existing receptacle and stockpiling of receptacle as required.

**REVISION OF SECTION 210
VALVE BOX AND MANHOLE ADJUSTMENTS**

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

Subsection 210.10 shall include the following:

The Contractor shall notify each utility company (Owner) prior to any construction that will involve the adjustment of its valve boxes or manholes.

Each Owner will mark all of its valve boxes and manholes that will be involved in the specified construction area.

Prior to commencing construction, the Contractor shall coordinate and conduct, with the Engineer and each Owner, an inspection of all impacted manholes and valve boxes. The purpose of this inspection will be to account for all valve boxes and manholes involved in the construction and determine their accessibility and condition. The Contractor shall provide traffic control for this inspection and for the final inspection. The Contractor shall coordinate construction with the Owner to allow sufficient time for the Owner to make all necessary repairs to valve boxes and manholes before construction begins in the area of the valve boxes and manholes. All parties shall agree on the condition of each valve box and manhole prior to construction.

The Contractor shall replace all valve box sections damaged or misplaced during construction with new valve box sections complying with the requirements of the Owner's specifications. The Contractor shall set each valve box to be adjusted so that it is $\frac{1}{4}$ inch to $\frac{1}{2}$ inch below the final grade of the paved surface, or to the satisfaction of the Owner, and so that it is plumb over the operating nut of the valve.

The Contractor shall adjust all manholes that require adjustment with materials conforming to the Owner's specifications. Some adjustments may require the addition, removal, or replacement of a manhole or cone section. If manhole adjustment requires a manhole cone or barrel section to be added, removed, or replaced, this work will not be considered as "Adjust Manhole", but shall be performed in accordance with the Section 210 requirements for the item "Modify Manhole".

The Contractor shall prevent tools, concrete, dirt, or debris of any kind from falling into the channel of the existing manhole. The Contractor shall clean or remove debris from downstream sewer that enters as a result of the Contractor's work.

When the project includes planing prior to resurfacing, the Contractor shall first lower all valve boxes and manholes below the surface to be planed and then adjust them up to final grade after the paving operation is complete.

Prior to the final inspection, the Contractor shall thoroughly clean all valve boxes designated for cleaning. This work shall be performed in accordance with the Section 202 requirements for the item "Clean Valve Box".

The Contractor shall coordinate and conduct, with the Engineer and each Owner, a final inspection upon completion of construction. This inspection shall assure that all valve boxes and manholes are in compliance with these requirements. The Engineer will obtain the Owner's written approval before accepting the work.

**REVISION OF SECTION 210
VALVE BOX AND MANHOLE ADJUSTMENTS**

Subsection 210.12 shall include the following:

The Contractor will be paid separately for each valve box or manhole adjustment completed down and for each adjustment completed up.

Subsection 210.13 shall include the following:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Adjust Manhole	Each

Adjustments that include adding, removing, or replacing a manhole cone or barrel section will be paid for under the Section 210 pay item, Modify Manhole.

Cleaning designated valve boxes will be paid for under the Section 202 pay item, Clean Valve Box.

**REVISION OF SECTION 250
ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT**

Section 250 of the Standard Specifications is hereby revised for this project as follows:

Subsection 250.01 shall include the following:

Excavation and drilling activities associated with the proposed project have the potential to encounter soil and groundwater that may have been impacted by petroleum products or previous releases of hazardous substances. Workers shall be alert during excavations for any visual or olfactory signs of contamination. If soil and/or groundwater contamination is encountered, work will stop immediately and the procedures outlined in the project's material management plan and Section 250 of Standard Specifications for Road and Bridge Construction shall be followed. The Contractor shall be responsible for the required workers' health and safety.

Subsection 250.03 shall include the following:

The Contractor will prepare a material management plan (MMP) to ensure hazardous materials and contaminated groundwater are handled properly. The Contractor shall follow the MMP – Draft Template and MMP Checklist provided in Appendix A in drafting the MMP. The MMP will be submitted either prior to, or at the Pre-Construction Conference for review and approval by Denver EQ. The cost of the MMP will not be paid for separately but shall be included in the work.

The Contractor shall be responsible for the required worker health and safety and the public in accordance with all applicable local, state and federal regulations. The Contractor Health and Safety Officer and/or Monitoring Technician shall be on site as necessary during subsurface activities to ensure the safety of workers, as detailed in the CDOT Standard Specification 250 -Environmental, Health and Safety Management and this 250 Standard Specification revision. Denver EQ will also be contacted.

For proper handling of asbestos-contaminated soil, if any, the Contractor will follow all applicable Solid and Hazardous Waste Regulations and the procedures listed in the project's material management plan (MMP). Asbestos contaminated soil removal must be performed by a Certified Asbestos Inspector (CABI) to determine what, if any, controls must be instituted to allow future activity in the excavation area.

If petroleum contaminated soils are encountered, the Contractor must follow standard materials management for such soils. Any petroleum contaminated soils shall be loaded into a truck(s) and hauled to the Denver Arapahoe Disposal Site (DADS) as special waste.

If petroleum impacted groundwater is encountered, a hydrovac truck or some other method of containerization must be used to collect the water until it is tested for contaminants prior to discharge and proper disposal. Dewatering requirements include capturing any water encountered during caisson drilling and hauling it to a certified disposal facility.

As always, if unanticipated soil staining, odors, landfill gas or petroleum/solvent contaminated groundwater are discovered during construction activities, work should stop until an EQ environmental professional makes a determination on how best to proceed. Additionally, CDOT Spec. 250 must be followed at all times.

The contractor shall review the most recent ISA prior to construction.

**REVISION OF SECTION 250
ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT**

METHOD OF MEASUREMENT

All work including monitoring, sampling, handling, material disposal, and analytical costs (if necessary) will be paid by the Environmental Health and Safety Allowance.

BASIS OF PAYMENT

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Environmental Health and Safety Allowance	N/A

**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.

**REVISION OF SECTION 412
CONCRETE PAVEMENT**

Section 412 of the Standard Specifications is hereby revised to include:

Subsection 412.01 shall include the following:

Concrete Pavement shall conform to the requirements of the City and County of Denver's Standard Drawings for Concrete Pavement (Details 11.0 through 11.5).

Subsection 412.24 is hereby revised to include:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Concrete Pavement (8 Inch)	Square Yard

Excavation to proposed subgrade elevation will not be paid for separately but shall be included in the work.

All work necessary and incidental to the construction of Concrete Pavement, including subgrade prep, will not be measured and paid for separately but shall be included in the work. Payment shall be full compensation for prep work, furnishing, and placing all materials, necessary to complete the work to the dimensions shown on plans. Reconditioning, forms, finishing, jointing, backfill and curing, will be in accordance with the plans and specifications and will not be paid for separately.

**REVISION OF SECTION 503
CAISSON**

Section 503 of the Standard Specifications is hereby revised for this project as follows:

Section 503.01 is hereby revised to include the following:

This work consists of drilling or vacuuming holes and placing concrete and reinforcing steel therein to form foundations for traffic signal poles in conformance with the plans and as directed by the Engineer.

The traffic signal pole foundation shall conform to the requirements of the City and County of Denver's Standard Details for Signal Pole Foundations (Detail 16.1.8).

Section 503.03, delete the first paragraph and replace with the following:

Class BZ concrete shall be used for the traffic signal pole foundation. Class BZ concrete in the top three feet of the foundation shall be placed with a 5% to 8% air content. Class BZ concrete shall be placed without air-entrainment below the three foot depth.

Vacuumed caisson excavation shall be performed with a vacuum pothole machine to prevent drilling through existing utilities.

Subsection 503.07 shall include the following:

Foundation work shall include raking and/or plumbing of the poles after loading, and grouting by the Contractor after pole rake is approved by the Engineer.

Section 503.08 is hereby revised to include the following:

Caisson (36 Inch) will be measured by the linear foot from the top of caisson to the bottom of the hole excavated. The pedestal pole caisson (18 Inch) will not be measured and pay for separately, but shall be included in the cost of the Pedestal Pole installation.

Furnish of base plate(s), anchor bolts, nuts and nut covers that are required components of the traffic signal pole foundation are incidental to the Contractor's unit cost for traffic signal poles; installation of same shall be considered incidental to the Contractor's unit cost for Drilled and Vacuumed Caissons.

Section 503.09 is hereby revised to include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Drilled Caisson (36 Inch)	Linear Foot
Vacuumed Caisson (36 Inch)	Linear Foot

The unit price of drilled caisson (36 Inch) and vacuumed caisson (36 inch) shall be full compensation for making all excavations; hauling and disposal of excavated material; performing all necessary drilling/pumping; furnishing and placing required concrete and reinforcement steel, including the reinforcement projecting above the tops of the caissons necessary for splicing; all backfilling; removing casings; and for furnishing all tools, labor, equipment, and incidentals necessary to complete the work. No extra payment will be made for casing left in place. Caissons vacuumed in lieu of drilling will be paid as Vacuumed Caisson.

**REVISION OF SECTION 504
LANDSCAPE WALL**

Section 504 of the Standard Specifications is hereby revised for this project as follows:

Subsection 504.01 is hereby revised to include the following:

This work consists of the removal and reconstruction of the existing landscape planter in accordance with these specifications and in conformity as shown on the plans or as directed by the Engineer.

Subsection 504.02 is hereby revised to include the following:

Landscape wall material shall match the material and quality, at a minimum, of the existing landscape wall.

Subsection 504.04 is hereby revised to include the following:

Landscape Wall will be measured by the linear foot of planter wall removed and reconstructed.

Subsection 504.05 is hereby revised to as follows:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Landscape Wall	LF

Payment shall be full compensation for all work and materials necessary to complete this item including, but not limited to, removal of existing brick walls and flowerbed; reconstruction of planter walls; protection of existing light standards and sign; furnishing and installation of topsoil material within planter; and reestablishing any existing irrigation in-kind.

**REVISION OF SECTION 608
SIDEWALKS AND CONCRETE CURB RAMPS**

Section 608 of the Standard Specifications is hereby revised to include:

Subsection 608.01 shall include the following:

Concrete Curb Ramp construction shall conform to the requirements of the City and County of Denver's Standard Drawings for Curb Ramps (Detail 7.0 through 7.7). Construction of concrete curb ramps to include the installation of detectable warnings.

Subsection 608.02, delete in its entirety and replace as follows:

Materials shall meet the requirements specified in the following subsections:

Joint Fillers 705.01

Concrete for sidewalks and curb ramps shall be Class "P", broom finish with natural color as specified in subsections 601.02 and 601.03, except that No. 67 coarse aggregate shall be used.

Detectable warnings on curb ramps shall be Armor-Tile Tactile Systems or approved equal.

Alternate materials may be used, if pre-approved by the Engineer. The Contractor shall submit a sample of the product, the name of the selected supplier, and documentation that the product meets all contrast requirements and will be fully compatible with the curb ramp surface to the Engineer for approval prior to the start of work

Concrete shall be cured with a non-pigmented "clear" curing compound.

All concrete used for sidewalks and curb ramps shall be reinforced with polypropylene fibers. Polypropylene fibers shall be FIBERMESH or FORTA FIBRE. Length of fibers shall be as recommended by the manufacturer. Add 1.5 pounds FIBERMESH or FORTA FIBRE per cubic yard of concrete. The fiber additive utilized in the concrete mix shall be that supplied by the Fibermesh Company, 4019 Industry Drive, Chattanooga, TN, 37416, (800) 635-2308, or approved equal. The contractor shall submit five (5) copies of fibrous concrete reinforcement product data for use by the Engineer.

Concrete will be subject to inspection and tests as required to assure compliance with quality requirements.

Subsection 608.03 shall include the following:

Detectable warnings on curb ramps shall be installed in strict accordance with the manufacturer's recommendations.

**REVISION OF SECTION 608
SIDEWALKS AND CONCRETE CURB RAMPS**

Subsection 608.03(d) is hereby revised to include:

Finishing shall occur only after the disappearance of bleed water and the second paragraph of section 412.12 shall be adhered to. Sprinkling of pigment onto the fresh surface is not permitted.

Subsection 608.03(f) is hereby revised to include:

The Contractor shall insure that new concrete items built under this contract drain properly and, as such, there are no areas of standing water on new concrete items. Any low spots in the new concrete items in excess of ¼” will require removal and replacement of such items at the Contractor’s expense.

The Contractor shall protect all new concrete items built under this Contract against defacement, or other injury, from any cause. If said damage cannot be adequately repaired to the satisfaction of the Engineer, the Contractor shall remove and replace the unacceptable items at the Contractor’s expense.

Subsection 608.05 shall include the following:

Detectable warnings on curb ramps, including all work and materials necessary for fabrication, transport and installation will not be measured and paid for separately, but shall be included in the work.

Subsection 608.06 is hereby revised to include:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Concrete Sidewalk (6 Inch)	Square Yard
Concrete Curb Ramp	Square Yard

Excavation to proposed subgrade elevation will not be paid for separately but shall be included in the work.

All work necessary and incidental to the construction of Concrete Curb Ramp, including bed course material, will not be measured and paid for separately but shall be included in the work.

Payment shall be full compensation for prep work, furnishing, and placing all materials, including detectable warnings, necessary to complete the work to the dimensions shown on plans.

Reconditioning, forms, finishing, jointing, backfill and curing, will be in accordance with the plans and specifications and will not be paid for separately.

**REVISION OF SECTION 609
CURB AND GUTTER**

Section 609 of the Standard Specifications is hereby revised to include:

Subsection 609.02 is hereby revised to include:

In the first paragraph, reference to Section 703.07, Bed Course Material, shall be deleted.

Paragraph 2 shall be deleted and replaced with the following:

Concrete for Curb and Gutter shall conform to the requirements for Class "P" concrete as specified in subsections 601.02 and 601.03. When curb machines are used, the Contractor will be permitted to use AASHTO M 43 Size 57 or 67 aggregate in lieu of the coarse aggregate specified in Table 601-1, and a lesser slump will be permitted. Dowels are required in the curb and gutter when size 57 or 67 aggregate is used.

Subsection 609.03(a) is revised to include:

Excavation shall conform to the requirements of the revisions to Subsection 608.03(a)- Sidewalk and Bikeways.

Subsection 609.03(b) is revised to include:

The Contractor shall construct the work in strict conformity to line and grade stakes. Deviations in excess of 1/2" Horizontal and/or 1/4" Vertical shall be grounds for the Engineer to reject the work. Rejected work will be replaced or corrected by the contractor at no expense to the City. The Engineer will have complete authority in determining whether the work is to be corrected or replaced. If the contractor cannot adequately correct any rejected work, the contractor shall replace the work at no expense to the City.

Subsection 609.03(c) shall be revised to include the following:

The Contractor shall protect all new concrete items built under this Contract against defacement, or other injury, from any cause. If said damage cannot be adequately repaired to the satisfaction of the Engineer, the Contractor shall remove and replace the unacceptable items at Contractor's expense.

Subsection 609.03(d) is hereby revised to include:

For construction of curb and gutter adjacent to existing concrete pavement, the joint pattern shall match that of the concrete pavement. The joint pattern shall be approved by the Engineer prior to construction.

Subsection 609.03(f) is hereby revised to include:

The following paragraphs shall be added:

The Contractor shall insure that new concrete items built under this contract drain properly and, as such, there are no areas of standing water on new concrete items. Any low spots in the new concrete items in excess of 1/4" will require removal and replacement of such items at the Contractor's expense.

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**REVISION OF SECTION 609
CURB AND GUTTER**

Subsection 609.07 is hereby revised to include:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Curb and Gutter Type 2 (Section II-B)	Linear Foot

Excavation to proposed subgrade elevation will not be paid for separately but shall be included in the work.

Payment shall be full compensation for labor and materials to construct to the dimensions shown on plans. Reconditioning, reinforcing steel, forms, finishing, jointing, backfill and curing, will be in accordance with these plans and specifications and will not be paid for separately.

**REVISION OF SECTION 613
ELECTRICAL CONDUCTOR IDENTIFICATION**

Section 613 of the Standard Specifications is hereby revised for this project as follows:

Subsection 613.08 shall include the following:

All electrical conductors shall be tagged as follows:

Electrical conductor cable tags shall be located below the termination in the base of the streetlight, in the pull box, in the pedestal, and at the point of termination to existing facilities of the Local Utility Company supplying electrical service. The tags shall be attached with a cable tie. The information written on the tag shall include the direction and approximate length of cable, feeds running from where and to, etc.

Each incoming conductor shall be individually color coded with one (1) tape mark, while outgoing conductors shall have two (2) tape marks.

Example:

-----	-----
FEEDS TO PULL BOX	FEEDS FROM XFMR
50' NORTH & 75' WEST	250' SOUTH & EAST
THEN TO HIGHWAY SIGN	200' WEST
-----	-----

Uniform tags are available in a Tag Kit. *The Tag Kit consists of: 100 tags, 3-part yellow with 1 hole, 100 black nylon ties and 1 black Sharpie pen.

<i>Manufacturers</i>	<i>Catalog Numbers</i>
Uticom Systems Inc.	U5025Y1
Or approved equal	

Subsection 613.11 shall include the following:

Electrical conductor tagging will not be paid for separately, but shall be included in the cost of wiring.

**REVISION OF SECTION 613
ELECTRICAL CONDUIT – GENERAL**

Section 613 of the Standard Specifications is hereby revised for this project as follows:

Add the following to subsection 613.07:

Directional boring is the preferred method of conduit installation.

All conduit bends, including factory-installed bends, shall not have a bend radius less than six times the inside diameter of the conduit.

The excavations required for the installation of conduit or cable shall be performed in such a manner as to avoid unnecessary damage to streets, sidewalks, landscaping, sprinkler systems and other improvements. Trenches shall not be excavated wider than necessary for the installation of the electrical appurtenances. Excavation shall not be performed until immediately before installation of conduits. The material from the excavation shall be placed in a position not to cause damage or obstruction to vehicular or pedestrian traffic or interfere with surface drainage.

Trenches shall be made with a rock-wheel or other machine capable of cutting a narrow trench (4") so as to allow traffic to pass over prior to back filling. The machine shall be equipped with shields to direct the spoil downward and away from passing vehicles, workmen and pedestrians.

Off-street trenches shall be back-filled with the same material that was removed and shall be compacted and shaped to match the surrounding surface. On-street trenches within ALL roadway areas shall be back-filled with approved Structure Backfill (Flow-Fill) and capped with 9" minimum of Hot Mix Asphalt Pavement (Patching) in accordance with Section 403 and City and County of Denver Street Cut Regulations if applicable. If surrounding pavement depth is greater than 9 inches, the HMA (Patching) depth shall match the existing pavement.

All surface materials including sprinkler systems, landscaping, shrubs, sod grass, and native growth vegetation which is disturbed by trenching and back-filling operation shall be restored in kind equal to or exceeding the original conditions.

All conduit runs that will not have a copper conductor installed shall have a #14 AWG stranded copper conductor placed inside for locating purposes. Locating conductor and tape will not be measured and paid separately, but shall be included in the unit price for conduit.

Conduit shall always enter a pull box, hand-hole, or any other type structure from the direction of the run only.

All conduits shall be fully compatible with fiber optic cable. Plastic conduit shall be Schedule 80 in the diameters shown on the plans and shall be compliant with Bellcore TW-NWT-000356 requirements. Each conduit shall be equipped with a pull tape and each bore shall have a copper tracer wire of at least 12 gauge.

Each conduit shall be equipped with either a pull rope or pull tape, depending on the length of conduit between pull boxes.

**REVISION OF SECTION 613
ELECTRICAL CONDUIT – GENERAL**

Each conduit with a length greater than 400' between pull boxes shall be equipped with a pull tape. The pull tape shall have a minimum tensile strength of 1250 lbs. and be of a design and manufacture that prevents cutting or burning into the conduit during cable installation.

Each conduit with a length of 400' or less between pull boxes shall be equipped with a pull rope or pull tape. The pull rope shall have a minimum tensile strength of 1250 lbs.

Plastic PVC conduit shall be certified by the manufacturer as meeting ANSI/UL 6 and 651. The manufacturer shall be ISO 9000 compliant.

If the contractor is unable to jack or bore the conduit at the lengths shown on the plans from pull box to pull box, all splice couplings and associated work to splice the conduit shall be included in the cost of this item. This shall include excavation down to the required depth of conduit at the splice location. Also included in the cost of this item are all landscape repairs, which will be required after excavation of conduit at all splice locations. All splice couplings shall be water and air tight and installed at a depth to match the remaining run of conduit. No elevation difference will be allowed. Splices shall be kept to a minimum and all locations shall be approved by the City. Additional pull boxes shall not be substituted for splices.

All conduit bends, including factory-installed bends, shall not have a bend radius less than six times the inside diameter of the conduit.

Conduit plugs for sealing conduit shall also be supplied and installed in all open conduit ends as soon as the conduit is installed. Plugs shall be durable, fabricated from no metallic parts, be of the split design to allow removal and reinstallation around in-place cables and be easily removable and reusable. Plugs shall be capable of being installed by hand without any tools and shall provide a water and air tight seal of at least 100 psi and shall cause no damage to the cable when installed.

At some locations (as illustrated on the Plans or in these specifications, or as directed by the Engineer), new conduits shall be installed in an existing pull box or manhole. At these locations, the Contractor shall carefully excavate around the pull box or manhole and install the new conduit in the pull box or manhole in a manner that meets the requirements of this Special Provision. The Contractor shall not damage the existing pull box or manhole. If the existing pull boxes, manholes, or concrete collars are cracked or damaged during conduit installation, the Contractor shall be required to replace either or both conforming to the requirements of the contract at no additional cost.

**REVISION OF SECTION 613
ELECTRICAL CONDUIT – GENERAL**

Subsection 613.10 shall include the following:

Electrical Conduit will be measured by the linear feet of conduit and installed in accordance with these Special Provisions, the Project Standards or as directed by the City. Electrical Conduit will include groundwork, sweeps, pull cord, copper tracer wire, adapters, fittings, splice couplings, conduit plugs (for conduits both with and without fiber optic cable), equipment, labor, and all other items necessary to complete the work.

Subsection 613.11 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
2 Inch Electrical Conduit (Bored)	Linear Foot
3 Inch Electrical Conduit (Bored)	Linear Foot

**REVISION OF SECTION 613
LIGHTING (LUMINAIRE)(LED 5300 LUMENS)**

Section 613 of the Standard Specifications is hereby revised for this project as follows:

Subsection 613.02 shall include the following:

The Contractor shall furnish and install LED Street Light Luminaire at locations as shown on the plans. The LED Street Light Luminaire shall be compatible or interchangeable with standard LED Street Light Luminaire as stocked by the City and County of Denver.

The current City and County of Denver's luminaire fixtures on the Denver traffic poles are the curvilinear (hockey puck) style fixtures, and the LED Street Light Luminaire in these fixtures that are compatible with that stocked by the City and County of Denver is as follows:

<u>Manufacturer</u>	<u>Catalog Numbers</u>
E-Lite Star	ESU-CA012M03042S-525CCD1-1

The luminaire shall also include a photo cell (S-T P124-1.5-PTW or equal) and the luminaire finish shall be in Federal Green.

The Contractor shall submit a lighting materials list to the City and Denver for approval prior to ordering. Contact Chris Lillie at 720-865-4066.

Subsection 613.08 shall include the following:

At least one grounding electrode shall be installed adjacent to each light standard. Wiring shall be a 120/240 volt or 120/208 volt, 3-wire system with individual luminaires wired for 120 volts.

Subsection 613.11 shall include the following:

Luminaires (LED 5300 lumens) lighting will not be measure and paid for separately, but shall be included in the cost of the Traffic Signal Poles.

**REVISION OF SECTION 613
PULL BOXES – GENERAL**

Section 613 of the Standard Specifications is hereby revised for this project as follows:

Subsection 613.07 shall include the following:

Pull boxes Type A and Type B shall be used in all signal conduit installation. Pull boxes shall be made of fiberglass reinforced polymer concrete designed to support a minimum service load of 20,000 pounds over a 10 inch by 10 inch square. The pull box shall have a detachable cover with a skid-resistant surface and have the words “TRAFFIC” or, “ELECTRIC” cast into the surface. Painting the words shall not be accepted. The cover shall be attached to the pull box body by means of screw-in bolts and shall have two lift slots to aid in the removal of the lid. Non-standard bolts shall not be used.

All traffic communication pull boxes shall have the words “TRAFFIC COMM” physically impressed (not painted) on its top. The interconnect pull boxes or Pull Box (Special) shall be the Type C pull box. The covers shall be attached to the pull box body by screw-in bolts and shall have two lift slots to aid in the removal of the lid.

All concrete collars, footings, and location marker supports shall be Portland Cement Concrete Class B and shall be in accordance with Section 601.

Pull boxes that are to be in traveled ways shall be outfitted with traffic bearing lids rated for HS 20-44 loads. The pull boxes shall have a special concrete footing extending 8 inches around the outside and 6 inches around the inside of the pull box bottom, as shown in the plans. Pull boxes installed in dirt or landscape areas shall have a 12 inch wide by 6 inch thick concrete collar placed around the top in lieu of the concrete footing, as shown in the plans.

When the plans call for a fiber optic cable location marker to be installed at the pull box location, the concrete foundation support for the location marker shall be placed monolithically with the concrete collar.

Pull Box (Surface Mounted) shall be metal type with a hinged front door and have at least a NEMA 3R rating. The hinged door shall be provided with both a weather tight seal and a key lock mechanism. Surface mounted pull boxes shall be of the dimensions shown in the plans, and shall be mounted on or embedded into hard surfaces such as bridge decks, concrete barriers, retaining walls, or buildings, as shown on the plans. Surface mounted pull boxes shall be attached using 3/8-inch epoxy anchors or other methods, as approved by the Engineer. Surface mounted pull boxes shall not be used for ground installations.

Subsection 613.11 shall include the following:

Pull Boxes Type A and Type B will not be measured or paid for separately but shall be included in the cost of conduit.

**REVISION OF SECTION 613
PULL BOXES – GENERAL**

Subsection 613.12 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Pull Box (Special)	Each

Pull Box (Special) shall include the removal of any existing pull box, installation of the new pull box, modification of conduit ends, restoration of disturbed surface materials, and all other work necessary to complete the installation. All work necessary for the removal and installation of Pull Box (Special) will not be measured and paid for separately but shall be included in Pull Box (Special).

Pull Box (Special) will be paid for on the basis of the number of pull boxes installed.

**REVISION OF SECTION 613
ELECTRIC METER PEDESTAL CABINET AND BASE**

Section 613 of the Standard Specifications is hereby revised for this project as follows:

Subsection 613.07 shall include the following:

New traffic signal installations require an Electric Meter Pedestal Cabinet and Base for the new traffic signal. Xcel Energy will furnish only the electric meter. The Contractor shall furnish the electric meter pedestal cabinet, and shall install the pedestal cabinet and base, by a licensed electrician (journeyman), at the locations as show on the plan and in accordance with the City and County of Denver’s standard – sheets 16.1.19 and 16.1.20.

Subsection 613.10 shall include the following:

Electric Meter Pedestal Cabinet and Base will be measured and installed in accordance with these Special Provisions, the Project Standards or as directed by the City. The Electric Meter Pedestal Cabinet and Base installation will include groundwork, sweeps, pull cord, copper tracer wire, adapters, fittings, splice couplings, conduit plugs, equipment, labor, and all other items necessary to complete the work.

Contractor shall submit material specifications to the Engineer for prior approval.

Subsection 613.11 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Electric Meter Pedestal Cabinet and Base	Each

**REVISION OF SECTION 614
SIGN PANEL (SPECIAL)**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work includes the installation of street name signs on the traffic signal pole or mast arm.

Subsection 614.04 shall include the following:

All overhead street name signs shall follow City and County of Denver Traffic Standards except the southbound and westbound street name signs at the intersection of University Boulevard and Dartmouth Avenue which will be furnished by the City of Englewood. Refer to Revision of Section 622 – Sign Panel (Install Only) for more information.

Subsection 614.13 shall include the following:

Sign Panel (Special) will be measured by the actual number of units that are installed and accepted.

Subsection 614.14 shall include the following:

Payment will be made under:

Pay Item

Sign Panel (Special)

Pay Unit

Square Foot

**REVISION OF SECTION 614
PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work includes the installation of LED Pedestrian Signal Faces with countdown timers as shown in the Contract.

Subsection 614.08 (h) shall include the following:

Pedestrian signal faces with count down timers shall meet the following requirements:

- i. The dimensions of the signal housing and the LED symbols, as well as moisture and dust resistance requirements shall be in accordance with the current ITE PTCSI Standards.
- ii. Signal housing shall be aluminum, painted in Federal Green and “clam-shell” mounted.
- iii. The signal shall have user-selectable modes for countdown for walk cycle only, pedestrian cycle only, or both walk and pedestrian clearance.
- iv. The countdown module shall have an internal conflict monitor to prevent any possible conflicts between the Hand/Person signal indications and the time display. The display shall not countdown during a Solid Hand indication.
- v. LED symbols shall be solid icons and shall provide uniform light dispersion such that the “pixel” effect is minimized. Lettered or outline symbol styles will not be permitted.
- vi. The Man/Hand configuration shall provide clear and distinct lamination where either symbol is in use.
- vii. The LED module shall be rated for use in an ambient operating temperature range of -40° F to 165° F.
- viii. The signal shall meet NEMA Standard TS2 for voltage surge protection, and shall have an automatic reset in case of a power outage.

Subsection 614.13 shall include the following:

Pedestrian Signal Face (16) (Count down) will be measured by the actual number of units that are installed and accepted.

Subsection 614.14 shall include the following:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Pedestrian Signal Face (16) (Countdown)	Each

**REVISION OF SECTION OF 614
TRAFFIC CONTROL DEVICES**

Section 614 of the Standard Specification is hereby revised for this project as follows:

Subsection 614.08 (h) shall include the following:

“Light Emitting Diode” (LED) signal lenses shall be installed in all Red, Yellow, Green, Walk and Don’t Walk, and Countdown signal displays. This work shall be included in the cost of the item for Traffic Signal Face and will not be paid for separately.

**REVISION OF SECTION 614
TRAFFIC SIGNAL CONTROLLER CABINET (INSTALL ONLY)**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work shall consist of installation of a complete Traffic Signal Controller and Cabinet assembly, malfunction management units (MMU), vehicle detector amplifiers, uninterrupted power supply (UPS), Ethernet switch, other ancillary hardware, and traffic signal cabinet base per City and County of Denver standards. Material specifications are provided for information only.

Delete Subsection 614.08 (b), and replace with the following:

Traffic Signal Controllers – General

The controller shall meet or exceed the specifications of the Econolite Cobalt Fully-Actuated ATC controller

(http://cobalt.econolite.com/pdf/Cobalt_ATCTouch_Hardware_Specification.pdf), or an equivalent approved by the City and County of Denver Traffic Engineering Services.

Delete Subsection 614.08 (c) and replace with the following:

All new cabinets are the P-type cabinets as per the City & County of Denver Traffic Standards. Each cabinet shall be installed on a newly installed traffic signal controller cabinet base unless otherwise specified on the plan. Contact Chris Lillie at 720-865-0466 for cabinet assembly requirements and all other necessary auxiliary hardware.

Controller cabinet assemblies shall include an integrated uninterrupted power supply (UPS) units that comply with the City and County of Denver standards (see UPS spec).

Subsection 614.09 shall include the following:

The Contractor shall coordinate the pick-up of the controller and cabinet assembly from the City and County of Denver's Traffic Engineering Services and shall install it at the proper location. The Contractor shall coordinate pick-up times with Chris Lillie at (720) 865-4066.

The controller shall be installed in accordance with the details shown in the plans and in accordance with manufacturer's recommendations.

**REVISION OF SECTION 614
TRAFFIC SIGNAL CONTROLLER CABINET (INSTALL ONLY)**

Subsection 614.10 shall include the following:

The Contractor shall demonstrate successful traffic signal operations at all new controller and cabinet locations to the satisfaction of the Engineer or Engineer's designee prior to acceptance of this item. The Contractor shall contact the Engineer or Engineer's designee 3 days before turning on signal. Work shall include all required programming of controllers and establishing or re-establishing all required wiring connections. Phasing and timing information at each location shall be furnished to the Contractor by the City & County of Denver.

All new wiring shall conform to City & County of Denver and International Municipal Signal Association (IMSA) specifications.

Subsection 614.13 shall include the following:

The unit price for the installation of traffic signal controller cabinets shall include all labor, materials, ancillary hardware, traffic signal cabinet base, wiring and wiring re-connection (including Xcel Energy power feed) required to install a complete system and successful operation of the item. Connection of the controller to the fiber optic interconnect system shall be paid for separately under item 614 "Telemetry (Field)".

Removal and disposal of existing cabinets shall be in accordance with the Project Special Provision Revision of Section 202 – Removal of Traffic Signal Equipment.

Subsection 614.14 shall include the following:

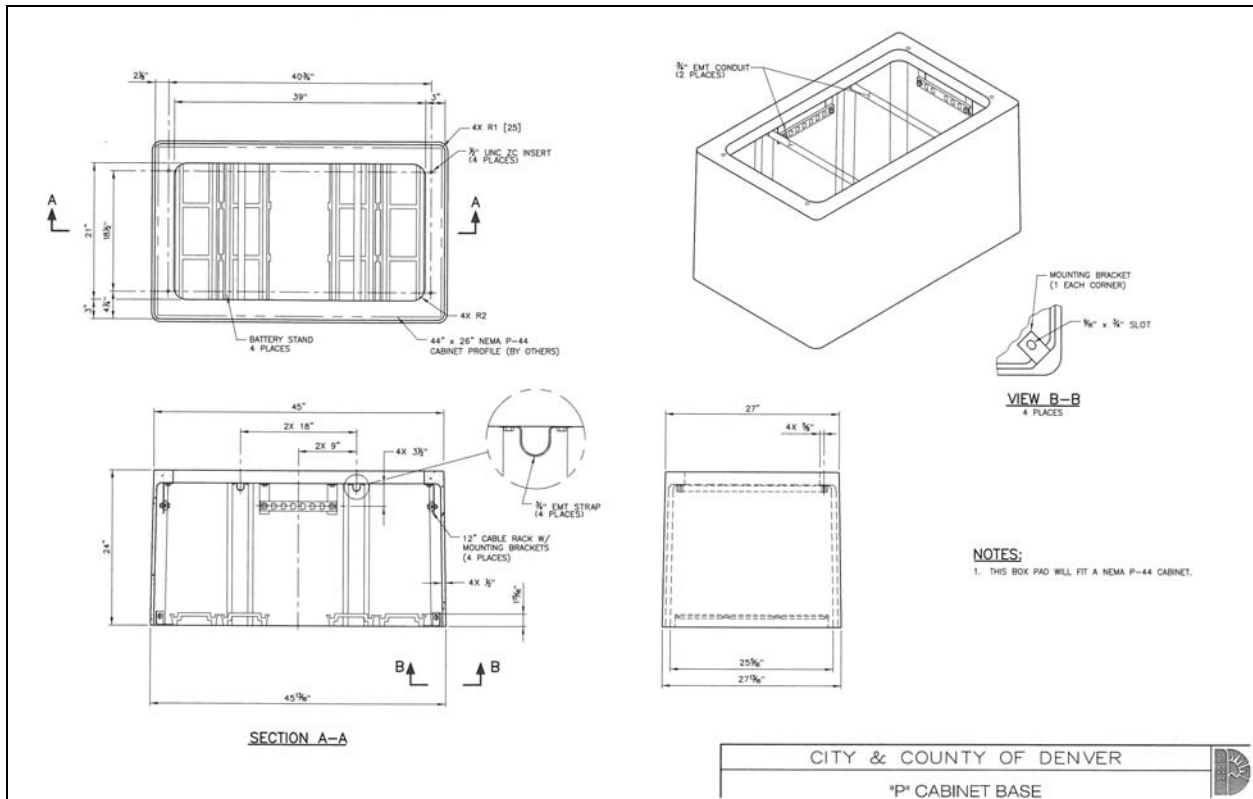
<u>Pay Item</u>	<u>Pay Unit</u>
Traffic Signal Controller Cabinet (Install Only)	Each

REVISION OF SECTION 614 TRAFFIC SIGNAL CABINET BASE

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work shall consist of providing and the installing a Quazite Traffic Signal Controller Cabinet Base as shown on the plans and in accordance with the City & County of Denver standards. The base shall be furnished by the City and County of Denver and fit the P-Type Traffic Signal Controller Cabinet. Dimensions of the base are shown in the following drawing.



Subsection 614.10 shall include the following:

Prior to starting cabinet base installation, the contractor shall obtain field verification of the location of the base from the Engineer or Engineer's designee.

Cabinet base installation shall include all labor and materials to completely install a new P-type cabinet base for the controller cabinet as specified in the plans. This is to include all conduit installation and modification work, back-filling, and repair to all surrounding surface/area.

**REVISION OF SECTION 614
TRAFFIC SIGNAL CABINET BASE**

Subsection 614.13 shall include the following:

The traffic signal cabinet base and installation will not be measured and paid for separately, and shall be included in the cost of the Traffic Signal Controller Cabinet installation.

Subsection 614.14 shall include the following:

Traffic signal cabinet base and installation will not be paid for separately, but shall be included in the cost of the Traffic Signal Controller Cabinet pay item.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.08 shall include the following:

An Uninterrupted Power Supply System (UPS) shall be included in each new Traffic Signal Controller Cabinet.

The double conversion UPS shall provide emergency battery power to the traffic signal controller. The UPS shall conform to the following specifications:

Operation:

The UPS system shall be capable of producing a fully regenerated, conditioned, pure sine wave AC. The online operational mode shall be continuous to all loads. It shall incorporate a high frequency Pulse-Width Modulated technology and shall use an input rectifier, charger, battery and inverter in a single board configuration. The UPS double conversion UPS shall provide a clean, pure AC sine-wave output at all times with a voltage input variation of 85VAC to 145VAC while providing 120VAC to the connected load at all times. The UPS shall be capable of operating in the voltage range of 85VAC to 135VAC without using the batteries and always provide a regulated output to the protected loads.

The Input rectifier shall be rated at 2.5 times the output rating of the inverter.

The Inverter circuit shall be in continuous operation at all times (constant duty). The inverter shall be rated for 100% duty cycle and simultaneously fed from the rectifier and battery to eliminate any switching to battery or transitions during power fluctuations or power interruption. The inverter's output shall be pure clean sine wave with an efficiency of up to 85%.

The constant duty operation shall be rated in total watts. This will enable the traffic UPS to support any combination of signal heads whether Incandescent, LED or Neon, by any manufacturer, regardless of power-factor.

The UPS shall be capable of operating from a generator source without the need for over-sizing the UPS system. During operation from a generator source, the UPS shall operate in a normal fashion and provide filtered and regulated power with or without automatic input/output frequency synchronization. Upon excessive generator frequency drift, the UPS shall compensate through regeneration and supplying both continuous frequency and voltage regulation to the protected load.

The UPS shall be capable of glitch ride through capabilities and provide a seamless output to the connected load during this anomaly without the use of the batteries.

The UPS shall be capable of providing an overload output rating of 120% for 60 seconds, 150% for 10 seconds to any combinations of signal types whether Incandescent, LED or Neon during inrush or overload conditions.

The UPS shall have an internal static bypass that will transfer to line power if over load exceeds 150% for more than 5 sec. This bypass will maintain the load until this overload has cleared.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The UPS shall have a separate Neutral detecting circuit that shall monitor loss of utility neutral and completely disconnect any input source to the UPS system.

The UPS shall have an input back feed relay operating in series with the Neutral monitoring circuit.

Upon loss of utility power, the UPS inverter shall continue to provide seamless pure sine-wave AC from the batteries without switching, transfer or changing its operating status. The UPS will use the battery mode in '0' ms. This will insure that the UPS provides pure sine wave power under all conditions, at all times without interruption.

The UPS will continue to provide generated AC from the inverter until the batteries are depleted.

When the batteries have been depleted, the UPS will ensure upon the return of Utility Power that the UPS will restart automatically and provide regenerated AC to the protected equipment and allow the equipment to resume normal operation.

The UPS shall be capable of operating in a full regenerated, power-conditioning mode with depleted batteries or failed batteries. The regenerative power conditioning will ensure that there will be regulated and conditioned pure AC power to the equipment. This regenerative mode will provide extended brown-output protection with wide input line regulation, noise filtering and surge protection.

The UPS shall operate in an uninterruptible regenerative on-line mode during flash or normal signal operation.

The UPS shall be rated at Unity Power Factor. The output VA and Watts rating shall be equal on the output at all times.

The UPS shall be capable of COLD starting without AC present and provide AC power to the load.

The UPS shall be capable of self diagnostics during start up or with the use of the front panel TEST button.

The UPS case shall be constructed from .064 aluminum and carbon steel.

The UPS input and output connections shall be Anderson Power Pole quick lock connector to eliminate exposed terminals or connections.

The UPS to bypass interconnect harness shall be reversible with matching Anderson Power connectors that will prevent risk of shock, or damage to the connected equipment.

The UPS shall be capable of Hot-Swapping the batteries or battery bank, without shutting down the UPS.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The UPS shall be capable of being Hot-Swapped during normal operation when used with the external Hot Swap Bypass. The UPS may also be shut-off with the Hot Swap Bypass in place without loss of AC to the loads.

The UPS shall be capable of providing a replaceable relay card with relay output contacts for AC fail, Inverter ON, Low Battery, Battery Fail, Bypass and Alarms.

The UPS relay card may be replaced with an SNMP card for SNMP communications and information.

The UPS shall provide a programmable Dry Relay output for flash.

The contacts shall be provided in N/O and N/C positions. The delay timer shall be a maximum of 10 hours.

The timer shall be front panel mounted.

The Timer dial shall be 4.7 inches in circumference.

The timer shall have a scale in increments of 1s to 10seconds. This scale can be changed to indicate 1 minute, to 10 minutes or a maximum scale of 1 hour to 10 hours.

The scale shall be controlled by two (2) separate dip switches on the timer face.

The timer shall indicate using a flashing RED LED that the timing function is operating.

The timer shall use a steady RED LED to indicate that the timing is now completed.

The timer shall count in a down mode to '0' from the preset time indicated on the scale.

The LED indicators shall provide status for AC line, UPS Battery Mode, Charging, Low Battery, Fault, Bypass, Percentage of Load and Battery Charge.

The Event counter and Hour meter may be reset to '0' using separated buttons.

The UPS shall have a battery charger rated at 200 watts @ 36VDC with an optional of 400 watts.

This charger shall be completely separate from the rectifier/inverter included with the main UPS board.

The UPS chargers may be used in a parallel configuration for increased charger ratings.

The UPS uses a redundant internal 1 amp charger that will continue to charge the batteries if the separate board charger fails.

The UPS may be used with redundancy in mind with the use of the Dual Hot Swap Option.

That will provide a secondary UPS source in less than 20ms. The Secondary UPS may be connected to the alternate input of the Hot Swap Bypass

The Flash programming shall be simple and field programmable without the use of an external connected device such as a laptop or computer.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The Hot swap Bypass shall allow the UPS to be removed or installed at any time during normal load operation.

The UPS shall include standard graphical real time software and connection cable.

The UPS shall be capable of sending programmable system alarms to the Econolite “icons” Traffic Management System.

Physical Description:

The UPS shall consist of 3 major components. The Main board Rectifier/Inverter, charger and control board.

The Main Board shall consist of a True-Sine-Wave constant duty high frequency inverter utilizing High-Frequency Pulse-Width Modulated technology.

The Input Rectifier shall be rated for the total wattage output rating of the UPS including the 150% overload and the charger rating. The inverter shall be a high efficiency constant duty design with an efficiency of 83%. The inverter shall include its own static bypass which provides an alternate AC path during overload and or Inverter alarm conditions.

The heat-sink shall be a continuous aluminum extrusion design with plenum directed airflow cooling. The 12VDC dual stage cooling fans shall be variable speed controlled by the logic board.

The charger portion shall be a 3 stage Hysterisis .5 amp, 36 or 72VDC charger with temperature compensation. The supplementary charger is a parallel design rated for 200, 500 and 1000 watts.

The Electronic Control board shall monitor the Rectifier and Inverter functions. It shall also provide the overall control of all the UPS functions and or operational capabilities.

Mounting Configuration:

The UPS shall be shelf mounted or rack mounted per the documents. Shelves and cabinets shall be supplied by others. Where rack mounting is required, the 170 style mounting method shall be 19” rack mount. Rack mounting ears shall be removable.

A separate standalone NEMA Traffic cabinet may be supplied if required in the plans and specifications.

4 rubber feet shall be installed on the bottom of the unit for shelf mounting.

Battery System:

The batteries shall be comprised of a quantity of three (3), high temperature, deep cycle (45AH) batteries which have been proven under extreme temperature conditions. The battery system or configuration shall consist of one string. Each string shall be 36 VDC. The batteries shall be provided with the appropriate interconnect cables. The battery cables shall have a minimum conductor size rating of #10.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The battery cable shall consist of a quick release Anderson connector rated at 25 amps. For the purpose of safety, the connector shall have recessed pins and keyed interlock to prevent reversal of connection or separation.

Battery construction shall be of a polycarbonate high temperature design combined with high, pure lead content with internal resistance of .0028 ohms and a high impact poly case construction, to withstand high vibration and shock. The connections shall be of stainless steel 3/8 stud, with 3/8 stainless nut and locking washer. Removable lifting handle shall be standard.

The batteries shall also meet the following characteristics:

Nominal voltage:	12VDC
Capacity@ 25C:	45AH
Approx weight:	13.5Kg
Internal Resistance:	9.5 mOhms
Dimensions:	197mm x 165mm x 170mm (7.76 x 6.50 x 6.69)
Capacity (10hr rate):	75c-112% 65c-108% 55c-105% 25c-100% 0c- 85% -15c- 65%
Self Discharge:	3 months 91% capacity remaining 6 months 82% capacity remaining 12 months 65% capacity remaining
Operating Temperature:	-15c to +75C
Float Voltage:	13.5 to 13.80
Cyclic charging voltage:	14.5 to 14.90
Maximum charge current:	12A
Terminal material:	Copper
Maximum discharge current:	400A (5 sec)

The system must be 36 volt DC maximum (no exception).

Electrical Specifications:

The unit shall meet the following electrical specifications:

Design:	Double Conversion true on line.
Nominal input:	110, 115 & 120v AC single phase dip switch selectable.
Input Voltage Range:	80v to 140v AC
Input frequency:	50/60hz (47 to 63)

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

Efficiency:	83 %
Input configuration:	3 wire with ground
Input Protection:	15 amp re-settable breaker (on UPS 700)
Input Current:	10.4 amps (includes charger) (on UPS 700)
Power Rating Continuous:	700 watts, 1400watts, 2100 watts
Output Current:	@ 700 watts 5.8 amps / 11.6 @1400/ 17.7@2100
Output regulation:	+/- 3% with 100% resistive load
Output regulation w/low battery:	+/- 3% with 100% resistive load
Output Voltage:	120v AC
Output Wave Form:	Pure sine wave
Harmonic Distortion:	3% Linear Load; 5% Non Linear Load
Dynamic Response:	+/- 5% RMS for 100% step load change
1 ms recovery time	
Overload Capability:	120% for 60 sec 150% watts for 10 sec
Charger:	200 watt 36VDC UPS 700, 72VDC on UPS 1400 Parallel 400, 1000 and 2000 watt.
Surge:	ANSI-C62.41
Fault Clearing:	Current Limit and automatic to bypass
Short Circuit protection:	Output Breaker / Fuse, then shut down
Load Power Factor:	6 leading to .6 lagging
Output Connection:	Anderson Power Pole Connector 6 pin keyed.
DC Connection:	Anderson 50 amp Keyed Recessed connector
Recognition:	UL Recognized & IEE 587 / C62.41 on main UPS board

Mechanical:

The UPS shall meet the following physical dimensions:

For 700 W UPS:

Size:	6.00" H x 10.5" D x 15.15" W
Weight:	18 lbs

The enclosure shall be constructed of 0.064 Carbon steel and aluminum. The enclosure shall be painted with powder coat paint with a minimum of 1.5 mil thickness.

Environmental:

The UPS shall meet or exceed NEMA temperature standards from -40c to + 74c.

Communications, Control & Diagnostics

LED indicators shall be provided for line monitoring, battery mode, charging, low battery, fault / bypass load level, battery level and ground fault. Manual test functions shall be available for alarm function, low battery, battery fail, bypass and overload. An RS 232 port with communication software shall be provided for real time UPS operational status in place of a relay status card when required.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The relay status card shall have the following I/O via contact closure:

1. Bypass ON
2. AC fail or out of tolerance.
3. AC normal or in tolerance.
4. Inverter is operating (ON)
5. Battery low
6. Battery failed or bad
7. UPS general alarm
8. Ground (logic)
9. Apply 6 to +25VDC
10. between pin 9 and 10, will shut the UPS down

Options:

The UPS must be able to accept the following future options

- SNMP/WEB monitoring.
- 24/7 Adjustable perpetual timer.
- Generator input option for hot swap bypass switch.
- Rack mount hot swap bypass switch.

In place of the relay card, an SNMP card can be installed that shall support TCP/IP, UDP, SNMP, and HTTP protocols and shall provide the SNMP MIB for UPS monitoring and UPS status. Remote access to UPS real time information including unit identification, data logging and UPS status in real time shall also be provided on a by unit basis. It shall be possible to use Microsoft Internet Explorer for remote viewing of the following:

1. UPS load
2. Battery Charger status
3. UPS operation Normal/Alarm
4. Input Voltage
5. Output Voltage
6. Battery Voltage
7. UPS Temperature
8. UPS information logging
9. Remote UPS battery testing.
10. Send output email if UPS status has changed
11. Built in reset with panel mounted led indicators for SNMP status.

The SNMP card shall have the following status LEDs:

- LED(1) Green LED: Status receiving
Yellow: Data Transmitting
- LED(2) Green: SNMP connecting
Yellow: SNM P functioning

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The optional 24/7 timer shall be integral to the UPS. It shall include a DB9 connector to provide the connection and programming to the timer. This timer shall be programmable for any number of flash delays related to the time of day. It allows the complete flexibility of flash delay or skipping the flash during that particular event related to traffic flow and even holidays. The time shall have the follow features:

1. 7 days, 24 hrs Flash delay timing.
2. Perpetual Clock.
3. Maximum of 31 setting per day.
4. Timing resolution to the minute.
5. 4 Possible commands per event.
6. Real-time operation, editing functions will not interrupt the unit's functions.
7. J-Tag port for instant preload of complete 7-day schedule file.
8. SPDT 10 amp 240VAC /24VDC ratings.
9. Input Voltage 110 to 240VAC or 24VDC unregulated supply.
10. Plus! Capable of scheduling for holidays or specific year/dates.
11. Capable of operating at 2400 baud micro-modem for direct phone connection
12. Capable of operating at 1200 to 230,000 baud rate on a serial port.
13. Capable of log retention

An optional generator input shall be available for the UPS.

Reliability:

Calculated MTBF shall be 120,000 hours based on component ratings. When bypass switch is installed, system MTBF shall increase to 160,000 hours.

Hot Swap Bypass Switch:

A hot bypass switch shall be provided and wired to function within the UPS system. The bypass switch shall have the following characteristics:

Bypass Rating:	30 amps maximum
Bypass Transfer:	Automatically to line in 20ms, '0' crossing at full load
Control:	Rocker On/Off switch indicating 'Auto' and Bypass
Relays:	AC internal Load relay at 'Zero Crossing' with parallel function DC relay for interlocking and protection failsafe mode to N/C for AC power direct to load when failure occurs or in Bypass position.
Protection:	Internal Snubber circuit for spike attenuation during transfer at 'Zero' crossing. Internal fuse required.
Connections:	Flush mounted Anderson Power connector. With locked and keyed.
Indicators:	LED for Line Available, Bypass, Ups On Line, UPS Available.
Dimensions:	7.5 x 5 x 2.5
Weight:	1.4 lbs

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

Warranty:

A standard (2) two year manufacturer warranty shall be provided for all electronic components. All batteries shall carry a one year warranty.

Subsection 614.13 shall include the following:

Traffic signal uninterrupted power supply system installation will not be paid for separately, but shall be included in the cost of the Traffic Signal Controller Cabinet.

Subsection 614.14 shall include the following:

Traffic signal uninterrupted power supply system installation will not be paid for separately, but shall be included in the cost of the Traffic Signal Controller Cabinet.

**REVISION OF SECTION OF 614
PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN**

Section 614 of the Standard Specification is hereby revised for this project as follows:

Subsection 614.08 (f) shall include the following:

1-1: Push button assemblies shall be of the direct push button solid state contact type and shall not have any levers, handles or toggle switches externally or internally. The pushbutton shall be of tamperproof and all weather construction. The pushbutton shall have a protective shroud that is an integral part of the cover and it shall encircle the pushbutton actuator to deter vandalism. The assembly shall be made weatherproof and shockproof by means of synthetic rubber gaskets between the cover and the enclosure and between the plunger and the cover so that it shall be impossible to receive an electrical shock under any weather conditions. The front cover plate shall be secured with stainless steel vandal resistant screws. The push button shall operate on logic ground.

1-2: The solid state switch shall be entirely insulated from the housing and operating button. The pushbutton shall consist of a 2 inch 303 stainless steel metal plunger and an oil and gasoline resistant Piezo driven solid state switch, all encased in a high impact thermoplastic enclosure with four (4) stainless steel mounting screws. The solid state switch shall be normally open and shall be closed with a minimum of pressure on the button ($3lb \pm 1lb$), restoring immediately to the normally open position when the pressure is released.

The aluminum housing shall be the flat back frame type with adjustable mounting staves that will readily enable it to be mounted on any size traffic signal pole or push button standard. The housing shall have a $\frac{1}{2}$ inch access hole in the rear for wiring. The housing shall have a bottom threaded conduit entrance hole and shall be provided with a threaded plug so that access is only possible from the rear of the housing. The plug shall not be removable with ordinary tools. The housing shall be painted Dark Olive/Federal Green baked enamel matching to Federal Standard 595A color #14056.

The frame shall have a cast aluminum attachment to allow the mounting of a 9" X 12" pedestrian instruction sign. By removal of 4 screws the frame shall convert to allow the mounting of a 5" X 7 $\frac{3}{4}$ " pedestrian instruction sign.

Pedestrian Instruction Sign:

2-1: Pedestrian instruction signs shall conform to the latest version of the M.U.T.C.D., published by the U.S. Department of Transportation Federal Highway Administration.

2-2: Pedestrian instruction signs shall be Type R10-3a, Type R10-3b, Type R10-3c, R10-3d, and R10-3e as specified in the contract documents (or bid documents).

Pedestrian instruction signs shall be constructed in accordance with the applicable provisions of the current CCD Standard Specifications. Pedestrian instruction sign need not be reflectorized. The sign shall be fabricated with 0.063 aluminum. The signs shall be mounted using four $\frac{5}{16}$ " mounting holes 4" X 6 $\frac{3}{4}$ " for the 5" X 7 $\frac{3}{4}$ " sign and 7" X 10" for the 9" x 12" sign. The pedestrian instruction signs shall have rounded corners $\frac{3}{4}$ " radius for the 5" X 7 $\frac{3}{4}$ " sign and 1 $\frac{1}{2}$ " radius for the 9" X 12" sign.

**REVISION OF SECTION OF 614
PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN**

Subsection 614.14 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Pedestrian Push Button	Each

The Pedestrian Instruction Sign shall not be paid for separately but included in the cost of the Pedestrian Push Button pay item.

**REVISION OF SECTION 614
FIRE PREEMPTION UNIT AND TIMER**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.08 shall include the following:

System Description:

The Fire Preemption Unit and Timer shall enable designated vehicles to remotely cause the traffic signal controller to advance to and/or hold a desired traffic signal display by using existing controller functions. The control shall be activated at a minimum distance of 548.6M (1,800 feet) along an unobstructed "line of sight" path. The control shall not terminate until the vehicle is within 12.2M (40 feet) of the detector or at the intersection.

The system shall consist of the following components:

- A. Vehicle Emitter which shall be mounted on the emergency vehicle and shall transmit optical energy signals only in the forward direction. If the municipality presently uses optical pre-emption, the emitters shall be of the same manufacture currently used by the City and County of Denver Fire Department.
- B. Phase Selector (minimum 2 channels) which shall cause the signal controller to advance to and/or hold the desired traffic signal display for the emergency vehicle. A pre-emption system chassis shall house two phase selectors.
- C. Optical Detector which shall be mounted on or near a traffic signal and shall receive the optical energy signals generated by the Vehicle Emitter.
 - a. Detector (Type A), 1 Direction, 1 Channel
 - b. Detector (Type B), 2 Direction, 1 Channel
 - c. Detector (Type C), 2 Direction, 2 Channel
- D. Detector Cable (Optical).

System Operations:

- A. The operating sequence shall be initiated when the optical detector receives the required optical energy signal from the Emitter.
- B. The phase selector shall cause the traffic signal controller to advance to and/or hold the desired traffic signal display for the emergency vehicle.
- C. The phase selector shall cause the controller to advance to and/or hold the desired traffic signal display even if the optical energy signals cease before the desired display is obtained.

**REVISION OF SECTION 614
FIRE PREEMPTION UNIT AND TIMER**

- D. The phase selector shall allow the traffic signal controller to resume normal operation within ten seconds after optical energy signals cease if the optical energy signals cease after the desired traffic signal display is obtained.
- E. The phase selector shall not respond to optical energy signals from an emergency vehicle if it is already processing optical energy signals from another emergency vehicle.

System Components:

A. Vehicle Emitter:

The emitter assembly consists of an emitter and power supply and an emitter control switch assembly. The emitter assembly is mounted on a vehicle and produces a flashing optical signal when in operation. The following shall apply to the vehicle emitter:

1. Shall operate on ten to fifteen volts DC input voltage, but shall not be damaged by input voltage surges up to twenty-five volts DC.
2. Shall be controlled by a single on/off switch that requires no other adjustments by the operator. The on/off condition shall be indicated by a light located adjacent to the switch.
3. Shall be automatically disabled or de-activated by one or a combination of the following: seat switch, emergency brake switch, door switch, and transmission safety switch.
4. Shall operate over an ambient temperature range of minus 34^o C to plus 60^o C. (minus 30^o F. to plus 140^o F.)
5. Shall operate in 0 to 95 % humidity.
6. Shall be a pulsed optical energy source with a controlled repetition rate.
7. Shall not generate voltage transients on the battery input line which exceed battery voltage by more than four volts.
8. Shall produce optical energy in a cone of not more than 90 degrees horizontal and not more than 30 degrees vertical. The detectors and/or phase selector shall not sense a pre-emption signal from an emitter outside this cone.

B. Optical Detector:

The optical detector receives the high intensity optical pulses produced by the emitter. These optical energy pulses are transformed by the detector into appropriate electrical signals which are transmitted to the phase selector. The optical detector is mounted at or near the intersection in a location which permits an unobstructed line of sight to vehicular

**REVISION OF SECTION 614
FIRE PREEMPTION UNIT AND TIMER**

approaches. The units may be mounted on signal span wires, mast arms or other appropriate structures. The following shall apply to the optical detector:

1. Shall produce optical energy in a cone of not more than 90 degrees horizontal and not more than 30 degrees vertical. The detectors and/or phase selector shall not sense a pre-emption signal from an emitter outside this cone.
2. Shall be of solid state construction.
3. Shall operate over an ambient temperature range of minus 34^o C to plus 60^o C. (minus 30^o F. to plus 140^o F.)
4. Shall have internal circuitry potted in a semi-flexible compound to ensure moisture resistance.
5. Shall operate in 0 to 95 % humidity.
6. Shall have a cone of detection of not more than 13 degrees. The detector and/or phase selector shall not sense a pre-emption signal from an emitter outside this cone.

C. Phase Selector:

The phase selector supplies power to and receives electrical signals from the optical detector. When detector signals are recognized as a valid call, the phase selector causes the signal controller to advance to and/or hold the desired traffic signal display. This is accomplished by activating the pre-empt input to the controller.

The phase selector is capable of assigning priority traffic movement to one of two channels on a first-come, first-serve basis. Each channel is connected to select a particular traffic movement from those normally available within the controller. Once a call is recognized, "commit to green" circuitry in the phase selector functions so that the desired green indication will be obtained even if optical communication is lost. After serving a priority traffic demand, the phase selector will release the controller to follow normal sequence operation. The following shall apply to the phase selector:

1. Shall include an internal power supply to supply power to the optical detectors.
2. Shall have minimum two-channel operation with the capability of interfacing with an additional phase selector for expansion of channels of operation.
3. Shall have adjustable detector range controls for each channel of operation, from 12M (40 feet) to 548M (1800 feet).
4. Shall have solid state indicator lights for power on and channel called.
5. Shall operate over an ambient temperature range of minus 34^o C to plus 60^o C (minus 30^o F. to plus 140^o F.)
6. Shall operate in 0 to 95 % humidity.

**REVISION OF SECTION 614
FIRE PREEMPTION UNIT AND TIMER**

D. Detector Cable (Optical):

The following shall apply to the detector cable:

1. 3-Conductor cable with shield and ground wire.
2. AWG #20 (7x28) stranded.
3. Individually tinned copper strands.
4. Conductor insulation: 600 volt, 75 deg. C (167^o F.).
5. 1 Conductor-yellow; 1 Conductor-blue; 1 Conductor-orange.
6. Aluminized Mylar shield tape or equivalent.
7. AWG #20 (7x28) stranded uninsulated drain wire
8. DC resistance not to exceed 11.0 ohms per 305M (1000 feet).
9. Capacitance from one conductor to other two conductors and shield not to exceed 157pf/M (48pf /ft.).
10. Jacket: 600 volts, 80 deg. C (176^o F.), minimum average wall thickness - 1.14mm (.045").
11. Finished O.D.: 7.62mm (0.3") max.

System Interface:

System shall be capable of operating in a computerized traffic management system when appropriate interfacing is provided by the computer supplier.

General:

The Contractor shall furnish the manufacturer the phasing diagrams indicating controller sequence and timing.

The Contractor shall secure from the manufacturer a guarantee for the equipment for a period of sixty (60) months, which time shall commence from the date of delivery. Manufacturer shall certify upon request that all materials furnished will conform to this specification. The manufacturer or his designated representative shall be responsible for determining and setting all required range and emitter intensity for the emergency vehicle operation.

**REVISION OF SECTION 614
FIRE PREEMPTION UNIT AND TIMER**

Construction Methods:

All equipment except the vehicle emitter assembly shall be installed and wired in a neat and orderly manner in conformance with the manufacturers' instructions. The vehicle emitter assembly shall be delivered to a designated City representative.

Installation of the vehicle emitter assembly shall be the responsibility of the City and County of Denver Fire Department.

Traffic signals owned and maintained by the State that have optical pre-emption equipment owned and maintained by the town shall have an Auxiliary Equipment Cabinet (AEC) attached to the controller cabinet. The optical pre-emption equipment shall be housed in the AEC. Traffic signals owned and maintained by the town do not require an AEC to house the pre-emption equipment.

Detector cables shall be continuous with no splices between the optical detector and the AEC.

Detector locations shown on the plan are for illustration purposes only. Exact location shall be determined by the contractor or the designated representative for the best possible line of sight.

If not present in an existing traffic controller cabinet, the following items shall be installed and connected, in conformance with the current Functional Specifications for Traffic Control Equipment, "D" Cabinet Requirements (Pre-emption Type):

- Controller "D" harness and adapter.
- Pre-emption termination panel with terminal block and relay bases.
- Pre-emption disconnect switch, mounted on the emergency switch panel (on inside of cabinet door).
- Pre-emption test buttons, mounted on the pre-emption termination panel.

All connections from the phase selector to the "D" harness and to the cabinet wiring shall be made at the termination panel. The termination panel shall have AC+ Lights, AC-, and a switched logic ground. The switched logic ground feeds all the pre-empt inputs to the phase selector. When switched off by the pre-emption disconnect switch, the traffic controller shall not be affected by pre-empt calls from the optical pre-emption system. A minimum of two test buttons shall be provided. If there are more than two pre-empt runs, a button for each shall be installed. A chart or print out indicating the program steps and settings shall be provided along with the revised cabinet wiring diagrams.

Test the Pre-emption System According to the following Guidelines:

1. Notify the system owner/user, such as the Municipal Fire Chief or City Traffic Engineer, of the scheduled inspection
2. Request a fire department representative and an emergency vehicle, which has an emitter to conduct the test. If not available, the contractor shall provide an emitter.

**REVISION OF SECTION 614
FIRE PREEMPTION UNIT AND TIMER**

3. In the presence of the Engineer and the municipal representative, test each pre-empted approach with the emergency vehicle. Test the following items of the system:
 - a. Confirm that the emitter activates the phase selector and the phase selector activates the correct pre-emption input to the controller.
 - b. Confirm adequate range. The traffic signal must be pre-empted to green sufficiently in advance of the emergency vehicle arrival. The vehicle emitter shall initiate pre-emption at a minimum distance of 548.6M (1800 feet).
 - c. Confirm there are no false calls. Keep the emitter active as the emergency vehicle passes through the intersection. No other optical detectors shall sense the strobe.
4. Document the test. Provide the Engineer and, upon request, the municipality copies of the test results.

If a malfunction is found or the system needs adjustment (such as range, emitter intensity, or detector location), schedule a follow-up test. Repeat the above steps for all approaches that did not pass.

All adjustments such as emitter intensity, phase selector range, sensitivity, detector placement, shall be made at the intersection by the contractor so that the optical pre-emption operates correctly with other major manufacturers' equipment currently owned by the town.

Subsection 614.13 shall include the following:

The Fire Preemption Unit and Timer shall include a four-channel card and the number of detectors as shown on the plans. Fire Preemption Unit and Timer shall be measured and paid by the number of intersections at which the system is installed. The item shall include all labor, materials, and ancillary hardware required to provide a fully functioning system to the satisfaction of the Engineer.

Subsection 614.14 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Fire Preemption Unit and Timer	Each

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work consists of furnishing and installing a fully-functional thermal detection system at the intersection as specified on the plans.

Subsection 614.08 shall include the following:

1 Detection Camera

The detection camera shall consist of a thermal camera, thermal lens, and enclosure; and shall meet the following specifications:

1.1 Thermal Camera & Lens

The detection camera shall be a 320 x 240 (minimum) and 10 frames per second (minimum) thermal camera that fits into the camera enclosure specified herein. The lens shall be a fixed thermal lens. Digital zooming is allowed.

1.2 Camera Enclosure

The camera enclosure shall consist of a dustproof and waterproof outdoor camera housing designed specifically to fit the thermal camera and thermal lens specified herein. The enclosure shall have a sun shield to prevent direct and indirect sunlight entering the lens. A thermostatically controlled heater for window defogging and defrosting is allowed.

1.3 Power

The detection camera shall be powered by a 120/240VAC, 50/60Hz power source or by a 24VDC ($\pm 10\%$) power source.

1.4 Reliability

The interface card shall be designed and manufactured to have a MTBF (Mean Time Between Failure) prediction figure of greater than or equal to 10 years continuous operation.

1.5 Certifications & Environmental

The detection camera shall meet the following Certifications and Environmental specifications:

Certifications	Comply with Electromagnetic Compatibility - 2004/108/EG Comply with FCC Part 15, Class A
Weatherproof	IP66 ingress protection standards (minimum)
Operating Temperature	-34°C to +74°C (-29°F to +165°F) (minimum)
Relative Humidity	Up to 100% non condensing
Shock & vibration	NEMA II

1.6 Mounting Brackets

A versatile mounting bracket shall be supplied to mount the camera enclosure, specified herein, to a horizontal luminaire or vertical traffic signal pole.

All mounts shall be secured with stainless steel mounting straps or bolts. The mounts, including the mass and size of the detection camera, shall be designed to withstand a wind load of 120km/h (or 75mph) with a 30-second gust factor.

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

1.7 Camera to Controller Cabinet Cable

Cable needed to power the detection camera specified herein, transmit thermal video and data information to the controller cabinet shall be provided and meet the specifications of the thermal video imaging detection system manufacturer.

2 Thermal Video Processor

A thermal video processor shall be included in the detection camera, specified herein, or in the interface card, specified herein; and shall meet the following specifications:

2.1 Functionality

The thermal video processor shall provide the following functionality:

Detector Display	Capable of displaying bike detection regions on the thermal video image with associated outputs with output status shown on the screen
Detector Placement	By using a portable PC with graphical user interface software or web server
Detector Function	Capable of detecting within the view of the connected detection camera the presence of bicycles in user defined bicycle detection regions
Detector Type	Configurable as presence, count, delay, extension, or pulse mode of either arrival or departure of bicycles. The detector shall be capable of detecting pedestrians and small motorcycles too.
Detector Modification	All detectors and parameters shall be able to be changed without interrupting detection. When one detector is modified, all existing detectors shall continue to operate, including the one that is being modified. When the new detector position is confirmed, the new detector shall have no learning phase and shall be operating while the one being modified ceases to operate
Detector Failure State	Provide a constant call on each active detection channel, in the event of unacceptable interference or loss of the thermal video signal
Regions per Video Output	Up to 4 (minimum)
Detector Delay & Extension	Defined between 0.1-99 seconds and pulse mode between 0-500ms in 10ms increments.
Direction Sensitivity	Able to make a detector directional sensitive

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

3 Camera Interface/Surge Suppression Panel

When the thermal video processor is in the detection camera, a UV resistant signal cable with 3 wires (maximum) of wire diameter AWG18 (minimum) shall be provided to power the detection camera, transmits detection information to the interface card specified herein, and provides remote communication specified herein. The cable distance between detection camera and interface card is 300m or 1,000ft (minimum).

When the thermal video processor is in the interface card with coax thermal video cables being used between the detection camera and the interface card, a surge suppression panel shall be provided that powers the detection camera with high-voltage transient protection and power isolation, and suppresses electrical spikes on the thermal video coax cable.

The camera interface/surge suppression panel shall meet the following specifications:

3.1 Certifications and Environmental

The interface card shall meet the following Certifications and Environmental specifications:

Certifications	Comply with Electromagnetic Compatibility - 2004/108/EG Comply with FCC Part 15, Class A
Operating Temperature	-34°C to +74°C (-29°F to +165°F) (minimum)
Relative Humidity	0-95% non-condensing (minimum)
Shock & vibration	NEMA II

4 Interface Card

Input/output main and expansion cards shall be supplied that are designed to convert real-time detection signals from the video processor, specified herein, into contact closure signals to the traffic light controller; and to relay traffic signal phase status to the video processor, specified herein. The interface card shall meet the following specifications:

4.1 Functionality

The interface card shall provide the following functionality:

Cabinet/Controller Compatibility	US: EDGE card for TS-1 cabinet and 2070 TS-1 and TS-2 controllers Rest of World: EURO card for various standard controllers
Status Indicators	Visual for state of each detection output, visual state of power status (ON/OFF), visual state of camera status (operational/not operational)
Identification	Individually addressable with serial number, MAC address, IP-address, subnet mask and default gateway
Program Retention	Continue to operate in accordance with previous program after recovering from communication system or power failure
Time Synchronization	Manually or NTP time source

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

4.2 Communication

The interface card shall meet the following specifications:

Controller Interface Output	Contact closure via interface backplane, providing up to four channels of vehicle detection with no front panel connectors being used
ETHERNET	RJ45 port for hard-wired system set-up and monitoring
USB	USB 2.0 (minimum) on front panel for connecting a USB dongle to allow wireless set-up and monitoring via portable PC, tablet and/or smart phone

4.3 Remote Communications

Remote communications to allow remote management specified herein shall be provided via the interface card and shall meet the following specifications:

4.3.1 Functionality

Remote communications shall provide the following functionality:

Cabinet/Controller Compatibility	US: TS-1 cabinet and 2070 TS-1 and TS-2 controllers Rest of World: EURO card for various standard controllers
Thermal Video Compression	MJPEG, MPEG-4 (ISO 14496-2) and/or H.264 (ISO/IEC MPEG-4 AVC)
Thermal Video Frame Rate	Constant and variable 10 frames per second (minimum)
Thermal Video Bandwidth	Between 32 kbps and 4 Mbps (minimum)
Status Indicators Identification	Ethernet link/activity Individually addressable with serial number, MAC address, IP-address, subnet mask and default gateway
Program Retention	Continue to operate in accordance with previous program after recovering from communication system or power failure

4.3.2 Communication

The remote communications shall meet the following specifications:

Ethernet Port	One 10/100Base-T front-panel RJ45 port (minimum)
Thermal video Input	Via front panel connector

4.4 Power

The interface card shall meet the following power specifications:

Input Voltage	24VDC \pm 10% (via cabinet detector rack backplane)
Power Consumption	10W (maximum)

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

4.5 Physical Properties

The interface card shall meet the following physical properties specifications:

Size	US: Fits directly into NEMA TS-1 cabinet detector rack or fits on DIN-rail Rest of world: Fits directly in EURO half/full 19" rack or fits on DIN-rail
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4.6 Reliability

The interface card shall be designed and manufactured to have a MTBF (Mean Time Between Failure) prediction figure of greater than or equal to 10 years continuous operation.

4.7 Certifications and Environmental

The input/output main and expansion cards shall meet the following Certifications and Environmental specifications:

Certifications	Comply with FCC Part; 15 NEMA TS 2-2003 v02.06
Operating Temperature	-37°C to 74°C (-35°F to 165°F) (minimum)
Humidity	0 – 95% non-condensing

5 Remote Management System

Remote management system shall be provided to monitor, control, and troubleshoot the thermal video imaging detection devices remotely via the Ethernet communication system. The vendor shall provide all software that will be loaded and configured by staff on furnished server hardware that is connected to the thermal video imaging detection devices via the Ethernet communication system. Remote management shall meet the following minimum requirements:

5.1 Diagnostic & Health Monitoring

Management Status	Provide real-time status display of services required to access, troubleshoot, and archive data from the thermal video imaging detection system network connected devices
Network Device View	Provide view of all thermal video imaging detection system network connected devices
Operation Log	Support retrieving, displaying, and saving operational messages, warnings, and errors

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

5.2 Remote Management & Maintenance

Video Viewing/Recording	Support viewing and recording streaming video including detector overlay
Device Management	Support creating, editing, downloading, and uploading detector configurations
Remote Firmware Updates	Support updating firmware of any device from a remote location
Remote Backup/Restore	Support backup/restore device configuration from remote location
Access Permissions	Support password implementation
Clock Synchronization	Support the Network Time Protocol (NTP) to synchronize the internal clocks of the thermal video imaging detection system network connected devices a minimum of once a day

Subsection 614.10 shall include the following:

Intersection Detection System (Camera) shall be installed per manufacturer requirements and recommendations.

Subsection 614.13 shall include the following:

Intersection Detection System (Camera) shall be measured and paid by the number of cameras installed at each intersection. The item shall include all labor, materials, and ancillary hardware required to provide a fully-functional system to the satisfaction of the Engineer.

Subsection 614.14 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Intersection Detection System (Camera)	Each

**REVISION OF SECTION 614
TRAFFIC SIGNAL POLES – GENERAL**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

The City and County of Denver will furnish and order all traffic signal poles and mast arms. The Contractor shall store and protect the poles and mast arms in the Contractor’s yard upon delivery. The Contractor will transport the poles and mast arms to the job site for installation. The traffic signal poles, mast arms, and luminaires will be installed by the Contractor.

Contractor shall be responsible for furnishing and installing the aluminum pedestal poles.

Subsection 614.08 (g) shall include the following:

Traffic Signal Pedestal Poles shall conform to the requirements of the City and County of Denver’s Traffic Signal Standard Detail 16.1.13.

Handling and Shipment:

Poles shall be handled in a manner that will preserve the overall appearance and prevent damage to the coating. The use of chains or cables for loading, unloading, or installing is prohibited. Only ¾ inch diameter or larger nonabrasive nylon rope or equivalent nylon belting will be used. Adequate hold-downs and appropriate blocking shall be utilized for shipping to prevent load movement and damage to the outer coating in transit. No handling should be allowed until “dry through” condition has been achieved with the coating.

Delivery, Installation, and Acceptance of Poles:

Extra care will be taken not to damage the coating. Upon arrival of the poles at the delivery point, neither chains nor cables will be used for either unloading or installation of poles.

Procedure for Field Touch-Up:

The pole manufacturer will furnish extra paint, both primer and color coat, to satisfy the needs of field touch-up requirements, in the event of minor physical damage to the coating from handling or transit. Damaged area must be clean and dry before repair application. Field touch-up will be at the direction of the pole manufacturer or their authorized representative.

Subsection 614.14 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Traffic Signal-Light Pole Steel (1-XX Foot Mast Arm) (Install Only)	Each
Traffic Signal Pedestal Pole Aluminum	Each

**REVISION OF SECTION 614
TELEMETRY (FIELD)**

Section 614 of the Standard Specifications is hereby revised for this project as follows.

Subsection 614.01 shall include the following:

This work consists of fan-out and termination of fiber optic (interconnect) cable at each controller cabinet location as identified in the plans. This work also includes providing and installing all necessary telemetry equipment including but not limited to optical splice closures, field patch panels, splice organizers, cables, pigtails/jumpers and labels.

Color-coded fibers and buffer tubes shall be used throughout the entire project. At the terminal points the jackets shall be stripped and the ends taped. Gel filled compound shall be removed using filled cable cleaner.

At every cabinet or optical closure, only the fibers identified in the plans to be spliced and/or connected to a patch panel or other internal device are required to be landed. All cut and unconnected fibers shall be sealed in a manner recommended by the fiber optic cable manufacturer and coiled neatly in a splice organizer.

The same color-coded pairs of fibers and/or wires shall be used throughout the entire project unless shown as otherwise in the plans. Gel filling compound shall be removed using filled cable cleaner.

At the University Boulevard & Dartmouth Avenue intersection, this pay item shall include all work necessary to connect the new traffic signal controller to the existing radio equipment at the intersection.

Subsection 614.08 shall include the following:

Fiber Optic Patch Pigtail:

The fiber optic pigtail cables shall consist of MM fibers housed individually in protective jackets. Both ends of the cable shall be connected. Fiber optic patch cord cable shall be suitable for operation over a temperature range of -30 degrees to +60 degrees Celsius. Fiber optic patch cord cables shall be of length suitably long to be connected between the interconnect panel and the communications equipment (i.e. fiber optic transceivers). Patch cord couplings shall be compatible with termination points. Appropriate strain relief in the cabinet (through cable ties) shall be installed at a minimum of three locations. Sufficient slack shall be left to allow relocation of the equipment anywhere in the cabinet. The attenuation of a fiber optic patch cord cable after installation, not including the connector loss, shall not exceed 0.1 dB measured at 850 nm and 1300 nm.

Connectors:

The connector shall have a ceramic ferrule with a nickel-plated nut and body. The connector shall be an AT&T ST style compatible field mounted connector. The connector shall be compatible with a physical contact (PC) finish. All connectors shall be polished to a PC finish such that the return loss per mated pair of connectors is less than -25 dB. The return loss when the connector is mated with previously installed connectors shall be less than -18 dB.

**REVISION OF SECTION 614
TELEMETRY (FIELD)**

The connector insertion loss shall not be greater than 0.20 dB (typical). The connector loss shall not vary more than 0.20 dB after 1000 repeated matings. Tensile strength shall withstand an axial load of 20 lb. with less than 0.20 dB change.

Index matching fluids or gels shall not be used. The connectors shall be compatible with the optical fiber surrounding jacket and shall be installed on one end of the optical fiber in accordance with the manufacturer's recommended materials, equipment and practices. The connector shall be suitable for the intended environment and shall meet the following environmental conditions:

Operating Temperature: -40° to +80° C
Storage Temperature: -40° to +85° C

The connector loss shall not vary more than 0.20 dB over the operating temperature range. Connectors shall be protected by a suitably installed waterproof protection cap.

Miscellaneous Cabling:

Fiber optic patch cords shall be fiber optic jumper cable, duplex, ceramic ferrule, MM 62.5 nm, adaptable to AT&T ST style connectors, 2 meters in length, ITT Canon Model 161001-4020 or approved equal. Cable from fiber optic modem to Port 3 controller harness shall be 25-pin cable Model 44982G4 or approved equal. The Contractor shall deliver transceivers to the City's Traffic Signal Shop. Contact Joe Strauss (720) 865-4062 for coordination.

Optical Splice Closures:

Coyote Runt or Coyote Pup Type closures shall be provided for splicing lateral fiber optic cables to the main (backbone) fiber cable in all pull box locations that are identified in the plans. All closures shall include 1-Inch future port kit (part no. 8003408, Pre-Formed Line Products). The Coyote Runt Closure shall be used at locations with 3 fiber optic cables. In locations requiring more than 3 cables, a Coyote Pup Closure shall be installed.

Subsection 614.13 shall include the following:

Telemetry (Field) shall be measured by the total number of cabinets at which the interconnect cable is fanned out, terminated, connected, patch panels and fiber-optic interfaces installed. All labor and materials required to perform panel installations, provide in-cabinet strain relief, fan-out, cable termination and connection to the controller is considered included in the unit price for this item.

**REVISION OF SECTION 614
TELEMETRY (FIELD)**

This item, therefore, includes the following:

1. All required in-cabinet cable ties and strain relief (including ancillary hardware and labor to complete);
2. All required fan-out kits, kit tools, ancillary hardware and labor to accomplish the fan-out at the cabinet;
3. All required pigtails and harness cables;
4. All required interconnect centers and fiber optic interface panels in individual controller cabinets as shown in the plans;
 - All required termination enclosures (including specified features), connectors, adapters, jumpers, pigtails, patch cord cables, ancillary hardware and labor required to accomplish the cabinet termination;
 - All required optical splice closures;
 - All other labor and material necessary to complete the item

All labor and materials necessary to complete this item shall be considered included in the unit price and will not be paid separately.

Subsection 614.14 shall include the following:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Telemetry (Field)	Each

**REVISION OF SECTION 614
FIBER OPTIC CABLE - GENERAL**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work provides for the installation of fiber optic communications cable to be installed in conduit or duct as specified in the plans. All labor and materials required to fan-out, terminate, splice or otherwise connect fiber optic cables at individual controller cabinets, will be paid separately under the Telemetry (Field) pay item. The contractor shall be required to demonstrate successful signal system communications to the Engineer as a requirement of acceptance of this item.

Subsection 614.10 shall include the following:

All fiber-optic interconnect cable shall be furnished by the Contractor, and installed, spliced (if required and only as approved by the Engineer), terminated, connected and tested by the Contractor. The number denoted prior to the "MM" designator identifies the number of multi-mode fibers (Strands) in the cable. The number denoted prior to the "SM" designator identifies the number of single-mode fibers (Strands) in the cable.

Cable ends shall be stored in pull boxes or splice closures at locations indicated in the plans or as directed by the Engineer. Fibers to be spliced and/or connected in any manner shall be limited to those identified in the plans, and only in designated controller cabinets or splice closures. All other fibers shall be left uncut or sealed as appropriate in a manner recommended by the cable manufacturer.

Fiber optic cable shall be installed in a continuous run between all controller cabinets and splice closures as shown in the plans. Lateral cables shall be spliced only in splice closures and routed to the controllers as shown in the plans. **Under no conditions shall the fiber cable be cut out or spliced at intermediate points without the express written direction of the Engineer.**

Cable shall be installed in new conduit or existing conduit as specified in the plans. The Contractor shall be required to leave a minimum of 10 feet of cable slack in the equipment controller cabinet. The Contractor shall leave a minimum of 50 feet of cable slack in the pull box adjacent to the controller and shall leave a minimum of 50 feet of slack in all other communication pull boxes.

Cable Tags and Labels:

Fiber optic cable shall be neatly coiled and clearly tagged and labeled at each communication pull box and at all locations where the fiber is exposed. Cable tags and Labels shall be as follows:

Materials: Metal or heavy plastic identification tags with cable type and number, copper pair or optic number assignments, and destination shall be provided on both ends of all cables (except station cables) and all splice cases. All cables shall be clearly labeled with cable number (City to determine scheme) and size at each end of the cable, when it enters or leaves a conduit and at 30-foot intervals when run in accessible areas such as tunnels, manholes, ceilings, etc.

Manufacturer: Tags shall be 3M, Panduit or an approved equivalent.

**REVISION OF SECTION 614
FIBER OPTIC CABLE - GENERAL**

General Requirements: The Contractor shall provide the Engineer with two copies of the cable manufacturer's cable specifications and installation instructions for fiber optic cable in conduit. All installation shall be in accordance with these practices except as otherwise directed by the Engineer.

Additional cable costs due to damage caused by the Contractor's neglect of recommended procedures shall be Contractor's responsibility. The main cable shall be installed in continuous runs except where cable type changes or where maximum pull lengths govern. The manufacturer's recommended limits for cable pull tensions shall not be exceeded. Cable ends shall be stored in controller cabinets or pull boxes immediately adjacent to cabinets or as directed by the City.

Lateral and Branch cables shall be installed using appropriate strain relief in the cabinet (through cable ties) at a minimum of three locations.

All fiber optic cables to be installed shall be checked with an OTDR before and after installation. Documentation of fiber performance shall be provided to the City within 30 days of test. All optical fibers shall be within the manufacturer's recommended tolerances. In addition, any other acceptance testing recommended by the manufacturer shall be provided. Data shall be supplied to the City prior to completion of the project.

Fiber optic cable shall be transported to site using cable reel trailers. Care shall be taken at all times to avoid scraping, denting, twisting, or otherwise damaging the cable before, during and after installation. Damaged cable shall be replaced by the Contractor without additional compensation.

Cable shall be installed in conduit or duct in the field in accordance with the contract drawings. The conduit and duct ends shall have all rough edges smoothed to prevent scraping the cable. All existing or suspected dirt and debris within the conduit shall be cleaned with compressed air before installing cable. A manufacturer recommended lubricant shall be applied to the cable to reduce friction between the cable and duct or conduit. Where fiber optic cables are to be installed in inner duct, the Contractor shall secure each section of the conduit to prevent it from being pulled without the cables.

A cable grip shall be attached to the cables so that no direct force is applied to the optical fiber. The cable grip shall have a ball-bearing swivel to prevent the cable from twisting during pulling. Cable rollers and feeders and winch cable blocks shall be used to guide the cable freely into the duct and at maintenance hole locations. Mechanical aids and pulling cable or ropes shall be used as required. **The maximum pulling tension as defined by the cable manufacturer shall not be exceeded.** The cable shall be taken up at intermediate pulling points with an intermediate cable take-up device as approved by the Engineer to prevent over-tension on the cable. Cable pulls shall be continuous and steady between pull points and shall not be interrupted until the entire run of cable has been pulled. Personnel equipped with two-way radios shall be stationed at each maintenance hole, cabinet, pedestal, communications box, and junction box through which the cable is to be pulled to observe and lubricate the cable. Intermediate splices between pull boxes shall not be allowed. The cable shall be securely fastened in place within pull boxes, pedestals, manholes and cabinets.

The contractor shall ensure cable length is sufficient to allow for connection between the communications equipment and the splice equipment and the splice enclosures including provision for slack, vertical runs, cable necessary for splicing, wastage and cable to allow for the removal of the splice enclosure for future splicing.

**REVISION OF SECTION 614
FIBER OPTIC CABLE - GENERAL**

Lateral and Branch Fiber Optic Cable: Lateral/Branch fiber optic cable shall consist of 6 multi-mode fibers and 6 single-mode fibers. Lateral/Branch fiber optic cable shall be installed in new or existing conduit, or along existing span wire, as depicted in the plans. Cables shall be provided with appropriate strain relief in the cabinet, consisting of cable ties in at least three interior cabinet locations. Lateral and Branch fiber optic cable shall be clearly tagged and labeled as such at pull boxes and all other locations where it is exposed. At any location where the cable is brought into or out of a span wire pole, the Contractor shall install a new weather-head to accommodate the bending radius of the cable.

Subsection 614.13 shall include the following:

Fiber Optic Cable for the main (backbone), lateral and branch cables will not be measured separately, but shall be included in the item Telemetry (Field), and shall include all labor and materials required to install the main, lateral, branch, and start cables through conduits to all pull boxes, cabinets and closures specified in the plans. Installation of all internal field cabinet telemetry, splicing, fan-out and termination of the cable at individual controller cabinets is described and paid for under Telemetry (Field).

Subsection 614.14 shall include the following:

No separate measurement or payment will be made for fiber optic cable. All fiber optic cable shall be considered incidental to the Telemetry (Field) pay item.

**REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE**

Section 614 of the Standard Specifications is hereby revised for this project as follows.

Notice:

Every effort has been made to ensure that the information contained in this specification is complete and accurate at the time of publication; however, information contained herein is subject to change.

Trademarks:

ANSI® is a registered trademark of the American National Standards Institute, Inc.

KELLEMS® is a registered trademark of Harvey Hubbell, Inc.

Scope:

This specification covers the general design requirements and performance standards for fiber optic cables intended primarily for use in the outside plant environment. The purpose of this document is to provide the essential requirements for All-Dielectric Single Jacket, Single Jacket / Single Armor, and Double Jacket / Single Armor Loose Tube Fiber Optic cable to be used in the City of Denver networks.

The product requirements and features described in this specification are those considered useful for ensuring proper selection and manufacturing of fiber optic outside plant cables.

In this specification, all observed or calculated values are rounded off "to the nearest unit" in the last right hand place of figures used in expressing the limiting value. The round-off method of ASTM E 29 is used.

These cables should comply with industry standards such as Telcordia Technologies GR-20 (formerly Bellcore), Electronic Industries Association (EIA), Telecommunications Industry Association (TIA), International Telecommunications Union (ITU), International Electrotechnical Commission (IEC), and American Society for Testing and Materials (ASTM).

Optical Fiber Characteristics

High quality optical fibers should be made with pure silica-based glass to have very low loss for infrared wavelengths and to be used to carry large amounts of information for very long distances in optical communication systems.

Details of the optical fibers are not covered in this specification, but the proposed cable should contain AllWave® or TrueWave® fibers for Single-Mode applications, or Multimode fibers that comply with the specific fiber requirements supplied by the City and County of Denver.

**REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE**

CABLE CORE CHARACTERISTIC:

1. Color Code:

The individual colors for fibers and buffer tubes in loose tube cable cores should comply with EIA/TIA-598 as given in the following table.

Table 1 – Fiber and Tube Color Code

Fiber or Tube No.	Color
1	Blue (BL)
2	Orange (OR)
3	Green (GR)
4	Brown (BR)
5	Slate (SL)
6	White (WH)
7	Red (RD)
8	Black (BK)
9	Yellow (YL)
10	Violet (VI)
11	Rose (RS)
12	Aqua (AQ)

2. Central Strength Member

The central member functions as an anti-buckling element, and should be a glass/epoxy composite dielectric rod. A polyethylene overcoat may be applied to the central member to provide the proper spacing between buffer tubes during stranding.

3. Loose Tube Cable Buffer Tubes

Optical fibers are enclosed within buffer tubes that have a diameter several times larger than the diameter of the fibers. The optical fibers are loose within the buffer tubes allowing the fibers to move freely. The loose buffer tubes should have a 2.5 mm diameter, with a nominal wall thickness of 0.4 mm. For composite cable designs, when both single-mode and multi-mode fibers are contained within the same cable, the single-mode fibers will be contained in the first buffer tubes. The multi-mode fibers will be contained in the sequenced buffer tubes following the single-mode buffer tubes.

Table 2 – Buffer Tubes

Fiber Count	Buffer Tube OD (mm)	Fibers per Tube
1-288	2.5	12

The buffer tubes (and filler rods, if necessary) must be stranded in a reverse oscillation lay (ROL) technique around the central member to allow for easy mid-span access. The core of buffer tubes should be wrapped with two counter helically applied threads to bind together the cable core.

**REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE**

4. Filler Rods

In order to create a round cable, filler rods of the same diameter as the buffer tubes may be used to fill empty positions. Filler rods are made out of HDPE and are natural in color.

5. Water Blocking System

Water blocking of the core outside and around the buffer tubes must be accomplished via “dry” elements. **In addition, water-blocking inside the buffer tubes must be accomplished via “dry” elements as well.**

These “dry” water blocking elements form a gel compound when in contact with water. The gel should effectively fill the interstices of the core and the inside of the tubes to prevent water penetration along the length of the cable. This dry water blocking significantly reduces cable core access time by eliminating the step of cleaning the buffer tubes and fibers upon entry. Additionally, this technology reduces the cable weight.

Dry water blocking elements should be in the form of binders, tapes, or yarns depending on where they are being applied.

CABLE SHEATH CHARACTERISTIC:

The sheaths described in this section are:

- All-Dielectric Single Jacket: One polyethylene jacket, no metallic elements (SJ)
- Strength Elements: Sheath strength elements are applied over the cable core to provide the cable with the required tensile strength. These elements are made of fiberglass (Aramid yarns may be used as well).
- Inner Jacket (NOT APPLICABLE TO THIS PROJECT)
- Steel Armor (NOT APPLICABLE TO THIS PROJECT)
- Outer Jacket: An outer polyethylene jacket is applied over the cable to provide overall mechanical protection. This jacket is made of MDPE (or HDPE upon request) and is usually black. If required, the jacket could have two co-extruded colored tracer stripes located 180 degrees apart to aid in cable identification. The jacket will be continuous, free from pinholes, splits, blisters, or other imperfections.
- Ripcords: For ease of jacket removal, one clearly identifiable polyester ripcord is provided under the outer jacket for SJ designs. SJ/SA designs shall have two under armor ripcords placed 180 degrees apart. DJ/SA designs shall have one ripcord under both the inner jacket and steel armor.

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REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE

Cable Cross-Sections:

Single Jacket (SJ)



Figure 1 – Single Jacket

Table 3 – Target Cable Outer Diameters

NUMBER OF FIBERS								
	2 - 60 (5 Pos.)	2 - 72 (6 Pos.)	73 - 96 (8 Pos.)	97 - 120 (10 Pos.)	121- 44 (12 Pos.)	145-216 (18 Pos.)	217-240 (20 Pos.)	241-288 (24 Pos.)
SHEATH TYPE	Cable OD in. (mm)	Cable OD in. (mm)	Cable OD in. (mm)	Cable OD in. (mm)	Cable OD in. (mm)	Cable OD in. (mm)	Cable OD in. (mm)	Cable OD in. (mm)
SJ	0.42 (10.6)	0.43 (11.0)	0.50 (12.8)	0.57 (14.4)	0.64 (16.2)	0.66 (16.7)	0.69 (17.4)	0.76 (19.2)

**REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE**

MECHANICAL, ENVIRONMENTAL AND ELECTRICAL REQUIREMENTS:

These cables must meet the requirements of *Telcordia GR-20-CORE* with all testing performed based on *EIA/TIA-455* standards. The manufacturing company must provide proof of their quality control standards with *ISO 9001* and *TL9000* certifications. The cables should comply with the following temperature ranges:

Operation:	-40°C to 70°C (-40°F to 158°F)
Installation:	-30°C to 60°C (-22°F to 140°F)
Storage/Shipping:	-40°C to 75°C (-40°F to 167°F)

Single-Mode Fibers

Per *Telcordia GR-20*, the magnitude of the attenuation change shall be less than or equal to 0.05 dB for 90% of the test fibers and less than or equal to 0.15 dB for the remaining 10% of test fibers. Cable aging allows for 0.10 dB/km average attenuation change with a magnitude of the maximum attenuation change for each individual fiber to be less than 0.25dB/km. These attenuation values include a 0.05 dB allowance for measurement repeatability during mechanical and environmental testing evidence of cracking, splitting or other failure of the sheath components when examined under 5X magnification would result in failure of the proposed test requirements. In addition, no fiber shall lose optical continuity because of the test.

Table 4 – Testing for Single Mode Fibers

Cable Test	Test Method	Requirement
Tensile Loading and Bending	EIA/TIA-455-33 IEC 794-1-E1	90% < 0.05 dB Max. Added Loss 100% < 0.15 dB Max. Added Loss
Cyclic Flexing	TIA/EIA-455-104 IEC 794-1-E6	90% < 0.05 dB Max. Added Loss 100% < 0.15 dB Max. Added Loss
Cyclic Impact	EIA/TIA-455-25 IEC 794-1-E4	90% < 0.05 dB Max. Added Loss 100% < 0.15 dB Max. Added Loss
Compressive Loading	TIA/EIA-455-41 IEC 794-1-E3	90% < 0.05 dB Max. Added Loss 100% < 0.15 dB Max. Added Loss
Twist	TIA/EIA-455-85 IEC 794-1-E7	90% < 0.05 dB Max. Added Loss 100% < 0.15 dB Max. Added Loss
Low and High Temperature Bend	EIA/TIA-455-37 IEC 794-1-E11	90% < 0.05 dB Max. Added Loss 100% < 0.15 dB Max. Added Loss
External Freezing	EIA/TIA-455-98 IEC 794-1-F6	< 0.05 dB Mean Added Loss < 0.15 dB Max. Added Loss
Temperature Cycling	EIA/TIA-455-3 IEC 794-1-F1	☐ 0.05 dB/km Mean Added Loss ☐ 0.15 dB/km Max Added Loss
Cable Aging	EIA/TIA-455-3 IEC 794-1-F1	☐ 0.10 dB/km Mean Added Loss ☐ 0.25 dB/km Max Added Loss
Water Penetration	EIA/TIA-455-82 IEC 794-1-F5	No flow after 24 hours from one meter length of cable

**REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE**

Multimode Fibers

Per *Telcordia GR-20*, the allowable attenuation increase during the mechanical and environmental testing is 0.20 dB. Cable aging allows for the maximum attenuation change for each individual fiber to be less than 0.40dB/km.

During mechanical and environmental testing evidence of cracking, splitting or other failure of the sheath components when examined under 5X magnification would result in failure of the proposed test requirements. In addition, no fiber shall lose optical continuity because of the test.

Table 5 – Testing for Multi-Mode Fibers

Cable Test	Test Method	Requirement
Tensile Loading and Bending	EIA/TIA-455-33 IEC 794-1-E1	0.20 dB Max. Mean Added Loss
Cyclic Flexing	TIA/EIA-455-104 IEC 794-1-E6	0.20 dB Max. Mean Added Loss
Cyclic Impact	EIA/TIA-455-25 IEC 794-1-E4	0.40 dB Max. Mean Added Loss
Compressive Loading	TIA/EIA-455-41 IEC 794-1-E3	0.20 dB Max. Mean Added Loss
Twist	TIA/EIA-455-85 IEC 794-1-E7	0.20 dB Max. Mean Added Loss
Low and High Temperature Bend	EIA/TIA-455-37 IEC 794-1-E11	0.40 dB Max. Mean Added Loss
External Freezing	EIA/TIA-455-98 IEC 794-1-F6	0.20 dB Max. Mean Added Loss
Temperature Cycling	EIA/TIA-455-3 IEC 794-1-F1	□ 0.5 dB/km Max Added Loss 80 % □ 0.25 dB/km Added Loss
Cable Aging	EIA/TIA-455-3 IEC 794-1-F1	□ 1.0 dB/km Max Added Loss 80 % □ 0.5 dB/km Added Loss
Water Penetration	EIA/TIA-455-82 IEC 794-1-F5	No flow after one hour from one meter length of cable

Note:

The tensile rating for all of the cables described should be 2.7 kN (600 lbf), with a compression rating of at least 220 N/cm under GR-20 requirements.

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**REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE**

CABLE MARKING:

Printed Characters

For standard outer jackets, printed characters shall be indent printed with white characters for black jackets, black characters for non-black jackets, or as otherwise specified.


For standard striped outer jackets, printed characters shall be indent printed with white characters for red, green, orange, yellow, blue striped cables, light-blue characters for white striped cables, or as otherwise specified by the customer.

The characters shall be of proper height and space to produce good legibility. Character heights of 2 mm should facilitate adequate readability. An occasional illegible marking is permitted if there is a legible marking on either side.

Markings

The cable shall be sequentially marked at one meter, or two-foot intervals depending on specific requirements issued by the City and County of Denver. The length marks shall not be reset to zero on any length of the cable. The actual length of cable shall be within +1, -0% of the marked length.

Each length of cable shall be marked with the following legend:

"(Manufacturer Name) OPTICAL CABLE, (Product Part Number), (Month and Year of Manufacture, [MM-YY]), (Telephone Symbol []), (Fiber Count [XXX F], where XXX is the number of optical fibers in the cable), and (Manufacturers' Serial Number) "

Re-Markings

Only one remarking is permitted. If required, either of the following methods for remarking shall be used:

Method A: Completely remove the defective marking and remark the characters with the original color.

Method B: Leave the defective marking on the jacket and remark on a different portion of the cable jacket with yellow character print. The new number sequence shall differ from any other existing marking by at least 5000.

Any cable that contains two sets of markings shall be labeled to indicate the color and sequential numbers to be used. The labeling shall also be applied to the reel tag.

CABLE PACKAGING:

Reels

The manufacturer shall supply the product using their standard reel sizes, methods, apparatus, and reel wood lagging, but stenciled according to these specifications. The specifications outlined here are guidelines on what is expected with respect to packaging.

**REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE**

Reels are assumed to be in good working condition, firm, and be able to support the product through shipping and final installation. Reels shall be clean, dry and free of excessive dirt. All reels shall be checked for high nails, stave fit and proper stenciling.

Reel Labels

Each wooden reel shall be permanently marked with the following information:

- “(Manufacturer’s name)” (red paint)
- “OPTICAL CABLE” (black paint)
- An arrow and the wording “cable end” to indicate the position of the outside cable end. (red paint)
- An arrow and the wording “ROLL THIS WAY” to indicate the direction the reel should be rolled to prevent loosening of the cable. (black paint)
- Reel Number (red paint)

Cable handling stickers/cards must be attached to both flanges of every reel. Each sticker must be stapled to the flange. See Figure 4 for illustrations of the stickers to be used.

Reel Lagging

Thermal Protection

Outer layers of the reel shall be covered with a protective wrap to limit the solar heating of the cable. This helps limit the cable surface temperature so that it will not exceed 10 C (18 F) above ambient temperature under maximum solar radiation according to Telcordia GR-20 requirements. All foil wrap shall be securely fastened to the cable by at least 2 pieces of strapping tape.

Composite & Wood Lagging

Reels shipping domestically shall be lagged with a suitable protective wrap (can be the same thermal protection wrap) and banded with steel straps. This wrap shall cover the cable from flange to flange and provided some mechanical protection to the outer layers of cable as well as weather resistance. Reels shipping for export shall be lagged with wooden boards nailed to each flange and banded with steel straps in addition to the protective wrap around the outer layers of cable.

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REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE



Figure 2 – Reel Stickers

Other

Cable Ends

Each end of the cable shall have end seals, either end caps or KELLEMS® pulling grips, in order to prevent moisture ingress into the cable during shipping, storage, or installation.

The top end of the cable shall be securely fastened to the inside of the reel flange to prevent the cable from becoming loose in transit or during handling. The bottom end, “test tail”, shall be approximately three meters in length and easily accessible. The end shall be protected within a cable slot and be securely fastened to the outside of the reel flange with wire ties or walkout straps. Staples, nails or yarn attached to the reel during manufacturing shall be removed.

The cable slot can be partially protected to prevent the cable tail from moving outside this, however for export orders the cable slot must be completely sealed by either metallic protection rings, plywood covers, or other.

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REVISION OF SECTION 614
LOOSE TUBE FIBER OPTIC CABLE

Cable Length Tolerance

Cables ordered to standard factory lengths shall have an actual length within -0% and +5% of the length ordered unless otherwise specified by the customer.

Certified Test Data

Each cable shall have certified test data securely fastened to the reel in a waterproof wrapping. The certified test data sheet shall include the following information:

- Cable Number
- Date
- Customer Name
- Ordered Length
- Customer Order Number
- Ship Length
- Customer Cable Code
- Customer Reel Number
- Customer's Attenuation Specification(s)
- Number of Fibers
- Cable Construction
- Fiber Transmission Data
- Bandwidth Data – only applies to Multi-Mode Fibers
- Authorized Signature

Reel Tag

Each cable shall have a reel tag securely fastened to the reel in a waterproof wrapping. The Reel Tag (Cut Length Data Sheet) shall include the following information:

- Cable Number
- Date
- Customer Name
- Ordered Length
- Customer Order Number
- Ship Length
- Customer Cable Code
- Customer Reel Number
- Customer's Attenuation Specification(s)
- Number of Fibers
- Beginning and Ending Sequential Length Markings
- Gross Weight
- Net Weight
- Inspected By Signature

REVISION OF SECTION 614 TEST FIBER OPTIC CABLE

Section 614 of the Standard Specifications is hereby revised for this project as follows.

Subsection 614.08(p), Test Fiber Optic Cable, is hereby added to the Standard Specifications and shall include the following:

This work consists of testing fiber optic cable. Testing shall include both new cable and existing cable. The test procedures involve an OTDR test and an Optical Power Meter Test.

The guidelines for fiber optic cable testing include:

Test jumpers and patch cords must be of the same fiber core size and connector type as the cable system.

The light source and OTDR must operate with the range of 1310 ± 10 nm or 1550 ± 20 nm for testing in accordance with ANSI/EIA/TIA-526-7.

The power meter and the light source must be set to the same wavelength during testing.

The power meter must be calibrated and traceable to the National Institute of Standards and Technology (NIST).

All system connectors, adapters and jumpers must be cleaned as per manufacturer's instructions before measurements are taken.

MATERIALS

The following items are required to perform fiber optic cable tests:

- an OTDR;
- a test reel, if necessary;
- a light source at the appropriate wavelength;
- Optical Power Measurement Equipment; and
- Test Jumpers as specified below.

(a) CPR Test Jumper-1 and Test Jumper-2 shall be 1-5 meters long with connectors compatible with the light source and power meter and have the same fiber construction as the link segment being tested.

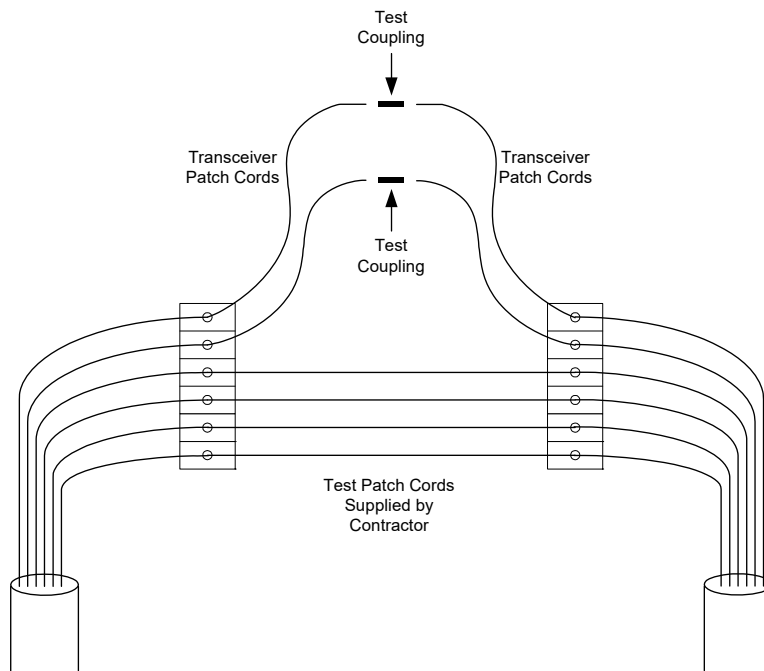
OPTICAL FIBER CABLE TESTING WITH O.T.D.R

The Contractor shall perform an OTDR test of all fibers in all tubes on the reel prior to installation of the fiber. The test results shall be supplied to the Engineer prior to installation of the cable.

**REVISION OF SECTION 614
TEST FIBER OPTIC CABLE**

If the fiber is specified as “Install Only”, the Contractor shall test the fiber on the reel and provide the test results to the Engineer prior to accepting the cable. After installation, if there are unused portions of cable remaining on the reel, the Engineer may request the Contractor or other qualified technician to perform a reel test. The Contractor shall provide the Engineer the test results prior to delivering the cable to the Engineer. Any cable damaged while in the Contractor’s possession shall be replaced at the Contractor’s expense.

All fiber testing shall be performed on all fibers in the completed end-to-end system. Testing shall consist of a bi-directional end-to-end OTDR trace performed per TIA/EIA-455-61. The system margin loss measurements shall be provided at 1310 and 1550nm. If the Plans require installation of a fiber optic patch panel, the Contractor shall supply patch cords to patch all terminated fibers through the panel for all fiber testing. If patch cords are specified in the Plans for final equipment installation, these patch cords shall be connected using a test coupling for the end-to-end test.



OTDR readings will be used to ensure proper installation and to troubleshoot faults. OTDR signature traces will be used for documentation and maintenance. An OTDR provides an indirect estimate of the loss of the cable plant, generally, more accurate or reliable values will be obtained by using an Optical Power Meter. For fibers that are identified in the Plans to be left non-terminated, an OTDR shall be used to test end-to-end attenuation.

Loss numbers for the installed link shall be calculated by taking the sum of the bi-directional measurements and dividing that sum by two.

The Contractor shall use an OTDR that is capable of storing traces electronically and shall save each final trace.

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TEST FIBER OPTIC CABLE**

To ensure the traces identify the end points of the fiber under test and the fiber designation, the Contractor shall use a test reel, if required, to eliminate the “dead zone” at the start of the trace so that the start of the fiber under test can be identified on the trace. Indicate the length of the test reel for all test results.

If the fiber designation is not indicated on the trace itself, the Contractor shall provide a cross-reference table between the stored trace file name and the fiber designation.

In compliance with EIA/TIA-455-61 “Measurement of Fiber or Cable Attenuation Using an OTDR” the Contractor shall record the following information during the test procedure:

- Names of personnel conducting the test.
- Type of test equipment used (manufacturer, model, serial number, calibration date).
- Date test is being performed.
- Optical source wavelength and spectral width.
- Fiber identification.
- End point locations.
- Launch conditions.
- Method of calculation for the attenuation or attenuation coefficient.
- Acceptable link attenuation.

OPTIC FIBER CABLE TESTING WITH OPTICAL POWER METER

The Contractor shall conduct an Optical Power Meter Test for each fiber installed.

Fiber optic cable segments shall be tested in one direction at both the 1310 nm and 1550 nm wavelength.

In compliance with TIA/EIA-526-7 “Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant,” the following information shall be recorded during the test procedure:

- Names of personnel conducting the test.
- Type of test equipment used (manufacturer, model, serial number, calibration date).
- Date test is being performed.
- Optical source wavelength and spectral width.
- Fiber identification.
- End point locations.
- Test direction.
- Reference power measurement (when not using a power meter with a Relative Power Measurement Mode).
- Measured attenuation of the link segment.
- Acceptable link attenuation.

REVISION OF SECTION 614 TEST FIBER OPTIC CABLE

The minor attenuation differences due to test direction are on par with the accuracy and repeatability of the test method. Lateral segments within a building are limited to 90 meters. Therefore, attenuation differences caused by wavelength are insignificant, and as a result, single wavelength testing is sufficient.

ACCEPTABLE ATTENUATION VALUES

Acceptable attenuation values shall be calculated for each fiber tested. These values represent the maximum acceptable test values.

SM Fiber. The general attenuation equation for any SM link segment is as follows:

Acceptable Link Attn. = Cable Attn. + Connector Attn. + Splice Attn.

8.3 μm Single-mode Attenuation Coefficients:

Cable Attn.=Cable Length (km) x (0.34 dB/km@1310 nm or 0.25 dB/km@1550 nm)

Connection Attn. (ST or SC connectors)=(No. of Connections x 0.39 dB)+0.42 dB.

Connection Attn. (LC connectors)=(No. of Connections x 0.14 dB)+0.24 dB.

Splice Attn. (Mechanical or Fusion)=Splices x 0.30 dB.

TEST PROCEDURES

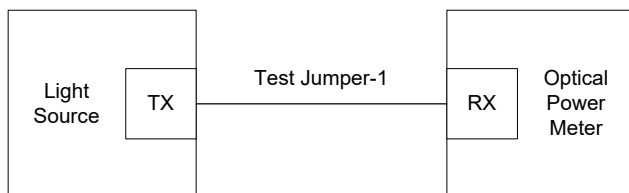
All fiber testing shall be performed on all fibers in the completed end-to-end system.

The Optical Power Meter fiber test shall be conducted as follows:

Clean the test jumper connectors and the test coupling per manufacturer's instructions.

Follow the test equipment manufacturer's initial adjustment instructions.

Connect Test Jumper-1 between the light source and the power meter. Avoid placing bends in the jumper that are less than 100 mm (4 inches) in diameter.

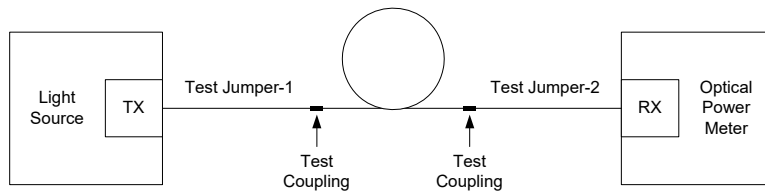


If the power meter has a Relative Power Measurement Mode, select it. If it does not, reduce the Reference Power Measurement (P_{ref}). If the meter can display power levels in dBm, select this unit of measurement to simplify subsequent calculations.

Disconnect Test Jumper-1 from the power meter. Do NOT disconnect the test jumper from the light source.

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REVISION OF SECTION 614
TEST FIBER OPTIC CABLE

Attach Test Jumper-1 to one end of the cable plant to be measured and Test Jumper-2 to the other end.



Record the Power Measurement (P_{sum}). If the power meter is in Relative Power Measurement Mode, the meter reading represents the true value. If the meter does not have a Relative Power Measurement Mode, perform the following calculation:

If P_{sum} and P_{ref} are in the same logarithmic units (dBm, dBu, etc.):

$$CPR (dB) = P_{sum} - P_{ref}$$

If P_{sum} and P_{ref} are in watts:

$$CPR (dB) = 10 \times \log_{10} [O_{sum}/P_{ref}]$$

TEST ACCEPTANCE

The Contractor shall demonstrate that each Optical Power Test results in acceptable attenuation values.

The Contractor, solely at the Contractor's cost, shall remake any fusion splices that have test results exceeding acceptable attenuation values.

The Contractor, solely at the Contractor's cost, shall retest any fiber links that have been re-spliced.

The Contractor, solely at the Contractor's cost, shall bring any link not meeting the requirements of this specification into compliance.

SUBMITTALS

The Contractor shall submit test results documentation as both a hard copy and electronic copy.

After each reel test, the Contractor shall submit one hard copy of the OTDR trace for every fiber on the reel. After installation, the Contractor shall submit one hard copy of the OTDR trace for every spliced fiber. Hard copy traces shall be organized and bound in logical order in an 8 1/2" x 11" hard cover binder.

The Contractor shall submit, after approval of the hard copy traces, electronic copies of all traces and appropriate software to allow reading the traces. The Contractor shall submit one copy of the complete contract Plans, including additional drawings issued as part of any change orders, with any deviations clearly marked in color. Deviations to be noted and shall include but not be limited to the following:

**REVISION OF SECTION 614
TEST FIBER OPTIC CABLE**

- Fiber Splice location;
- Fiber Splice configuration; and
- Termination layout.

Subsection 614.13 shall include the following:

The complete end-to-end OTDR test on one fiber, including document submission, represents one OTDR test.

The complete end-to-end optical power meter test on one fiber, including document submission, represents one optical power meter test.

Subsection 614.14 shall include the following:

No separate measurement or payment will be made for fiber optic cable testing. All cable (system) testing shall be considered incidental to the Telemetry (Field) pay item.

**REVISION OF SECTION 614
ETHERNET SWITCH**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work shall consist of installation of the Ethernet Switch per City and County of Denver standards. Ethernet Switch material specifications are provided for information only. The City and County of Denver will procure the switch and install it in the cabinet in the shop. The Contractor shall install the cabinet assembly, including the switch, in the field.

Subsection 614.08 shall include the following:

An Ethernet Switch is hereby added to the Standard Specifications and shall comply with the following specifications:

Managed Field Switch, shall be a Garrettcom Magnum Ethernet Managed Field Switch comprising of the following four (4) parts:

- (1) 6KQ-24VDC base unit with four 10/100 copper ports in slot A (without 24VDC power supply).
- (2) 6KQ-RJ45 module with four 10/100 copper ports in slot B.
- (3) 6KQ4-MLC module with four 100Mb 2km multi-mode LC fiber ports in slot C.
- (4) 6KQ-BLNK blank cover for 1 unused module in slot C.

The field switch must also meet the following requirements:

- May be configured with a variety of 10/100/1000 Mb fiber and copper port connector types - 16 total ports maximum.
- Heavy duty and environmentally hardened fully enclosed metal case with advanced thermal design used as a heat sink (no fan).
- Dual LEDs for all-around status viewing.
- Wire speed filtering and forwarding across all ports - 802.3x flow control, 802.1p priority packet processing, self-learning 4K-node address table, large 240KB packet buffers for 10/100 and 120KB for 1000Mb.

The unit shall be configured as a minimum:

Filtering/Forwarding Rate Performance:

- Ethernet (10Mb):14,880 pps
- Fast Ethernet (100Mb): 148,800 pps
- Gigabit Ethernet (1000Mb): 1, 488,000 pps
- Switching Processing Type: Store and Forward with IEEE 802.3x full duplex flow control, non-blocking
- Data Rate: 10Mbps, 100Mbps and 1000Mbps
- Address Table Capacity: 4K node, self-learning with address aging
- Packet buffer size: 240KB for 10/100 and 120KB for 1000Mb
- Latency: 5 μ s + packet time (100 to 100Mbps); 15 μ s + packet time (10 to 10 Mbps, and 10 to 100Mbps)

**REVISION OF SECTION 614
ETHERNET SWITCH**

- Throughput with 12 10/100 and 2Glink max.- 4.76M pps (Transmit)
- Back plane- 2.66 GB/s per slot LEDs:
- Per Port (one set at the port, one set on swivel top on right side)
- LK: Steady ON when media link is operational
- ACT: ON with receiver port activity
- FDX/HDX: ON = Full-Duplex Mode; OFF = Half-Duplex Mode
- 100/10: ON = 100Mbps speed; OFF = 10 Mbps

Network cable connectors:

- 1000Mb fiber ports: all standard Gb SFP Transceiver types supported
- 1000Mb copper ports: 10/100/1000Mb auto-negotiating, Cat5e & 6 UTP/STP
- 100Mb Copper and PoE: Category 5 UTP/STP; 10 Mb: Cat. 3, 4, 5 UTP/STP
- 100 Mb Fiber ports connector options: multi-mode FX-MTRJ, LC, ST, SC; Single-mode 15Km LC, 20Km SC and ST, and 40 Km “long reach” single-modes SC.

Operating Environment:

- Ambient Temperature: -40° to 140° F (-40° to 60°C)

Alarm Relay Contacts:

- One NC indicating internal power, one NC software controllable

DC Power Supply:

- 24VDC Power Input nominal (range 18 to 36VDC)
- Power Consumption: 35 watts worst case (for a fully loaded fiber model); 12 watts typical (for a small 4 port copper-only model)

Vertical mounting normal:

- Suitable for wall or DIN-Rail mounting

Testing Requirements - The Contractor shall supply one unit of Ethernet Switch to the Engineer for specification compliance testing and approval. If the product passes the specification compliance testing and approval evaluation, the Contractor will be notified to complete the order. If the product does not pass the specification compliance testing and approval evaluation by CCD-TES, the test unit will be returned back to the Contractor. The Contractor shall supply other units until satisfactory test results are achieved

Subsection 614.13 shall include the following:

Ethernet Switch installation will not be paid for separately, but shall be included in the cost of the Traffic Signal Controller Cabinet (Install Only).

Subsection 614.14 shall include the following:

Ethernet Switch installation will not be paid for separately, but shall be included in the cost of the Traffic Signal Controller Cabinet (Install Only).

**REVISION OF SECTION 622
SIGN PANEL (INSTALL ONLY)**

Section 622 of the Standard Specifications is hereby revised for this project as follows:

Subsection 622.01 shall include the following:

This work includes the installation of street name signs on the traffic signal pole or mast arm.

Subsection 622.02 shall include the following:

The southbound and westbound street name signs at the intersection of University Boulevard and Dartmouth Avenue will be furnished by the City of Englewood and installed by the Contractor. This work shall be coordinated with Ladd Vostry, Traffic Engineer for the City of Englewood, at 303-762-2511 or lvostry@englewoodgov.org.

Subsection 622.27 shall include the following:

Sign Panel (Install Only) will be measured by the actual number of units that are installed and accepted.

Subsection 622.28 shall include the following:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Sign Panel (Install Only)	Each

**REVISION OF SECTION 625
CONSTRUCTION SURVEYING**

Section 625 of the standard specifications is hereby revised as follows:

Delete section 625 and replace with the following:

DESCRIPTION

625.01 This work consists of the construction surveying, calculating, and staking necessary for the construction of all elements of the project. The work shall be done under the supervision of a Professional Land Surveyor (PLS) who is licensed in the State of Colorado.

Locating, preserving, referencing, installing and restoring land monuments such as Primary Control monuments from which the Right of Way or any land boundary will be calculated, described or monumented, Public Land Survey System (PLSS) monuments, General Land Office (GLO) monuments, Bureau of Land Management (BLM) monuments, Mineral Survey (MS) monuments, Right of Way (ROW) monuments, property boundary monuments and offsets, range points, benchmarks, easement monuments, and other monuments that are required by law or regulation to be established by a PLS, and the determination of any land boundary, shall be done under the supervision of a Professional Land Surveyor (PLS) who is licensed in the State of Colorado.

MATERIALS AND EQUIPMENT

625.02 The Contractor shall furnish all personnel, survey equipment, safety equipment, materials, and traffic control necessary to perform the required construction surveying and staking. All surveying equipment, including Electronic Distance Meters (EDM), total stations, theodolites, levels, rods, tapes, tripods, tribrachs, and Global Positioning System (GPS) receivers and equipment.

If any survey equipment is found to be functioning outside the manufacturer's specified tolerance, certification from an approved repair facility showing that the instruments have been repaired, properly adjusted, or both if necessary shall be included in the survey records and submitted to the City Surveyor's Office before being used.

CONSTRUCTION REQUIREMENTS

625.03 A Construction Survey Conference shall be held with the City Surveyor's Office prior to performing any surveying work under this section. The Contractor's Surveyor (PLS) and Party Chief shall attend. A Construction Survey Checklist shall be completed and signed by the City Surveyor's Office and the contractor.

The Contractor shall check and verify all established Primary horizontal and vertical control points.

All survey records generated shall be the property of the City and shall be available to the City Surveyor's Office for inspection or reproduction at all times. All survey records shall be transmitted to the City Surveyor's Office for inclusion into the project records before final project acceptance.

Electronic formats may be acceptable, please coordinate with the City Surveyor's Office. Copies of any new Monument Records filed by the PLS with the State Board of Registration shall be submitted to the City Surveyor prior to filing.

**REVISION OF SECTION 625
CONSTRUCTION SURVEYING**

625.04 Contractor Surveying. The Contractor's PLS shall perform all construction surveying and staking that is necessary for construction of the project.

625.05 Staking. It is the responsibility of the Contractor's PLS to adhere to industry standards and acceptable practices in regards to staking. Any restaking will be the responsibility of the Contractor's PLS at no cost to the City.

625.06 Accuracy and Tolerances. It is the responsibility of the Contractor's PLS to adhere to industry standards and applicable standards with regard to horizontal and vertical accuracy tolerances.

625.07 Responsibility and Inspection. Supervision and coordination of construction surveying and staking is the Contractor's responsibility. The City Surveyor's Office or Engineer may inspect the Contractor's surveying; however such inspection will not relieve the Contractor of any responsibility for accuracy or completeness of work. All Contractor surveying inaccuracies, errors, or omissions shall be corrected at the Contractor's expense.

625.08 Reset Monuments and Stakes. Survey monuments, benchmarks, and other significant stakes that are damaged, destroyed, or made inaccessible by the progress of construction shall be replaced, transferred or reestablished at the Contractor's expense.

Locating, preserving, referencing, installing and restoring land monuments as described in 625.01, shall be done in accordance with Section 629, under the supervision of a PLS who is experienced and competent in Right of Way and boundary surveying and licensed in the State of Colorado.

625.09 Changes. All changes in lines and grades required by field conditions and all discrepancies in grades, alignment, location or dimensions detected by the Contractor shall be immediately submitted to the Engineer in writing. No changes in given data or plans will be allowed unless approved by the Engineer in writing. All changes shall be documented by the contractor.

625.10 Pay Quantities Measurements. The Engineer will perform all interim and final measurements deemed necessary by the City to determine contract pay quantities. The Contractor shall establish and maintain Control points and stationing as required for these measurements.

625.11 Survey Records. Survey records shall be completed as the work is done. Field survey notes for construction surveying and checking by the Contractor shall be recorded in survey records in conformance with industry standards and acceptable practices.

All survey records generated shall be the property of the City and shall be available to the City Surveyor's Office or the Engineer for inspection or reproduction at all times. All survey records shall be transmitted to the City Surveyor's Office for inclusion into the project records before final project acceptance. All survey records shall be stamped with the seal of, and signed by, the responsible PLS.

**REVISION OF SECTION 625
CONSTRUCTION SURVEYING**

Electronic submittal of survey records may be acceptable, please coordinate with the City Surveyor's Office.

METHOD OF MEASUREMENT

625.12 Construction surveying will not be measured but will be paid for on a lump sum basis.

BASIS OF PAYMENT

625.13 Payment for construction surveying will be the contract lump sum bid and will be full compensation for all surveying work necessary to complete the project to include all resetting of stakes, marks, monuments and preparing survey documentation as required.

Partial payment for construction surveying, as determined by the Engineer, will be made as the work progresses.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Construction Surveying	Lump Sum

Traffic control for construction surveying will be measured and paid for in accordance with Section 630.

**REVISION OF SECTION 626
MOBILIZATION**

Section 626 of the Standard Specifications is hereby revised to include:

Subsection 626.01 is hereby revised to include:

This item also includes demobilization of equipment and supplies from this project site.

Subsection 626.02 is hereby deleted and replaced by the following:

Two payments will be made for the mobilization item. 50% of the amount bid for mobilization will be paid at the completion of mobilization. The remaining 50% of the amount bid for mobilization will be paid at the completion of the project when the equipment has been demobilized.

Pay Item
Mobilization

Pay Unit
Lump Sum

**REVISION OF SECTION 629
SURVEY MONUMENTATION**

Section 629 of the Standard Specifications is hereby deleted and replaced with the following:

DESCRIPTION

629.01 This work consists of locating, preserving, referencing, installing and restoring the following types of land monuments by a Colorado-licensed Professional Land Surveyor (PLS). The following types of monuments, if required, shall be considered included: Primary Control monuments from which Right of Way (ROW) or any land boundary will be calculated, described or monumented; Public Land Survey System (PLSS) monuments; General Land Office (GLO) monuments; Bureau of Land Management (BLM) monuments; Mineral Survey (MS) monuments; ROW monuments; property boundary monuments; and offsets, City of Denver range points, benchmarks, easement monuments, and other monuments that are required by law or regulation to be established by a PLS, along with installing or adjusting Monument Boxes. The monuments include, but are not limited to, those monuments identified on the Survey Control Perpetuation Diagram.

The production of additional documentation may be required by the City Surveyor's Office. All such work included in this section shall be performed under the supervision of a Colorado-licensed PLS.

MATERIALS AND EQUIPMENT

629.02 The Contractor shall furnish all personnel, survey equipment, safety equipment, materials and traffic control necessary to perform the required Monumentation and related surveying.

CONSTRUCTION REQUIREMENTS

629.03 A construction survey conference shall be held with the City Surveyor's Office prior to performing any surveying work under this section. The Contractor's Surveyor (PLS) and party Chief shall attend. A construction survey checklist shall be completed and signed by the City Surveyor's Office and the Contractor.

The Contractor shall check and verify all established primary horizontal and vertical control points.

All survey records generated shall be the property of the City & County of Denver and shall be available to the City Surveyor's Office for inspection or reproduction at all times. All survey records shall be transmitted to the City Surveyor's Office for inclusion into the project records before final project acceptance.

Electronic formats may be acceptable; please coordinate with the City Surveyor's Office.

Copies of any new Monument Records filed by the PLS with the State Board of Registration shall be submitted to the City Surveyor prior to filing.

629.04 Locating Monuments – This work consists of field locating all survey Monumentation as discussed in 629.01 which are in place within the project limits or as identified on the Survey Control Perpetuation Diagram. A diligent search of construction zones and project limits shall be performed by the PLS.

**REVISION OF SECTION 629
SURVEY MONUMENTATION**

629.05 Preserving and Referencing Monuments – All monuments as described in 629.01 shall be preserved, referenced and reset by a PLS within the project limits or as identified on the Survey Control Perpetuation Diagram.

629.06 Installing Monuments – All monuments described in 629.01 shall be preserved throughout construction. If any monuments as described in 629.01 are to be disturbed or removed during construction, it will be the responsibility of the Contractor's PLS to reset all monuments to current City & County of Denver standards. Appropriate documentation will be required for all reset monuments.

629.07 Monument Box – If required, this work shall consist of installing or adjusting monument boxes to current City or CDOT requirements.

METHOD OF MEASUREMENT

Survey monuments, monument boxes and adjustment of monument boxes will be measured by the actual number of the various types installed and accepted by the Engineer. Measurement for locating survey monuments, preserving and referencing monuments will not be measured and paid for separately.

BASIS OF PAYMENT

The accepted items and quantities will be paid by Allowance. Approval of the Engineer is required prior to undertaking any work identified as part of this Section.

Prior to payment, all survey records and documentation must be submitted and accepted by the City Surveyor's Office.

The construction survey checklist, equipment calibrations and survey records will not be paid for separately but shall be included in the work. The locating of monuments, and preserving and referencing monuments will not be paid for separately but shall be included in the work.

**REVISION OF SECTION 630
UNIFORMED TRAFFIC CONTROL**

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.09 shall include the following:

Uniformed Officers - The Contractor shall employ off-duty police officers to provide traffic control and traffic enforcement throughout the project as required by the Project Manager. Authorization must be made by the Project Manager in advance of working arrangements for Uniformed traffic Control. Arrangements for officers shall be made at least 2 weeks in advance by contacting the following police agency:

Denver Police Department (Special Events Unit)

Phone Number: (720) 913-6034

Subsection 630.14 shall include the following:

The quantity to be measured for Uniformed Traffic Control will be the total number of hours that Uniformed Traffic Control is actually used as authorized.

Subsection 630.15 shall include the following:

The accepted number of hours of Uniformed Traffic Control will be paid for at the contract unit price per hour.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Uniformed Traffic Control	Hour

**REVISION OF SECTION 630
PORTABLE MESSAGE SIGN PANEL**

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This work includes furnishing, operating, and maintaining a portable message sign panel.

Add subsection 630.031 immediately following subsection 630.03 as follows:

630.031 Portable Message Sign Panel. Portable message sign panel shall be furnished as a device fully self contained on a portable trailer, capable of being licensed for normal highway travel, and shall include leveling and stabilization jacks. The panel shall display a minimum of three eight character lines. The panel shall be a dot matrix type with an LED legend on a flat black background. LED signs shall have a pre-default message that activates before a power failure. The sign shall be solar powered with independent back up battery power. The sign shall be capable of 360 degrees rotation and shall be able to be elevated to a height of at least five feet above the ground measured at the bottom of the sign. The sign shall be visible from one half mile under both day and night conditions. The message shall be legible from a minimum of 750 feet. The sign shall automatically adjust its light source to meet the legibility requirements during the hours of darkness. The sign enclosure shall be weather tight and provide a clear polycarbonate front cover.

Solar powered message signs shall be capable of operating continuously for 10 days without any sun. All instrumentation and controls shall be contained in a lockable enclosure. The sign shall be capable of changing and displaying sign messages and other sign features such as flash rates, moving arrows, etc.

Each sign shall also conform to the following:

- (1) In addition to the onboard solar power operation with battery back-up, each sign shall be capable of operating on a hard wire, 100 110 VAC, external power source.
- (2) All electrical wiring, including connectors and switch controls necessary to enable all required sign functions shall be provided with each sign.
- (3) Each sign shall be furnished with an operating and parts manual, wiring diagrams, and trouble shooting guide.
- (4) The portable message sign shall be capable of maintaining all required operations under Colorado mountain winter weather conditions.
- (5) Each sign shall be furnished with an attached license plate and mounting bracket.
- (6) Each sign shall be wired with a 7 prong male electric plug for the brake light wiring system.

Subsection 630.13 shall include the following:

The portable message sign panel shall be on the project site at least 7 calendar days prior to the start of active roadway construction. Maintenance, storage, operation, relocation to different sites during the project, and all repairs of portable message sign panels shall be the responsibility of the Contractor.

**REVISION OF SECTION 630
PORTABLE MESSAGE SIGN PANEL**

Subsection 630.15 shall include the following:

Portable message sign panels will be measured by the maximum number of approved units in use on the project at any one time.

Subsection 630.16 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Portable Message Sign Panel	Each

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

Section 630 of the Standard Specifications is hereby revised as follows:

Subsection 630.01 shall be revised to include the following:

The Contractor shall submit, in writing, the proposed Method of Handling Traffic (MHT) for review and approval of the Project Engineer. The MHT shall be developed according to this section and the construction plans.

Subsection 630.05 TRAFFIC CONES shall include the following:

Steel drum channelizing devices shall not be used for traffic control

Subsection 630.06 shall include the following:

Non-metallic drums or tubular markers may be substituted for vertical panel channelizing devices.

Subsection 630.10(a), shall include the following:

When a different MHT is required for a subsequent construction phase, it must be submitted at least two weeks prior to starting that phase. All proposed methods of handling traffic shall be approved, in writing, by the Project Engineer following approval of the Traffic Engineering Services Department.

Approval of the proposed MHT does not relieve the Contractor of liability specifically assigned to him under the contract. The Contractor shall erect and maintain warning lights, signs, barricades, and sufficient safeguards around all excavations, embankments, and obstructions.

The contractor shall notify the Project Engineer by Thursday at 3:00 P.M. which streets they intend to work on the following week. This notification will be made for all phases of construction.

Subsection 630.10(a) shall be added as follows:

The key elements of the Contractor's method of handling traffic (MHT) are outlined in subsection 630.10(a).

The components of the Traffic Control Plan (TCP) for this project are included in the following:

- Subsection 104.04 and Section 630 of the Standard Specifications.
- Tabulation of Traffic Engineering Items included in the plans for this project.
- Latest revised Standard Plan S-630-1, Traffic Controls for Highway Construction and Standard Plan S-630-2, Barricades, Drums, Concrete Barriers (Temp), and Vertical Panels.

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

Special Traffic Control Plan requirements for this project are as follows:

1. During the construction of this project, traffic shall use the present traveled roadway.
2. Work that interferes with traffic will only be permitted during the following hours:
 - The Contractor shall perform all the work on the roadway between the hours of 8:30 AM and 3:30 PM or as approved by the Project Engineer. Weekend and nighttime work will be allowed with the prior written approval of the Project Engineer. During this time, only one lane can be closed on each approach.
 - Work will not be permitted that directly or indirectly interferes with the flow of traffic between the hours of 5:30 AM and 8:30 AM Monday through Friday; between the hours of 3:30 PM to 6:30 PM Monday through Thursday; and after 2:00 PM on Fridays unless otherwise authorized by the Project Engineer.
 - No work on Holidays.
 - Contractor shall not close lanes during special events.
 - Contractor shall coordinate lane closures with adjacent projects.
 - Contractor shall maintain business access during business hours.
 - The Contractor shall coordinate all of the work on the roadway during any special event with the City and County of Denver.
3. The Contractor shall install construction traffic control devices where they do not block or impede other existing traffic control devices or sidewalks for pedestrians, disabled persons or bicyclists. The Contractor is restricted from storing any materials, construction traffic control devices, signs, etc. in any median area or park area.
4. Vertical cuts or fills greater than 1 inch resulting from construction operations adjacent to traffic lanes, or within the clear zone shall be temporarily sloped at a 6:1 or flatter slope, and delineated at 35 foot intervals immediately after removal operations to safeguard the traveling public.
5. Construction equipment used on this project shall meet the same minimum exhaust requirements as those specified by the manufacturer of the equipment.
6. The Contractor and subcontractors shall equip their construction vehicles with flashing amber lights. Equipment to be used at night shall also be equipped with flashing amber lights. Flashing amber lights on vehicles and equipment shall be visible from all directions.
7. The Contractor shall maintain access to all roadways, side streets, walkways, alleyways, driveways, and hike/bike paths at all times unless otherwise directed by the Engineer. Parking areas temporarily disturbed by construction activities shall be restored to a useable condition during non-working hours. Such temporary parking shall utilize an all-weather surface. The Contractor shall develop an Access Maintenance Plan in coordination with, and based on the requirements of, the affected property owners and tenants, and submit it to the Engineer for approval prior to commencement of work. This plan shall detail all barricades, ramps, signs, and temporary means of access required by the property owners or tenants. Prior to commencing any work which affects access to a property, the Access Maintenance Plan for that property must be submitted and approved by the Engineer.

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

8. The Access Maintenance Plan shall be coordinated with all affected owners and tenants. The Access Maintenance Plan shall include documentation of this coordination, including the approval signature of each affected owner or tenant. Should the Contractor be unable to obtain approval and signatures, documentation of the efforts made to obtain said approval and signatures must be submitted. All access shall be maintained on surfaces equal to or better than those existing at the time the access is first disturbed. For short periods of time only as allowed by the Engineer, access may be maintained on aggregate base course surfaces.
9. The Contractor shall maintain continuous access throughout the project for pedestrians, bicyclists, and disabled persons. When the existing access route is disturbed by construction, a temporary all-weather access shall be provided. All temporary access shall be a minimum of 5 feet wide and meet Americans with Disabilities Act (ADA) requirements. Acceptable all weather surfacing shall be concrete or asphalt surface, or as approved by the Engineer. Delineation of pedestrian access through the work area shall be accomplished using temporary plastic fencing.
10. The costs of maintaining access will not be paid for separately, unless otherwise provided, but shall be included in the work. Utilization of materials to be incorporated into the work may be permitted. However, any degradation or other contamination or destruction shall be corrected at the Contractor's expense prior to acceptance.
11. During non-construction periods (evenings, weekends, holidays, etc.) all work shall be adequately protected to insure 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.
12. Whenever the Contractor removes, obliterates, or overlays any pavement markings, he /she shall replace them on a daily basis prior to opening the affected areas to traffic. All temporary pavement markings shall fully comply with the Standard Specifications and Special Provisions.
13. The Contractor shall not have construction equipment or materials in the lanes open to traffic any time unless directed by the Engineer.
14. All personal vehicle and construction equipment parking is prohibited where it conflicts with safety, access, or the flow of traffic. Landscaped areas, public park areas, and roadway shoulders shall be kept clear of parking and storage of all personal and construction equipment except where approved by the Engineer.
15. The Contractor shall not place tack coat on any surface to be paved where traffic will be forced to travel upon fresh bituminous materials.
16. The Contractor shall be required to make arrangements with the Regional Transportation district (RTD) prior to closing any existing bus stops within the project limits. Temporary stops will be required as directed by the Engineer and as required by RTD. For bus stop/route conflicts Regional Transportation District, RTD / 1560 Broadway, Suite 700, Denver, CO 80202 shall be contacted two business days prior to start of construction.

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

17. The Contractor shall be required to maintain temporary drives at any existing establishment that has singular access off of the roadways, unless otherwise approved in writing by the property owner.
18. No work that interferes with traffic will be allowed on holidays or any day of a three-day or four-day weekend that includes a holiday. Holidays on which this restriction applies consist of those holidays recognized by the State of Colorado as listed in subsection 101.36
19. All lane closures shall be subject to the approval of the Engineer. Request for each closure shall be made at least 24 hours in advance of the time the lane closure is to be implemented. Lane closures will not be allowed to remain unless being utilized in continuum for the intended purpose for which they were set up.
20. During no-working hours, the roadways shall be restored to a safe travel conditions for the free flow of traffic. Any maintenance required restoring the roadways to this condition, including the pavement patching and grading, shall be done prior to opening the areas to traffic or completing work for the day.
21. The Contractor shall clean the roadway of all construction debris before opening it to traffic.
22. All flagging stations used at night shall be illuminated with floodlights. Street, highway lights and “high mast lighting” may be used for flagging station illumination when approved by the Engineer. Floodlights shall be located and directed so as not to interfere with the sight of any motorists, and the cost to be included in the work.
23. Prior to removal and resetting of any sign the Contractor and Engineer shall prepare an inventory. Any signs damaged due to the Contractor’s operations shall be replaced in kind or repaired by the Contractor at no additional cost to the project.
24. Unless noted otherwise, all costs incidental to the foregoing requirements shall be included in the original contract prices for the project, including any additional traffic control items required for haul routes into the project.

Subsection 630.10 (10) shall be added as follows:

Number of hours for uniformed traffic control shall be tabulated for submittal.

Subsection 630.10 (11) shall be added as follows:

Contractor shall obtain all required access and construction permits from the City & County of Denver prior to initiating work along City right of way.

All lane closures require an arrow board to be installed.

All streets that will be reduced in the number of travel lanes should have variable message boards installed for a minimum of 3 days after the striping change to inform drivers of the lane reduction.

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

Subsection 630.14 shall include the following:

The flagger's STOP/SLOW sign paddle shall be 18 inches with letters six inches high.

Subsection 630.15 is hereby deleted and replaced with the following:

Temporary pavement markings for traffic control will not be measured and paid for separately, but shall be included in the work.

Subsection 630.16 is hereby deleted and replaced with the following:

All costs incidental to maintenance of access will not be paid for separately, unless otherwise provided, but shall be included in the work.

All costs incidental to the foregoing requirements shall be included in the original Contract prices for the project.

ALLOWANCES

DESCRIPTION

This Special Provision contains the City and County of Denver’s estimate for Allowance Items included in the Contract. The estimated amounts will be added to the total bid to determine the amount of the performance and payment bonds. Allowance work shall be performed as directed by the Engineer.

BASIS OF PAYMENT

Payment will be made in accordance with Subsection 109.04. Payment will constitute full compensation for all work necessary to complete the item.

Allowance 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>Item No.</u>	<u>Allowance Items</u>	<u>Quantity</u>	<u>Estimated Amount</u>
01	Minor Contract Revisions	N/A	\$25,000
02	Furnish & Install Electrical Service	N/A	\$20,000
03	Landscaping	N/A	\$8,000
04	Erosion Control	N/A	\$5,000
05	Environmental Health and Safety Management	N/A	\$5,000
06	Survey Monumentation	N/A	\$15,000

Allowance descriptions include:

- 01 Minor Contract Revisions – This work consists of minor work authorized and approved by the Engineer, which is not included in the contract plans or specifications and is necessary to accomplish the scope of work of this contract.
- 02 Furnish & Install Electrical Service – This allowance is for all cost charges from the power service provider, and all necessary materials, labor and coordination required to maintain existing or establish new power sources required for permanent operation of equipment as shown in the plans.
- 03 Landscaping – This work is for restoring existing landscaping, including topsoil, sod, and irrigation systems back to preconstruction condition. The landscape work on the northwest corner of the Evans Avenue and Holly Street intersection will not be included in this allowance but will be covered by Revision of Section 504 – Landscape Wall.
- 04 Erosion Control – This work consists of stormwater BMPs authorized and approved by the Engineer. This allowance is to pay for 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. All items shall be pre-approved by the engineer prior to installation or they will be at no cost to the project.

ALLOWANCES

- 05 Environmental Health and Safety Management – This work is described in Section 250 – Environmental, Health and Safety Management of the Standard Specifications.
- 06 Survey Monumentation – This work consists of locating, preserving, referencing, installing and restoring the following types of land monuments by a Colorado-licensed Professional Land Surveyor (PLS). The following types of monuments, if required, shall be considered included: Primary Control monuments from which Right of Way (ROW) or any land boundary will be calculated, described or monumented; Public Land Survey System (PLSS) monuments; General Land Office (GLO) monuments; Bureau of Land Management (BLM) monuments; Mineral Survey (MS) monuments; ROW monuments; property boundary monuments; and offsets, City of Denver range points, benchmarks, easement monuments, and other monuments that are required by law or regulation to be established by a PLS, along with installing or adjusting Monument Boxes. The monuments include, but are not limited to, those monuments identified on the Survey Control Perpetuation Diagram. The production of additional documentation may be required by the City Surveyor’s Office. All such work included in this section shall be performed under the supervision of a Colorado-licensed PLS. Payment will be made in accordance with the Project Special Provisions – Survey Monumentation.

**SPECIAL CONSTRUCTION REQUIREMENTS
TRAFFIC SIGNAL INSTALLATION
PERSONNEL REQUIREMENT**

The Contractor shall adhere to the following requirements regarding Traffic Signal construction and maintenance personnel. Current Certificates showing qualifications shall be submitted at the pre-construction meeting.

- (1) For any work inside the traffic signal cabinet, Signal and Signal Bench Technician shall be minimum IMSA Level II certified. This includes the completion of training in construction, corrective maintenance, and signal turn-on.
- (2) For all work external to the signal cabinet, a minimum IMSA Level I Traffic Signal Field Technician/Electrician or Traffic Signal Bench Technician/Signal Technician is required. An IMSA Level II Traffic Signal Electrician shall be on the job site at all times that signalization work is taking place to ensure proper construction. A maximum ratio of four IMSA Level I to one IMSA Level II will be allowed for work external to the signal cabinet.

The United States Department of Labor – Bureau of Apprenticeship and Training may be substituted for the IMSA Level I Traffic Signal Electrician requirement.

UTILITIES

The known utilities at the intersection of Evans Avenue and Dahlia Street within the limits of this project are:

Utility	Contact/Email	Phone/Fax
Centurylink 5325 Zuni Street, Suite 728 Denver, CO 80221	Travis Young	720-578-5294
Comcast Cable 1617 Acoma Street Denver, CO 80223	Eric Carroll Eric_Carroll@cable.comcast.com Kip West Kip_West@cable.comcast.com	
CDOT Fiber Optic Backbone 425-C Corporate Circle Golden, CO 80401	Jill Scott Jill.Scott@state.co.us	303-512-5805
CDOT Region 1 Utilities 2000 S Holly Street Denver, CO 80222	Patricia McKinney, Utility Engineer Patricia.McKinney@state.co.us	303-757-9883 720-467-8429
Denver Traffic Operations 201 West Colfax Avenue Department 508 Denver, CO 80202	John Yu John.Yu@denvergov.org	720-865-3176
Denver Water Department 1600 West 12 th Avenue Denver, CO 80204	Don Wyman Don.Wyman@denverwater.org	303-628-6628
Denver Wastewater Management Division 201 West Colfax Avenue Department 506 Denver, CO 80202	Walt Hime Walt.Hime@denvergov.org	303-446-3663
Level 3 Communications	Level3.NetworkRelocations@level3.com	303-779-7901 877-366-8344
Metro Wastewater Reclamation	General Office	303-286-3432
Xcel Energy – Electric 1123 West 3 rd Avenue Denver, CO 80223	Shaun Hughes Shaun.m.hughes@xcelenergy.com	
Xcel Energy – Gas 1123 West 3 rd Avenue Denver, CO 80223	Call Builder’s Call Line	800-628-2121
XO Communications	Josh Hicks Josh.D.Hicks@XO.com	303-539-1022 303-435-2793
Zayo Bandwidth	Locating Services	801-364-1063

UTILITIES

The known utilities at the intersection of Evans Avenue and Holly Street within the limits of this project are:

Utility	Contact/Email	Phone/Fax
Centurylink 5325 Zuni Street, Suite 728 Denver, CO 80221	Travis Young	720-578-5294
Comcast Cable 1617 Acoma Street Denver, CO 80223	Eric Carroll Eric_Carroll@cable.comcast.com Kip West Kip_West@cable.comcast.com	
Denver Traffic Operations 201 West Colfax Avenue Department 508 Denver, CO 80202	John Yu John.Yu@denvergov.org	720-865-3176
Denver Water Department 1600 West 12 th Avenue Denver, CO 80204	Don Wyman Don.Wyman@denverwater.org	303-628-6628
Denver Wastewater Management Division 201 West Colfax Avenue Department 506 Denver, CO 80202	Walt Hime Walt.Hime@denvergov.org	303-446-3663
Metro Wastewater Reclamation	General Office	303-286-3432
Xcel Energy – Electric 1123 West 3 rd Avenue Denver, CO 80223	Shaun Hughes Shaun.m.hughes@xcelenergy.com	
Xcel Energy – Gas 1123 West 3 rd Avenue Denver, CO 80223	Call Builder’s Call Line	800-628-2121
XO Communications	Josh Hicks Josh.D.Hicks@XO.com	303-539-1022 303-435-2793
Zayo Bandwidth	Locating Services	801-364-1063

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UTILITIES

The known utilities at the intersection of Alameda Avenue and Cherokee Street within the limits of this project are:

Utility	Contact/Email	Phone/Fax
Centurylink 5325 Zuni Street, Suite 728 Denver, CO 80221	Brandy Wiedrich	720-578-3724
Comcast Cable 1617 Acoma Street Denver, CO 80223	Eric Carroll Eric_Carroll@cable.comcast.com Kip West Kip_West@cable.comcast.com	
Denver Traffic Operations 201 West Colfax Avenue Department 508 Denver, CO 80202	John Yu John.Yu@denvergov.org	720-865-3176
Denver Water Department 1600 West 12 th Avenue Denver, CO 80204	Don Wyman Don.Wyman@denverwater.org	303-628-6628
Denver Wastewater Management Division 201 West Colfax Avenue Department 506 Denver, CO 80202	Walt Hime Walt.Hime@denvergov.org	303-446-3663
Level 3 Communications	Level3.NetworkRelocations@level3.com	303-779-7901 877-366-8344
Metro Wastewater Reclamation	General Office	303-286-3432
Xcel Energy – Electric 1123 West 3 rd Avenue Denver, CO 80223	Shaun Hughes Shaun.m.hughes@xcelenergy.com	
Xcel Energy – Gas 1123 West 3 rd Avenue Denver, CO 80223	Call Builder’s Call Line	800-628-2121
XO Communications	Josh Hicks Josh.D.Hicks@XO.com	303-539-1022 303-435-2793

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UTILITIES

The known utilities at the intersection of University Boulevard and Dartmouth Avenue within the limits of this project are:

Utility	Contact/Email	Phone/Fax
Centurylink 5325 Zuni Street, Suite 728 Denver, CO 80221	Travis Young	720-578-5294
City of Englewood 1000 Englewood Parkway, 3 rd Floor Englewood, CO 80110	Ladd Vostry LVostry@englewoodgov.org	303-762-2511
Comcast Cable 1617 Acoma Street Denver, CO 80223	Eric Carroll Eric_Carroll@cable.comcast.com Kip West Kip_West@cable.comcast.com	
Denver Traffic Operations 201 West Colfax Avenue Department 508 Denver, CO 80202	John Yu John.Yu@denvergov.org	720-865-3176
Denver Water Department 1600 West 12 th Avenue Denver, CO 80204	Don Wyman Don.Wyman@denverwater.org	303-628-6628
Denver Wastewater Management Division 201 West Colfax Avenue Department 506 Denver, CO 80202	Walt Hime Walt.Hime@denvergov.org	303-446-3663
Metro Wastewater Reclamation	General Office	303-286-3432
Xcel Energy – Electric 1123 West 3 rd Avenue Denver, CO 80223	Shaun Hughes Shaun.m.hughes@xcelenergy.com	
Xcel Energy – Gas 1123 West 3 rd Avenue Denver, CO 80223	Call Builder’s Call Line	800-628-2121
Zayo Bandwidth	Locating Services	801-364-1063

The work described in these plans and specifications will require full cooperation between the Contractor and the utility companies, 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.

PART 1—CONTRACTOR SHALL PERFORM THE WORK LISTED BELOW:

The Contractor shall be responsible for coordinating the adjustment and/or relocation of all utilities on this project, per the plans and specifications, and as directed by the Engineer. Also, in accordance with the plans and specifications and as directed by the Engineer, the Contractor shall keep the utility company(s) advised of any work being done to their facility so that the utility company(s) can coordinate their inspections for final acceptance of the work with the Engineer.

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UTILITIES

Contractor shall locate and pothole all potential conflicts with existing buried utility facilities with the proposed construction, as shown on the plans or by field location markings. If a conflict exists, modify proposed construction plans to avoid all existing buried utility facilities as approved by the Engineer.

The Contractor shall coordinate project construction with the performance by the utility owner of each utility work element listed in Part 2 below. Perform preparatory work specified in Part 2 for each utility work element. For all utilities other than Xcel Energy, the following procedure applies:

Provide an accurate construction schedule that includes all utility work elements to the owner of each impacted utility. Provide each utility owner with periodic updates to the schedule. Conduct necessary utility coordination meetings, and provide other necessary accommodations as directed by the Engineer. Notify each utility owner in writing, with a copy to the Engineer, prior to the time each utility work element is to be performed by the utility owner. Provide notice equal to the number of days specified in Part 2 immediately prior to the time the utility work must be begun to meet the project schedule.

For Xcel Energy, the following procedure applies:

At the pre-construction meeting, notify the Engineer of schedule requirements for completion of utility work as specified in Part 2. Based upon scheduling needs, the Manager of Public Works will send a Work Request to Xcel Energy per the Franchise Agreement between the City and County of Denver and Public Service Company of Colorado, and the related Operating Agreement and Street Lighting Agreement (collectively known as the "Franchise Agreements"). Typically, this work request would have been sent to Xcel Energy during the design phase of the project. Referring to Relocation of Xcel Energy Facilities, Section 5.7 of the Franchise Agreement states that "The relocations set forth in Section 5.7.A of the franchise shall be completed within a reasonable time, not to exceed ninety (90) days from the date on which the Manager of Public Works requests, in writing, that the relocation commence."

In reference to new/modified service to City facilities (i.e., power supply, removal or installation of poles, etc.), Section 5.3 of the Operating Agreement states: "The company (Xcel Energy) shall complete each project requested by the City within a reasonable time. The Parties agree that for Traffic Facilities, a reasonable time shall not exceed one hundred twenty (120) days from the date upon which the Manager of Public Works makes a Work Request and for all other City Facilities a reasonable time shall not exceed one hundred eighty (180) days from the date upon which the Manager of Public Works makes a Work Request." When requesting that the City initiate a Work Request to Xcel Energy, the Contractor should consider the time limits contained in the Franchise Agreements

It shall be the contractor's responsibility to protect all WMD facilities within the area of construction. This includes all steps necessary to prevent subsidence of the soil adjacent to or near WMD facilities

Notify the utility owner in writing 5 days immediately prior to required inspections of utility work performed by the Contractor.

For Denver Wastewater Management Division (WMD) facilities, the following applies:

It is the responsibility of the contractor to examine the site for evidence of failures of or deficiencies in Denver Wastewater Management Division (WMD) facilities and to immediately call any such evidence of pre-existing damage to the attention of the WMD along with proper documentation.

-6-
UTILITIES

Without such evidence of pre-existing damage, the contractor hereby agrees that any and all damages (direct or indirect) to WMD facilities, which may be subsequently discovered within those areas where construction occurred within six feet of WMD facilities (direct or indirect) and within a period of three years from the date of construction, were caused by the construction activities. Furthermore, their repair is agreed to be the sole responsibility of the contractor.

It shall be the contractor's responsibility to protect all WMD facilities within the area of construction. This includes all steps necessary to prevent subsidence of the soil adjacent to or near WMD facilities

Adjust Denver Wastewater manhole(s) to 1/4" to 1/2" below final grade of the paved surface as shown on the plans.

Coordinate all required inspections with Denver Wastewater forces.

Notify the utility owner in writing 5 days immediately prior to required inspections of utility work performed by the Contractor.

Xcel Energy – Street Lighting and Electric Distribution Work Elements:

Contractor shall submit the materials list, with locations, for the proposed traffic signal poles for review and approval by Xcel Energy forces. This review is expected to take 30 calendar days to complete.

PART 2—UTILITY OWNERS SHALL PERFORM THE WORK LISTED BELOW:

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 shall be the responsibility of the utility owner. The utility owner shall prepare and submit to the Engineer a Method of Handling Traffic for utility work to be performed outside typical project work hours. The utility owner shall obtain acceptance of the Method of Handling Traffic from the Engineer prior to beginning the utility work to be performed outside typical project work hours.

All Utility Owners:

Contractor shall locate and pothole all potential conflicts with existing buried utility facilities with the proposed construction, as shown on the plans or by field location markings. If a conflict exists, modify proposed construction plans to avoid all existing buried utility facilities as approved by the Engineer.

Contractor shall contact utility owners 5 days prior to potholing to allow their observation of potholing activities.

Xcel Energy – Electrical Distribution:

The Contractor shall be responsible for the coordination of relocation and removal work to be performed by Xcel Energy. The Contractor shall contact the Xcel Energy Builder's Call Line at 1-800-628-2121 to request, and process to completion, required coordination to remove street light standards, and traffic signal poles with luminaires as shown on the plans.

UTILITIES

After the CCD Contractor has completed the installation for the traffic signals and luminaires including conduit and wiring to the power source as shown on the plans, Xcel forces shall connect the meter and power source. This work is expected to be coordinated with construction and take 1 working day at each location to complete.

After the Proposed traffic signals are operational, Xcel forces shall disconnect the power to the existing traffic signals. After the day Contractor has removed all of the traffic signal equipment including mast arm, Xcel forces shall disconnect and remove the existing traffic signal pole and luminaires as shown on the plans. This work is expected to be coordinated with construction and take 1 working day at each location to complete.

The Contractor shall provide the utility owner written notice 45 days immediately prior to each utility work element at each intersection that is to be coordinated with construction.

Denver Wastewater Management:

After the Contractor has adjusted the sanitary sewer manhole, Denver Wastewater shall inspect the storm sewer and sanitary sewer.

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 three (3) business days, not including the actual day of notice, prior to commencing such operations. 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 company. 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.

**DENVER (ONLY) NOISE ORDINANCE – PERMIT
VARIANCE APPLICATION TEMPLATE**

Date

Subject: **Request for Variance to Noise Ordinance**
[location where work is to be performed]

Dear Ms. VanDerLoop,

- Name of company/organization seeking the variance
- What is being proposed, where it will occur, expected duration of project
- Brief history regarding proposed project
- Description of the community in the vicinity of the proposed project area

6 (a) Type and Timing of Claim:

- Specific description of proposed project (figures are helpful)
- Why does work need to be conducted at night?
- Are there limiting factors preventing this work from being conducted during the day?
- Requested variance duration; start and end dates
- Proposed work hours
- Types/categories of equipment being used for the project (if known, a detailed list should be provided as an appendix)
- Is this variance request contingent on other regulatory approvals/permits? (construction, demo, remediation)

6 (b) Date of Payment:

- [The Company's] date of payment is the date shown of this letter/request.

6 (c) Objections to Manager's Determinations:

- Specific items applicant may be in disagreement with concerning Department's recommendations or requirements

6 (d) (1) Hardship if Variance is Not Granted:

- Public safety concerns
- Logistical concerns
- Time constraints with a detailed explanation as to why they are necessary
- Cost considerations (specifics desirable)
- Document and evaluate possible alternatives

6 (d) (2) No Adverse Affects to Public Health:

- List expected noise levels to be generated (1) at the site where work is being performed, and (2) at the nearest sensitive receptor
- Detail existing ambient sound levels (L90, Leq, Lmax) for the same areas (at least 1 night of pre-work monitoring; 9 p.m. to 7 a.m.; two nights (one weekday, one weekend) if work will occur on weekdays and weekends)
- How do the proposed levels compare with existing EPA or other guidance?

**DENVER (ONLY) NOISE ORDINANCE – PERMIT
VARIANCE APPLICATION TEMPLATE**

- Are there adverse health effects other than noise to be concerned with as a result of the proposed work?

6(d) (3) Maintain Harmony with the Spirit and Purpose of the Ordinance:

- Is the scope of work considerate of present and future community concerns?
- How does the scope of work seek to minimize impacts to the community?
- Have noise mitigation techniques been included and/or considered?
- Has a noise monitoring plan been considered or proposed?
- How will community outreach be conducted prior to the start of work?
- Has a community response plan been developed to deal with any future complaints?
(contact name and number of on-site representative)

6 (e) Project Location and Haul Routes:

- Figures are preferable

6 (f) Petitioner Information

[Company Name and Address]

[Contact Person/Project Manager info]

6 (g) Petitioner's Signature

Sincerely,

[Name and Title]

The following field work summary of requirements will be the sole responsibility of the contractor for maintaining compliance with the Denver (only) Permit Variance agreements once granted by the Department of Environmental Health.

- 1) **Construction Activity Allowable Noise Levels:** Unless the accommodations described in below are provided, construction noise levels shall not exceed:
 - a. an hourly Leq of 75 dBA, or 5 dBA greater than an ambient hourly Leq measuring more than 75 dBa, or
 - b. an Lmax of 86 dBA during the hours of 9:00 p.m. to 7:00 a.m. (Nighttime Hours)

**DENVER (ONLY) NOISE ORDINANCE – PERMIT
VARIANCE APPLICATION TEMPLATE**

- 2) **Hotel accommodations within eligibility zones:** (Contractor) shall make hotel accommodations available for persons residing within eligibility zones where Nighttime construction noise levels exceed allowable noise levels. The eligibility zone shall be determined by a sound study conducted by the (contractor) and approved by DEH prior to a seven-day notification period. During nighttime construction, (contractor) shall conduct noise monitoring to verify the sound study results and shall expand and may restrict the eligibility zone to the areas where the actual noise levels exceed an hourly Leq of 75 dB(A) or an Lmax of 86 dB(A). (Contractor) shall consider any special circumstances brought to their attention regarding individuals in the eligibility zone who cannot utilize hotel vouchers and who may be at risk during this period of time, e.g., residents of 24-hour health care facilities. (Contractor) shall make their best effort to accommodate the needs of such individuals during Construction Activity.

- 3) **Notifications:** Not less than seven days prior to commencement of construction during Nighttime Hours, (contractor) shall notify individual households located within a 1000 foot radius of the construction, as well as representatives of each affected Registered Neighborhood Organizations. Notice shall be in writing or by direct personal contact from (contractor) representative, and shall include the expected start time, expected duration, character of work activity planned, names and telephone numbers of available contact persons (for additional information or questions), contact numbers for complaints, and any other relevant parameters or programs. Households within the eligibility zone shall receive notice regarding their eligibility for hotel vouchers at the same time or earlier.

- 4) **Mitigation Requirements/Activity Restraints:** When construction is conducted during Nighttime Hours and such activity emits noise levels that exceed ambient noise levels at residential properties, (contractor) shall utilize best reasonable management practices to mitigate construction noise impacts to the adjacent property owners. Best reasonable management practices include the following:
 - a. Using reasonable best efforts to complete the construction as quickly as possible.
 - b. Minimizing nighttime construction duration near residential areas whenever possible.
 - c. Re-routing of truck traffic away from residential streets when possible.
 - d. Conducting truck loading, unloading and hauling operations so that noise levels are kept to a minimum
 - e. Configuring equipment on the site to minimize back-up alarm noise, where practical and feasible (for example, by using circular movement of trucks).
 - f. Shielding jackhammers, saws, and pavement breakers through use of an existing sound barrier wall or temporary barrier where practicable
 - g. Maintaining all equipment to meet manufacturer's specifications.
 - h. Informing employees, contractors and subcontractors performing construction of the general requirements of this variance and exercising best efforts to ensure that such employees, contractors and subcontractors follow best management practices in mitigating construction noise.

**DENVER (ONLY) NOISE ORDINANCE – PERMIT
VARIANCE APPLICATION TEMPLATE**

- 5) **Monitoring:** (Contractor) shall perform monitoring sufficient to demonstrate compliance with the requirements of the noise variance and to demonstrate to the community the noise levels that are present.
- a. Noise measurements shall be collected using ANSI guidelines for community noise monitoring
 - i. Manufacturer’s specifications for appropriate meter use shall be followed.
 - ii. All noise measurements shall be made using the A-weighted scale (dB(A)) and a slow response. Fast response measurements may be used to measure impact noise levels.
 - iii. Noise measurements shall be made at the nearest residential property line, unless physically impractical.
 - b. All nighttime construction activity shall be initially monitored. Monitoring shall include spot measurements, as appropriate and hourly Leq. Monitoring shall be required for the following activity groups, but not be limited to:
 - i. Joint Repair
 - ii. Milling Operations
 - iii. Rubble load-out
 - iv. Paving operations
 - c. Monitoring shall meet the following requirements:
 - i. Each construction activity shall be monitored a minimum of two days for Lmax and hourly Leq levels to establish an activity baseline for each activity when initially undertaken, and to establish the expected worst case situation (outside lane).
 - ii. Noise monitoring shall be provided in response to all noise complaints.
 - iii. All noise monitoring data and documentation shall be provided to DEH at least weekly when applicable, and such data shall be available to the public from DEH. DEH and their designated representatives may inspect collected data more frequently.
 - d. The following documentation, in a manner and form mutually agreed upon by CDOT, (contractor) and DEH, shall be provided for noise monitoring that is conducted:
 - i. Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used.
 - ii. Software manufacturer, program and version.
 - iii. Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
 - iv. Pre- and post- monitoring calibration data for the Sound Level Meter.
 - v. Date and specific location (address if appropriate) of monitoring.
 - vi. Start time and end time of monitoring
 - vii. Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
 - viii. Signature of technician collecting the data
 - ix. List of each hourly Leq for the monitoring period, with associated Lmax levels.

**DENVER (ONLY) NOISE ORDINANCE – PERMIT
VARIANCE APPLICATION TEMPLATE**

- x. All measurements associated with any unusual noise events that occurred, cause of such event if known, correction of such event (if any), and adjusted and unadjusted measurements.
- 6) **Complaint Notification and Response:** (Contractor) shall ensure that methods are available to receive, address, and respond to concerns raised by people in the community, through:
- a. Assuring that a field representative is available to respond to complaints regarding construction noise levels and provide monitoring. The field representative shall be empowered to shut down construction activity, authorize correction or remediation of sources of excess noise, and authorize resumption of construction activity as necessary to maintain compliance with allowable noise levels.
 - b. Providing telephone access to a field representative during hours of project activities to receive complaints or comments from the public for the duration of the project. All complaints immediately shall be recorded, investigated and addressed as appropriate by the field representative and reported to DEH in a manner mutually agreed by DEH, CDOT and (contractor). A response, in a reasonable form requested by the caller, summarizing the investigation and any corrective actions taken by CDOT and (contractor) shall be provided to the caller. Written copies of complaints received and responses by (contractor) shall be provided weekly to DEH and CDOT.

All application requirements and chapter 36 ordinance requirements regarding night time construction noise activities must be coordinated by the contractor with the City/County Denver. The contractor is fully responsible for the timely submittal of the variance application and fulfilling the requirements set forth by the City/County of Denver to allow construction activities during p.m. hours under the granted variance.

APPENDIX A
MMP – DRAFT TEMPLATE &
MMP CHECKLIST

MATERIALS MANAGEMENT PLAN – Draft Template
Project Name
Project Location / Address

Prepared for—
Name

Address

Prepared by—
Name
Address

Date

Add additional project information and photographs as needed to the title page

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TABLES

- Table 1: (as needed)
- Table 2: (as needed)
- Table 3: (etc.)

ATTACHMENTS

- Attachment 1: (for example, Site Location)
- Attachment 2: (for example, Soil Analytical Results)
- Attachment 3: (for example, Groundwater Analytical Results)
- Attachment 4: (for example, Groundwater Potentiometric Map)
- Attachment 5: (for example, Area of Potentially Contaminated Soil)
- Attachment 6: (for example, Area of Potentially Contaminated Groundwater)
- Attachment 7: (for example, CCoD's Guidance for Soil Re-use on Third Party Sites)
- Attachment 8: (for example, CCoD's Asbestos-Contaminated Soil Standard Operating Procedure)

1 INTRODUCTION

Within the introduction, include project location, current use, planned site use/redevelopment, who the work is being conducted for, very general scope of work to be performed/planned soil and or groundwater disturbing activities, and very generally why the MMP is needed.

2 PURPOSE

Example language follows, which should be modified to meet project-specific needs.

The purpose of this Materials Management Plan (MMP) is to provide a guidance document to manage contaminated materials, if encountered, during the site development. The MMP is designed to minimize worker exposure to potentially contaminated material, to minimize the potential of releases to the environment, and to facilitate proper disposal of materials developed during construction activities. The general contractor is responsible for following all appropriate regulations, obtaining the proper permits, and incorporating environmental information from this MMP into their safety plan. The general contractor is also responsible for providing this MMP to its staff and subcontractors and for compliance with the MMP. Through implementation of this MMP, the City and County of Denver (CCoD) will be immediately notified of potential environmental-related findings pertaining to construction activities at the site.

3 PROJECT CONTACTS

An example follows, which should be modified to meet project-specific needs.

Organization	Role/Responsibility	Contact Information
City and County of Denver, and list the specific department	CCoD Project Manager (additional information as needed)	Name Organization Office phone number Cell number email
City and County of Denver, Department of Environmental Health (DEH)	Environmental Quality Technical Oversight	Name Organization Office phone number Cell number If no immediate response, then 720-460-1706 email

Organization	Role/Responsibility	Contact Information
Name of the General Contractor	General Contractor, Construction Project Management; Immediate notification to DEH of potential environmental concerns	Name Organization Office phone number Cell number email
Name of major Subcontractors (as needed)	Example: Dewatering Contractors under General Contractor Immediate notification to DEH of potential environmental concerns	Name Organization Office phone number Cell number email
Name of Environmental Firm	Materials Management Plan Implementation; Immediate notification to DEH of potential environmental concerns	Name Organization Office phone number Cell number email

4 ENVIRONMENTAL RESPONSIBILITIES

The project team, either via the CCoD project manager or the general contractor, will hire an environmental firm to have a trained environmental professional onsite to implement the MMP. Examples of responsibilities are below and should be edited to meet project-specific needs.

Environmental Professional Responsibilities:

- Be a competent individual experienced with a) field identification of potentially contaminated material and potential environmental finds (e.g. abandoned underground storage tanks, asbestos awareness), b) characterization, c) management, and d) disposal.
- If needed for the project, the Certified Asbestos Building Inspector (CABI) will be trained and certified in accordance with Air Quality Control Commission Regulation No. 8, (5 CCR 1001-10, Part B).
- Be onsite when work is conducted within areas of known or suspected contamination as identified in the 'Background' section of the MMP. Be on-call when work is conducted outside of those areas.
- Perform field screening in adherence to the MMP.
- Complete daily field notes.
- Track and/or sign tickets and manifests for material hauled offsite for either reuse or disposal.
- Ensure adherence to the MMP.
- Provide daily updates to CCoD.
- Notify CCoD immediately of any unexpected environmental conditions, concurrently notify the WWMD Project Manager.

General Contractor Responsibilities:

- Provide all necessary equipment and personnel (i.e. health and safety officer, foreman, laborers, etc.) to implement the MMP.
- Coordinate with the environmental professional, DEH, and the CCoD project manager prior to beginning work to review the implementation of MMP requirements.

- Provide asbestos awareness training to site personnel who will conduct soil work.
- Adhere to the MMP.
- Ensure that their subcontractors adhere to the MMP.
- Ensure that disposed material goes to the Denver-Arapahoe Disposal Site (DADS) landfill.
- Ensure that waste material is not disposed onsite, in storm drains, sanitary sewers, streams, or other waterways.

Project Health and Safety Plan:

Workers and managers associated with intrusive site activities will be required to undergo a one-time health and safety orientation meeting at the start of the project, such as a brief onsite description of site conditions or in coordination with asbestos awareness training. A site-specific safety management plan will be prepared as required by the construction contract, and it will incorporate information as required by 29 Code of Federal Regulations (CFR) 1910 and 29 CFR 1926. The general contractor may share its plan with its subcontractors or require each subcontractor to prepare its own plan.

5 ENVIRONMENTAL BACKGROUND

Describe the environmental issues/concerns associated with the site and their current status. For example, this section may describe historic gasoline stations and current cleanup actions, fill material, historical landfill use, past disposal of coal-based fill material, building debris with potential asbestos material, potential for asbestos in soil, and known or potential soil and groundwater contamination. Provide figures and maps as needed to show the areas where these environmental concerns may be encountered during redevelopment work. The more the MMP can define the area and depth of known contaminated material, then the more stream-lined the field process may be.

6 MATERIALS MANAGEMENT

Examples of information are provided below for dust, soil, construction debris, stormwater, groundwater, landfill debris, asbestos, other miscellaneous wastes, and disposal. However, the materials of concern subsequent subsections will be project-specific. The project-specific materials of concern should be summarized and then discussed in detail below.

The following statement must be included in the MMP:

If unknown/unidentified underground storage tanks, drums, odorous soil, stained soil, asbestos-cement pipe, transite, building debris or waste materials are encountered during the project, the general contractor shall immediately stop work in the area of the discovery until DEH makes a determination of how to proceed. The general contractor shall immediately notify DEH of the discovery via the phone number 720-460-1706. Following discussions with DEH and the CCoD project manager, additional characterization, remediation, and/or analyses may be required. Work may continue in other areas of the project site while the discovery is resolved.

6.1 DUST

The following statement must be included in the MMP:

The general contractor shall take reasonable measures to prevent particulate matter from becoming airborne and to prevent the visible discharge of fugitive particulate emissions beyond the property

boundary on which the emissions originate. The measures taken must be effective in the control of fugitive emissions at all times on the site, including periods of inactivity such as evenings, weekends, and holidays as well as any other period of inactivity.

Additionally, the general contractor will determine if the minimum requirements for an Air Pollution Emissions Notice (APEN) in accordance with 5 CCR 1001 – Air Quality Control Commission are met and obtain the permit if required. Such requirements may include whether the project site is less than 25 contiguous acres and whether site work will be less than 6 months in duration.

6.2 SOIL

Soil may be excavated from a project site possibly due to contamination or excess soil, and this initial paragraph(s) for this section should summarize when soil will be generated at the project site (e.g. excavation, caisson drilling, etc.).

6.2.1 Soil Management

This subsection should review the project-specific types of contaminated soil that may be encountered, when samples should be collected, the analyses needed, criteria for determining when soil must be disposed, manifesting, field screening protocol, stockpiling soil, and disposal. It is assumed that the project has conducted Phase II type environmental investigations.

CCoD's general approach for managing soil is as follows and should be incorporated into the site specific MMP as appropriate.

Clean soil

- Reuse onsite –
 - No testing is required, but an environmental professional will be onsite to verify that there are no field indications of contamination or construction debris.
- Export offsite -
 - To another City property – An initial sample will be collected for laboratory analysis of site-specific constituents of concern. Additional samples will be collected for analyses when there is a change in soil characteristics. An environmental professional will be onsite when the soil is either stockpiled or direct loaded into trucks to verify that there are no field indications of contamination or construction debris.
 - To a third party's property – Soil samples will be collected every 500 cubic yards for analysis of an extensive list of potential contaminants per the City's guidance document (see attachment ____). An environmental professional will be onsite when the soil is either stockpiled or direct loaded into trucks to verify that there are no field indications of contamination or construction debris.
 - Material is considered suitable for offsite reuse if a) laboratory analytical results meet the Colorado Department of Public Health and Environment (CDPHE) residential standards and the CDPHE guidance for arsenic, and b) field observations indicate no construction debris and no contamination (e.g. no odor, no staining, and field measurements representative of background conditions).
- Disposal -
 - A representative soil sample will be analyzed for the site-specific constituents of concern, and CCoD will obtain the approval for disposal at the DADS landfill. The landfill will accept

soil as 'clean' when it is free of contaminants, debris, organic material, and objects greater than 6-inches in any dimension. A waste ticket, provided by CCoD, will accompany each truck load to the DADS landfill. For large projects, drop tickets may be arranged with the DADS landfill.

Imported soil

If fill material will be brought onto the site, then the following language must be included in the MMP:

- Any fill material or soil to be moved to and placed on CCoD-owned property or placed on real property to be transferred to CCoD must be free of known contamination (observed or previously documented) and be acceptable for unrestricted residential use. Contact Dave Erickson, DEH (720-865-5433) for clarification, if needed, regarding this CCoD requirement.

Contaminated soil

- Known contamination -
 - Areas of known contamination will be documented during pre-construction environmental investigations and maps/figures of these areas will be included in the MMP.
 - The contaminated soil will be analyzed for the site-specific constituents of concern during the investigation work.
 - Disposal profiles will be prepared by CCoD and disposal manifests will be obtained by CCoD.
 - Each type of contaminated soil (e.g. petroleum, asbestos, landfill, etc.) requires its specific manifest; they are not interchangeable.
 - When known contamination is encountered during construction work, it may either be temporarily stockpiled or directly loaded and hauled to the DADS landfill with the appropriate manifest.
 - Additional sampling and laboratory analytical results are not required for this known contamination unless field observations indicate a change in the type of contaminants. The need for and type of analyses will first be discussed with CCoD.
- Unanticipated soil contamination -
 - If field indications of soil contamination are encountered outside of the area of known contamination, and CCoD concurs that the field characteristics indicate that it is the same type of soil as the known contamination, then the soil will be disposed using the previously obtained manifests. No additional testing will be required.
 - Whenever different types of contamination are encountered based on field observations, work will temporarily stop in that immediate area so that the soil may be sampled and analyzed. The types of constituents to be analyzed will be discussed with CCoD and typically rushed results will be requested from the laboratory. As a result, work in the immediate area may be stopped for a minimum of 1 week.
 - If potential asbestos-containing material or Regulated Asbestos Containing Soil (RACS) is encountered by the asbestos-awareness trained personnel, a Certified Asbestos Building Inspector (CABI) will be called to the site to conduct sampling as discussed later within this MMP and within the attached document 'Asbestos-Contaminated Soil Standard Operating Procedure'.
 - As determined by the CCoD project manager, either CCoD or the general contractor will prepare the disposal profile and obtain the manifests for disposal at the DADS landfill.

6.2.1 Field Screening Protocol

Field screening will consist of monitoring the soil for odors, headspace, ambient air measurements, and staining that does not include natural variations such as mottling or iron staining. For headspace readings, a soil sample will be placed in a sealed lock-tight plastic bag or equivalent container until volatile constituents equilibrate inside the bag. The headspace will be measured using a photoionization detector (PID). A headspace reading of 10 parts per million (ppm) or less is considered to represent background conditions. If work is conducted within a historical landfill, then methane readings of the ambient work-space will also be monitored with a flammable gas monitor. Monitoring will be performed in and downwind of work areas.

If PID readings exceed 50 ppm or methane readings at or exceeded 5% of the Lower Explosive Level (LEL), then work in that immediate area will stop and the work area will be allowed to air out for 15 minutes after which additional ambient air readings will be obtained. If readings still exceed the acceptable levels, additional readings will be taken after a total of 30 minutes. If readings still exceed, then the CCoD project manager and DEH will be notified and engineering controls will be discussed. Work in the area will resume only after acceptable levels are obtained.

6.2.2 Soil Sampling Protocol

Samples for laboratory analytical analyses may be collected using equipment such as a backhoe, hand-auger, or sampling spoon. To eliminate loss of potential volatile organic constituents (VOCs), samples will be collected from fresh excavation side walls, excavation floor, or from several inches beneath the surface of stockpiled soil. If composite soil samples are collected, representative subsamples will be placed in a mixing bowl and thoroughly mixed except those samples for VOC analysis. Instead, a portion of the composite sample will be placed directly into the sample container. Soil samples will be placed into clean laboratory-supplied containers, capped, labeled, and placed in ice-chilled containers for transport to a certified laboratory under strict chain-of-custody protocol.

6.2.3 Stockpiling Soil

Soil that is known or suspected to be contaminated may be stockpiled onsite; however, it must be placed on 10-mil or greater plastic sheeting. Clean soil that is stockpiled is not required to be placed on plastic sheeting. Stockpiled soil must be managed, such as by covering with plastic sheeting, to prevent dust. Additionally, stormwater best management practices (BMPs) will be implemented to prevent runoff.

Stockpiled soil that is saturated (e.g. excavated from below the water table) will be placed on 10-mil plastic sheeting that is sloped to collect the water in a plastic-lined sump. Accumulated water will be sampled, if not previously sampled, and disposal options will be reviewed with DEH and the CCoD project manager.

Stockpiled soil will be limited in size to 500 cubic yards and should be within fenced areas (i.e. within the project site fenced area) to limit unauthorized access. The number of onsite stockpiles and the length of time they are onsite should be held to a minimum.

6.3 CONSTRUCTION DEBRIS

Prior to demolition activities, construction material, whether as a still-standing building or observed as remnants buried in the subsurface, or should be evaluated by an environmental professional for the presence of asbestos and lead based paint.

If, prior to excavation, existing buildings will be demolished and debris removed from the site, the general contractor will:

- Obtain a building demolition permit from CDPHE Air Quality Control Division;
- Remove Asbestos Containing Building Material, except for Category I non friable ACM from buildings; and
- Inspect the footprint and surround areas of the former building for ACM.

If the material is free of lead-based paint and asbestos, it may be recycled if deemed appropriate by the CCoD project manager. If it is disposed, it must go the DADS landfill. A waste ticket, provided by CCoD, will accompany each truck load to the DADS landfill. For large projects, drop tickets may be arranged with the DADS landfill.

6.4 STORMWATER

The general contractor will obtain a General Permit for Stormwater Discharges Associated with Construction Activity from the CDPHE Water Quality Control Division. This is also referred to as the Colorado Discharge Permit (CDPS) number COR-030000. Per CDPHE, "Stormwater Construction Permit coverage is required by State and Federal regulations for stormwater discharged from any construction activity that disturbs at least 1 acre of land (or is part of a larger common plan of development or sale that will disturb at least 1 acre)." The general contractor is responsible for complying with the permit.

6.5 GROUNDWATER

When redevelopment activities will encounter groundwater, the CCoD project manager with assistance from DEH will determine whether offsite disposal, potential reuse onsite, or obtaining a permit and treating the water onsite is most feasible for the project. Project specific groundwater laboratory analytical results are required to make this determination and also to assess which permit may be obtained.

Most CCoD projects will either require a Colorado Discharge Permit (CDPS) COG-070000 General Permit for Construction Dewatering Discharges or a CDPS COG-315000 General Permit for Discharges from Remediation Activities. Both permits are issued by the CDPHE Water Quality Control Division. Very generally, the COG-07000 permits are issued only if it can be proven that the project site and surrounding area have no environmental concerns. Whereas the COG-315000 permits are issued when there are onsite and/or area environmental concerns and when groundwater quality does not meet the numeric standards of the receiving surface water, even if the groundwater concentrations represent background conditions.

The general contractor is responsible for ensuring that water is managed in accordance with applicable federal, state, and local regulations and for meeting all requirements of a permit. The general contractor cannot discharge groundwater to a public stormwater system without obtaining the proper permits.

6.6 HISTORIC LANDFILL DEBRIS

Historical municipal landfills may be encountered during CCoD redevelopment activities. Most of these landfills contain construction and demolition debris and/or household trash and they do not contain hazardous waste or asbestos material. At these locations, the old landfill debris may be excavated and disposed at the DADS landfill after first obtaining the landfill approval and manifests. Sampling and laboratory analysis are typically not required under this scenario.

During excavation, a Certified Asbestos Building Inspector (CABI) that also has experience in identifying potential environmental materials of concern will be onsite to observe and ensure that materials of potential concern are set aside for testing prior to disposal. The CABI will also monitor the excavation for VOCs and methane as discussed above in Section 6.2.2.

Examples of environmental materials of concern include drums, batteries, and stained or odorous soil. These materials may be screened, sampled, and stockpiled as described in Sections 6.2, 6.3, and 6.4 until they are characterized for disposal.

Asbestos is another environmental material of concern that may be found in historical landfills and may be present as individual pieces of asbestos wrapped pipe, transite, or debris.

However, asbestos may also be found in certain types of ash layers within historical landfills. If it is found in these ash layers, then the project must implement the CCoD SOP for asbestos containing soil and prepare a separate Best Management Practices (BMP) document for DEH and CDPHE approval prior to beginning site work and included as part of the MMP. The BMP may be written so that the asbestos ash layers area segregated and managed as asbestos containing soil, and the remaining soil/material would not require special management unless the onsite CABI found other suspect material. Any site specific information such as area, depth, and characteristics would assist the onsite CABI and streamline the field process.

6.7 ASBESTOS IN SOIL

The following language must be included in the MMP:

In the event that Regulated Asbestos Containing Soil, as described in the Colorado Department of Public Health and Environment (CDPHE) 6 CCR 1007-2 Part 1 – Regulations Pertaining To Solid Waste Sites and Facilities, Section 1.2 Definitions and Section 5.5 (Management of Regulated Asbestos Contaminated Soil [RACS]), effective January 14, 2015, is encountered during soil disturbing activities, the DEH Asbestos-Contaminated Soil Management Standard Operating Procedure (SOP, effective December 3, 2010) will be followed (see Attachment ____). Any changes to the implementation of SOP would be done under a notification to CDPHE (24 hour or 10 days) for their approval following review of the changes by DEH. The notification to CDPHE addressing compliance with the new rules or specific project circumstances can be submitted via the project's environmental consultant or DEH.

6.8 INFECTIOUS WASTE

The proper management of infectious wastes begins with identification. Given that the potential infectious wastes are associated with historical landfills, it is likely that the waste materials will not have many of the common identification, labeling, and containerization characteristics observed with medical wastes today. The following information has been provided to aid the general contractor and

environmental professional in identifying potentially infectious wastes. The CCoD project manager and DEH will be notified if infectious waste is encountered.

The EPA, the Center for Disease Control (CDC), and OSHA all have recommended classifications to deal with potentially infectious waste matter, with the primary emphasis being medical wastes. Based on EPA's classification, materials that should be treated as infectious wastes include:

- Isolation waste;
- Cultures, stocks and associated biologicals;
- Human blood and blood products;
- Pathological wastes like body parts, tissues, organs, and fluids removed during surgery, pathology or biopsy;
- Sharps (edged or pointed metal, glass, or plastic medical equipment) such as hypodermic needles, syringes, intravenous needles, scalpel blades, lances, disposable pipettes, capillary tubes, laboratory equipment, glass slides, test tubes, and broken glass;
- Animal carcasses, body parts, and bedding;
- Personal protective equipment, swabs, pipettes, spreaders, gloves, specimen and culture containers, cups, petri dishes, and flasks;
- Laboratory waste such as intravenous tubing, drainage tubing, pouches, dressings, disposable filters, towels, aprons, gowns, bedding, pads; and
- Dialysis unit wastes.

If field monitoring during construction work in fill areas uncovers any of the aforementioned materials, they will be managed as infectious wastes. Following identification of waste materials, the work in the immediate area will be suspended in order to properly profile the waste for disposal per CCR 25-15-403.

- Restrict access to the infectious waste with fencing or other material;
- Wet the waste to reduce potential for airborne migration of materials;
- The infectious waste will be excavated, logged and containerized. Once placed in appropriate containers, the infectious waste will be labeled and placed in a secured storage area until removal by a registered infectious waste management company; and
- Individuals involved in excavating, identifying and segregating infectious waste will wear personal protective equipment appropriate to the type of infectious waste encountered. At a minimum, all workers involved in the identifying and segregation of infectious waste will wear disposable overalls and booties, disposable gloves, work boots, and clear plastic full face mask.

6.9 OTHER SPECIAL WASTES

Special wastes could include items such as drums, chemical or fuel containers, batteries, tar, sludge, slag/coal/ash,, materials that are hazardous waste, and potential polychlorinated biphenyls (PCBs) containing equipment (transformers, light ballasts, voltage regulators, capacitors and circuit breakers). These materials may be present in small quantities and can be difficult to characterize. Upon identification of special wastes, excavation at that immediate location will cease until additional assessment by the environmental professional can be completed as coordinated with CCoD. The environmental professional will attempt to assess special wastes, including prudent and safe observation for the following:

- Markings and or labels on containers/drums, condition of the containers/drums (i.e. rust, holes, damage, corrosion) and other indications of contents;
- Indications of unsafe conditions, including swelling drums, leaking, fumes, odors, etc;
- Conditions of materials associated with the special wastes; and
- Assessment for evidence of release, obtained by utilizing field instruments (i.e. PID, LEL) and professional judgment.

Only under the direction of the environmental professional and after discussions with DEH and the CCoD project manager will handling of any special wastes be completed. When handling is required, the following precautions will be taken:

- Handling will be minimized whenever possible;
- When necessary, handling will be employed by mechanical means including the use of site excavation equipment;
- Pressurized/swelling drums, suspected explosives, potential shock-sensitive materials or other potentially dangerous items will not be handled until a person with appropriate experience with these situations has been consulted;
- All special wastes will be placed on 10-mil plastic sheeting and covered until additional assessment has been completed by the environmental professional (the time frame will allow for laboratory testing and obtaining a profile and manifest for disposal);
- All stockpiles of special waste will be covered immediately or containerized, and will remain covered or containerized until final removal;
- Suspicious materials will be further evaluated by the environmental professional. When additional assessment of this material indicates that the material does not meet applicable regulatory requirements for disposal as a non-hazardous waste, the environmental professional and DEH will arrange for off-site disposal at a licensed facility; and
- Where suspicious material is determined to be non-hazardous by the environmental professional and DEH through additional assessment, the material may be disposed as non-hazardous solid waste.

Waste may be hazardous if it contains a listed hazardous waste or enough hazardous constituents to exhibit a hazardous waste characteristic. Listed wastes are discussed in 6 CCR 1007-3 Part 261 Subpart D. Testing and disposal will be coordinated with DEH.

6.10 MONITORING WELLS

If groundwater monitoring wells could be encountered during excavation and construction activities, then the following procedures will be followed.

Work will be conducted around monitor wells so as not to disturb their construction. If this is not possible, the well will be properly abandoned and then replaced after construction, as coordinated and conducted by the environmental professional; DEH will be notified and will coordinate abandonment of monitoring wells.

6.11 DISPOSAL

The following language must be included in the MMP:

The general contractor shall direct non-recyclable, non-hazardous wastes from the CCoD-owned or controlled property or facilities to the DADS landfill for disposal.

As determined by the CCoD project manager for the site, either the general contractor or CCoD may a) set up the disposal account with the DADS landfill, b) complete the waste profile forms, and c) obtain manifests from WM for the DADS landfill. As practical, the material will be profiled, and manifests will be obtained before site work begins.

If the soil is determined to be hazardous based on the analytical data, then special waste management and disposal options will be discussed with the CCoD project manager and DEH. Hazardous waste cannot be disposed at the DADS landfill.

7 DECONTAMINATION

Equipment that has come into contact with environmentally-affected material, such as soil, will be decontaminated prior to leaving the site to minimize the potential of contaminating offsite properties. Decontamination procedures will include using hand tools such as shovels, brooms, and brushes to remove the material from the equipment. If the environmental professional finds it necessary, the equipment will be further decontaminated with a pressure washer. The spent decontamination water will be collected in plastic-lined basins and pumped into water-tight containers. The general contractor will be responsible for analyzing the wastewater and coordinating with CCoD to dispose of the decontamination water.

8 COMPLAINTS

Any complaints received by the general contractor will be immediately reported to the CCoD project manager. Additionally, any environmentally related complaint, such as noise, odor, or dust, will be immediately reported to DEH. Complaints should be addressed within 24 hours.

The following statement must be included in the MMP:

The project must adhere to CCoD's noise ordinance. Exempted hours for construction in the City and County of Denver are from 7 A.M. TO 9 P.M. Monday through Friday and 8 A.M. TO 5 P.M. on Saturdays and Sundays per Sections 36-6.(B)(7) AND 36-7.(5)A., B. and C. of Chapter 36 Noise Control, Denver Revised Municipal Code (DRMC). If there is an anticipated need to work outside of the exempted hours for construction: 1) the general contractor will need to make a request for a nighttime noise variance as allowed for in Section 36-7.(5)C. of the DRMC, and 2) the variance process needs to be started a minimum of two to three months prior to the desired start date of any work needing to occur outside of exempted hours. Any noise variance questions should be directed to Paul Riedesel, DEH Denver Community Noise Program (phone 720-865-5410; FAX 720-865-5532) a minimum of three months prior to the start of the project.

9 SITE SECURITY

The general contractor will be responsible for maintaining effective project access control to prevent the public from gaining access to the potentially contaminated materials exposed during the development activities.

10 REPORTING

The environmental professional will complete a summary report outlining the implementation of this MMP, which will include the following:

- Description of the work completed;
- Summary of the environmental professional onsite observations;
- Electronic deliverable of field observation log book(s);
- Summary of materials that were managed and the procedures used;
- Quantities and disposition of materials managed;
- Description of field and laboratory sampling and results;
- Waste manifests;
- Maps showing the locations of pertinent features;
- Labeled site photographs; and
- Any other pertinent project information.

Materials Management Plan (MMP) Checklist for WWMD

This is not as comprehensive as a MMP nor does it replace a MMP
It is to be used in conjunction with the Material Management Plan Template
And Coordinated with DEH as Needed
Draft 1-27-16

1. Where is the project located?
2. What is the project scope?
3. Who are the key project contacts (i.e. City PM, environmental contact (DEH and/or firm), GC, key subcontractors)?
 - a. What are their responsibilities?
 - b. What is the call-down list?
 - c. Who is responsible for maintaining environmental compliance on the site?
 - d. Who is responsible for reporting environmental conditions to the City and the regulatory agencies?
 - e. Who has environmental liability for the project?
4. What are the known or suspected environmental concerns and contaminants associated with the work area?
5. Will the project utilize onsite environmental professionals, Certified Asbestos Building Inspectors (CABIs), and/or workers with asbestos awareness training?
6. Are there environmental-related structures that need to be accommodated, such as monitoring wells, remediation systems, or underground tanks?
7. Is a stormwater permit needed?
 - a. Who is responsible for permitting and compliance?
 - b. What Best Management Practices (BMPs) and/or protocols will be implemented at the site?
8. Will groundwater be encountered?
 - a. Are there known contaminants?
 - b. How will the water be managed?
 - c. Has the water been tested (groundwater may naturally have higher concentrations than what is typically allowed in a discharge permit)?
 - d. Will the water be disposed offsite (pump and haul)?
 - e. Will a discharge permit be required?
 - f. Will treatment before discharge be required?
 - g. Who will conduct testing, hauling, permitting, treatment, and/or compliance actions?
 - h. What BMPs and/or protocols will be implemented at the site?
9. Will soil be encountered?
 - a. Is there an environmental assessment for the work area?
 - b. Does an environmental report indicate the potential for contaminated soil, asbestos, historic landfill debris, landfill gas, or other environmental conditions?

- c. Has the soil, and/or other subsurface material, been analyzed for potential contaminants?
 - d. Per the analytical results, are there worker health and safety issues that need to be addressed? Who will be onsite to recognize potential environmental conditions and concerns?
 - e. What BMPs and/or protocols will be implemented at the site? Asbestos in soil must be managed in accordance with the City's asbestos SOP.
10. Will excess soil be generated?
- a. Where will the excess soil be placed?
 - b. How will stockpiled soil be managed to prevent dust and runoff?
 - c. How will the water from the stockpiled saturated soil be collected, tested, and managed/disposed?
 - d. Testing is required to demonstrate 'clean' soil and to document contaminated soil (and/or material) prior to disposal. Who will conduct the testing and for which analyses?
 - e. What BMPs and/or protocols will be implemented at the site?
11. What are the field screening protocols?
12. What are the sampling protocols?
13. How will wastes be managed?
- a. What wastes will the project generate?
 - b. Liquid waste and hazardous waste cannot go to the DADS landfill. How will this waste be managed?
 - c. Will the contractor or the City set up the disposal account with Waste Management for disposal at the DADS landfill?
 - d. Are tickets for uncontaminated/unregulated waste and/or manifests for contaminated/regulated material needed?
 - e. For contaminated/regulated wastes, has a profile been created and manifests obtained?
 - f. Who will be present onsite to maintain control of tickets and manifests?
 - g. If there are multiple types of contaminated material, training and maps will help onsite personnel recognize which manifest is needed for certain waste types.
 - h. What BMPs and/or protocols will be implemented at the site?
14. Will soil be imported to the site? Does it meet State residential cleanup standards and City guidance for accepting soil?
15. What is the protocol for decontaminating environmentally-affected equipment?
16. Who is responsible for maintaining site security to prevent the general public from gaining access to potentially contaminated material?
17. Who will receive and respond to complaints? How will the City be notified?
18. What information will be included in the summary report that outlines the implementation of the MMP? Who will prepare this report?

19. Required Language

Disposal - The following language must be included in the MMP:

The general contractor shall direct non-recyclable, non-hazardous wastes from the CCoD-owned or controlled property or facilities to the DADS landfill for disposal.

Unknowns - The following statement must be included in the MMP:

If unknown/unidentified underground storage tanks, drums, odorous soil, stained soil, asbestos-cement pipe, transite, building debris or waste materials are encountered during the project, the general contractor shall immediately stop work in the area of the discovery until DEH makes a determination of how to proceed. The general contractor shall immediately notify DEH of the discovery via the phone number 720-460-1706. Following discussions with DEH and the CCoD project manager, additional characterization, remediation, and/or analyses may be required. Work may continue in other areas of the project site while the discovery is resolved.

Dust - The following statement must be included in the MMP:

The general contractor shall take reasonable measures to prevent particulate matter from becoming airborne and to prevent the visible discharge of fugitive particulate emissions beyond the property boundary on which the emissions originate. The measures taken must be effective in the control of fugitive emissions at all times on the site, including periods of inactivity such as evenings, weekends, and holidays as well as any other period of inactivity.

Additionally, the general contractor will determine if the minimum requirements for an Air Pollution Emissions Notice (APEN) in accordance with 5 CCR 1001 – Air Quality Control Commission are met and obtain the permit if required. Such requirements may include whether the project site is less than 25 contiguous acres and whether site work will be less than 6 months in duration.

Asbestos - The following language must be included in the MMP:

In the event that Regulated Asbestos Containing Soil, as described in the Colorado Department of Public Health and Environment (CDPHE) 6 CCR 1007-2 Part 1 – Regulations Pertaining To Solid Waste Sites and Facilities, Section 1.2 Definitions and Section 5.5 (Management of Regulated Asbestos Contaminated Soil [RACS]), effective January 14, 2015, is encountered during soil disturbing activities, the DEH Asbestos-Contaminated Soil Management Standard Operating Procedure (SOP, effective December 3, 2010) will be followed (see Attachment ____). Any changes to the implementation of SOP would be done under a notification to CDPHE (24 hour or 10 days) for their approval following review of the changes by DEH. The notification to CDPHE addressing compliance with the new rules or specific project circumstances can be submitted via the project's environmental consultant or DEH.

Noise - The following statement must be included in the MMP:

The project must adhere to CCoD's noise ordinance. Exempted hours for construction in the City and County of Denver are from 7 A.M. TO 9 P.M. Monday through Friday and 8 A.M. TO 5 P.M. on Saturdays and Sundays per Sections 36-6.(B)(7) AND 36-7.(5)A., B. and C. of Chapter 36 Noise Control, Denver Revised Municipal Code (DRMC). If there is an anticipated need to work outside of the exempted hours for construction: 1) the general contractor will need to make a request for a nighttime noise variance as allowed for in Section 36-7.(5)C. of the DRMC, and 2) the variance process needs to be started a minimum of two to three months prior to the desired start date of any work needing to occur outside of exempted hours. Any noise variance questions should be directed to Paul Riedesel, DEH Denver Community Noise Program (phone 720-865-5410; FAX 720-865-5532) a minimum of three months prior to the start of the project.

CITY AND COUNTY OF DENVER
STATE OF COLORADO



Department of Public Works
Construction Plan Set
Contract Number: 201734070



Mill Levy 7B

April 13, 2017

Oversight / NHS

FHWA REGION VIII OVERSIGHT? NO YES
 NATIONAL HIGHWAY SYSTEM? NO YES

Related Projects:

P. E. UNDER PROJECT: N/A
 Project Number: N/A
 Project Code: N/A

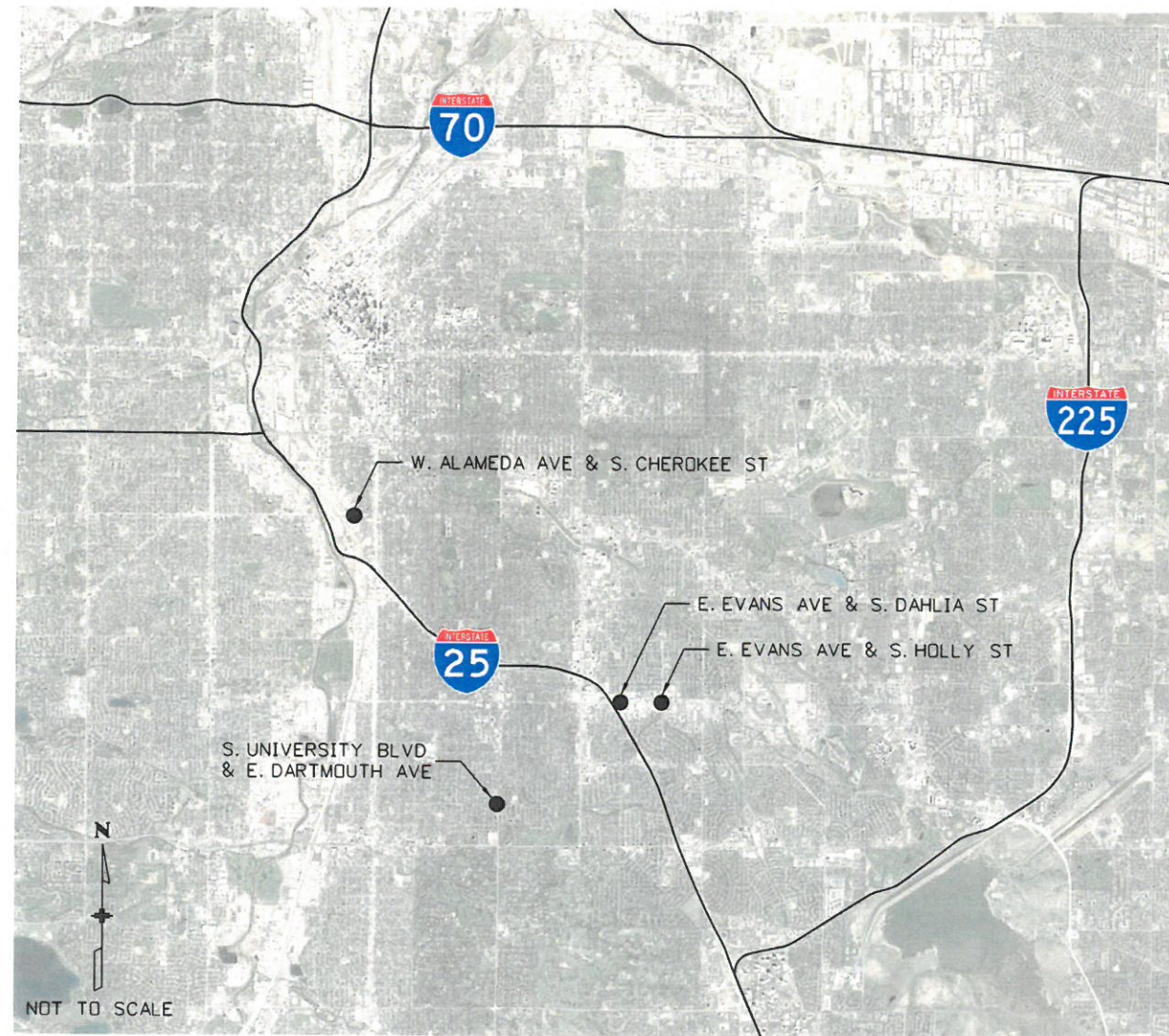
R.O.W. Projects:

R.O.W. Project Description
 N/A

CITY AND COUNTY OF DENVER
 DEPARTMENT OF PUBLIC WORKS - TRANSPORTATION

TRAFFIC SIGNAL REBUILD - MILL LEVY 7B PACKAGE
 MASTER PROJECT NO. 2016-PROJMSTR-0000211

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NOT TO SCALE

CITY AND COUNTY OF DENVER
 DEPARTMENT OF PUBLIC WORKS

APPROVED BY:
[Signature] 2.6.17
 EXECUTIVE DIRECTOR OF PUBLIC WORKS DATE
[Signature] 2.6.17
 CITY ENGINEER DATE
[Signature] 2.15.17
 DIRECTOR OF ENGINEERING CAPITAL PROJECTS DATE
[Signature] 1/31/17
 CITY TRAFFIC ENGINEER DATE



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Print Date: 11/10/2016
 File Name: 01 Title Sheet.dgn
 Horiz. Scale: N/A Vert. Scale: N/A
 TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440
 DENVER, COLORADO 80202 FAX: 303-325-7743

Sheet Revisions		
Date:	Comments	Init.

Department of Public Works
 Traffic Engineering Services
 201 West Colfax Avenue
 Denver, CO 80202
 (720) 865-3150

As Constructed
 No Revisions:
 Revised:
 Void:

DENVER TRAFFIC SIGNAL REBUILD TITLE SHEET	
Designer: MSR	
Detailer: MSR	
Sheet Subset: TITLE	Subset Sheets: 1 of 1

Project No./Code
 2016-PROJMSTR-0000211
 Sheet Number **1**

GENERAL NOTES:

- CONTRACTOR SHALL COMPLY WITH CDOT-PERSONAL PROTECTIVE EQUIPMENT USE PROCEDURAL DIRECTIVE 80.1, WHICH WILL BE PROVIDED TO THE CONTRACTOR AT THE PRE-CONSTRUCTION CONFERENCE. CONTRACTOR SHALL MAKE EVERY REASONABLE EFFORT TO START ASSIGNED WORK WITHIN TWO WEEKS OF NOTIFICATION.
- 10 DAYS PRIOR TO WORK COMMENCING, THE CONTRACTOR'S POTENTIAL POLLUTION REPORT-SPILL CONTINGENCY PREVENTION PLAN SHALL BE COPIED AND ATTACHED TO THE PLANS PER SECTION 107.25. VEHICLE CLEANING MAY OCCUR ON SITE, IN APPROVED AREAS, WHERE WASH WATER CAN BE CONTAINED AND PROPERLY DISPOSED OF.
- THERE SHALL BE NO STOCKPILING OR SIDE CASTING OF WASTE MATERIALS INCLUDING BUT NOT LIMITED TO PAINT CHIPS, ASPHALT, AND CONCRETE ADJACENT TO ANY STATE WATERS THAT RESULT FROM PROJECT ACTIVITIES.
- CONTAINMENT AND CLEAN UP OF EQUIPMENT FUEL, OIL, AND LUBRICANT LEAKS: CONTRACTOR SHALL INSPECT AND CERTIFY EQUIPMENT AND VEHICLES DAILY TO ENSURE PETROLEUM, OILS AND LUBRICANTS (POL) ARE NOT LEAKING ONTO THE SOIL OR PAVEMENT. ABSORBENT MATERIAL OR CONTAINERS APPROVED BY THE ENGINEER SHALL BE USED TO PREVENT LEAKING POL FROM REACHING THE SOIL OR PAVEMENT. CONTRACTOR SHALL HAVE READY APPROVED ABSORBENT MATERIAL OR CONTAINERS OF SUFFICIENT CAPACITY TO CONTAIN ANY LEAKING POL THAT CAN REASONABLY BE FORESEEN. ALL MATERIALS RESULTING FROM POL LEAKAGE CONTROL AND CLEANUP SHALL BE THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE. THE COST FOR CONTROL AND CLEANUP OF POL LEAKS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- CONTRACTOR SHALL NEITHER STAGE NOR PARK EQUIPMENT AT ANY TIME OFF THE ROADWAY/SHOULDERS OR ON VEGETATED AREAS, ON PRAIRIE DOG HOLES, OR WITHIN 100 FEET OF WATERWAYS. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR STAGING AREAS. CONTRACTOR SHALL COMPLETE WORK IN ONE LOCATION BEFORE THEY MOVE TO ANOTHER LOCATION. FOR GRINDING, THE CONTRACTOR SHALL USE GANG STACKED DIAMOND TIP BLADES AND HAVE A VACUUM MACHINE ON SITE TO CONTROL DUST AND SLURRY. THIS ITEM WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
- THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE. LIMITS OF DISTURBANCE SHALL BE DETERMINED BY THE ENGINEER AND THE CONTRACTOR. ANY DISTURBANCES BEYOND THESE LIMITS SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. DISTURBANCES WITHIN THE LIMITS SHALL BE RESTORED BY THE CONTRACTOR AND SHALL BE INCLUDED IN THE COST OF THE WORK. CONSTRUCTION ACTIVITIES IN ADDITION TO NORMAL CONSTRUCTION PROCEDURE SHALL INCLUDE THE PARKING OF VEHICLES OR EQUIPMENT, DISPOSAL OF LITTER, AND ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS. ANY OFF ROAD STAGING AREAS MUST BE PRE-APPROVED BY THE ENGINEER.
- AT ANY IRRIGATED LANDSCAPES NO OFF ROAD PARKING, STAGING, OR WORK SHALL OCCUR UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL REPLACE ANY DAMAGED LANDSCAPE, INCLUDING GRASS, IRRIGATION SYSTEM COMPONENTS, TREES, SHRUBS AND GROUND COVERS TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. SDD SHALL MATCH EXISTING. THE CONTRACTOR SHALL COORDINATE WITH CITY AND COUNTY OF DENVER PERSONNEL AT LEAST FIVE (5) WORKING DAYS IN ADVANCE OF ANY DISTURBANCE IN THE AREA. NO LANDSCAPE SHALL BE WITHOUT WATERING SERVICES DURING THE GROWING SEASON. IF THE IRRIGATION SERVICE IS INTERRUPTED FOR MORE THAN THREE DAYS THE CONTRACTOR SHALL BE LIABLE TO HAND/TRUCK WATER. IF IRREPARABLE DAMAGE TO LANDSCAPED AREAS OCCURS, CONTRACTOR WILL BE RESPONSIBLE FOR ALL PLANT REPLACEMENT IN THE AFFECTED AREA. LANDSCAPE RESTORATION SHALL BE CONSIDERED COMPLETE WHEN THE LANDSCAPE AND IRRIGATION SYSTEM IS RESTORED TO ITS ORIGINAL CONDITION AND APPROVED BY THE MAINTAINING PERSONNEL. ALL REPAIR WORK, TO ANY IRRIGATION COMPONENTS, SHALL BE INSPECTED BY CITY AND COUNTY OF DENVER LANDSCAPE MAINTENANCE FORCES PRIOR TO BURIAL AND ACCEPTANCE OF SAID WORK.
- ALL WORK IN THE CITY ROW SHALL MEET CCD TRANSPORTATION STANDARDS & DETAILS, LATEST EDITION.

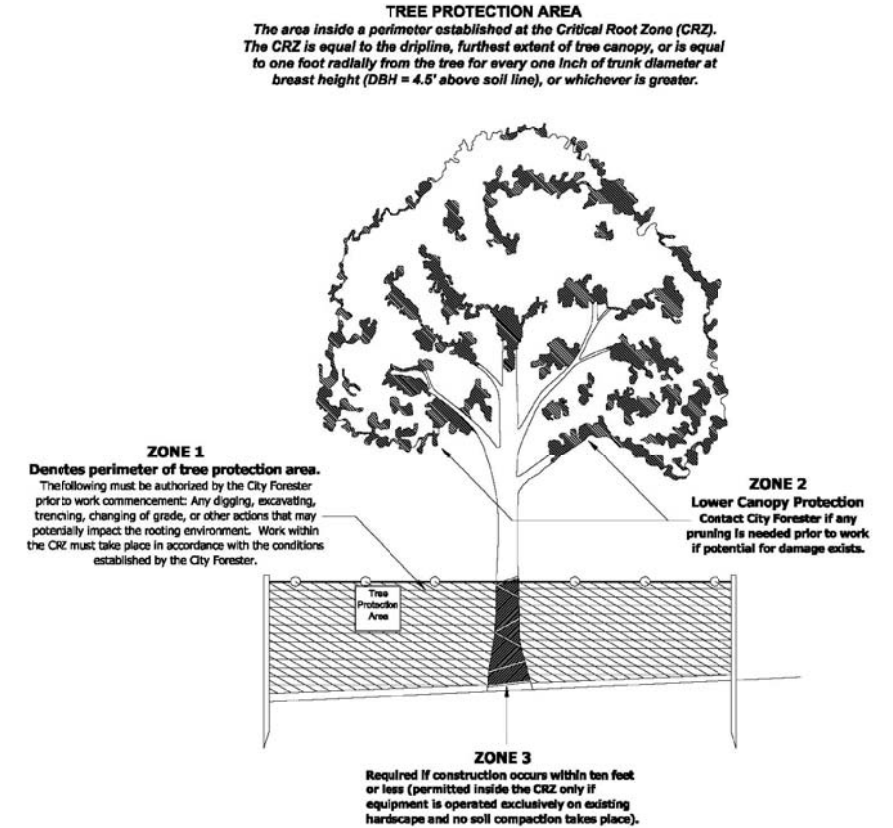
GENERAL NOTES (CONT.):

- THE CONTRACTOR SHALL COORDINATE WITH REBECCA LAFOND FROM PW-TRANSPORTATION AT 720-865-3117 AND LINDSEY VAN CLEAVES FROM PW-STREET MAINTENANCE AT 303-446-3548 PRIOR TO CONSTRUCTION AT ALL PROJECT INTERSECTIONS. THE CONTRACTOR SHALL CONTACT JOHN YU FROM PW-CONSTRUCTION ENGINEERING AT 720-865-3176 FOR STREET OCCUPANCY PERMIT (INCLUDING SIDEWALK CLOSURE) WITH MHT AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION.
- THE USE OF TYPICAL TRAFFIC CONTROL PLANS (TCP) IS LIMITED TO USE ON LOCAL OR RESIDENTIAL STREETS. SITE SPECIFIC METHODS OF HANDLING TRAFFIC (MHT) ARE REQUIRED FOR LANE OR SIDEWALK CLOSURES ON COLLECTOR OR ARTERIAL STREETS.
- PRIOR TO THE START OF ANY RIGHT OF WAY WORK, THE CONTRACTOR SHOULD HAVE A PRECONSTRUCTION CONFERENCE AND INVITE PW ROWS CONSTRUCTION ENGINEERING. CALL 303-446-3469 TO BE DIRECTED.
- CONTRACTOR MUST CONTACT DENVER PARKS AT PARKS.LOCATORS@DENVERGOV.ORG OR 720-865-6976 WHEN ANY WORK IS OCCURRING ADJACENT TO PARKS AND PARKWAYS.
- CONTRACTOR WILL NEED DENVER PARKS PERMIT IF INTEND TO TOUCH ANY DENVER PARKS (PARKS OR PARKWAYS OR PARKS EASEMENTS). CONTACT DENVER PARKS AT PARKS.LOCATORS@DENVERGOV.ORG OR 720-865-6976.
- RTD REQUIRES A THREE DAY NOTIFICATION FOR ALL BUS STOP CLOSURES. ALL REQUESTS NEED TO BE SENT TO PETE MUNIZ AT 303-299-6561 OR PETE.MUNIZ@RTD-DENVER.COM. ANY EMERGENCY CLOSURES SHOULD BE SENT TO PETE MUNIZ IMMEDIATELY.
- ALL CITY & COUNTY OF DENVER (CCD) STORM AND/OR SANITARY SEWERS, INCLUDING MANHOLE ADJUSTMENTS, ARE TO BE INSPECTED BY CCD MAINLINE INSPECTIONS. THE CONTRACTOR SHALL CALL MAINLINE INSPECTIONS AT 303-446-3722, A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING AND PRIOR TO STARTING ANY WORK. SEWER LOCATES CAN BE REQUESTED BY CALLING 303-446-3744. ALL CCD STORM AND/OR SANITARY SEWERS MUST BE CONSTRUCTED IN ACCORDANCE WITH CURRENT CCD-WASTEWATER MANAGEMENT DIVISION (WMD) STANDARD DETAILS AND SPECIFICATIONS.

FORESTRY:

- PER CITY CODE, ALL TREE REMOVALS IN DENVER LIMITS MUST BE PERFORMED BY PROPERTY OWNER OR A TREE CONTRACTOR LICENSED BY DENVER FORESTRY (INCLUDING TREES IN ROW'S AND ON PRIVATE PROPERTY). FOR A CURRENT LIST OF LICENSED TREE CONTRACTORS, VISIT WWW.DENVERGOV.ORG/FORESTRY.
 - A. FOR FORESTRY-APPROVED TREE REMOVALS IN PUBLIC RIGHT(S) OF WAY: A TREE REMOVAL PERMIT ISSUED BY THE OFFICE OF THE CITY FORESTER IS REQUIRED PRIOR TO REMOVAL. IN ORDER TO OBTAIN TREE REMOVAL PERMIT, CONTACT FORESTRY (FORESTRY@DENVERGOV.ORG) WITH NAME OF LICENSED CONTRACTOR OR PROPERTY OWNER PERFORMING REMOVAL. INCLUDE D-LOG NUMBER (2016-PROJMSTR-0000211) WHEN REQUESTING REMOVAL PERMIT.
 - B. FOR TREES ON PRIVATE PROPERTY: A FORESTRY-ISSUED TREE REMOVAL PERMIT IS NOT REQUIRED PRIOR TO REMOVAL. HOWEVER, PER CITY CODE, ALL TREE REMOVALS IN DENVER MUST BE PERFORMED BY PROPERTY OWNER OR A TREE CONTRACTOR LICENSED BY THE OFFICE OF THE CITY FORESTER.
- A FORESTRY-ISSUED TREE PLANTING PERMIT IS REQUIRED FOR ALL TREES TO BE PLANTED IN PUBLIC RIGHTS OF WAY. CONTACT FORESTRY (FORESTRY@DENVERGOV.ORG) WITH NAME OF CONTRACTOR OR PROPERTY OWNER PERFORMING PLANTING. INCLUDE D-LOG NUMBER (2016-PROJMSTR-0000211) WHEN REQUESTING PERMIT. PLANTING PERMITS MUST BE OBTAINED PRIOR TO INSTALLATION.
- EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.

FORESTRY TREE PROTECTION DETAIL:



NOTES

- Denver's Tree Retention and Protection Specifications shall be followed throughout duration of project.
- Damage to protected trees is subject to penalty per City Ordinance.
- The Tree Protection Area shall not be modified or removed prior to consent of the City Forester.
- Entrance to the Tree Protection Area is not permitted without consent of the City Forester.
- Materials, debris, equipment, and site amenities shall not be stored within the Tree Protection Area.
- Zone One Tree Protection Area fencing shall be "orange safety fencing," min. 48" in height, top secured to metal T-posts with 14-gauge wire woven through top of fencing for entire length.
 - T-posts shall be placed so that wire & fence are taut.
 - Chain link fencing is also acceptable.
 - "Tree Protection Area" signs shall be maintained in the condition and as posted by City Forester's Office.

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File Name: 02 - General Notes.dgn	Date:	Comments	Init.			GENERAL NOTES			
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SURVEYING:

19. PRIOR TO BEGINNING WORK ON THE PROJECT, THE CONTRACTOR'S SURVEYOR SHALL PERFORM A SURVEY TO VERIFY ALL SURVEY CONTROL POINTS, CITY OF DENVER RANGE POINTS, SECTION CORNERS, AND BENCHMARKS AS LISTED ON THE SURVEY CONTROL DATA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL LAND SURVEY MONUMENTS REMOVED OR DISTURBED BY PROJECT ACTIVITY OR NEGLIGENCE ON THE PART OF THE CONTRACTOR. THE CONTRACTOR IS REQUIRED TO FOLLOW COLORADO STATE LAW REGARDING SURVEY MONUMENTS. THE CONTRACTOR SHALL RETAIN A COLORADO LICENSED PROFESSIONAL LAND SURVEYOR TO RESET ANY AFFECTED SURVEY MONUMENTS. THIS WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK UNLESS SPECIFIED OTHERWISE IN SECTION 629. FOR FURTHER INFORMATION CONTACT PUBLIC WORKS - SURVEY DEPARTMENT (720-865-3121).

20. AFTER COMPLETION OF THE PAVING OPERATIONS, THE CONTRACTOR SHALL UPGRADE TEMPORARY RANGE POINTS WITH PERMANANT RANGE POINT MONUMENTS AT THE LOCATIONS AS INDICATED ON THE LAND SURVEY CONTROL DIAGRAM. MONUMENTS SHALL MEET CURRENT CITY AND COUNTY OF DENVER STANDARDS. SEE SECTION 629 OF THE SPECIAL PROVISIONS FOR MORE INFORMATION.

21. A SURVEY SHALL BE DEPOSITED WITH THE CITY AND COUNTY OF DENVER PER STATE STATUTE. CITY MONUMENT TIE OUT SHEETS SHALL BE PREPARED FOR ALL RANGE POINTS WITHIN THE PROJECT AND DEPOSITED WITH THE CITY SURVEYOR.

22. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS, OR DEFACTS ANY PUBLIC LAND SURVEY MONUMENT AND/OR BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE C.R.S. SECTION 18-4-508.

23. 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 PUBLIC WORKS DEPARTMENT IS PROHIBITED, AND USE OF SUCH MONUMENTS IS AT THE CONTRACTOR'S SOLE RISK.

24. PROPOSED FINISHED GROUND ELEVATIONS FOR ITEMS TO BE ADJUSTED, RESET OR MODIFIED SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

25. PRIOR TO BEGINNING WORK ON THE WEST SIDE OF UNIVERSITY BOULEVARD THE CONTRACTOR WILL BE REQUIRED TO OBTAIN A ROW PERMIT FROM THE CITY OF ENGLEWOOD.

ENVIRONMENTAL:

26. THE CONTRACTOR WILL PREPARE AND FOLLOW A MATERIAL MANAGEMENT PLAN (MMP) TO ENSURE SPECIAL WASTES AND CONTAMINATED GROUNDWATER ARE HANDLED PROPERLY.

27. WHEN THE CONTRACTOR'S OPERATIONS ENCOUNTER ARCHAEOLOGICAL OR PALEONTOLOGICAL DISCOVERIES, ALL AFFECTED OPERATIONS SHALL CEASE AND THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

28. CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PREVENT PARTICULATE MATTER FROM BECOMING AIRBORNE AND TO PREVENT THE VISIBLE DISCHARGE OF FUGITIVE PARTICULATE EMISSIONS BEYOND THE PROPERTY ON WHICH THE EMISSIONS ORIGINATE. THE MEASURES TAKEN MUST BE EFFECTIVE IN THE CONTROL OF FUGITIVE PARTICULATE EMISSIONS AT ALL TIMES ON THE SITE, INCLUDING PERIODS OF INACTIVITY SUCH AS EVENINGS, WEEKENDS, AND HOLIDAYS AS WELL AS ANY OTHER PERIOD OF INACTIVITY.

29. THE CONTRACTOR SHALL DIRECT NON-RECYCLABLE, NON-HAZARDOUS WASTES FROM CCD-OWNED OR CONTROLLED PROPERTY OR FACILITIES TO THE DENVER ARAPAHOE DISPOSAL SITE (DADS) LANDFILL FOR DISPOSAL, FOLLOWING THE REQUIREMENT AND PROCEDURAL GUIDANCE OUTLINED IN CCD EXECUTIVE ORDER 115.

30. ANY FILL MATERIAL OR SOILS TO BE MOVED TO AND PLACED ON CCD-OWNED PROPERTY OR PLACED ON REAL PROPERTY TO BE TRANSFERRED TO CCD MUST BE FREE OF KNOWN CONTAMINATION (OBSERVED OR PREVIOUSLY DOCUMENTED) AND BE ACCEPTABLE FOR UNRESTRICTED RESIDENTIAL USE. CONTACT DAVE ERICKSON, DENVER ENVIRONMENTAL HEALTH (720-865-5433) FOR CLARIFICATION, IF NEEDED, REGARDING THIS CCD REQUIREMENT.

31. NOISE CONTROL. EXEMPTED HOURS FOR CONSTRUCTION IN THE CITY AND COUNTY OF DENVER ARE FROM 7 A.M. TO 9 P.M. MONDAY THROUGH FRIDAY AND 8 A.M. TO 5 P.M. ON SATURDAYS AND SUNDAYS PER SECTIONS 36-6.(B)(7) AND 36-7.(5)A., B. AND C. OF DENVER'S NOISE ORDINANCE, CHAPTER 36 NOISE CONTROL, DENVER REVISED MUNICIPAL CODE (DRMC). IF THERE IS AN ANTICIPATED NEED TO WORK OUTSIDE OF THE EXEMPTED HOURS FOR CONSTRUCTION: 1) THE CONTRACTOR WILL NEED TO MAKE A REQUEST FOR A NIGHTTIME NOISE VARIANCE AS ALLOWED FOR IN SECTION 36-7.(5)C. OF THE DRMC AND 2) THE VARIANCE PROCESS NEEDS TO BE STARTED A MINIMUM OF THREE MONTHS PRIOR TO THE DESIRED START DATE OF ANY WORK NEEDING TO OCCUR OUTSIDE OF EXEMPTED HOURS. ANY NOISE VARIANCE QUESTIONS SHOULD BE DIRECTED TO PAUL RIEDESEL, DEPARTMENT OF ENVIRONMENTAL HEALTH, DENVER COMMUNITY NOISE PROGRAM, (PHONE 720-865-5410; FAX 720-865-5532) A MINIMUM OF THREE MONTHS PRIOR TO THE START OF THE PROJECT.

CITY OF ENGLEWOOD:

32. THE FOLLOWING NOTES APPLY ONLY TO THE CONSTRUCTION ON THE WEST SIDE OF THE UNIVERSITY BOULEVARD AND DARTMOUTH AVENUE INTERSECTION.

33. EXCAVATION PERMITS WILL BE REQUIRED FOR THE DEMOLITION OF THE EXISTING TRAFFIC SIGNAL EQUIPMENT, CONDUIT BORING, AND EXCAVATIONS FOR NEW TRAFFIC SIGNAL EQUIPMENT.

34. A CONCRETE PERMIT WILL BE REQUIRED FOR THE REMOVAL AND REPLACEMENT OF ALL CONCRETE CURB AND GUTTER, SIDEWALK, AND CROSS PANS.

35. CONTRACTORS OBTAINING CITY OF ENGLEWOOD PERMITS WILL NEED TO HAVE A CURRENT CITY OF ENGLEWOOD LICENSE AND FURNISH A CERTIFICATE OF INSURANCE NAMING THE CITY OF ENGLEWOOD AS AN ADDITIONAL INSURED IN CONFORMANCE WITH EMC 11-7-8. NORMAL PERMIT FEES WILL APPLY.

36. ALL MATERIALS USED ARE SUBJECT TO A 3.5% CITY USE TAX AND A 0.5% ARAPAHOE COUNTY OPEN SPACE TAX. TAXABLE AMOUNT IS DETERMINED BY USING 40% OF THE TOTAL VALUATION (LABOR, MATERIALS, EQUIPMENT, OVERHEAD, PROFIT, ETC.) OF THE WORK.

37. CONTRACTOR WILL NOT BE REQUIRED TO PROVIDE A BOND TO THE CITY OF ENGLEWOOD FOR THIS WORK AS IT WILL BE COVERED UNDER A WARRANTY WITH THE CITY AND COUNTY OF DENVER.

38. THE CITY OF ENGLEWOOD SHALL BE CONTACTED TO PROVIDE COURTESY INSPECTIONS OF ALL EXCAVATION AND CONCRETE WORK.

39. THE USE OF THE CITY OF ENGLEWOOD'S RIGHTS-OF-WAY FOR THE PURPOSE OF STAGING IS STRICTLY FORBIDDEN. STAGING IS DEFINED AS THE STORAGE OF (BUT NOT LIMITED TO) MATERIAL, EQUIPMENT, OR VEHICLES OUTSIDE OF THE NORMAL WORKING HOURS ALLOWED FOR IN THE PERMIT.

40. THE CONTRACTOR SHALL USE CDOT CLASS B CONCRETE (4,500 PSI) FROM A PRE-APPROVED CDOT CONCRETE MIX DESIGN.

41. EXPANSION MATERIAL SHALL NOT BE PLACED BETWEEN THE BACK OF THE CURB AND THE SIDEWALK. WHERE PRACTICAL, CURB, GUTTER, AND SIDEWALK SHALL BE PLACED MONOLITHICALLY. IF THE CURB, GUTTER, AND SIDEWALK CANNOT BE PLACED MONOLITHICALLY, THE SIDEWALK SHALL CONTAIN AN 8" THICKENED EDGE ALONG THE BACK OF THE CURB (6" IN WIDTH).

42. TRUNCATED DOMES FOR CURB RAMPS SHALL BE "CASTinTACT" OR APPROVED ALTERNATE.

43. STAFF FROM THE CITY OF ENGLEWOOD TRAFFIC, STREETS, AND ENGINEERING DIVISIONS SHOULD BE PRESENT AT THE PRE-CONSTRUCTION CONFERENCE.

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UTILITIES:

44. UTILITY INFORMATION AS SHOWN ON THE PLAN SHEETS IS PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR'S ATTENTION IS DIRECTED TO PARAGRAPH 105.11 OF THE STANDARD SPECIFICATIONS CONCERNING UTILITIES. THE CONTRACTOR SHALL CALL 811 FOR UTILITY LOCATIONS AT LEAST TWO (2) WORKING DAYS PRIOR TO ANY DIGGING, NOT INCLUDING THE DAY OF ACTUAL CONTACT.

45. THE CONTRACTOR SHALL POTHOLE UTILITIES PRIOR TO ANY EXCAVATION WORK. ALL CONFLICTING UTILITIES SHALL BE EXPOSED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND INSPECTED BY THE ENGINEER TO VERIFY CONFORMANCE WITH THE PLANS. THIS PARTICULARLY APPLIES TO CULVERT CROSSINGS AND OTHER UNDERGROUND WORK TO BE COMPLETED ON THIS PROJECT BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF UTILITY RELOCATION BY UTILITY COMPANIES, IF REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITIES DURING CONSTRUCTION AND SHALL HOLD THE CITY AND COUNTY OF DENVER HARMLESS FOR DAMAGES ARISING FROM THE CONTRACTOR'S FAILURE TO ADEQUATELY PROTECT EXISTING UTILITIES.

46. IT IS ESTIMATED THAT 30 POTHOLES EACH WILL BE REQUIRED FOR UTILITY POTHOLING PER INTERSECTION, 120 TOTAL.

47. THE CONTRACTOR SHALL PERFORM ALL REQUIRED UTILITY ADJUSTMENTS ON STORM, SANITARY, AND WATER IMPROVEMENTS. ALL OTHER UTILITY ADJUSTMENTS WILL BE CONSTRUCTED BY THE UTILITY OWNERS.


48. THE CONTRACTOR SHALL SUBMIT AN APPLICATION FOR ELECTRICAL SERVICES FOR EVERY XCEL ENERGY WORK ELEMENT THAT IS TO BE COORDINATED WITH THE PROJECT. THE REQUEST IS TO BE PROCESSED THROUGH XCEL ENERGY-BUILDERS CALL LINE AT 1-800-628-2121.

49. THE CONTRACTOR SHALL COORDINATE THE UNDERGROUNDING OF UTILITIES AT THE EVANS AVE & DAHLIA ST AND EVANS AVE & HOLLY ST INTERSECTIONS WITH XCEL ENERGY UNDER THE 1% PROGRAM FOR UNDERGROUNDING. THE CONTRACTOR SHALL COORDINATE WITH XCEL ENERGY THROUGH THE BUILDER'S CALL LINE FOR POLE REMOVAL.

50. THE KNOWN UTILITIES ARE SHOWN IN THE FOLLOWING TABLE BY INTERSECTION. REFER TO THE UTILITIES SPECIFICATION IN THE PROJECT SPECIAL PROVISIONS FOR CONTACT INFORMATION.

UTILITY:	EVANS AVE & DAHLIA ST	EVANS AVE & HOLLY ST	ALAMEDA AVE & CHEROKEE ST	UNIVERSITY BLVD & DARTMOUTH AVE
CENTURYLINK	●	●	●	●
CITY OF ENGLEWOOD				●
CDMCAST CABLE	●	●	●	●
CDOT FIBER OPTIC BACKBONE	●			
CDOT REGION 1	●			
DENVER TRAFFIC OPERATIONS	●	●	●	●
DENVER WATER DEPARTMENT	●	●	●	●
LEVEL 3 COMMUNICATIONS	●		●	
METRO WASTEWATER RECLAMATION	●	●	●	●
WASTEWATER MANAGEMENT DIVISION	●	●	●	●
XCEL ENERGY - ELECTRIC	●	●	●	●
XCEL ENERGY - GAS	●	●	●	●
XO COMMUNICATIONS	●	●	●	
ZAYO BANDWIDTH	●	●		●

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**DENVER TRAFFIC SIGNAL REBUILD
 GENERAL NOTES**

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PAVEMENT, CURB AND GUTTER, SIDEWALK AND CURB RAMPS:

1. UNLESS OTHERWISE NOTED, ALL NORTHINGS AND EASTINGS, DIMENSIONS AND ELEVATIONS AT THE CURB AND GUTTER ARE TO THE PANLINE.
2. ANY LAYER OF HMA PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.
3. REMOVAL OF ASPHALT MAT, CONCRETE PAVEMENT, CURB AND GUTTER, OR SIDEWALK REQUIRED ON THIS PROJECT SHALL BE SAW CUT TO A VERTICAL EDGE. SAW CUTS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK. REMOVAL LIMITS FOR SIDEWALK AND CURB AND GUTTER SHALL BE TO THE NEAREST JOINT.
4. HMA (PATCHING) (ASPHALT) SHALL BE PLACED AT 9" DEPTH OR MATCH THE DEPTH OF THE SURROUNDING EXISTING PAVEMENT WHICHEVER IS GREATER. HOT MIX ASPHALT FOR PATCHING SHALL CONFORM TO THE REQUIREMENTS OF HMA (GRADING SX) (100) (PG 64-22). THE THICKNESS OF SUBSEQUENT PAVEMENT LIFTS MUST BE EQUAL TO OR GREATER THAN THE LIFT DIRECTLY ABOVE. ASPHALT PATCHING SHALL FOLLOW CCD STANDARD DRAWINGS 12.0 THROUGH 12.4, WHICH ARE AVAILABLE ON THE CCD WEBSITE.
5. FOR PRELIMINARY PLAN QUANTITIES OF HMA MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:
 DILUTED EMULSIFIED ASPHALT (SLOW SETTING) 0.10 GAL/SY (DILUTED)
 HOT MIX ASPHALT 110 LBS/SY PER 1" THICKNESS
6. ALL SOIL SUBGRADE FOR ASPHALT PATCH BACK, AND INSTALLATION OF CURB AND GUTTER, SIDEWALK, AND CURB RAMPS SHALL BE PROOF ROLLED BY THE CONTRACTOR TO FIND ANY UNSUITABLE AREAS OF SUPPORT.
7. RATES OF APPLICATION SHALL BE AS DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.
8. CONCRETE FOR SIDEWALKS, CURB AND GUTTER, AND CONCRETE PAVEMENT SHALL CONSIST OF CLASS B CONCRETE.
9. ALL CONCRETE USED ON THIS PROJECT SHALL INCORPORATE CLASS 2 SULFATE RESISTANT CRITERIA OF SECTION 601.04.
10. ALL CONCRETE ON THIS PROJECT SHALL USE COMPRESSIVE STRENGTH ACCEPTANCE CRITERIA.
11. CURB AND GUTTER AND CONCRETE PAVEMENT TO BE REPLACED SHALL BE POURED AGAINST EXISTING PAVEMENT. HMA PATCHING WILL NOT BE ALLOWED, EXCEPT AS SHOWN ON THE PLANS. IF CONCRETE FILLS VOIDS IN OR BELOW THE EXISTING ASPHALT, A BOND BREAKER (ZIPSTRIP) SHOULD BE INSERTED ALONG THE INTENDED OUTER EDGE OF GUTTER LIP AFTER CONCRETE CONSOLIDATION TO PREVENT LOAD TRANSFER CRACKS FROM AFFECTING THE NEW GUTTER SECTION.
12. ANY CURB AND GUTTER, ASPHALT OR CONCRETE PAVEMENT WHICH IS TO REMAIN AND IS DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
13. COMPACTION FOR THIS PROJECT SHALL BE PER SECTION 203 OF THE CDDT STANDARD SPECIFICATIONS AND ANY AND ALL APPLICABLE PROJECT AND STANDARD SPECIAL PROVISIONS.
14. ALL NEW CURB AND GUTTER AND SIDEWALK INSTALLATIONS SHALL FOLLOW CCD STANDARD DRAWINGS 5.2 THROUGH 5.4. ALL NEW CURB RAMP INSTALLATIONS SHALL FOLLOW CCD STANDARD DRAWINGS 7.0 THROUGH 7.8.

EARTHWORK:

1. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE ORDERED AND WILL NOT BE PAID FOR SEPARATELY.
2. DEPTH OF MOISTURE - DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLANS:
 FULL DEPTH OF ALL EMBANKMENTS
 BASES OF CUTS AND FILLS = 6 INCHES
3. RECONDITIONING FOR SIDEWALKS, CURB RAMPS, AND CURB AND GUTTER SHALL BE 6 INCHES OR AS OTHERWISE SHOWN.
4. EXCAVATION REQUIRED FOR THE COMPACTION OF BASES OF CUTS AND FILLS WILL BE CONSIDERED SUBSIDIARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.
5. EARTHWORK WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT WILL BE INCIDENTAL TO THE PAVEMENT, CURB AND GUTTER, CURB RAMPS, AND SIDEWALK.
6. ALL SOIL SUBGRADE FOR ASPHALT PATCH BACK, INSTALLATION OF CURB AND GUTTER, SIDEWALK, AND CURB RAMPS SHALL BE PROOF ROLLED BY THE CONTRACTOR TO FIND ANY UNSUITABLE AREAS OF SUPPORT.
7. THE INSPECTOR MAY ALLOW HAND OPERATED COMPACTION EQUIPMENT, SUCH AS JUMPING JACK OR HEAVY ROLLER, FOR PROOF ROLLING, OR FOLLOW CDDT 203.09 CRITERIA IN TIGHT SPACES, DEPENDING ON THE SIZE OF THE CONSTRUCTION AREA.

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Void:	Detailer: LMR		
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TRAFFIC SIGNALS:

1. TRAFFIC SIGNAL WORK FOR THIS PROJECT SHALL BE COMPLETED TO THE CITY AND COUNTY OF DENVER'S STANDARDS AND SPECIFICATIONS.
2. ALL TRAFFIC SIGNAL INDICATIONS SHALL BE LED TYPE.
3. ALL TRAFFIC SIGNAL POLES MAY REQUIRE ADJUSTMENT. TRAFFIC SIGNAL POLE AND PULL BOX LOCATIONS SHALL BE FIELD VERIFIED AND APPROVED BY CITY STAFF. CONTACT CHRIS LILLIE AT 720-865-4066.
4. ELECTRIC, TRAFFIC, AND COMMUNICATIONS PULL BOXES ARE TYPE A, B, AND C, RESPECTIVELY, UNLESS OTHERWISE NOTED IN THE PLANS.
5. THE CONTRACTOR SHALL COORDINATE WITH XCEL ENERGY FOR REMOVAL OF EXISTING TRAFFIC SIGNAL POLES AND LUMINAIRES.
6. ALL SIGNAL EQUIPMENT TO BE REMOVED SHALL BE DELIVERED TO DENVER TRAFFIC OPERATIONS DEPARTMENT. CONTACT CHRIS LILLIE AT 720-865-4066 OR GREG SALAZAR AT 303-591-7146 TO COORDINATE. REMOVAL OF TRAFFIC SIGNAL EQUIPMENT WILL BE PAID FOR AS LUMP SUM.
7. EXISTING SIGNAL OPERATIONS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
8. PEDESTRIAN INSTRUCTION SIGNS, R10-3e, SHALL BE INCLUDED WITH THE ASSOCIATED PUSH BUTTON STATION. THE PEDESTRIAN INSTRUCTION SIGN SHALL NOT BE PAID FOR SEPARATELY BUT INCLUDED IN THE COST OF THE PEDESTRIAN PUSH BUTTON PAY ITEM.
9. CONTACT JOHN WILD BEFORE VIDEO DETECTION INSTALLATION AT 720-865-4000. DELIVER CCTV CAMERAS TO GEORGE HOLT AT DENVER TRAFFIC OPERATIONS DEPARTMENT.
10. POLE-MOUNTED SIGNAL HEADS MAY HAVE SKEWED ORIENTATION FOR PLAN PURPOSES ONLY AND DO NOT SHOW EXACT ORIENTATION. FIELD INSTALLATION SHALL ORIENT SIGNAL HEADS TO FACE THE INTENDED ONCOMING VEHICULAR TRAFFIC.
11. FOR POWER FEED, CONTACT THE XCEL ENERGY BUILDERS CALL LINE AT 1-800-628-2121 AND FOLLOW THE PROMPTS FOR COLORADO. ASK THE REPRESENTATIVE FOR AN APPLICATION TO REQUEST A NEW SERVICE OR THE TYPE OF WORK BEING REQUESTED.
12. ALL LUMINAIRES SHALL BE LED 5300 LUMENS.
13. THE QUANTITY OF BATTERIES PROVIDED IN THE UPS SHALL BE SUFFICIENT TO PROVIDE A MINIMUM OF 4 HOURS OF POWER.
14. CONTACT CHRIS LILLIE AT 720-865-4066 TO ARRANGE FOR TRAFFIC SIGNAL INSPECTION.
15. TRAFFIC SIGNAL POLES AND MAST ARMS WILL BE FURNISHED BY THE CITY AND COUNTY OF DENVER. THE CONTRACTOR SHALL STORE AND PROTECT THE TRAFFIC SIGNAL POLES AN DMAST ARMS AT THE CONTRACTOR'S YARD AND SHALL TRANSPORT THEM TO THE JOB SITE FOR INSTALLATION. PEDESTAL POLES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

PAVEMENT MARKINGS:

16. ALL PAVEMENT MARKINGS SHALL BE INSTALLED ON A CLEAN SURFACE, AS CALLED FOR BY THE RESPECTIVE MANUFACTURERS. SURFACE CLEANING BY POWER WASH SHALL ALSO BE REQUIRED WHEN THERE IS A POSSIBILITY OF DEICING MATERIAL ON THE ROAD. BEFORE APPLYING NEW PAVEMENT MARKINGS THE CONTRACTOR MUST REMOVE 80% OF THE OLD MARKINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE APPROPRIATE SURFACE PREPARATION. PREPARATION OF THE SURFACE SHALL BE INCLUDED IN THE COST OF THE MATERIAL. PRIOR TO THE PAVEMENT BEING PREPARED FOR STRIPING, THE CONTRACTOR SHALL REVIEW SECTION 107.25 AND ALL OF SECTION 208, IN THE 2011 CDOT STANDARD SPECIFICATIONS BOOK.
17. PAVEMENT MARKING SHALL BE REMOVED FROM THE PAVEMENT TO THE MAXIMUM EXTENT POSSIBLE BY METHODS THAT DO NOT ALTER OR DAMAGE THE SURFACE OR TEXTURE OF THE PAVEMENT TO THE SATISFACTION OF THE ENGINEER. REMOVAL OF PAVEMENT MARKING SHALL BE IN ACCORDANCE OF SECTION 202.05. ALL MATERIAL ON EXISTING ROADWAY, WHICH IS LOOSENED IN THE PROCESS OF PREPARATION OF THE SURFACE FOR STRIPING, NEEDS TO BE CLEARED OFF THE ROADWAY (SWEEPING (PICK-UP BROOM)) IMMEDIATELY AND WILL NOT BE PAID FOR SEPARATELY. NONE OF THIS MATERIAL OR THE WATER USED TO PREPARE THE SURFACE SHALL BE ALLOWED TO RUN OFF INTO ANY STORM DRAIN SYSTEM, VEGETATIVE SWALE, WATERWAY, STREAM, WETLAND OR ADJACENT PROPERTY. IF RUNOFF OCCURS, THE CONTRACTOR SHALL IMMEDIATELY STOP WORK UNTIL INLET PROTECTION CAN BE INSTALLED TO PROTECT THE STORM DRAIN SYSTEM, VEGETATIVE SWALE, WATERWAY, STREAM, WETLAND OR ADJACENT PROPERTY. ANY PROTECTION SHALL BE INCLUDED IN THE COST OF THE PROJECT AND APPROVED BY THE ENGINEER PRIOR TO USE.
18. PAVEMENT MARKING REMOVAL SHALL BE COMPLETED BY SANDBLASTING OR WATERBLASTING METHODS ONLY. GRINDING WILL ONLY BE ALLOWED WITH PRIOR APPROVAL FROM THE ENGINEER.

SIGNING:

19. STREET NAME SIGN LAYOUTS SHALL FOLLOW DENVER TRAFFIC STANDARD DRAWINGS, UNLESS NOTED OTHERWISE IN THE PLANS. FOR ALL STREET NAME SIGN LETTERING, THE CONTRACTOR SHALL USE THE STANDARD ALPHABET FOR HIGHWAY SIGNS AS FOUND IN THE FHWA, STANDARD HIGHWAY SIGNS BOOK, 2004 EDITION. OVERHEAD STREET NAME SIGNS SHALL BE PAID FOR AS SIGN PANEL (SPECIAL).

FIBER OPTIC CABLE:

















20. ALL LATERAL FIBER OPTIC CABLES SHALL BE 12 STRAND WITH SIX (6) SINGLE-MODE AND SIX (6) MULTI-MODE FIBERS. PAYMENT SHALL BE MADE UNDER THE "TELEMETRY (FIELD)" PAY ITEM. THE CABLE SHALL CONSIST OF A BLUE TUBE WITH SIX (6) SINGLE-MODE FIBERS AND AN ORANGE TUBE WITH SIX (6) MULTI-MODE FIBERS.
21. ALL SPLICE ORGANIZERS SHALL BE WALL MOUNTED TO THE INSIDE OF THE CONTROLLER CABINET WITH VELCRO TYPE ATTACHMENT. THE SPLICE ORGANIZER AND THE ASSOCIATED ATTACHMENT SHALL BE INCLUDED IN THE COST OF THE "TELEMETRY (FIELD)" PAY ITEM.
22. ANY AND ALL UNUSED MULTI-MODE AND SINGLE-MODE FIBERS SHALL REMAIN UN CUT AND FULLY INTACT (UNDAMAGED).
23. FIBER OPTIC CABLE "SLACK" SHOULD BE PROVIDED AS FOLLOWS:
 - A) 10 FEET OF LATERAL CABLE IN EACH CONTROLLER CABINET.
 - B) 50 FEET OF LATERAL CABLE IN EACH COMMUNICATION PULL BOX.
24. FIBER OPTIC CABLE SHALL BE NEATLY COILED AND CLEARLY TAGGED AND LABELED AT EACH COMMUNICATION PULL BOX AT ALL LOCATIONS WHERE THE FIBER IS EXPOSED.

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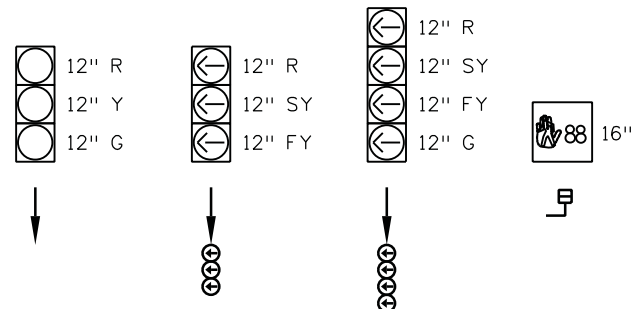
Print Date: 3/9/2017		Sheet Revisions Date: Comments Init.			As Constructed No Revisions:		DENVER TRAFFIC SIGNAL REBUILD TRAFFIC NOTES		Project No./Code 2016-PRDJMSTR-0000211	
File Name: 05 Traffic Notes.dgn										
Horiz. Scale: N/A Vert. Scale: N/A		 Department of Public Works Traffic Engineering Services 201 West Colfax Avenue Denver, CO 80202 (720) 865-3150			Revised:		Designer: MSR		Sheet Number 6	
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B					Void:		Detailer: MSR			
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LEGEND

-  CONTROLLER CABINET (DARKENED PORTION INDICATES DOOR SIDE OF CABINET)
-  PULL BOX
-  SIGNAL POLE AND FOUNDATION
-  PEDESTAL OR PEDESTRIAN PUSH BUTTON POLE
-  OPTICOM
-  UNDERGROUND CONDUIT
-  LUMINAIRE
-  PEDESTRIAN PUSH BUTTON, LEFT OR RIGHT ARROW
-  MAST ARM (LENGTH AS SPECIFIED, SHOWING SIGNAL WITH BACKPLATE)
-  PEDESTAL OR SIDE BRACKET MOUNTED (SHOWING SIGNAL WITHOUT BACKPLATE)
-  VIDEO DETECTION CAMERA
-  RADIO ANTENNA
-  POLE MOUNTED SIGN
-  MAST ARM MOUNTED SIGN
-  CLOSED CIRCUIT TELEVISION CAMERA
-  ELECTRIC METER

SIGNAL HEAD LEGEND



REMOVALS

- 1A REMOVE SIGNAL HEAD OR HEADS
- 1B REMOVE SIGNAL POLE
- 1D REMOVE SIGNAL CABINET, CONTROLLER, PULL BOXES, AND WATER VALVE PULL BOXES
- 1E REMOVE MAST ARM
- 1F REMOVE SPAN WIRE, CABLE, AND ALL ATTACHED SIGNAL HEADS AND EQUIPMENT
- 1G REMOVE PUSH BUTTON
- 1H ELECTRIC UTILITY COMPANY TO REMOVE EXISTING POLE

RESETS

- 2J RESET DETECTOR

INSTALLATIONS

- 3A INSTALL SIGNAL HEAD OR HEADS
- 3B INSTALL SIGNAL CABINET, CONTROLLER, AND ASSOCIATED EQUIPMENT
- 3C INSTALL PUSH BUTTON
- 3D INSTALL CONDUIT
- 3D (3) INSTALL THREE CONDUITS (TWO 3-INCH CONDUITS AND ONE 2-INCH CONDUIT)
- 3E INSTALL SIGNAL POLE
- 3F INSTALL MAST ARM - (LENGTH AS SHOWN)
- 3H (SPECIAL) INSTALL PULL BOX MARKED "TRAFFIC COMM" ON LID
- 3H (2) INSTALL TWO PULL BOXES, ONE MARKED "TRAFFIC" AND ONE MARKED "ELECTRIC" ON LIDS
- 3K CONTRACTOR TO INSTALL SIGNAL POLE
- 3L ELECTRIC UTILITY COMPANY TO INSTALL POWER FEED. CONTRACTOR TO EXTEND TO CONTROLLER
- 3M CONTRACTOR TO INSTALL LUMINAIRE
- 3T INSTALL OPTICOM
- 3U INSTALL INTERCONNECT (SIZE AND TYPE AS SHOWN)
- 3V INSTALL VIDEO DETECTION CAMERA
- 3W INSTALL ELECTRIC METER

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	Void:	Detailer: MSR	
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CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	EVANS AVE & DAHLIA ST		EVANS AVE & HOLLY ST		ALAMEDA AVE & CHEROKEE ST		UNIVERSITY BLVD & DARTMOUTH AVE		MISC.		PROJECT TOTALS		NOTES
			PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	
202-00039	REMOVAL OF BOLLARD	EACH					5						5		
202-00195	REMOVAL OF MEDIAN COVER	SY					8						8		
202-00200	REMOVAL OF SIDEWALK	SY	68		138		108		54				368		
202-00203	REMOVAL OF CURB AND GUTTER	LF	198		190		156		142				686		
202-00206	REMOVAL OF CONCRETE CURB RAMP	SY	27		46		51		39				163		
202-00210	REMOVAL OF CONCRETE PAVEMENT	SY	59		88								147		
202-00220	REMOVAL OF ASPHALT MAT	SY	59										59		
202-00810	REMOVAL OF GROUND SIGN	EACH			1				2				3		
202-00828	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS								1			1		
203	POTHOLING	EACH								120			120		
208-00002	EROSION LOG (12 INCH)	LF								200			200		
208-00035	AGGREGATE BAG	LF								500			500		
208-00045	CONCRETE WASHOUT STRUCTURE	EACH								4			4		
208-00051	STORM DRAIN INLET PROTECTION (TYPE 1)	LF								40			40		
208-00052	STORM DRAIN INLET PROTECTION (TYPE 2)	LF								40			40		
208-00103	REMOVAL AND DISPOSAL OF SEDIMENT (LABOR)	HOOR								240			240		
208-00105	REMOVAL AND DISPOSAL OF SEDIMENT (EQUIPMENT)	HOOR								240			240		
208-00106	SWEEPING (SEDIMENT REMOVAL)	HOOR								48			48		
208-00205	EROSION CONTROL SUPERVISOR	HOOR								240			240		
210-00890	RESET INTERSECTION DETECTION SYSTEM (CAMERA)	EACH					1						1		
210-04010	ADJUST MANHOLE	EACH			1								1		
210	RESET SPREAD SPECTRUM RADIO	EACH							1				1		
210	RESET TRASH RECEPTACLE	EACH					2						2		
304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	18		26								44		
403-00721	HOT MIX ASPHALT (PATCHING) (ASPHALT)	SY							2				2		
412-00800	CONCRETE PAVEMENT (8 INCH)	SY	58		87								145		
503-00036	DRILLED CAISSON (36 INCH)	LF	26		44		13		39				122		
503	VACUUMED CAISSON (36 INCH)	LF	26		13		49		13				101		
504	LANDSCAPE WALL	LF			64								64		
607-11525	FENCE (PLASTIC)	LF								400			400		
608-00006	CONCRETE SIDEWALK (6 INCH)	SY	109		160		112		68				449		
608-00010	CONCRETE CURB RAMP	SY	49		53		46		43				191		
609-21020	CURB AND GUTTER TYPE 2 (SECTION II-B)	LF	199		190		156		145				690		
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	LF	375		400		390		380				1,545		
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	LF	650		740		670		590				2,650		
613-07000	PULL BDX (SPECIAL)	EACH	1		1								2		
613-10000	WIRING	LS								1			1		
613	ELECTRIC METER PEDESTAL CABINET AND BASE	EACH	1		1		1		1				4		
614-00011	SIGN PANEL (CLASS I)	SF	38		44		85		74				241		

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DENVER TRAFFIC SIGNAL REBUILD
SUMMARY OF APPROXIMATE QUANTITIES

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CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	EVANS AVE & DAHLIA ST		EVANS AVE & HOLLY ST		ALAMEDA AVE & CHEROKEE ST		UNIVERSITY BLVD & DARTMOUTH AVE		MISC.		PROJECT TOTALS		NOTES
			PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	
614-00035	SIGN PANEL (SPECIAL)	SF	48		44		63		33				188		
614-00216	STEEL SIGN POST (2X2 INCH TUBING)	LF			12				28				40		
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	8		8		8		8				32		
614-70200	ACCESSIBLE PEDESTRIAN SIGNAL	EACH					8						8		
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	EACH	16		11		17		18				62		
614-70448	TRAFFIC SIGNAL FACE (12-12-12-12)	EACH	2		8								10		
614-72855	TRAFFIC SIGNAL CONTROLLER CABINET (INSTALL ONLY)	EACH	1		1		1		1				4		
614-72860	PEDESTRIAN PUSH BUTTON	EACH	8		8				8				24		
614-72866	FIRE PREEMPTION UNIT AND TIMER	EACH	1		1		1		1				4		
614-72886	INTERSECTION DETECTION SYSTEM (CAMERA)	EACH	4		4		4		4				16		
614-81125	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-25 MAST ARM) (INSTALL ONLY)	EACH					1						1		
614-81130	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-30 MAST ARM) (INSTALL ONLY)	EACH			1		1		1				3		
614-81135	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-35 MAST ARM) (INSTALL ONLY)	EACH	3		2				2				7		
614-81140	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 MAST ARM) (INSTALL ONLY)	EACH	1						1				2		
614-81145	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 MAST ARM) (INSTALL ONLY)	EACH					1						1		
614-81150	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-50 MAST ARM) (INSTALL ONLY)	EACH					1						1		
614-81155	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 MAST ARM) (INSTALL ONLY)	EACH			1								1		
614-84100	TRAFFIC SIGNAL PEDESTAL POLE ALUMINUM	EACH	7		5		5		7				24		
614-86105	TELEMETRY (FIELD)	EACH	1		1		1		1				4		
622-00066	SIGN PANEL (INSTALL ONLY)	EACH							2				2		
625-00000	CONSTRUCTION SURVEYING	LS								1			1		
626-00000	MOBILIZATION	LS								1			1		
627-00005	EPOXY PAVEMENT MARKING	GAL	3		3		3		3				12		
627-00070	PREFORMED THERMOPLASTIC PAVEMENT MARKING	SF	816		817		826		746				3,205		
630-00000	FLAGGING	HR								480			480		
630-00003	UNIFORMED TRAFFIC CONTROL	HR								160			160		
630-00007	TRAFFIC CONTROL INSPECTION	DAY								48			48		
630-00012	TRAFFIC CONTROL MANAGEMENT	DAY								104			104		
630-80335	BARRICADE (TYPE 3 M-A) (TEMPORARY)	EACH								10			10		
630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EACH								56			56		
630-80342	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EACH								32			32		
630-80355	PORTABLE MESSAGE SIGN PANEL	EACH								2			2		
630-80356	ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL (A TY)	EACH								2			2		
630-80360	DRUM CHANNELIZING DEVICE	EACH								100			100		
630-80380	TRAFFIC CONE	EACH								200			200		
630-85041	MOBILE ATTENUATOR	DAY								10			10		

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DENVER TRAFFIC SIGNAL REBUILD SUMMARY OF APPROXIMATE QUANTITIES	
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TABULATION OF TRAFFIC CONTROL ITEMS

CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PROJECT TOTALS
630-00000	FLAGGING	HOURL	480
630-00003	UNIFORMED TRAFFIC CONTROL	HOURL	160
630-00007	TRAFFIC CONTROL INSPECTION	DAY	48
630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	104
630-80335	BARRICADE (3 M-A) (TEMP)	EACH	10
630-80341	CONST TRAF SIGN (A)	EACH	56
630-80342	CONST TRAF SIGN (B)	EACH	32
630-80355	PORTABLE MESSAGE SIGN PANEL	EACH	2
630-80356	FLASH ARROW PANEL (A TY)	EACH	2
630-80360	DRUM CHANNELIZING DEVICE	EACH	100
630-80380	TRAFFIC CONE	EACH	200
630-85041	MOBILE ATTENUATOR	DAY	10

SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL SIGNS

SIGN CODE	LEGEND	DIMENSION	PANEL SIZE			
			A	B	C	SPECIAL
			EA	EA	EA	SF
W20-1	ROAD WORK AHEAD	36 X 36	8			
R52-6a	BEGIN FINES DOUBLE IN WORK ZONE	36 X 48		8		
W20-5	(RIGHT/LEFT) LANE CLOSED AHEAD	36 X 36	4			
W4-2R	RIGHT LANE ENDS	36 X 36	4			
W4-2L	LEFT LANE ENDS	36 X 36	4			
W20-4	ONE LANE ROAD	36 X 36	4			
W20-7	FLAGGER (SYMBOL)	36 X 36	4			
W9-3	CENTER LANE CLOSED AHEAD	36 X 36	4			
W20-5	(RIGHT/LEFT) LANE CLOSED AHEAD	36 X 36	4			
R52-6b	END FINES DOUBLE IN WORK ZONE	36 X 48		8		
G20-10	XYZ CONSTRUCTION THANKS YOU XXX-XXX-XXXX	48 X 48		8		
W20-3	ROAD CLOSED AHEAD	36 X 36	4			
R11-2	ROAD CLOSED	48 X 30		4		
R11-4	ROAD CLOSED TO THRU TRAFFIC	60 X 30		4		
R9-9	SIDEWALK CLOSED	24 X 12	8			
R9-11	SIDEWALK CLOSED AHEAD CROSS HERE	24 X 18	8			
TOTALS			56	32		

NOTES:

- LABOR WILL NOT BE PAID SEPARATELY AND SHALL BE INCLUDED IN THE RESPECTIVE TRAFFIC CONTROL PAY ITEM.
- THESE QUANTITIES ARE BASED ON CDOT STANDARD PLAN S-630-1, CASES 18, 19, AND 20. QUANTITIES ASSUME TRAFFIC CONTROL AT NO MORE THAN TWO INTERSECTIONS AT A TIME.

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TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
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DENVER TRAFFIC SIGNAL REBUILD SUMMARY OF TRAFFIC CONTROL DEVICES			
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SURVEY CONTROL PERPETUATION DIAGRAM

(EVANS AVENUE & DAHLIA STREET INTERSECTION)
SITUATED IN THE NORTH 1/2 OF SECTION 30,
TOWNSHIP 4 SOUTH, RANGE 67 WEST OF THE 6TH P.M.
CITY AND COUNTY OF DENVER, STATE OF COLORADO

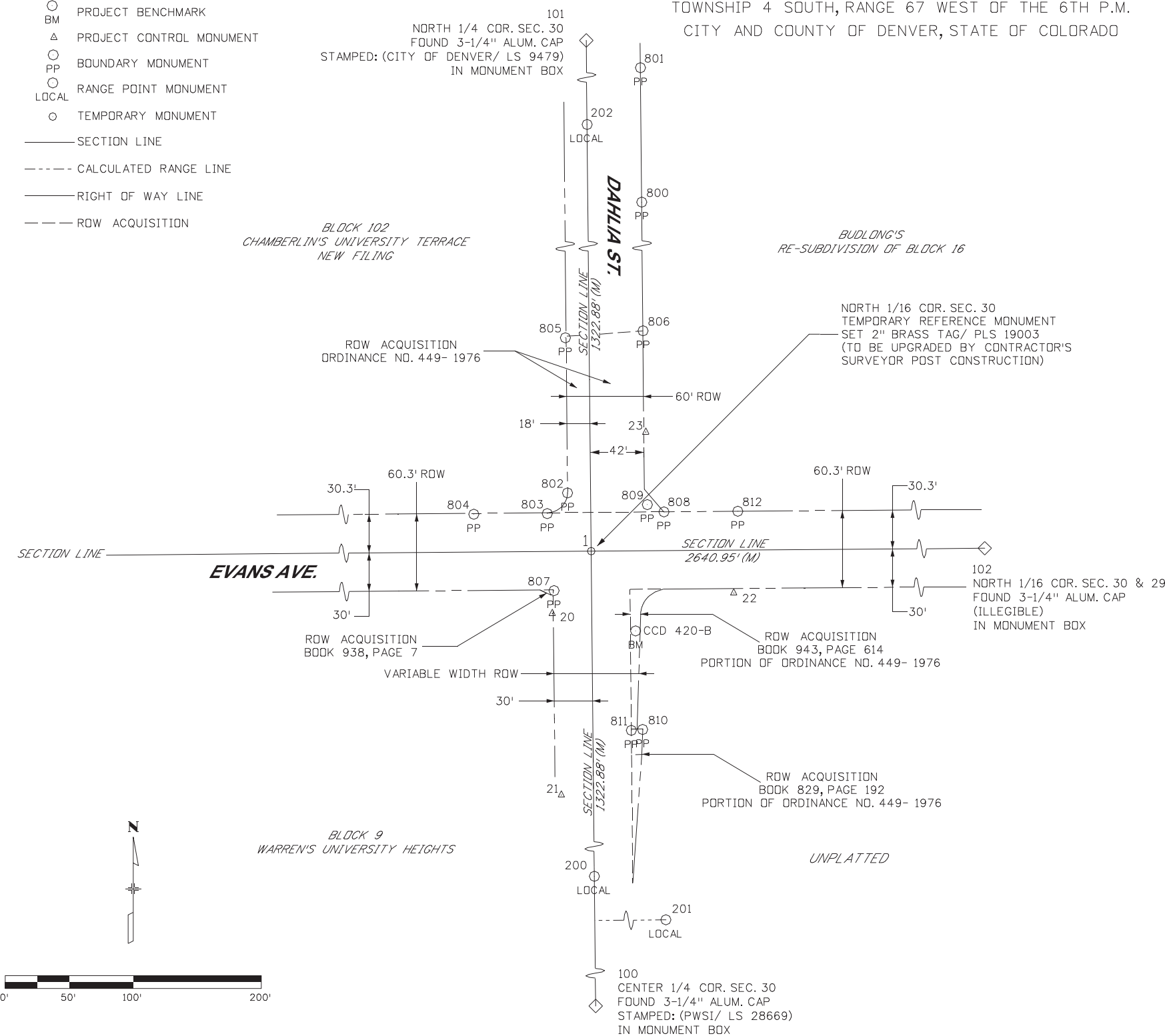
- LEGEND**
- ◇ SECTION CORNER MONUMENT
 - PROJECT BENCHMARK
 - △ PROJECT CONTROL MONUMENT
 - PP BOUNDARY MONUMENT
 - LOCAL RANGE POINT MONUMENT
 - TEMPORARY MONUMENT
 - SECTION LINE
 - - - - - CALCULATED RANGE LINE
 - RIGHT OF WAY LINE
 - - - - - ROW ACQUISITION

101
NORTH 1/4 COR. SEC. 30
FOUND 3-1/4" ALUM. CAP
STAMPED: (CITY OF DENVER/ LS 9479)
IN MONUMENT BOX

NORTH 1/16 COR. SEC. 30
TEMPORARY REFERENCE MONUMENT
SET 2" BRASS TAG/ PLS 19003
(TO BE UPGRADED BY CONTRACTOR'S
SURVEYOR POST CONSTRUCTION)

102
NORTH 1/16 COR. SEC. 30 & 29
FOUND 3-1/4" ALUM. CAP
(ILLEGIBLE)
IN MONUMENT BOX

100
CENTER 1/4 COR. SEC. 30
FOUND 3-1/4" ALUM. CAP
STAMPED: (PWSI/ LS 28669)
IN MONUMENT BOX



NOTES:

1. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY HARRIS KOCHER SMITH TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHTS-OF-WAY AND TITLE OF RECORD, HARRIS KOCHER SMITH RELIED UPON COMMITMENT FOR TITLE INSURANCE, COMMITMENT NO. 00107389 FOR THE NORTHWEST QUADRANT, 00107390 FOR THE NORTHEAST QUADRANT AND 00107391 FOR THE SOUTHEAST QUADRANT, PROVIDED BY EMPIRE TITLE NORTH, LLC, HAVING AN EFFECTIVE DATE OF DECEMBER 17, 2015.
2. NOTICE: ACCORDING TO COLORADO LAW, YOU MUST COMMENCE LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
3. THE PURPOSE OF THIS CONTROL PERPETUATION DIAGRAM IS TO SHOW THE LOCATION OF SURVEY CONTROL AND BOUNDARY MONUMENTS PRIOR TO CONSTRUCTION. THIS DIAGRAM DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND IS NOT TO BE RELIED UPON AS ONE.
4. THE LINEAR UNITS FOR THIS SURVEY ARE U.S. SURVEY FEET.
5. ALL COORDINATES SHOWN HEREON ARE MODIFIED NAD 83/92 COLORADO CENTRAL ZONE STATE PLANE COORDINATES, WITH A COMBINED SCALE FACTOR OF (0.9993680)/ NORTHING TRUNCATION: 1,000,000.00 FT/ EASTING TRUNCATION: 3,000,000.00 FT. ALL DISTANCES SHOWN HEREON ARE GROUND DISTANCES.
6. ALL ELEVATIONS SHOWN HEREON ARE NAVD88/ U.S. SURVEY FEET AND BASED UPON CITY AND COUNTY OF DENVER BENCHMARK 420-B, BEING A 2" BRASS CAP LOCATED ON THE SE CORNER OF DAHLIA ST. AND EVANS AVE. ON THE TOP BACK OF CURB, SOUTH OF AN EXISTING INLET, HAVING AN NAVD88 ELEVATION OF 5442.31 FT.
7. HARRIS KOCHER SMITH DESIGN SURVEY WAS PERFORMED BETWEEN JANUARY 6 - 19, 2016.

(NOTES CONT. NEXT PAGE)

SURVEYOR'S CERTIFICATE:

I, GEORGE SMITH, A LICENSED PROFESSIONAL SURVEYOR IN THE STATE OF COLORADO DO HEREBY STATE THAT THE SURVEY REPRESENTED BY THIS CONTROL PERPETUATION DIAGRAM WAS MADE UNDER MY SUPERVISION AND THAT THIS DIAGRAM AND THE NOTES SHOWN HEREON ACCURATELY REPRESENT SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.

GEORGE G. SMITH, PLS 19003
FOR AND ON BEHALF OF:
HARRIS KOCHER ENGINEERING GROUP, INC.
1120 LINCOLN STREET, SUITE #1000
DENVER, CO 80203
(303) 623-6300

INDEXING STATEMENT:

DEPOSITED THIS _____ DAY OF _____ 20____,
AT _____ M. IN BOOK _____
OF THE COUNTY SURVEYOR'S LAND/ RIGHT OF WAY SURVEYS AT PAGE(S) _____
RECEPTION NO. _____

COUNTY SURVEYOR/ DEPUTY COUNTY SURVEYOR

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Print Date: 6/1/2016
File Name: Evans & Dahlia Control Diagram_R0.dgn
Horiz. Scale: 1:100 Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B

1120 LINCOLN ST, STE 1000 PH: 303-623-6300
DENVER, COLORADO 80203 FAX: 303-623-6311

Sheet Revisions		
Date:	Comments	Init.

Department of Public Works
Traffic Engineering Services
201 West Colfax Avenue
Denver, CO 80202
(720) 865-3150

As Constructed	DENVER TRAFFIC SIGNAL REBUILD CONTROL PERPETUATION DIAGRAM EVANS AVE & DAHLIA ST	Project No./Code
No Revisions:		2016-PRDJMSTR-0000211
Revised:		Designer: AJH
Void:		Detailer: AJH
	Sheet Subset: SURVEY	Subst Sheets: 1 of 8
		Sheet Number 12

SURVEY CONTROL PERPETUATION DIAGRAM

(EVANS AVENUE & DAHLIA STREET INTERSECTION)
SITUATED IN THE NORTH 1/2 OF SECTION 30,
TOWNSHIP 4 SOUTH, RANGE 67 WEST OF THE 6TH P.M.
CITY AND COUNTY OF DENVER, STATE OF COLORADO

EVANS AVENUE & S DAHLIA STREET DESIGN SURVEY

COORDINATE TABULATION

HORIZONTAL DATUM: NAD83/92 COLORADO STATE PLANE (CENTRAL ZONE)

VERTICAL DATUM: NAVD88

GEOID MODEL: GEOID 12A CONUS

COMBINED SCALE FACTOR: 0.999368

NORTHING TRUNCATION: 1,000,000.00 US FEET

EASTING TRUNCATION: 3,000,000.00 US FEET

PROJECT CONTROL MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
20	673520.919	161942.074	5441.64	SET MAG NAIL	1672463.254	3159943.727	5441.64	39°40'42.01250" N	104°55'54.30269" W	5385.08
21	673372.144	161949.124	5444.66	SET MAG NAIL	1672314.573	3159950.772	5444.66	39°40'40.54268" N	104°55'54.22448" W	5388.10
22	673529.977	162083.933	5442.82	SET MAG NAIL	1672472.306	3160085.496	5442.82	39°40'42.09319" N	104°55'52.48877" W	5386.25
23	673655.807	162015.146	5440.89	SET MAG NAIL	1672598.057	3160016.752	5440.89	39°40'43.34022" N	104°55'53.35792" W	5384.32

BOUNDARY MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
800	673835.51	162011.96	5379.88	NO. 4 REBAR W-YPC (18475)	1672777.64	3160013.57	5379.88	39°40'45.11522" N	104°55'53.38422" W	5323.32
801	673940.56	162010.94	5375.91	NO. 4 REBAR W-YPC (18475)	1672882.63	3160012.55	5375.91	39°40'46.15284" N	104°55'53.38884" W	5319.34
802	673608.26	161954.01	5440.62	NAIL & TAG (16415)	1672550.53	3159955.65	5440.62	39°40'42.87435" N	104°55'54.14320" W	5384.05
803	673592.06	161938.23	5440.67	NAIL & TAG (16415)	1672534.35	3159939.88	5440.67	39°40'42.71539" N	104°55'54.34615" W	5384.10
804	673591.63	161880.72	5440.19	NAIL & TAG (16415)	1672533.92	3159882.41	5440.19	39°40'42.71468" N	104°55'55.08125" W	5383.63
805	673729.57	161952.31	5381.97	NO. 4 REBAR/ NO CAP	1672671.77	3159953.96	5381.97	39°40'44.07262" N	104°55'54.15512" W	5325.41
806	673734.92	162012.95	5382.67	NO. 5 REBAR W-WPC (ILLEGIBLE)	1672677.12	3160014.56	5382.67	39°40'44.12174" N	104°55'53.37969" W	5326.10
807	673531.88	161943.47	5384.58	EPOXY TAG (15321)	1672474.21	3159945.12	5384.58	39°40'42.12071" N	104°55'54.28401" W	5328.02
808	673593.48	162029.38	5441.72	NAIL & TAG (ILLEGIBLE)	1672535.77	3160030.98	5441.72	39°40'42.72380" N	104°55'53.18096" W	5385.15
809	673599.15	162016.34	5441.32	1IN BRASS DISC (105WEST)	1672541.43	3160017.95	5441.32	39°40'42.78051" N	104°55'53.34715" W	5384.76
810	673423.36	162012.73	5444.14	NAIL & TAG (ILLEGIBLE)	1672365.75	3160014.34	5444.14	39°40'41.04453" N	104°55'53.40738" W	5387.58
811	673422.76	162003.88	5443.55	C-HISELED- X	1672365.16	3160005.50	5443.55	39°40'41.03920" N	104°55'53.52050" W	5386.99
812	673593.98	162087.06	5441.83	NAIL & TAG (ILLEGIBLE)	1672536.27	3160088.62	5441.83	39°40'42.72516" N	104°55'52.44368" W	5385.27

SECTION CORNER MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
100	672239.93	161985.30	5392.42	2-1/2" ALUM. CAP (28669) IN R-BOX	1671183.07	3159986.93	5392.42	39°40'29.35798" N	104°55'53.85262" W	5335.88
101	674885.57	161959.69	5360.77	3-1/4" ALUM. CAP (9479) IN R-BOX	1673827.04	3159961.33	5360.77	39°40'55.48947" N	104°55'53.96844" W	5304.18
102	673582.34	164613.36	5468.01	3-1/4" ALUM. CAP (ILLEGIBLE) IN R-BOX	1672524.64	3162613.32	5468.01	39°40'42.45271" N	104°55'20.15420" W	5411.35

RANGE POINT MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
200	672916.18	161978.77	5396.51	NO. 6 REBAR IN R-BOX	1671858.90	3159980.40	5396.51	39°40'36.03752" N	104°55'53.88201" W	5339.96
201	672911.31	161988.75	5396.36	1" BAR IN R-BOX	1671854.03	3159990.38	5396.36	39°40'35.98873" N	104°55'53.75481" W	5339.81
202	674270.34	161965.85	5368.30	1" BAR IN R-BOX	1673212.20	3159967.49	5368.30	39°40'49.41274" N	104°55'53.93887" W	5311.72

BENCHMARK MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
CCD 420-B	673500.51	162007.16	5442.31	2" BRASS CAP (420-B)	1672442.86	3160008.78	5442.31	39°40'41.80688" N	104°55'53.47237" W	5385.75

CALCULATED TEMPORARY MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
1	673562.77	161972.49	N/A	CALCULATED RANGE POINT	1672505.08	3159974.13	N/A	39°40'42.42395" N	104°55'53.91053" W	N/A

NOTES CONT.:

8. PRIOR TO BEGINNING WORK ON THE PROJECT, THE CONTRACTOR'S SURVEYOR SHALL PERFORM A SURVEY TO VERIFY ALL SURVEY CONTROL POINTS, CITY OF DENVER RANGE POINTS, SECTION CORNERS, AND BENCHMARKS AS SHOWN ON THE SURVEY CONTROL DIAGRAM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL LAND SURVEY 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. THE CONTRACTOR SHALL RETAIN A COLORADO LICENSED PROFESSIONAL LAND SURVEYOR TO RESET ANY AFFECTED SURVEY MONUMENTS. THIS WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK UNLESS SPECIFIED OTHERWISE IN SECTION 629. FOR FURTHER INFORMATION CONTACT THE CITY AND COUNTY OF DENVER SURVEY DEPARTMENT.

9. AFTER COMPLETION OF THE CONSTRUCTION OPERATIONS, THE CONTRACTOR'S SURVEYOR SHALL UPGRADE TEMPORARY RANGE POINTS AND OR TEMPORARY SECTION CORNERS WITH PERMANENT MONUMENTS AT THE LOCATIONS AS INDICATED ON THE SURVEY CONTROL PERPETUATION DIAGRAM. SEE POINT NO. 1, (1 TOTAL MONUMENTS). MONUMENTS SHALL MEET CURRENT COLORADO STATE LAW AND CITY AND COUNTY OF DENVER STANDARDS. SEE SECTION 629 OF THE SPECIAL PROVISIONS FOR MORE INFORMATION.

10. AFTER COMPLETION OF THE CONSTRUCTION OPERATIONS, THE CONTRACTOR'S SURVEYOR SHALL PREPARE A LAND SURVEY PLAT TO BE DEPOSITED WITH THE CITY AND COUNTY OF DENVER PER STATE STATUTE. CITY MONUMENT TIE SHEETS SHALL BE PREPARED FOR ALL RANGE POINTS WITHIN THE PROJECT ACCORDING TO CITY AND COUNTY OF DENVER STANDARDS AND DEPOSITED WITH THE CITY SURVEYOR. MONUMENT RECORDS SHALL BE PREPARED FOR ALL SECTION CORNERS WITHIN THE PROJECT ACCORDING TO COLORADO STATE STANDARDS AND DEPOSITED WITH THE STATE BOARD.

11. 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 DEPARTMENT OF PUBLIC WORKS IS PROHIBITED, AND USE OF SUCH MONUMENTS IS AT THE CONTRACTOR'S SOLE RISK.

12. PROPOSED FINISHED GROUND ELEVATIONS FOR ITEMS TO BE ADJUSTED, RESET OR MODIFIED SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

13. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS, OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT AND/OR BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE C.R.S. SECTION 18-4-508.

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Print Date: 6/1/2016
File Name: Evans & Dahlia Control Diagram_R0.dgn
Horiz. Scale: N/A Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B

HKS HARRIS KOCHER SMITH
1120 LINCOLN ST, STE 1000 PH: 303-623-6300
DENVER, COLORADO 80203 FAX: 303-623-6311

Sheet Revisions		
Date:	Comments	Init.

DENVER
THE MILE HIGH CITY

Department of Public Works
Traffic Engineering Services
201 West Colfax Avenue
Denver, CO 80202
(720) 865-3150

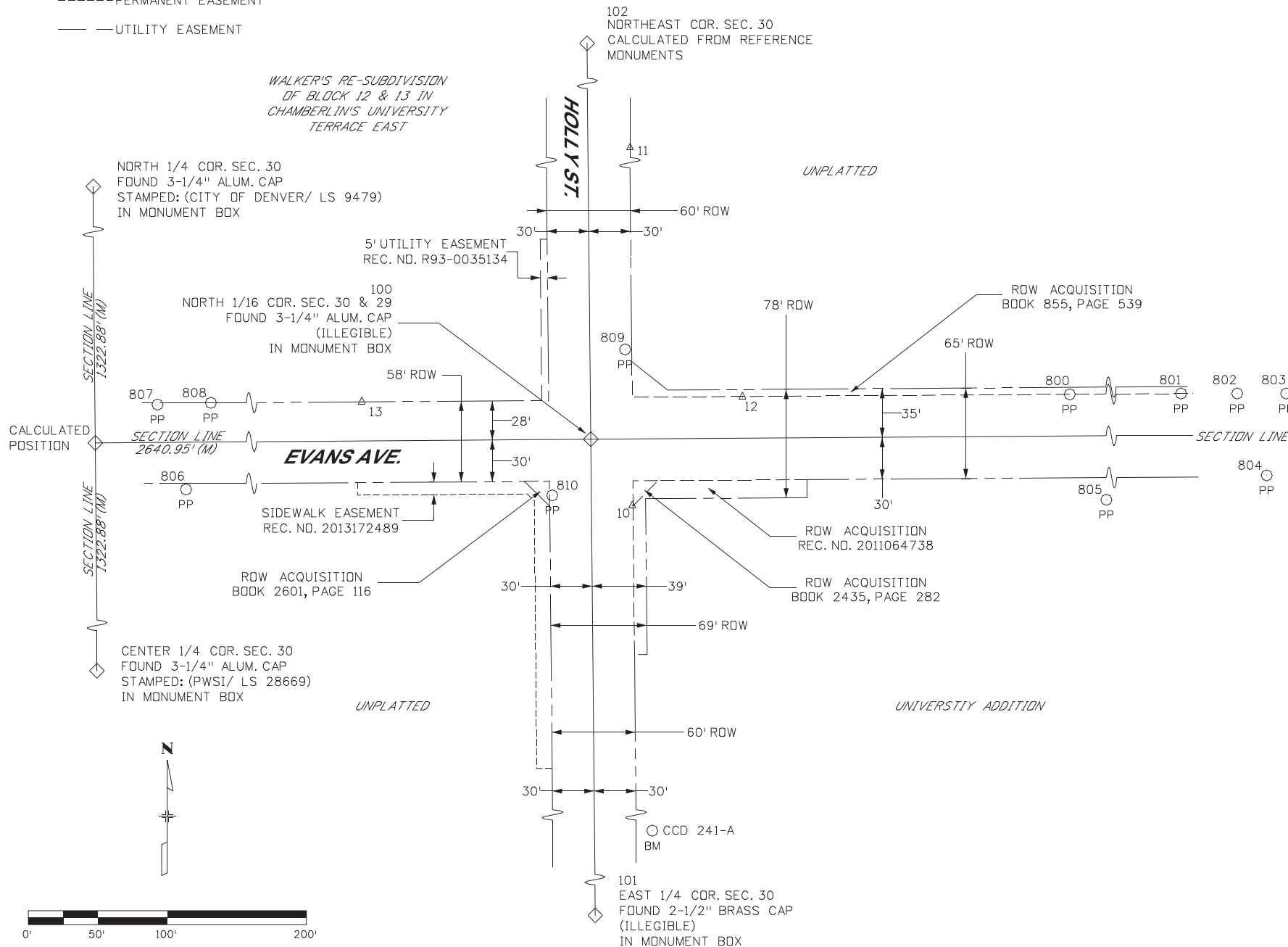
As Constructed	DENVER TRAFFIC SIGNAL REBUILD CONTROL PERPETUATION DIAGRAM EVANS AVE & DAHLIA ST		Project No./Code
No Revisions:			2016-PRDJMSTR-0000211
Revised:	Designer: AJH		
	Detailer: AJH		
Void:	Sheet Subset: SURVEY	Subset Sheets: 2 of 8	Sheet Number 13

SURVEY CONTROL PERPETUATION DIAGRAM

(EVANS AVENUE & HOLLY STREET INTERSECTION)
 SITUATED IN THE NORTHWEST 1/4 OF SECTION 29
 AND THE NORTHEAST 1/4 OF SECTION 30,
 TOWNSHIP 4 SOUTH, RANGE 67 WEST OF THE 6TH P.M.
 CITY AND COUNTY OF DENVER, STATE OF COLORADO

LEGEND

- ◇ SECTION CORNER MONUMENT
- BM PROJECT BENCHMARK
- △ PROJECT CONTROL MONUMENT
- BOUNDARY MONUMENT
- PP TEMPORARY MONUMENT
- SECTION LINE
- RIGHT OF WAY LINE
- - - ROW ACQUISITION
- - - - PERMANENT EASEMENT
- UTILITY EASEMENT



NOTES:

1. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY HARRIS KOCHER SMITH TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHTS-OF-WAY AND TITLE OF RECORD, HARRIS KOCHER SMITH RELIED UPON COMMITMENT FOR TITLE INSURANCE, COMMITMENT NO. 00107386 FOR THE NORTHWEST QUADRANT, 00107387 FOR THE NORTHEAST QUADRANT AND 00107388 FOR THE SOUTHWEST QUADRANT, PROVIDED BY EMPIRE TITLE NORTH, LLC, HAVING AN EFFECTIVE DATE OF DECEMBER 17, 2015.
2. NOTICE: ACCORDING TO COLORADO LAW, YOU MUST COMMENCE LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
3. THE PURPOSE OF THIS CONTROL PERPETUATION DIAGRAM IS TO SHOW THE LOCATION OF SURVEY CONTROL AND BOUNDARY MONUMENTS PRIOR TO CONSTRUCTION. THIS DIAGRAM DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND IS NOT TO BE RELIED UPON AS ONE.
4. THE LINEAR UNITS FOR THIS SURVEY ARE U.S. SURVEY FEET.
5. ALL COORDINATES SHOWN HEREON ARE MODIFIED NAD 83/92 COLORADO CENTRAL ZONE STATE PLANE COORDINATES, WITH A COMBINED SCALE FACTOR OF (0.99972508)/ NORTHING TRUNCATION: 1,000,000.00 FT/ EASTING TRUNCATION: 3,000,000.00 FT. ALL DISTANCES SHOWN HEREON ARE GROUND DISTANCES.
6. ALL ELEVATIONS SHOWN HEREON ARE NAVD88/ U.S. SURVEY FEET AND BASED UPON CITY AND COUNTY OF DENVER BENCHMARK 241-A, BEING A 2" BRASS CAP LOCATED ON THE EAST SIDE OF HOLLY ST. AT THE NORTH END OF AN EXISTING BRIDGE ACROSS THE HIGHLINE CANAL NEAR ILLIFF AVE, HAVING AN NAVD88 ELEVATION OF 5481.40 FT.
7. HARRIS KOCHER SMITH DESIGN SURVEY WAS PERFORMED BETWEEN JANUARY 6 - 19, 2016.

(NOTES CONT. NEXT PAGE)

SURVEYOR'S CERTIFICATE:

I, GEORGE SMITH, A LICENSED PROFESSIONAL SURVEYOR IN THE STATE OF COLORADO DO HEREBY STATE THAT THE SURVEY REPRESENTED BY THIS CONTROL PERPETUATION DIAGRAM WAS MADE UNDER MY SUPERVISION AND THAT THIS DIAGRAM AND THE NOTES SHOWN HEREON ACCURATELY REPRESENT SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.

 GEORGE G. SMITH, PLS 19003
 FOR AND ON BEHALF OF:
 HARRIS KOCHER ENGINEERING GROUP, INC.
 1120 LINCOLN STREET, SUITE #1000
 DENVER, CO 80203
 (303) 623-6300

INDEXING STATEMENT:

DEPOSITED THIS _____ DAY OF _____ 20____,
 AT _____ M. IN BOOK _____
 OF THE COUNTY SURVEYOR'S LAND/ RIGHT OF WAY SURVEYS AT PAGE(S) _____
 RECEPTION NO. _____

 COUNTY SURVEYOR/ DEPUTY COUNTY SURVEYOR

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Print Date: 6/1/2016	
File Name: Evans & Holly ControlDiagram_R0.dgn	
Horiz. Scale: 1:100	Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B	
HKS HARRIS KOCHER SMITH DENVER • DALLAS/PORT WORTH	1120 LINCOLN ST, STE 1000 DENVER, COLORADO 80203 PH: 303-623-6300 FAX: 303-623-6311

Sheet Revisions		
Date:	Comments	Init.

DENVER
 THE MILE HIGH CITY
 Department of Public Works
 Traffic Engineering Services
 201 West Colfax Avenue
 Denver, CO 80202
 (720) 865-3150

As Constructed	DENVER TRAFFIC SIGNAL REBUILD CONTROL PERPETUATION DIAGRAM EVANS AVE & HOLLY ST	Project No./Code
No Revisions:		2016-PRDJMSTR-0000211
Revised:		Designer: AJH
Void:		Detailer: AJH
	Sheet Subset: SURVEY	Subst Sheets: 3 of 8
		Sheet Number 14

SURVEY CONTROL PERPETUATION DIAGRAM

(EVANS AVENUE & HOLLY STREET INTERSECTION)
SITUATED IN THE NORTHWEST 1/4 OF SECTION 29
AND THE NORTHEAST 1/4 OF SECTION 30,
TOWNSHIP 4 SOUTH, RANGE 67 WEST OF THE 6TH P.M.
CITY AND COUNTY OF DENVER, STATE OF COLORADO

EVANS AVENUE & S HOLLY STREET DESIGN SURVEY

COORDINATE TABULATION

HORIZONTAL DATUM: NAD83/92 COLORADO STATE PLANE (CENTRAL ZONE)

VERTICAL DATUM: NAVD88

GEOID MODEL: GEOID 12A CONUS

COMBINED SCALE FACTOR: 0.99972508

NORTHING TRUNCATION: 1,000,000.00 US FEET

EASTING TRUNCATION: 5,000,000.00 US FEET

PROJECT CONTROL MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
10	672936.927	163512.838	5468.82	SET MAG NAIL	1672477.003	3162643.125	5468.82	39°40'41.98010" N	104°55'19.77690" W	5411.16
11	673193.990	163511.191	5466.57	SET MAG NAIL	1672733.996	3162641.479	5466.57	39°40'44.52002" N	104°55'19.77705" W	5409.90
12	673015.010	163592.038	5468.33	SET MAG NAIL	1672555.065	3162722.298	5468.33	39°40'42.74660" N	104°55'18.75794" W	5411.66
13	673011.464	163318.539	5466.53	SET MAG NAIL	1672551.520	3162448.879	5466.53	39°40'42.72874" N	104°55'22.25521" W	5409.87

BOUNDARY MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
800	673016.84	163827.33	5471.62	NO. 4 REBAR W-RPC (10717)	1672556.90	3162957.53	5471.62	39°40'42.74989" N	104°55'15.74922" W	5414.94
801	673017.40	163907.39	5471.05	NO. 4 REBAR W-RPC (ILLEGIBLE)	1672557.46	3163037.57	5471.05	39°40'42.75041" N	104°55'14.72553" W	5414.37
802	673017.45	164041.96	5470.01	NO. 4 REBAR/ NO CAP	1672557.50	3163172.11	5470.01	39°40'42.74233" N	104°55'13.00479" W	5413.32
803	673018.96	164176.81	5467.25	NO. 4 REBAR W-YPC (ILLEGIBLE)	1672559.02	3163306.92	5467.25	39°40'42.74883" N	104°55'11.28049" W	5410.55
804	672958.63	163968.87	5471.12	CHISELED- X	1672498.70	3163099.04	5471.12	39°40'42.16585" N	104°55'13.94414" W	5414.43
805	672941.16	163853.66	5471.60	NAIL & TAG (2132)	1672481.23	3162983.85	5471.60	39°40'42.00046" N	104°55'15.41878" W	5414.92
806	672948.52	162628.23	5462.34	NAIL & TAG (34175)	1672488.59	3161758.76	5462.34	39°40'42.15004" N	104°55'31.08677" W	5405.71
807	673009.51	163052.56	5465.09	NAIL & TAG (ILLEGIBLE)	1672549.56	3162182.98	5465.09	39°40'42.72607" N	104°55'25.65619" W	5408.44
808	673010.72	163153.25	5465.93	NO. 4 REBAR/ NO CAP	1672550.77	3162283.63	5465.93	39°40'42.73173" N	104°55'24.36876" W	5409.28
809	673049.09	163507.70	5467.42	CHISELED- X	1672589.14	3162637.99	5467.42	39°40'43.08862" N	104°55'19.83346" W	5410.75
810	672944.26	163455.27	5467.71	CHISELED- X	1672484.33	3162585.57	5467.71	39°40'42.05617" N	104°55'20.51239" W	5411.05

SECTION CORNER MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
100	672984.55	163483.01	5468.01	3-1/4" ALUM. CAP (ILLEGIBLE) IN R-BOX	1672524.61	3162613.33	5468.01	39°40'42.45250" N	104°55'20.15416" W	5411.35
101	671663.79	163495.46	5425.53	2-1/2" BRASS CAP (ILLEGIBLE) IN R-BOX	1671204.22	3162625.76	5425.53	39°40'29.40250" N	104°55'20.10257" W	5368.89
102	674306.10	163470.05	0.00	CALCULATED FROM REF. MONUMENTS	1673845.80	3162600.35	0.00	39°40'55.51036" N	104°55'20.21267" W	0.00

BENCHMARK MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
CCD 241-A	673500.51	162007.16	5481.40	2" BRASS CAP (241-A)	1673040.43	3161137.86	5481.40	39°40'47.64253" N	104°55'38.98341" W	5424.78

NOTES CONT.:

8. PRIOR TO BEGINNING WORK ON THE PROJECT, THE CONTRACTOR'S SURVEYOR SHALL PERFORM A SURVEY TO VERIFY ALL SURVEY CONTROL POINTS, CITY OF DENVER RANGE POINTS, SECTION CORNERS, AND BENCHMARKS AS SHOWN ON THE SURVEY CONTROL DIAGRAM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL LAND SURVEY 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. THE CONTRACTOR SHALL RETAIN A COLORADO LICENSED PROFESSIONAL LAND SURVEYOR TO RESET ANY AFFECTED SURVEY MONUMENTS. THIS WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK UNLESS SPECIFIED OTHERWISE IN SECTION 629. FOR FURTHER INFORMATION CONTACT THE CITY AND COUNTY OF DENVER SURVEY DEPARTMENT.

9. 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 DEPARTMENT OF PUBLIC WORKS IS PROHIBITED, AND USE OF SUCH MONUMENTS IS AT THE CONTRACTOR'S SOLE RISK.

10. PROPOSED FINISHED GROUND ELEVATIONS FOR ITEMS TO BE ADJUSTED, RESET OR MODIFIED SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

11. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS, OR DEFACTS ANY PUBLIC LAND SURVEY MONUMENT AND/OR BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE C.R.S. SECTION 18-4-508.

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Print Date: 6/1/2016
File Name: Evans & Holly ControlDiagram_R0.dgn
Horiz. Scale: N/A Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B



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Sheet Revisions		
Date:	Comments	Init.



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Traffic Engineering Services
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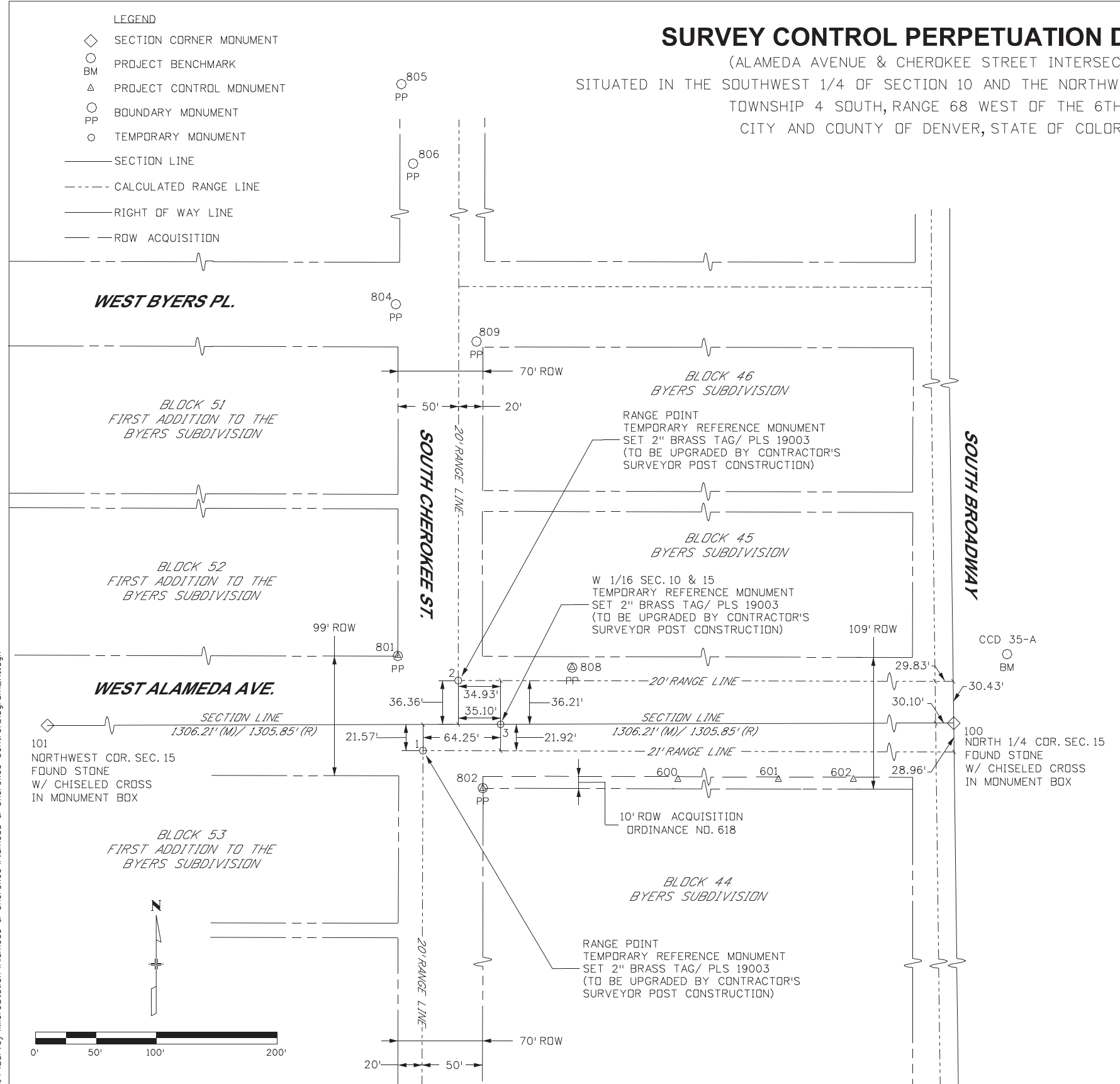
As Constructed	DENVER TRAFFIC SIGNAL REBUILD CONTROL PERPETUATION DIAGRAM EVANS AVE & HOLLY ST		Project No./Code
No Revisions:			2016-PRDJMSTR-0000211
Revised:	Designer: AJH		
	Detailer: AJH		
Void:	Sheet Subset: SURVEY	Subset Sheets: 4 of 8	Sheet Number 15

SURVEY CONTROL PERPETUATION DIAGRAM

(ALAMEDA AVENUE & CHEROKEE STREET INTERSECTION)

SITUATED IN THE SOUTHWEST 1/4 OF SECTION 10 AND THE NORTHWEST 1/4 OF SECTION 15,
TOWNSHIP 4 SOUTH, RANGE 68 WEST OF THE 6TH P.M.
CITY AND COUNTY OF DENVER, STATE OF COLORADO

- LEGEND**
- ◇ SECTION CORNER MONUMENT
 - BM PROJECT BENCHMARK
 - △ PROJECT CONTROL MONUMENT
 - PP BOUNDARY MONUMENT
 - TEMPORARY MONUMENT
 - SECTION LINE
 - - - - CALCULATED RANGE LINE
 - RIGHT OF WAY LINE
 - ROW ACQUISITION



NOTES:

1. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY HARRIS KOCHER SMITH TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHTS-OF-WAY AND TITLE OF RECORD, HARRIS KOCHER SMITH RELIED UPON COMMITMENT FOR TITLE INSURANCE, COMMITMENT NO. 00107392 FOR THE SOUTHWEST QUADRANT & 00107393 FOR THE SOUTHEAST QUADRANT, PROVIDED BY EMPIRE TITLE NORTH, LLC, HAVING AN EFFECTIVE DATE OF DECEMBER 17, 2015.
2. NOTICE: ACCORDING TO COLORADO LAW, YOU MUST COMMENCE LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
3. THE PURPOSE OF THIS CONTROL PERPETUATION DIAGRAM IS TO SHOW THE LOCATION OF SURVEY CONTROL AND BOUNDARY MONUMENTS PRIOR TO CONSTRUCTION. THIS DIAGRAM DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND IS NOT TO BE RELIED UPON AS ONE.
4. THE LINEAR UNITS FOR THIS SURVEY ARE U.S. SURVEY FEET.
5. ALL COORDINATES SHOWN HEREON ARE MODIFIED NAD 83/92 COLORADO CENTRAL ZONE STATE PLANE COORDINATES, WITH A COMBINED SCALE FACTOR OF (0.99974506)/ NORTHING TRUNCATION: 1,000,000.00 FT/ EASTING TRUNCATION: 3,000,000.00 FT. ALL DISTANCES SHOWN HEREON ARE GROUND DISTANCES.
6. ALL ELEVATIONS SHOWN HEREON ARE NAVD88/ U.S. SURVEY FEET AND BASED UPON CITY AND COUNTY OF DENVER BENCHMARK 35-A, BEING A 2" BRASS CAP LOCATED ON THE NE CORNER OF SOUTH BROADWAY ST. AND ALAMEDA AVE. ON THE TOP BACK OF CURB, APPROXIMATELY 22.5' NORTH OF N-S CURB RETURN, HAVING AN NAVD88 ELEVATION OF 5260.26 FT.
7. HARRIS KOCHER SMITH DESIGN SURVEY WAS PERFORMED BETWEEN JANUARY 6 - 19, 2016.

(NOTES CONT. NEXT PAGE)

SURVEYOR'S CERTIFICATE:

I, GEORGE SMITH, A LICENSED PROFESSIONAL SURVEYOR IN THE STATE OF COLORADO DO HEREBY STATE THAT THE SURVEY REPRESENTED BY THIS CONTROL PERPETUATION DIAGRAM WAS MADE UNDER MY SUPERVISION AND THAT THIS DIAGRAM AND THE NOTES SHOWN HEREON ACCURATELY REPRESENT SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.

GEORGE G. SMITH, PLS 19003
FOR AND ON BEHALF OF:
HARRIS KOCHER ENGINEERING GROUP, INC.
1120 LINCOLN STREET, SUITE #1000
DENVER, CO 80203
(303) 623-6300

INDEXING STATEMENT:

DEPOSITED THIS _____ DAY OF _____ 20____,
AT _____ M. IN BOOK _____
OF THE COUNTY SURVEYOR'S LAND/ RIGHT OF WAY SURVEYS AT PAGE(S) _____
RECEPTION NO. _____

COUNTY SURVEYOR/ DEPUTY COUNTY SURVEYOR

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Print Date: 8/2/2016
File Name: Alameda & Cherokee ControlDiagram_R1.dgn
Horiz. Scale: 1:100 Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B

1120 LINCOLN ST, STE 1000 PH: 303-623-6300
DENVER, COLORADO 80203 FAX: 303-623-6311

Sheet Revisions			
Date:	Comments	Init.	
08/02/16	Revised monument type for NW Cor. Sec. 15	AJH	

Department of Public Works
Traffic Engineering Services
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Denver, CO 80202
(720) 865-3150

As Constructed	DENVER TRAFFIC SIGNAL REBUILD CONTROL PERPETUATION DIAGRAM ALAMEDA AVE & CHEROKEE ST	Project No./Code	
No Revisions:		2016-PRDJMSTR-0000211	
Revised:		Designer: AJH	
Void:		Detailer: AJH	
	Sheet Subset: SURVEY	Subset Sheets: 5 of 8	Sheet Number 16

SURVEY CONTROL PERPETUATION DIAGRAM

(ALAMEDA AVENUE & CHEROKEE STREET INTERSECTION)
SITUATED IN THE SOUTHWEST 1/4 OF SECTION 10 AND THE NORTHWEST 1/4 OF SECTION 15,
TOWNSHIP 4 SOUTH, RANGE 68 WEST OF THE 6TH P.M.
CITY AND COUNTY OF DENVER, STATE OF COLORADO

W ALAMEDA AVENUE & S CHEROKEE STREET DESIGN SURVEY

COORDINATE TABULATION

HORIZONTAL DATUM: NAD83/92 COLORADO STATE PLANE (CENTRAL ZONE)

VERTICAL DATUM: NAVD88

GEOID MODEL: GEOID 12A CONUS

COMBINED SCALE FACTOR: 0.99974566

NORTHING TRUNCATION: 1,000,000.00 US FEET

EASTING TRUNCATION: 3,000,000.00 US FEET

PROJECT CONTROL MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
600	684708.91	143806.59	5253.99	SCRIBED-X	1684279.41	3143005.11	5253.99	39°42'39.78103" N	104°59'30.09902" W	5198.02
601	684705.64	144235.88	5254.93	SCRIBED-X	1684276.14	3143434.29	5254.93	39°42'39.72498" N	104°59'24.60754" W	5198.94
602	684714.90	144694.02	5258.32	SCRIBED-X	1684285.40	3143892.31	5258.32	39°42'39.79100" N	104°59'18.74619" W	5202.31

BOUNDARY MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
801	684811.19	143574.66	5253.08	NO.5 REBAR W-YPC (19003)	1684381.66	3142773.23	5253.08	39°42'40.80435" N	104°59'33.05876" W	5197.13
802	684701.75	143645.00	5252.83	CHISELED-X W/ NAIL	1684272.25	3142843.56	5252.83	39°42'39.71920" N	104°59'32.16675" W	5196.87
804	685102.22	143573.03	5254.04	NO.5 REBAR W-YPC (19003)	1684672.62	3142771.61	5254.04	39°42'43.67994" N	104°59'33.05876" W	5198.08
805	685463.99	143577.62	5262.59	CHISELED-X	1685034.30	3142776.20	5262.59	39°42'47.25408" N	104°59'32.97413" W	5206.63
806	685398.11	143587.33	5262.02	CHISELED-X	1684968.44	3142785.90	5262.02	39°42'46.60263" N	104°59'32.85467" W	5206.06
807	684706.13	143642.89	5258.35	CHISELED-X W/ NAIL	1684276.63	3142841.45	5258.35	39°42'39.76259" N	104°59'32.19340" W	5202.39
808	684801.50	143718.99	5253.39	CHISELED-X	1684371.98	3142917.53	5253.39	39°42'40.70070" N	104°59'31.21300" W	5197.43
809	685071.36	143639.79	5254.63	CHISELED-X	1684641.77	3142838.35	5254.63	39°42'43.37134" N	104°59'32.20689" W	5198.67

SECTION CORNER MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
100	684757.97	144965.98	5259.42	SQUARE STONE W/ CHISELED-X	1684328.46	3144164.20	5259.42	39°42'40.20140" N	104°59'15.26396" W	5203.40
101	684751.16	142353.57	5225.13	SQUARE STONE W/ CHISELED-X	1684321.65	3141552.46	5225.13	39°42'40.27841" N	104°59'48.68380" W	5169.23

BENCHMARK MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
CCD 35-A	684812.64	144995.73	5260.26	2" BRASS CAP (35-A)	1684383.11	3144193.94	5260.26	39°42'40.73987" N	104°59'14.87952" W	5204.24

CALCULATED TEMPORARY MONUMENT COORDINATE TABLE										
NAD83/92 CO STATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
1	684732.83	143595.47	N/A	CALCULATED RANGE POINT	1684303.32	3142794.04	N/A	39°42'40.02899" N	104°59'32.79811" W	N/A
2	684790.83	143624.70	N/A	CALCULATED RANGE POINT	1684361.31	3142823.26	N/A	39°42'40.60051" N	104°59'32.42004" W	N/A
3	684754.57	143659.78	N/A	CALCULATED SECTION CORNER	1684325.05	3142858.33	N/A	39°42'40.24024" N	104°59'31.97388" W	N/A

NOTES CONT.:

8. PRIOR TO BEGINNING WORK ON THE PROJECT, THE CONTRACTOR'S SURVEYOR SHALL PERFORM A SURVEY TO VERIFY ALL SURVEY CONTROL POINTS, CITY OF DENVER RANGE POINTS, SECTION CORNERS, AND BENCHMARKS AS SHOWN ON THE SURVEY CONTROL DIAGRAM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL LAND SURVEY 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. THE CONTRACTOR SHALL RETAIN A COLORADO LICENSED PROFESSIONAL LAND SURVEYOR TO RESET ANY AFFECTED SURVEY MONUMENTS. THIS WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK UNLESS SPECIFIED OTHERWISE IN SECTION 629. FOR FURTHER INFORMATION CONTACT THE CITY AND COUNTY OF DENVER SURVEY DEPARTMENT.

9. AFTER COMPLETION OF THE CONSTRUCTION OPERATIONS, THE CONTRACTOR'S SURVEYOR SHALL UPGRADE TEMPORARY RANGE POINTS AND OR TEMPORARY SECTION CORNERS WITH PERMANENT MONUMENTS AT THE LOCATIONS AS INDICATED ON THE SURVEY CONTROL PERPETUATION DIAGRAM. SEE POINT NO. 1, 2 AND 3 (3 TOTAL MONUMENTS). MONUMENTS SHALL MEET CURRENT COLORADO STATE LAW AND CITY AND COUNTY OF DENVER STANDARDS. SEE SECTION 629 OF THE SPECIAL PROVISIONS FOR MORE INFORMATION.

10. AFTER COMPLETION OF THE CONSTRUCTION OPERATIONS, THE CONTRACTOR'S SURVEYOR SHALL PREPARE A LAND SURVEY PLAT TO BE DEPOSITED WITH THE CITY AND COUNTY OF DENVER PER STATE STATUTE. CITY MONUMENT TIE SHEETS SHALL BE PREPARED FOR ALL RANGE POINTS WITHIN THE PROJECT ACCORDING TO CITY AND COUNTY OF DENVER STANDARDS AND DEPOSITED WITH THE CITY SURVEYOR. MONUMENT RECORDS SHALL BE PREPARED FOR ALL SECTION CORNERS WITHIN THE PROJECT ACCORDING TO COLORADO STATE STANDARDS AND DEPOSITED WITH THE STATE BOARD.


11. 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 DEPARTMENT OF PUBLIC WORKS IS PROHIBITED, AND USE OF SUCH MONUMENTS IS AT THE CONTRACTOR'S SOLE RISK.

12. PROPOSED FINISHED GROUND ELEVATIONS FOR ITEMS TO BE ADJUSTED, RESET OR MODIFIED SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

13. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS, OR DEFACTS ANY PUBLIC LAND SURVEY MONUMENT AND/OR BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE C.R.S. SECTION 18-4-508.

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Horiz. Scale: N/A Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B



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DENVER, COLORADO 80203 FAX: 303-623-6311

Sheet Revisions		
Date:	Comments	Init.
08/02/16	Revised monument type for NW Cor. Sec. 15	AJH



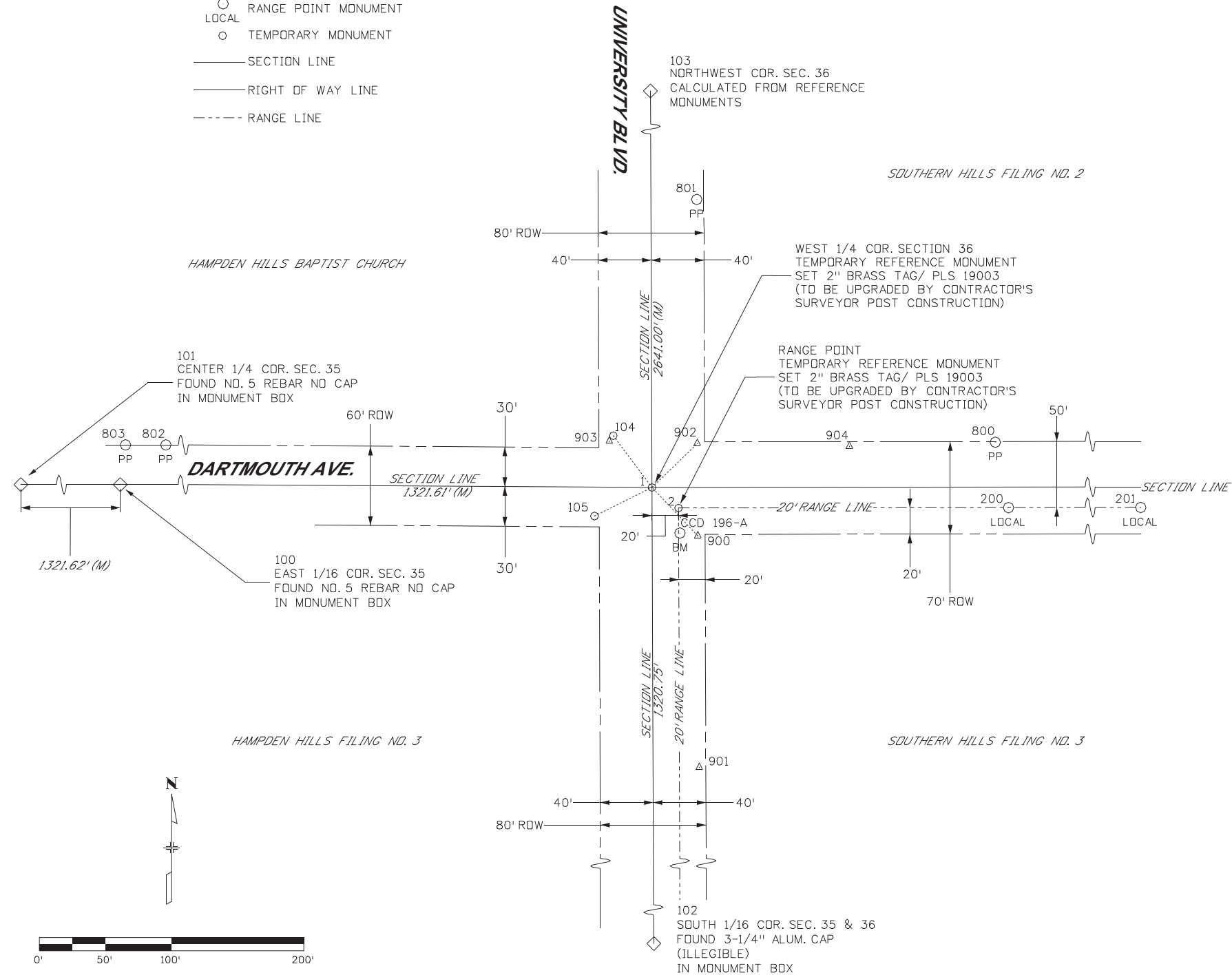
Department of Public Works
Traffic Engineering Services
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Denver, CO 80202
(720) 865-3150

As Constructed	DENVER TRAFFIC SIGNAL REBUILD CONTROL PERPETUATION DIAGRAM ALAMEDA AVE & CHEROKEE ST		Project No./Code
No Revisions:			2016-PRDJMSTR-0000211
Revised:	Designer: AJH		
	Detailer: AJH		
Void:	Sheet Subset: SURVEY	Subset Sheets: 6 of 8	Sheet Number 17

SURVEY CONTROL PERPETUATION DIAGRAM

(UNIVERSITY BOULEVARD & DARTMOUTH AVENUE INTERSECTION)
SITUATED IN THE WEST 1/2 OF SECTION 36,
TOWNSHIP 4 SOUTH, RANGE 68 WEST OF THE 6TH P.M.
CITY AND COUNTY OF DENVER, STATE OF COLORADO

- LEGEND**
- ◇ SECTION CORNER MONUMENT
 - BM PROJECT BENCHMARK
 - △ PROJECT CONTROL MONUMENT
 - PP BOUNDARY MONUMENT
 - RANGE POINT MONUMENT
 - LOCAL LOCAL MONUMENT
 - TEMPORARY MONUMENT
 - SECTION LINE
 - RIGHT OF WAY LINE
 - - - - RANGE LINE



NOTES:

1. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY HARRIS KOCHER SMITH TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHTS-OF-WAY AND TITLE OF RECORD, HARRIS KOCHER SMITH RELIED UPON COMMITMENT FOR TITLE INSURANCE, COMMITMENT NO. 00107394 FOR THE SOUTHWEST QUADRANT & 00107395 FOR THE NORTHWEST QUADRANT, PROVIDED BY EMPIRE TITLE NORTH, LLC, HAVING AN EFFECTIVE DATE OF DECEMBER 22, 2015.
2. NOTICE: ACCORDING TO COLORADO LAW, YOU MUST COMMENCE LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
3. THE PURPOSE OF THIS CONTROL PERPETUATION DIAGRAM IS TO SHOW THE LOCATION OF SURVEY CONTROL AND BOUNDARY MONUMENTS PRIOR TO CONSTRUCTION. THIS DIAGRAM DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND IS NOT TO BE RELIED UPON AS ONE.
4. THE LINEAR UNITS FOR THIS SURVEY ARE U.S. SURVEY FEET.
5. ALL COORDINATES SHOWN HEREON ARE MODIFIED NAD 83/92 COLORADO CENTRAL ZONE STATE PLANE COORDINATES, WITH A COMBINED SCALE FACTOR OF (0.99972737)/ NORTHING TRUNCATION: 1,000,000.00 FT/ EASTING TRUNCATION: 3,000,000.00 FT. ALL DISTANCES SHOWN HEREON ARE GROUND DISTANCES.
6. ALL ELEVATIONS SHOWN HEREON ARE NAVD88/ U.S. SURVEY FEET AND BASED UPON CITY AND COUNTY OF DENVER BENCHMARK 196-A, BEING A 2" BRASS CAP LOCATED ON THE SOUTHEAST CORNER OF UNIVERSITY BLVD. AND DARTMOUTH AVE. ON THE TOP BACK OF CURB ALONG THE SOUTH CURB RETURN, HAVING AN NAVD88 ELEVATION OF 5410.70 FT.
7. HARRIS KOCHER SMITH DESIGN SURVEY WAS PERFORMED BETWEEN JANUARY 6 - 19, 2016.

(NOTES CONT. NEXT PAGE)

SURVEYOR'S CERTIFICATE:

I, GEORGE SMITH, A LICENSED PROFESSIONAL SURVEYOR IN THE STATE OF COLORADO DO HEREBY STATE THAT THE SURVEY REPRESENTED BY THIS CONTROL PERPETUATION DIAGRAM WAS MADE UNDER MY SUPERVISION AND THAT THIS DIAGRAM AND THE NOTES SHOWN HEREON ACCURATELY REPRESENT SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.

 GEORGE G. SMITH, PLS 19003
 FOR AND ON BEHALF OF:
 HARRIS KOCHER ENGINEERING GROUP, INC.
 1120 LINCOLN STREET, SUITE #1000
 DENVER, CO 80203
 (303) 623-6300

INDEXING STATEMENT:

DEPOSITED THIS _____ DAY OF _____ 20____,
 AT _____ M. IN BOOK _____
 OF THE COUNTY SURVEYOR'S LAND/ RIGHT OF WAY SURVEYS AT PAGE(S) _____
 RECEPTION NO. _____

 COUNTY SURVEYOR/ DEPUTY COUNTY SURVEYOR

Print Date: 6/1/2016
 File Name: University & Dartmouth Control Diagram_R0.dgn
 Horiz. Scale: 1:100 Vert. Scale: N/A
 TRAFFIC SIGNAL REBUILD - MILL LEVY 7B

HKS HARRIS KOCHER SMITH
 1120 LINCOLN ST, STE 1000 PH: 303-623-6300
 DENVER, COLORADO 80203 FAX: 303-623-6311

Sheet Revisions		
Date:	Comments	Init.

DENVER
 THE MILE HIGH CITY

Department of Public Works
 Traffic Engineering Services
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 Denver, CO 80202
 (720) 865-3150

As Constructed	DENVER TRAFFIC SIGNAL REBUILD CONTROL PERPETUATION DIAGRAM UNIVERSITY BLVD & DARTMOUTH AVE		Project No./Code
No Revisions:			2016-PRDJMSTR-0000211
Revised:	Designer: AJH		
	Detailer: AJH		
Void:	Sheet Subset: SURVEY	Subset Sheets: 7 of 8	Sheet Number 18

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SURVEY CONTROL PERPETUATION DIAGRAM

(UNIVERSITY BOULEVARD & DARTMOUTH AVENUE INTERSECTION)
SITUATED IN THE WEST 1/2 OF SECTION 36,
TOWNSHIP 4 SOUTH, RANGE 68 WEST OF THE 6TH P.M.
CITY AND COUNTY OF DENVER, STATE OF COLORADO

S UNIVERSITY BOULEVARD & E DARTMOUTH AVENUE DESIGN SURVEY

COORDINATE TABULATION

HORIZONTAL DATUM: NAD83/92 COLORADO STATE PLANE (CENTRAL ZONE)
VERTICAL DATUM: NAVD88
GEOID MODEL: GEOID 12A CONUS
COMBINED SCALE FACTOR: 0.99972737
NORTHING TRUNCATION: 1,000,000.00 US FEET
EASTING TRUNCATION: 3,000,000.00 US FEET

PROJECT CONTROL MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
900	666279.247	153082.789	5411.10	CHISELED- X REFERENCE	1665824.969	3152223.164	5411.10	39°39'36.87289" N	104°57'33.55243" W	5354.96
901	666104.018	153083.832	5409.38	SCRIBED X	1665649.788	3152224.207	5409.38	39°39'35.14153" N	104°57'33.55242" W	5353.25
902	666349.159	153082.311	5411.17	CHISELED- X REFERENCE	1665894.862	3152222.686	5411.17	39°39'37.56366" N	104°57'33.55322" W	5355.04
903	666350.773	153015.656	5411.48	1IN BD 10S/WEST CP#808	1665896.476	3152156.049	5411.48	39°39'37.58353" N	104°57'34.40515" W	5355.34
904	666346.963	153197.475	5412.01	SCRIBED X	1665852.667	3152337.819	5412.01	39°39'37.53519" N	104°57'32.08124" W	5355.87

BOUNDARY MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
800	666350.13	153307.79	5411.70	CHISELED- X	1665895.83	3152448.10	5411.70	39°39'37.55995" N	104°57'30.67087" W	5355.51
801	666333.85	153081.96	5409.43	CHISELED- X	1666079.50	3152222.33	5409.43	39°39'39.38843" N	104°57'33.54371" W	5353.29
802	666347.04	152597.28	5406.56	NO. 4 REBAR/ NO CAP	1665892.74	3151737.79	5406.56	39°39'37.57118" N	104°57'39.75357" W	5350.44
803	666350.71	152310.61	5404.48	NO. 5 REBAR W-OPC (9483)	1665896.41	3151451.20	5404.48	39°39'37.62422" N	104°57'43.41776" W	5348.38

SECTION CORNER MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
100	666324.10	151726.47	5394.73	NO. 5 REBAR/ NO CAP IN R-BOX	1665869.81	3150867.22	5394.73	39°39'37.39549" N	104°57'50.88688" W	5338.66
101	666332.34	150404.88	5368.78	NO. 5 REBAR/ NO CAP IN R-BOX	1665878.05	3149545.98	5368.78	39°39'37.55354" N	104°58'07.78024" W	5312.75
102	664995.11	153052.80	5393.92	3-1/4" ALUM. CAP (ILLEGIBLE) IN R-BOX	1664541.18	3152193.19	5393.92	39°39'24.18711" N	104°57'34.03340" W	5337.81
103	668956.82	153038.43	0.00	CALCULATED FROM REF. MONUMENTS	1668591.82	3152178.81	0.00	39°40'03.33050" N	104°57'33.91584" W	0.00
104	666355.05	153018.79	5411.09	CHISELED- X REFERENCE	1665900.75	3152159.18	5411.09	39°39'37.62558" N	104°57'34.36482" W	5354.96
105	666294.25	153004.55	5410.88	CHISELED- X REFERENCE	1665839.97	3152144.94	5410.88	39°39'37.02576" N	104°57'34.55143" W	5354.75

RANGE POINT MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
200	666300.65	153317.77	5411.72	NO. 6 REBAR IN R-BOX	1665846.36	3152458.08	5411.72	39°39'37.07050" N	104°57'30.54707" W	5355.58
201	666300.95	153577.97	5412.90	1" SPIKE IN R-BOX	1665846.67	3152718.21	5412.90	39°39'37.05816" N	104°57'27.22081" W	5356.75

BENCHMARK MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
CCD 196-A	666281.62	153072.54	5410.70	2" BRASS CAP (196-A)	1665837.34	3152212.92	5410.70	39°39'36.89696" N	104°57'33.68323" W	5354.57

CALCULATED TEMPORARY MONUMENT COORDINATE TABLE										
NAD83/92 COSTATE PLANE CENTRAL ZONE MODIFIED GROUND (U.S. SURVEY FEET)					NAD83/92 CO STATE PLANE CENTRAL ZONE GRID (U.S. SURVEY FEET)			GEODETTIC VALUES		
NAME	NORTHING	EASTING	NAVD88 ELEVATION	DESCRIPTION	NORTHING	EASTING	NAVD88 ELEVATION	(WGS84) LATITUDE	(WGS84) LONGITUDE	ELLIPSOID HEIGHT
1	666315.85	153048.05	N/A	CALCULATED SECTION CORNER	1665861.57	3152188.44	N/A	39°39'37.23660" N	104°57'33.99368" W	N/A
2	666300.36	153068.11	N/A	CALCULATED RANGE POINT	1665846.07	3152208.49	N/A	39°39'37.08233" N	104°57'33.73849" W	N/A

NOTES CONT.:

8. PRIOR TO BEGINNING WORK ON THE PROJECT, THE CONTRACTOR'S SURVEYOR SHALL PERFORM A SURVEY TO VERIFY ALL SURVEY CONTROL POINTS, CITY OF DENVER RANGE POINTS, SECTION CORNERS, AND BENCHMARKS AS SHOWN ON THE SURVEY CONTROL DIAGRAM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL LAND SURVEY 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. THE CONTRACTOR SHALL RETAIN A COLORADO LICENSED PROFESSIONAL LAND SURVEYOR TO RESET ANY AFFECTED SURVEY MONUMENTS. THIS WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK UNLESS SPECIFIED OTHERWISE IN SECTION 629. FOR FURTHER INFORMATION CONTACT THE CITY AND COUNTY OF DENVER SURVEY DEPARTMENT.

9. AFTER COMPLETION OF THE CONSTRUCTION OPERATIONS, THE CONTRACTOR'S SURVEYOR SHALL UPGRADE TEMPORARY RANGE POINTS AND OR TEMPORARY SECTION CORNERS WITH PERMANENT MONUMENTS AT THE LOCATIONS AS INDICATED ON THE SURVEY CONTROL PERPETUATION DIAGRAM. SEE POINT NO. 1 AND 2 (2 TOTAL MONUMENTS). MONUMENTS SHALL MEET CURRENT COLORADO STATE LAW AND CITY AND COUNTY OF DENVER STANDARDS. SEE SECTION 629 OF THE SPECIAL PROVISIONS FOR MORE INFORMATION.


10. AFTER COMPLETION OF THE CONSTRUCTION OPERATIONS, THE CONTRACTOR'S SURVEYOR SHALL PREPARE A LAND SURVEY PLAT TO BE DEPOSITED WITH THE CITY AND COUNTY OF DENVER PER STATE STATUTE. CITY MONUMENT TIE SHEETS SHALL BE PREPARED FOR ALL RANGE POINTS WITHIN THE PROJECT ACCORDING TO CITY AND COUNTY OF DENVER STANDARDS AND DEPOSITED WITH THE CITY SURVEYOR. MONUMENT RECORDS SHALL BE PREPARED FOR ALL SECTION CORNERS WITHIN THE PROJECT ACCORDING TO COLORADO STATE STANDARDS AND DEPOSITED WITH THE STATE BOARD.

11. 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 DEPARTMENT OF PUBLIC WORKS IS PROHIBITED, AND USE OF SUCH MONUMENTS IS AT THE CONTRACTOR'S SOLE RISK.

12. PROPOSED FINISHED GROUND ELEVATIONS FOR ITEMS TO BE ADJUSTED, RESET OR MODIFIED SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

13. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS, OR DEFACTS ANY PUBLIC LAND SURVEY MONUMENT AND/OR BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE C.R.S. SECTION 18-4-508.

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

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TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
 HARRIS KOCHER SMITH
1120 LINCOLN ST, STE 1000 PH: 303-623-6300
DENVER, COLORADO 80203 FAX: 303-623-6311

Sheet Revisions		
Date:	Comments	Init.








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Traffic Engineering Services
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Denver, CO 80202
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As Constructed	DENVER TRAFFIC SIGNAL REBUILD CONTROL PERPETUATION DIAGRAM UNIVERSITY BLVD & DARTMOUTH AVE		Project No./Code 2016-PRDJMSTR-0000211
No Revisions:	Designer: AJH		
Revised:	Detailer: AJH		
Void:	Sheet Subset: SURVEY	Subset Sheets: 8 of 8	Sheet Number 19

LEGEND

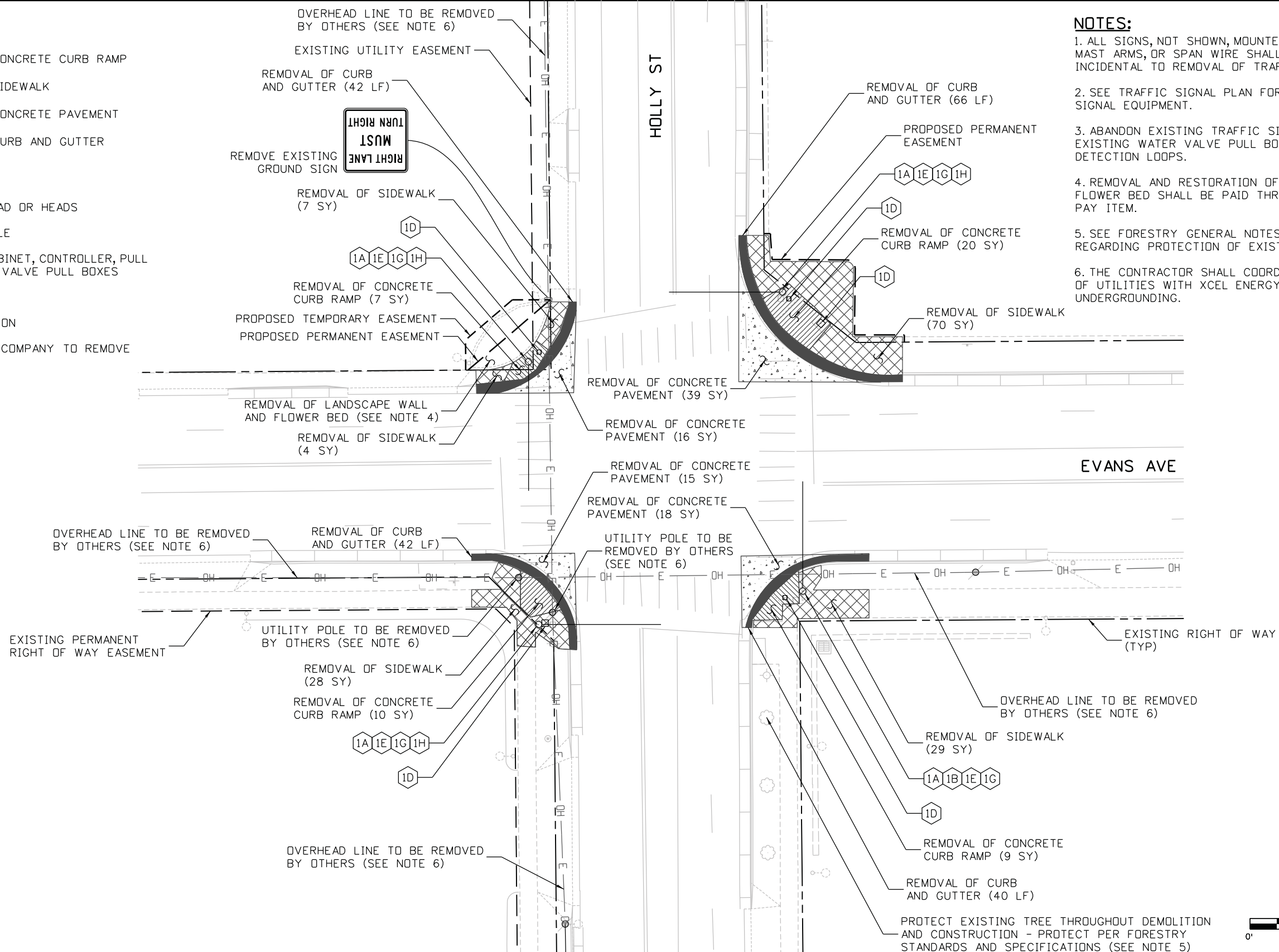
-  REMOVAL OF CONCRETE CURB RAMP
-  REMOVAL OF SIDEWALK
-  REMOVAL OF CONCRETE PAVEMENT
-  REMOVAL OF CURB AND GUTTER

REMOVALS

-  1A REMOVE SIGNAL HEAD OR HEADS
-  1B REMOVE SIGNAL POLE
-  1D REMOVE SIGNAL CABINET, CONTROLLER, PULL BOXES, AND WATER VALVE PULL BOXES
-  1E REMOVE MAST ARM
-  1G REMOVE PUSH BUTTON
-  1H ELECTRIC UTILITY COMPANY TO REMOVE EXISTING POLE

NOTES:


1. ALL SIGNS, NOT SHOWN, MOUNTED ON TRAFFIC SIGNAL POLES, MAST ARMS, OR SPAN WIRE SHALL BE REMOVED. WORK SHALL BE INCIDENTAL TO REMOVAL OF TRAFFIC SIGNAL EQUIPMENT.
2. SEE TRAFFIC SIGNAL PLAN FOR RESETTling OF TRAFFIC SIGNAL EQUIPMENT.
3. ABANDON EXISTING TRAFFIC SIGNAL DETECTION LOOPS AND EXISTING WATER VALVE PULL BOXES USED FOR TRAFFIC SIGNAL DETECTION LOOPS.
4. REMOVAL AND RESTORATION OF THE LANDSCAPE WALL AND FLOWER BED SHALL BE PAID THROUGH THE LANDSCAPE WALL PAY ITEM.
5. SEE FORESTRY GENERAL NOTES FOR MORE INFORMATION REGARDING PROTECTION OF EXISTING TREES.
6. THE CONTRACTOR SHALL COORDINATE THE UNDERGROUNDING OF UTILITIES WITH XCEL ENERGY UNDER THE 1% PROGRAM FOR UNDERGROUNDING.



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 1675 LARIMER ST, STE 480 PH: 303-339-0440 DENVER, COLORADO 80202 FAX: 303-325-7743	

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Date:	Comments	Init.







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




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Designer: MSR	
Detailer: MSR	
Sheet Subset: REMOVAL	Subset Sheets: 2 of 4

Project No./Code
2016-PRDJMSTR-0000211
Sheet Number
21

LEGEND

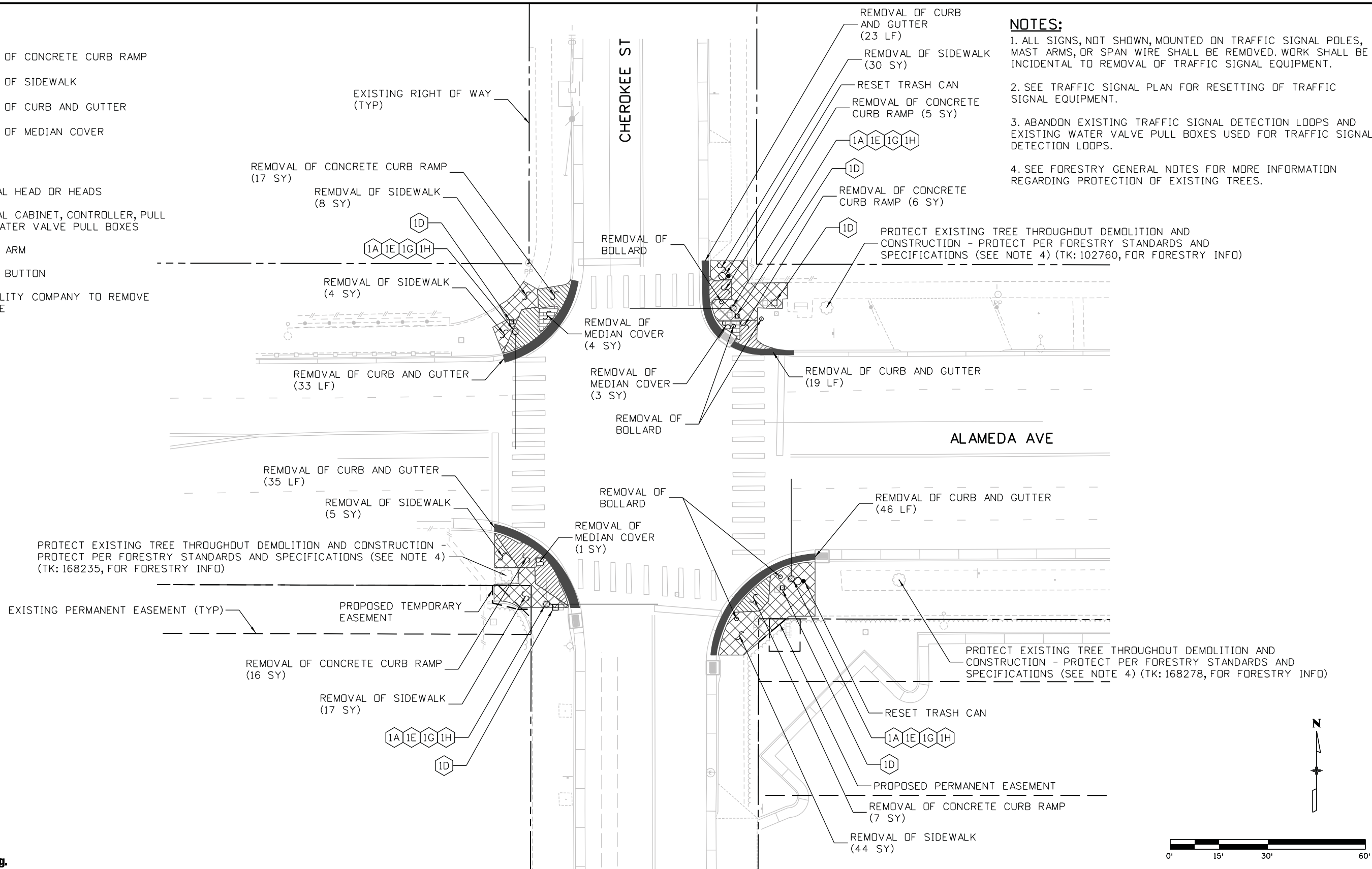
-  REMOVAL OF CONCRETE CURB RAMP
-  REMOVAL OF SIDEWALK
-  REMOVAL OF CURB AND GUTTER
-  REMOVAL OF MEDIAN COVER

REMOVALS

-  1A REMOVE SIGNAL HEAD OR HEADS
-  1D REMOVE SIGNAL CABINET, CONTROLLER, PULL BOXES, AND WATER VALVE PULL BOXES
-  1E REMOVE MAST ARM
-  1G REMOVE PUSH BUTTON
-  1H ELECTRIC UTILITY COMPANY TO REMOVE EXISTING POLE

NOTES:

1. ALL SIGNS, NOT SHOWN, MOUNTED ON TRAFFIC SIGNAL POLES, MAST ARMS, OR SPAN WIRE SHALL BE REMOVED. WORK SHALL BE INCIDENTAL TO REMOVAL OF TRAFFIC SIGNAL EQUIPMENT.
2. SEE TRAFFIC SIGNAL PLAN FOR RESETTING OF TRAFFIC SIGNAL EQUIPMENT.
3. ABANDON EXISTING TRAFFIC SIGNAL DETECTION LOOPS AND EXISTING WATER VALVE PULL BOXES USED FOR TRAFFIC SIGNAL DETECTION LOOPS.
4. SEE FORESTRY GENERAL NOTES FOR MORE INFORMATION REGARDING PROTECTION OF EXISTING TREES.



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Sheet Revisions		
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Void:







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Detailer: MSR	
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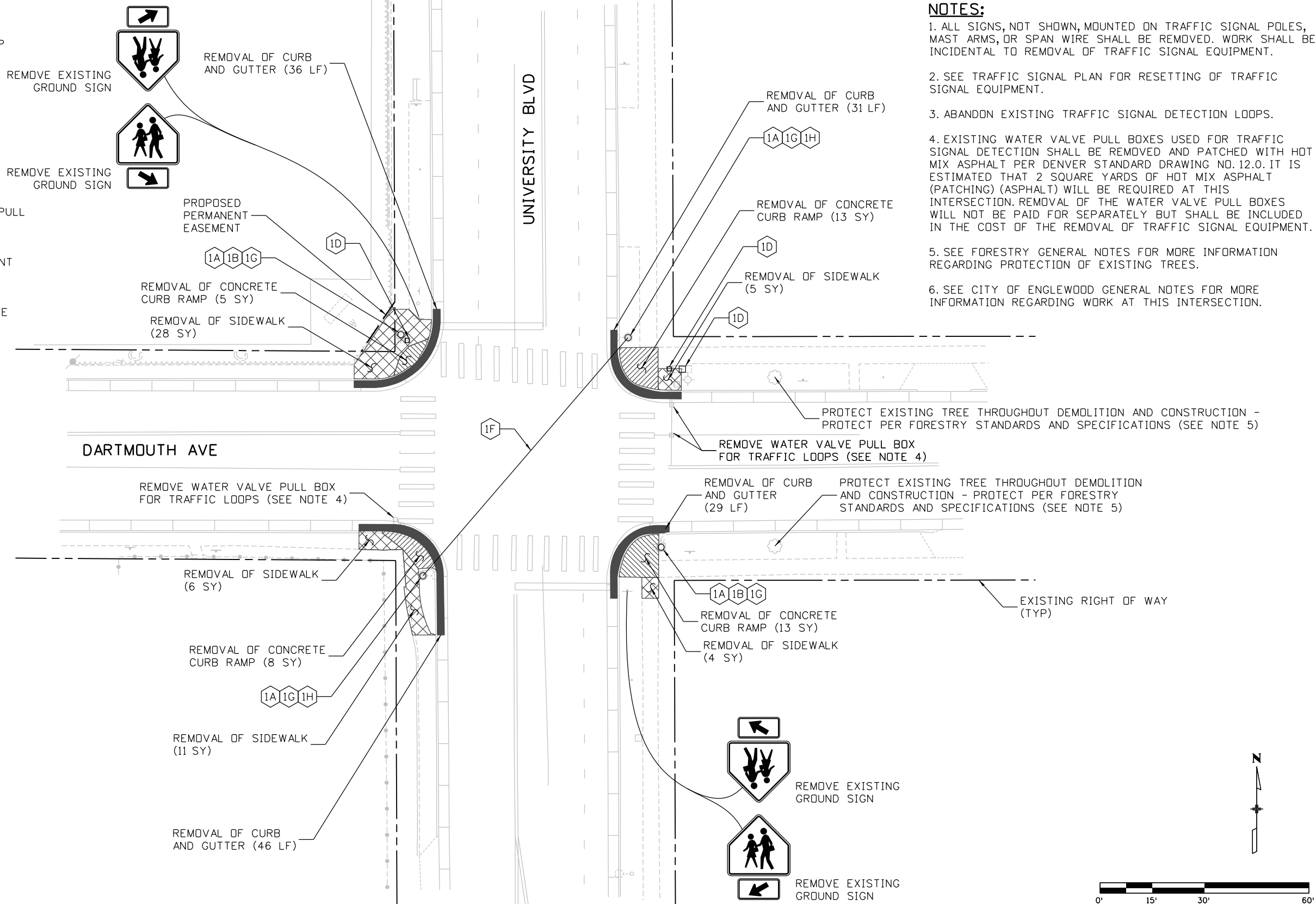
Project No./Code
2016-PRDJMSTR-0000211
Sheet Number 22

LEGEND

-  REMOVAL OF CONCRETE CURB RAMP
-  REMOVAL OF SIDEWALK
-  REMOVAL OF CURB AND GUTTER

REMOVALS

-  1A) REMOVE SIGNAL HEAD OR HEADS
-  1B) REMOVE SIGNAL POLE
-  1D) REMOVE SIGNAL CABINET, CONTROLLER, PULL BOXES, AND WATER VALVE PULL BOXES
-  1F) REMOVE SPAN WIRE, CABLE, AND ALL ATTACHED SIGNAL HEADS AND EQUIPMENT
-  1G) REMOVE PUSH BUTTON
-  1H) ELECTRIC UTILITY COMPANY TO REMOVE EXISTING POLE



NOTES:

1. ALL SIGNS, NOT SHOWN, MOUNTED ON TRAFFIC SIGNAL POLES, MAST ARMS, OR SPAN WIRE SHALL BE REMOVED. WORK SHALL BE INCIDENTAL TO REMOVAL OF TRAFFIC SIGNAL EQUIPMENT.
2. SEE TRAFFIC SIGNAL PLAN FOR RESETTING OF TRAFFIC SIGNAL EQUIPMENT.
3. ABANDON EXISTING TRAFFIC SIGNAL DETECTION LOOPS.
4. EXISTING WATER VALVE PULL BOXES USED FOR TRAFFIC SIGNAL DETECTION SHALL BE REMOVED AND PATCHED WITH HOT MIX ASPHALT PER DENVER STANDARD DRAWING NO. 12.0. IT IS ESTIMATED THAT 2 SQUARE YARDS OF HOT MIX ASPHALT (PATCHING) (ASPHALT) WILL BE REQUIRED AT THIS INTERSECTION. REMOVAL OF THE WATER VALVE PULL BOXES WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE REMOVAL OF TRAFFIC SIGNAL EQUIPMENT.
5. SEE FORESTRY GENERAL NOTES FOR MORE INFORMATION REGARDING PROTECTION OF EXISTING TREES.
6. SEE CITY OF ENGLEWOOD GENERAL NOTES FOR MORE INFORMATION REGARDING WORK AT THIS INTERSECTION.

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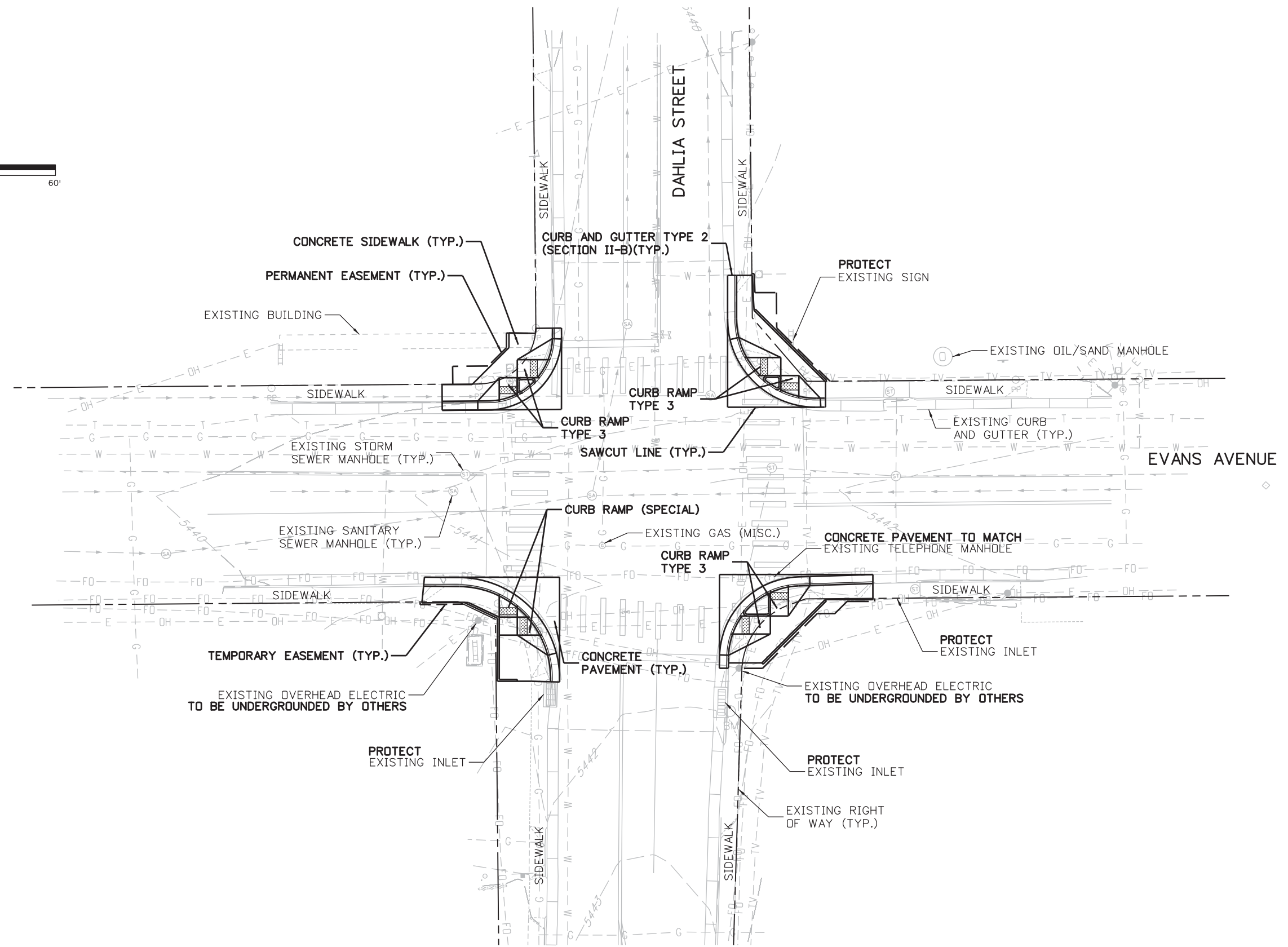
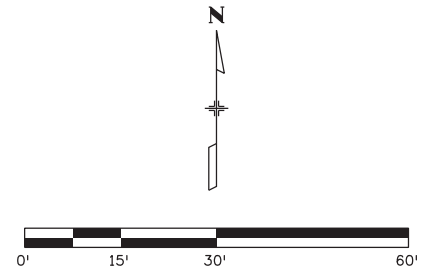
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apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440 DENVER, COLORADO 80202 FAX: 303-325-7743	

Sheet Revisions		
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	REMOVAL PLAN		
	UNIVERSITY BLVD & DARTMOUTH AVE		
	No Revisions:	Designer: MSR	
Revised:	Detailer: MSR		
Void:	Sheet Subset: REMOVAL	Subset Sheets: 4 of 4	Sheet Number 23



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MULLER ENGINEERING COMPANY

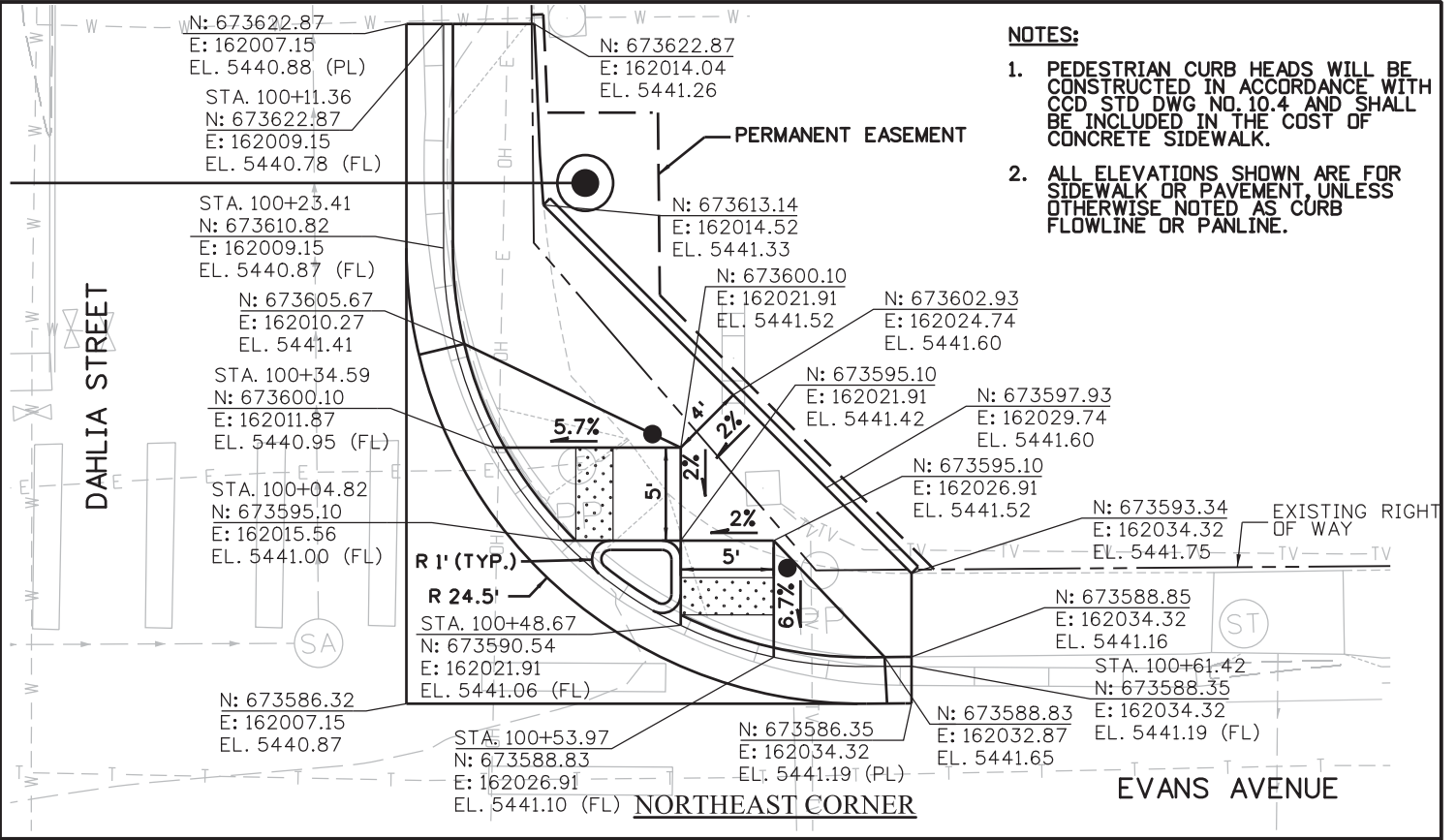
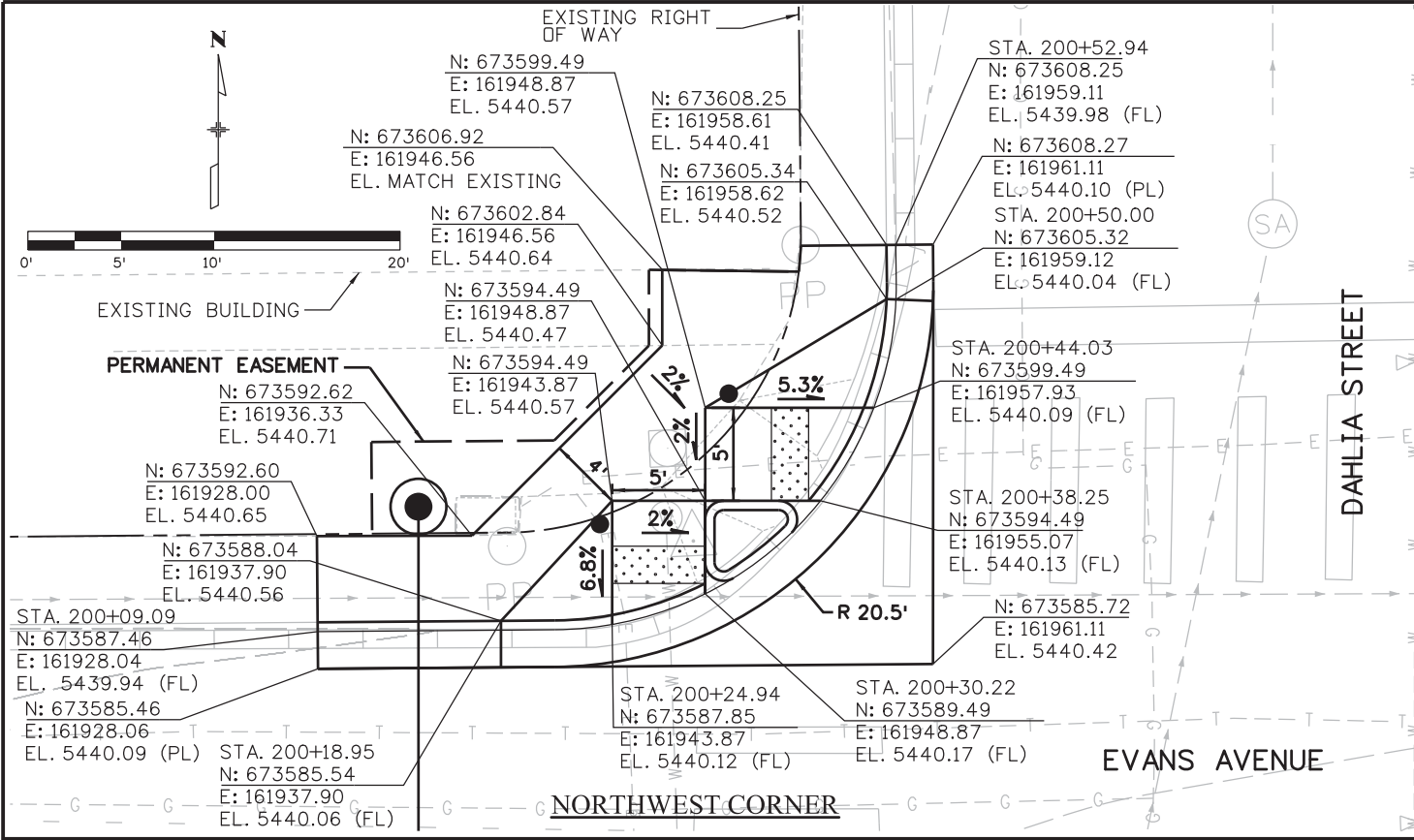
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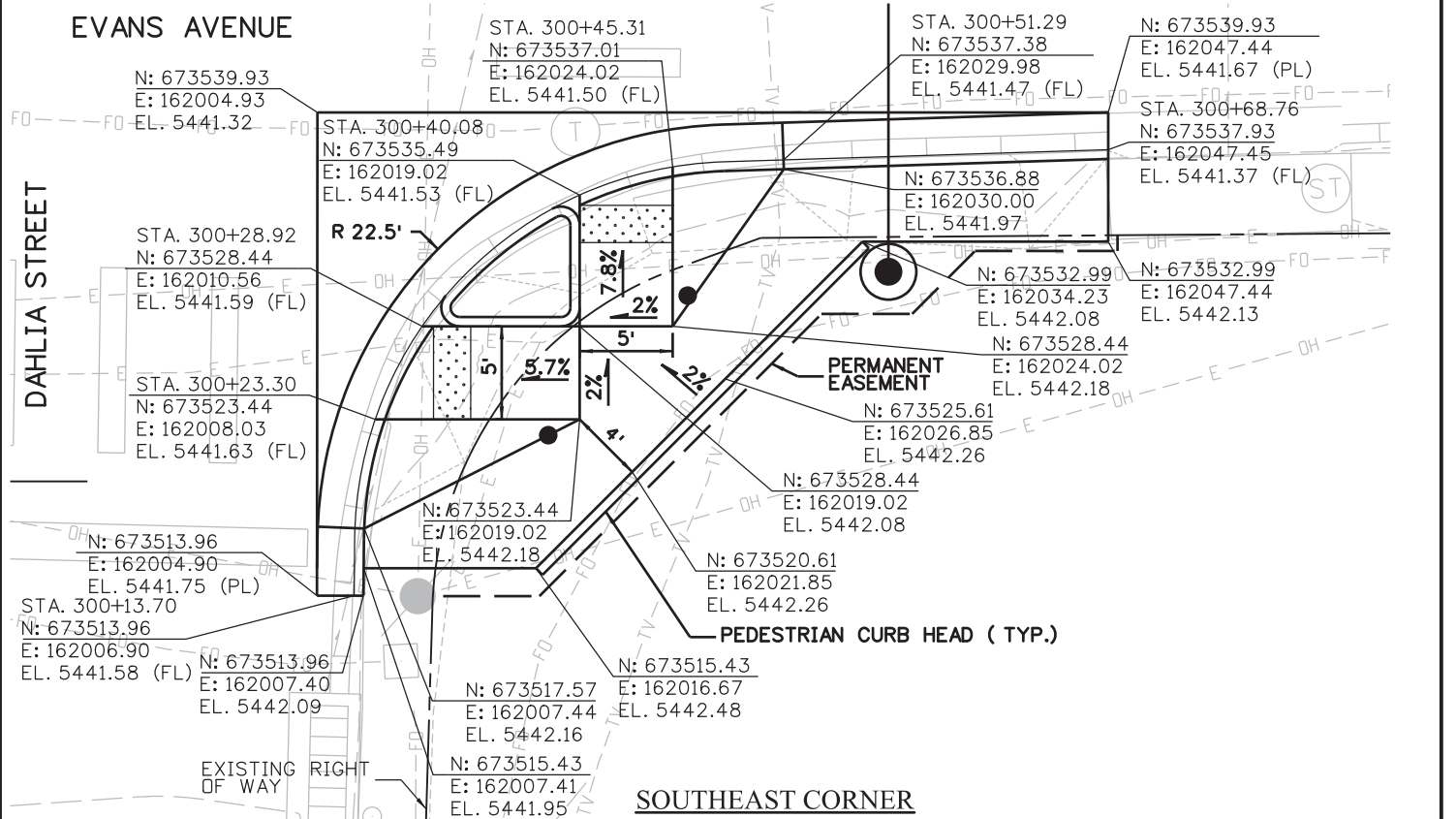
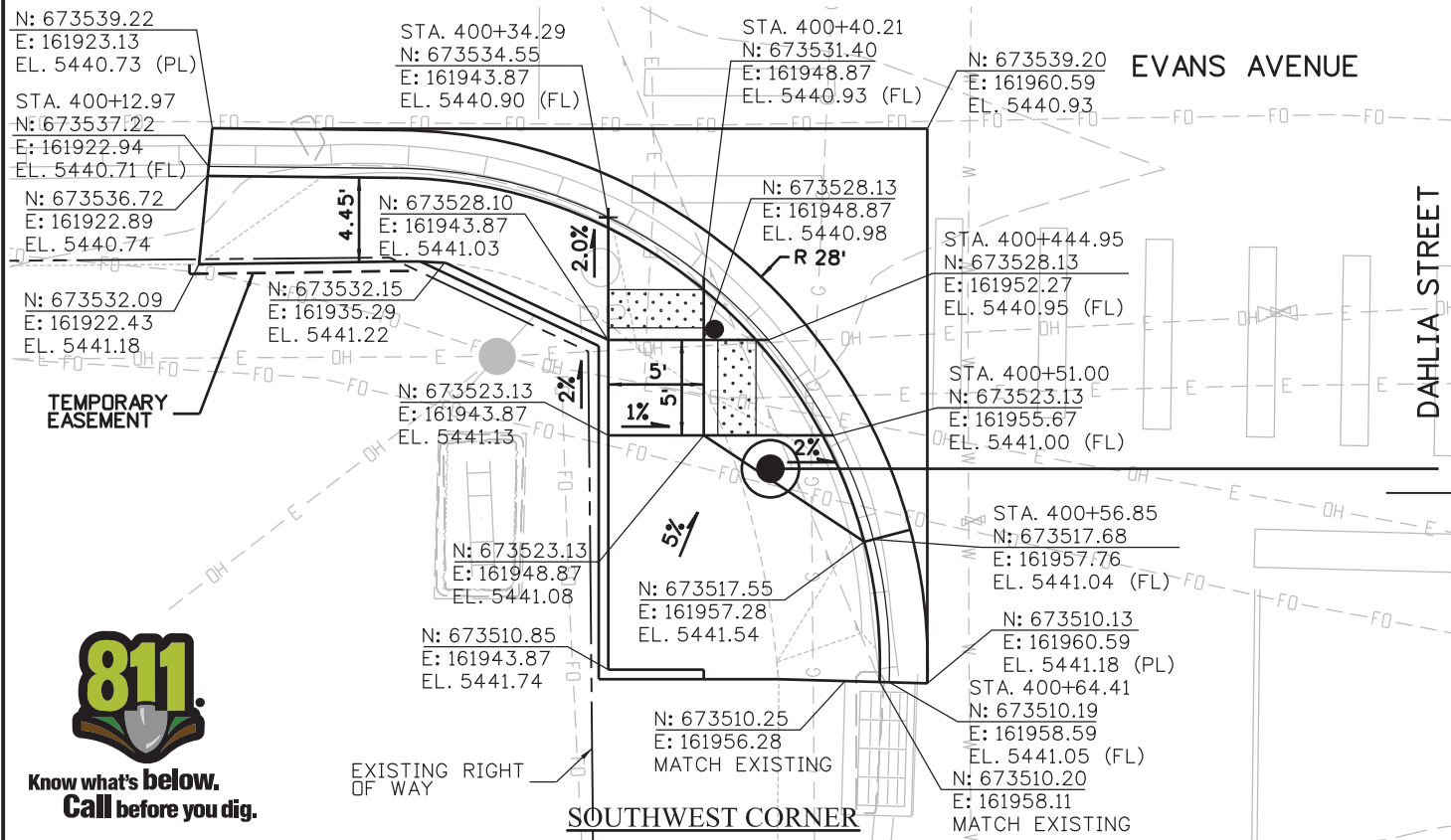
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Revised:
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DENVER TRAFFIC SIGNAL REBUILD CIVIL PLAN EVANS AVE & DAHLIA ST			
Designer:	LMR		
Detailer:	LMR		
Sheet Subset:	CIVIL	Subset Sheets:	1 of 12

Project No./Code
2016-PRDJMSTR-0000211
Sheet Number
24



- NOTES:**
1. PEDESTRIAN CURB HEADS WILL BE CONSTRUCTED IN ACCORDANCE WITH CCD STD DWG NO. 10.4 AND SHALL BE INCLUDED IN THE COST OF CONCRETE SIDEWALK.
 2. ALL ELEVATIONS SHOWN ARE FOR SIDEWALK OR PAVEMENT, UNLESS OTHERWISE NOTED AS CURB FLOWLINE OR PANLINE.



Mill Levy 7B - CCD\14009DES_Int_EV-DA.dgn
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Print Date: 3/7/2017

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TRAFFIC SIGNAL REBUILD - MILL LEVY 7B

MULLER
ENGINEERING COMPANY

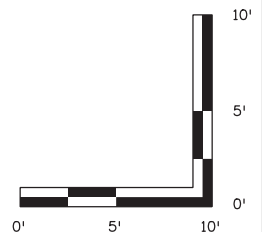
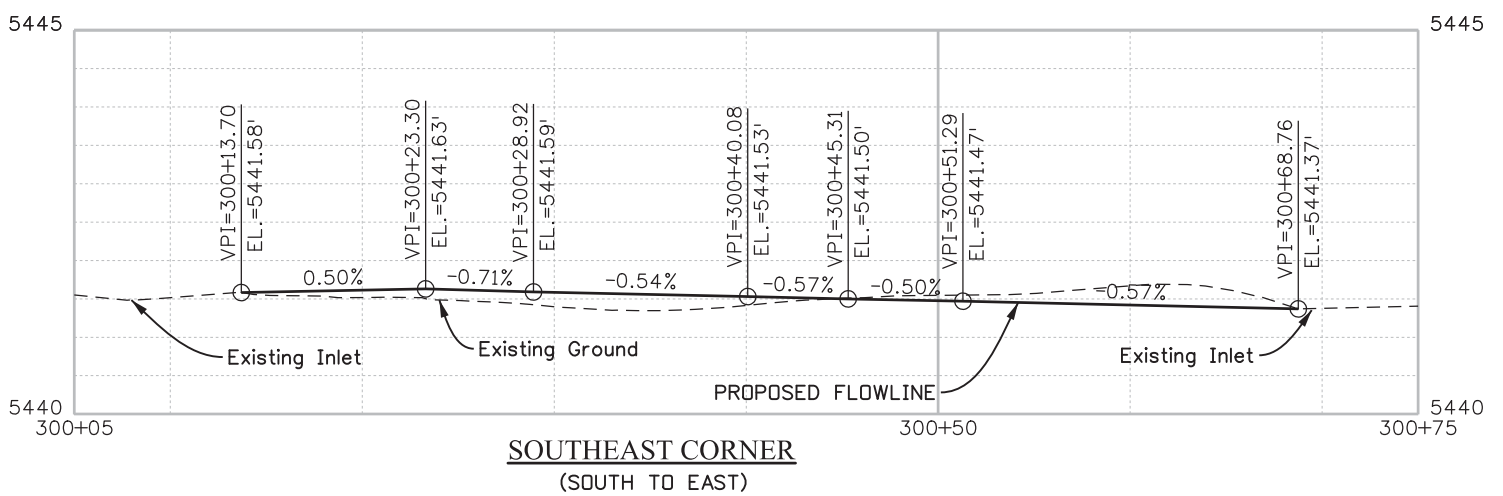
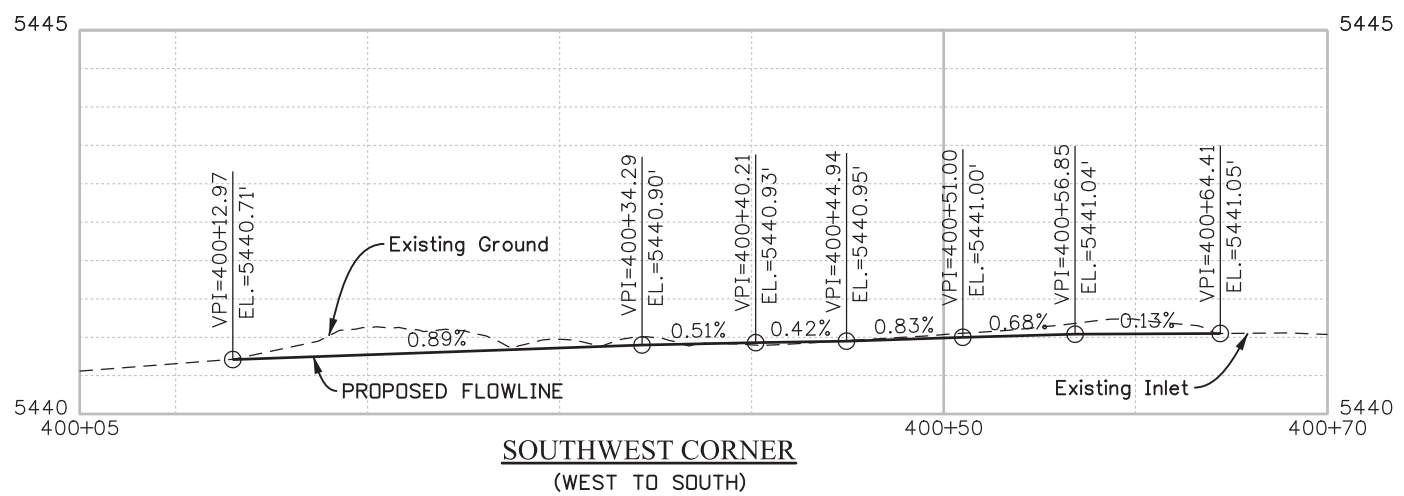
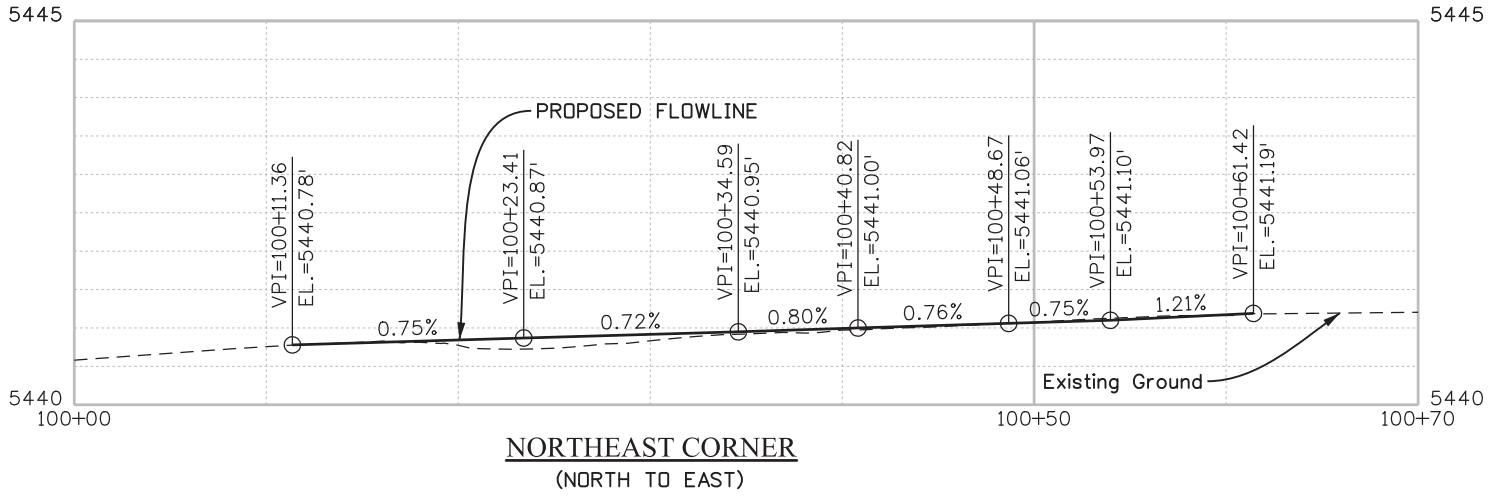
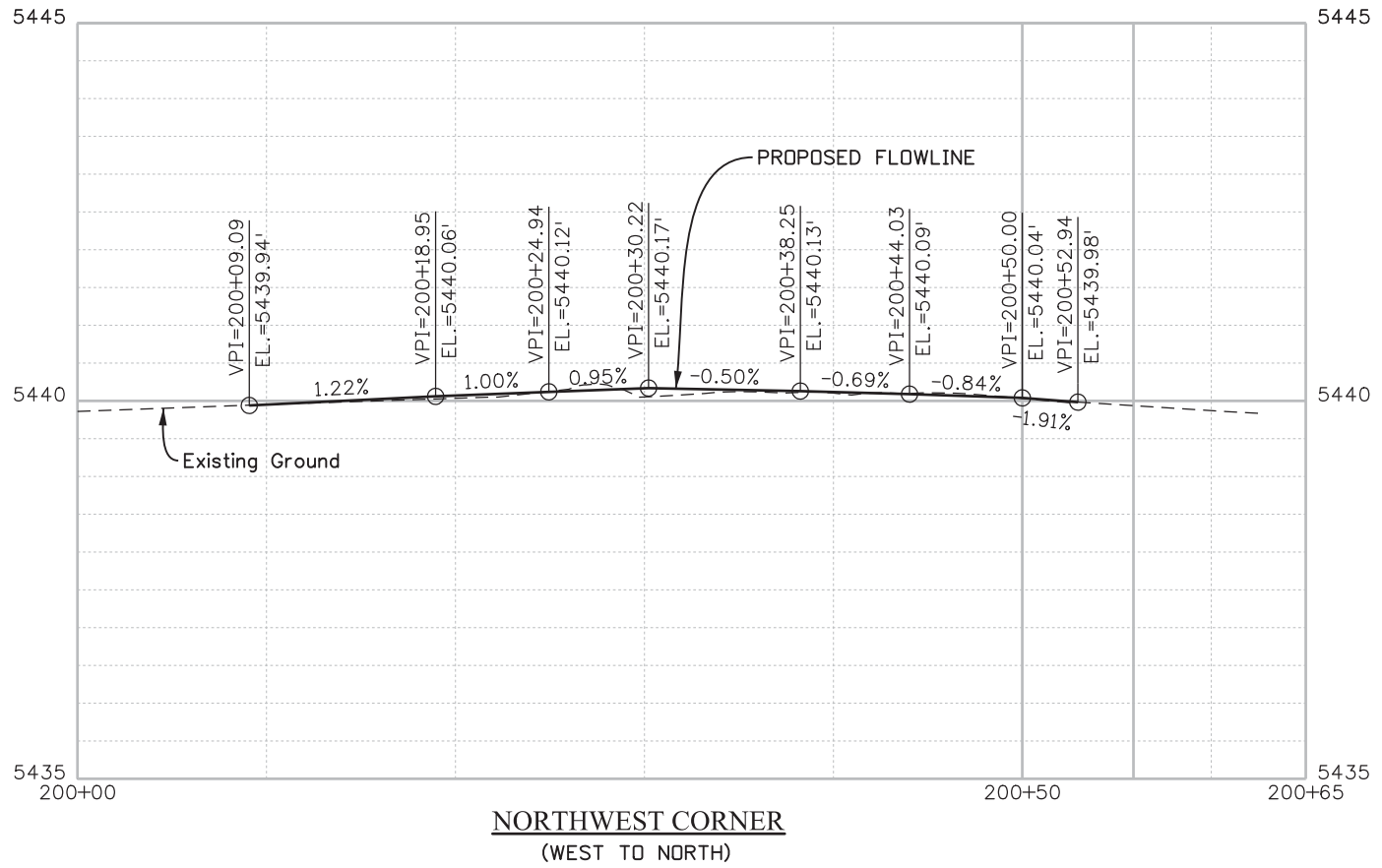
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Designer:	LMR
Detailer:	LMR
Sheet Subset:	CIVIL
Subset Sheets:	2 of 12

Project No./Code	2016-PRDJMSTR-0000211
Sheet Number	25



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Print Date: 3/7/2017
File Name: 14009DES_Profile_EV-DA.dgn
Horiz. Scale: 1:10 Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

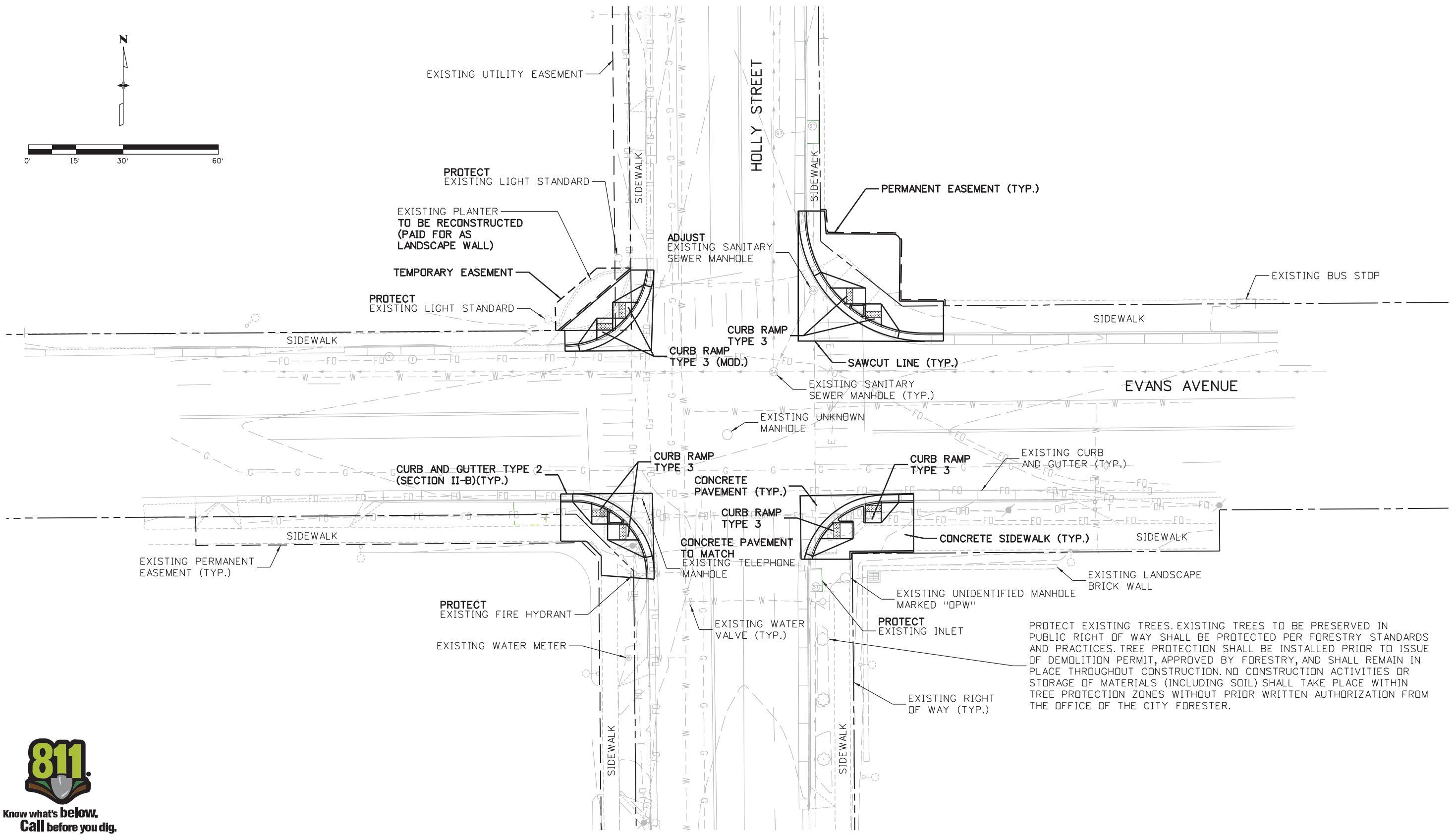
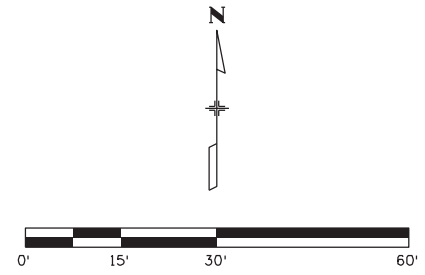
DENVER
THE MILE HIGH CITY

Department of Public Works
Traffic Engineering Services
201 West Colfax Avenue
Denver, CO 80202
(720) 865-3150

As Constructed
No Revisions:
Revised:
Void:

DENVER TRAFFIC SIGNAL REBUILD FLOWLINE PROFILES EVANS AVE & DAHLIA ST	
Designer: PJS	
Detailer: LMR	
Sheet Subset: PROFILE	Subset Sheets: 3 of 12

Project No./Code
2016-PRDJMSTR-0000211
Sheet Number
26



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TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
MULLER ENGINEERING COMPANY

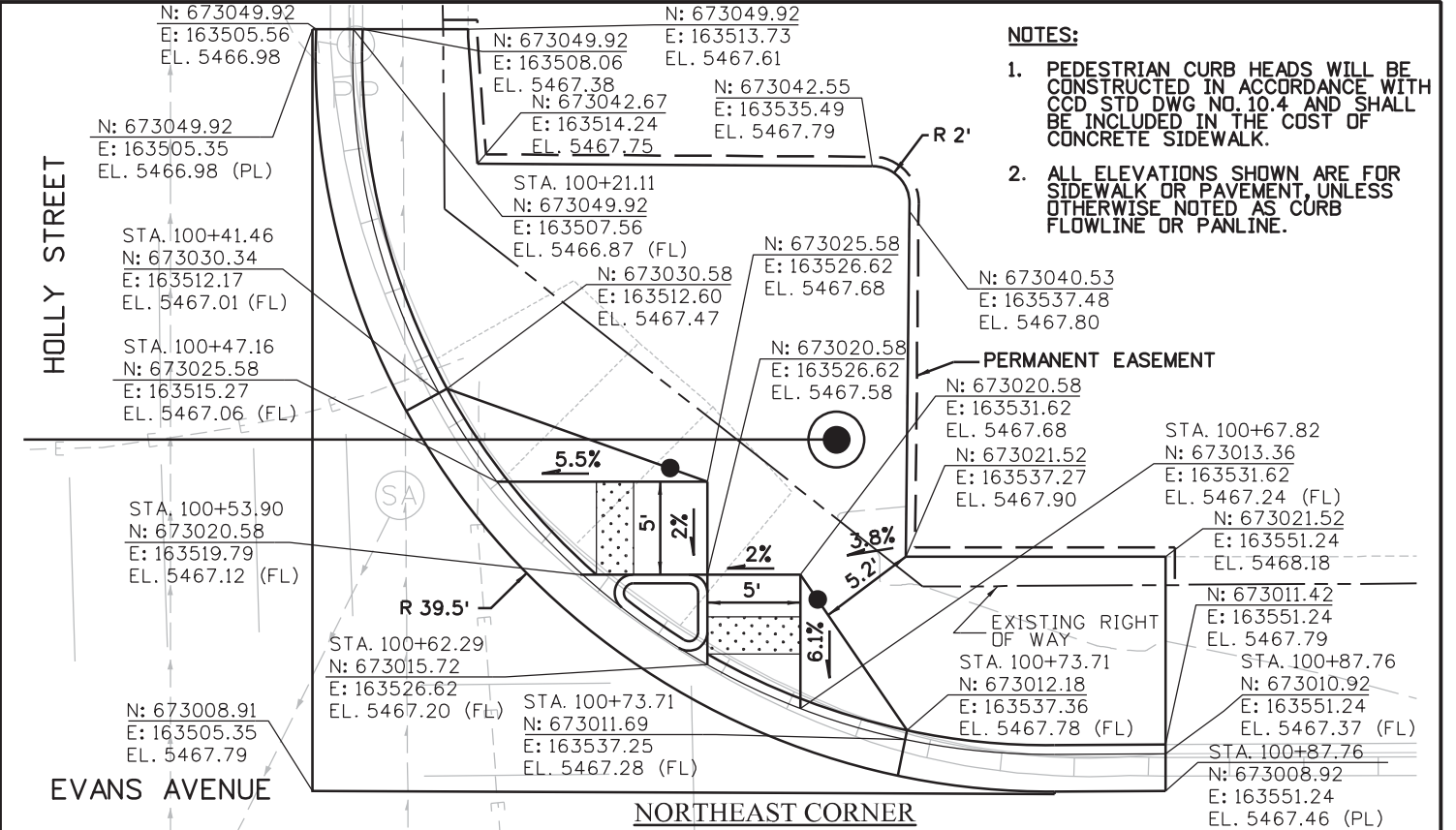
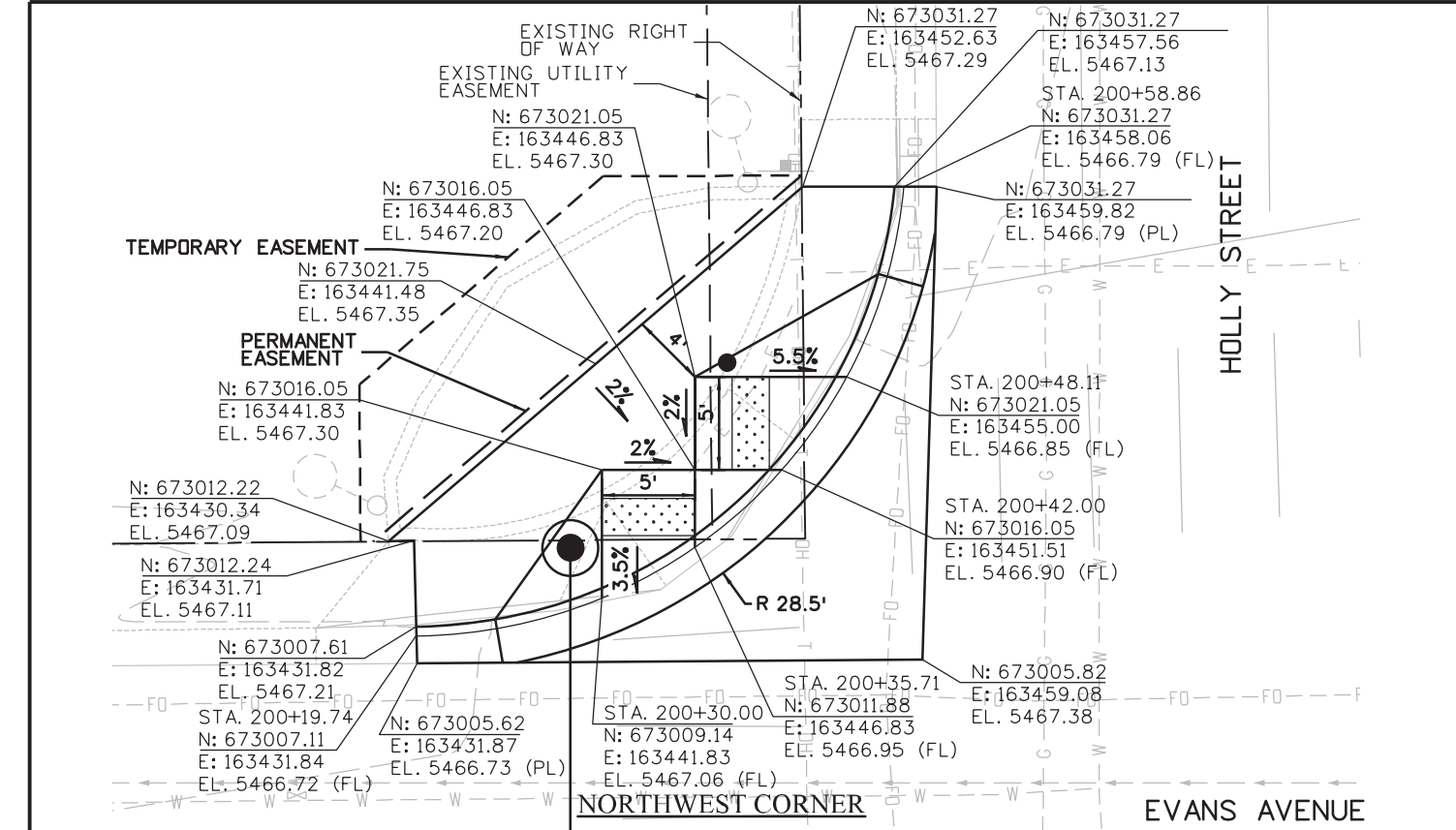
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Date:	Comments	Init.

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(720) 865-3150

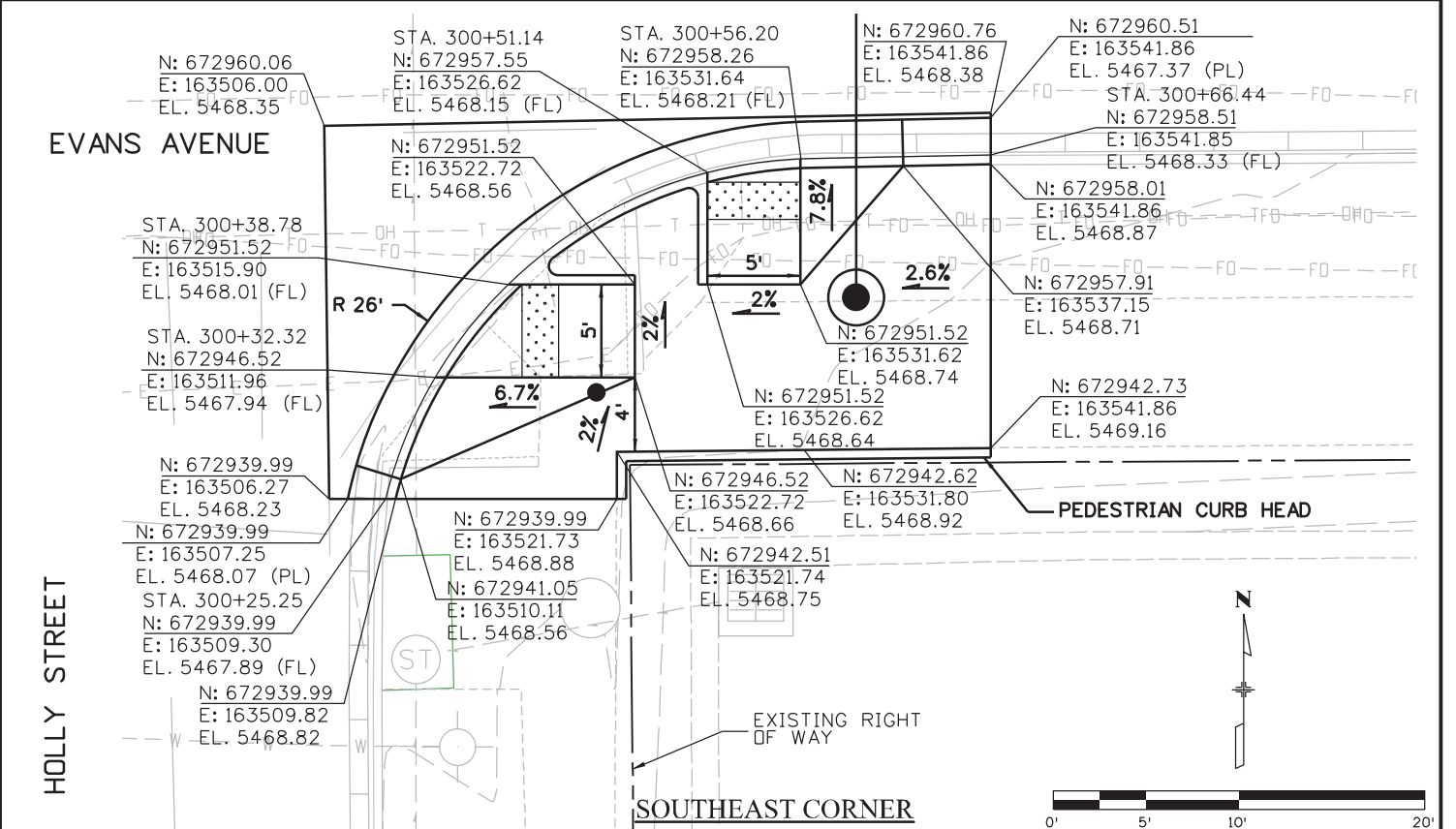
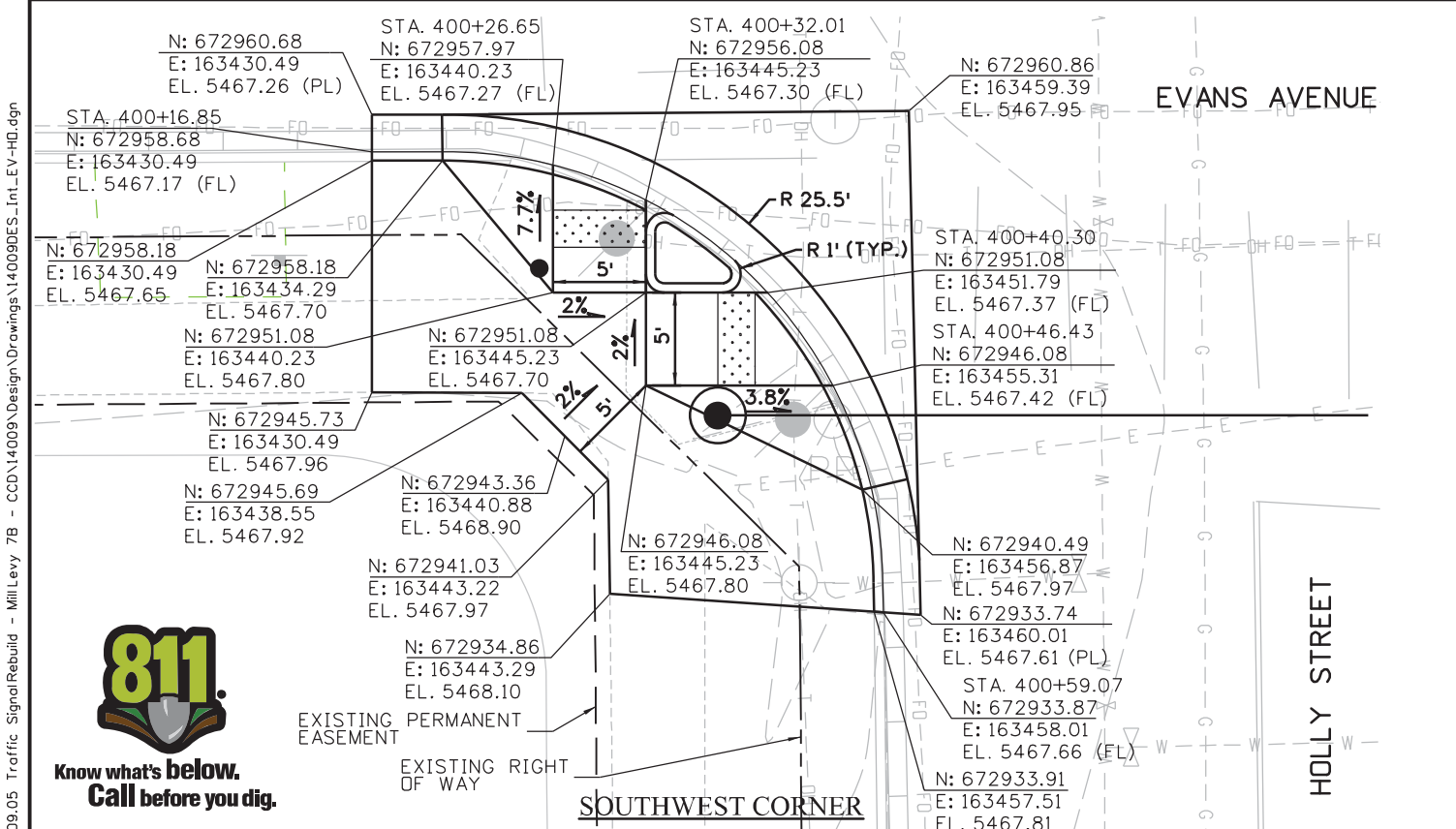
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No Revisions:
Revised:
Void:

DENVER TRAFFIC SIGNAL REBUILD CIVIL PLAN EVANS AVE & HOLLY ST			
Designer:	LMR		
Detailer:	LMR		
Sheet Subset:	CIVIL	Subset Sheets:	4 of 12

Project No./Code	2016-PROJMSTR-0000211
Sheet Number	27



- NOTES:**
1. PEDESTRIAN CURB HEADS WILL BE CONSTRUCTED IN ACCORDANCE WITH CCD STD DWG NO. 10.4 AND SHALL BE INCLUDED IN THE COST OF CONCRETE SIDEWALK.
 2. ALL ELEVATIONS SHOWN ARE FOR SIDEWALK OR PAVEMENT, UNLESS OTHERWISE NOTED AS CURB FLOWLINE OR PANLINE.



Print Date: 11/7/2016
 File Name: 14009DES_Int_EV-HD.dgn
 Horiz. Scale: 1:10 Vert. Scale: N/A
 TRAFFIC SIGNAL REBUILD - MILL LEVY 7B

Sheet Revisions		
Date:	Comments	Init.

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No Revisions:	
Revised:	
Void:	

**DENVER TRAFFIC SIGNAL REBUILD
 CORNER DETAILS
 EVANS AVE & HOLLY ST**

Designer: LMR
 Detailer: LMR
 Sheet Subset: CIVIL Subset Sheets: 5 of 12

Project No./Code
 2016-PROJMSTR-0000211

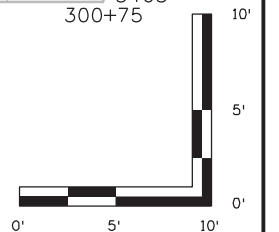
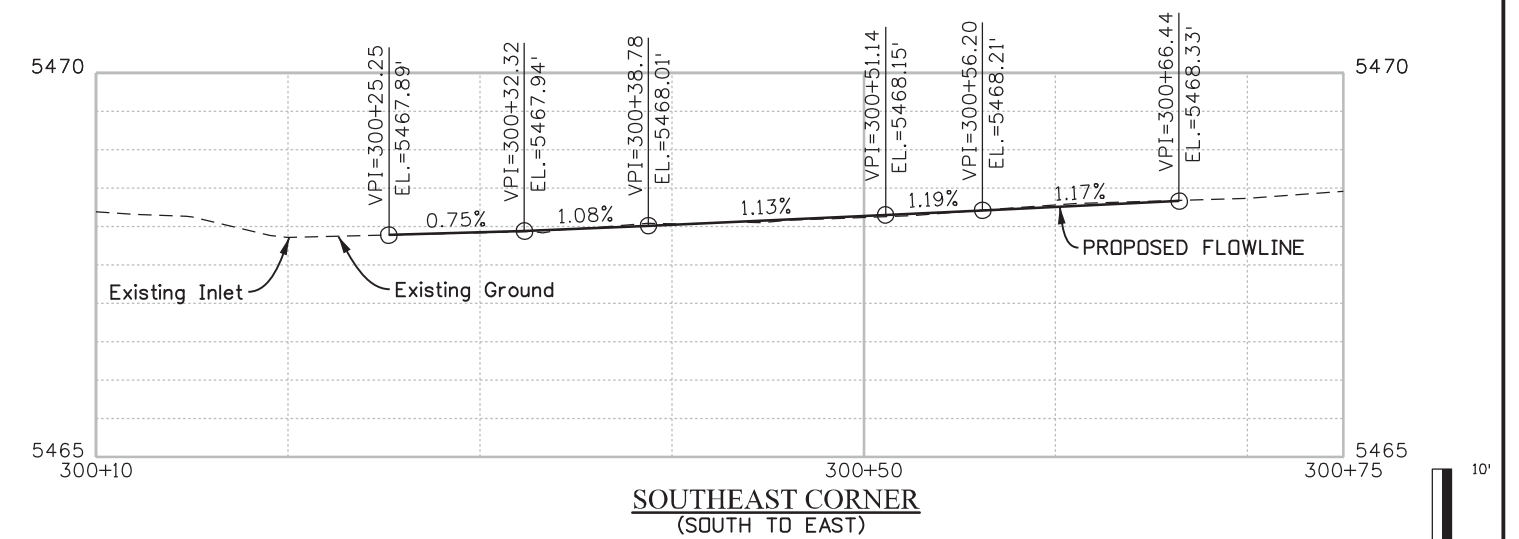
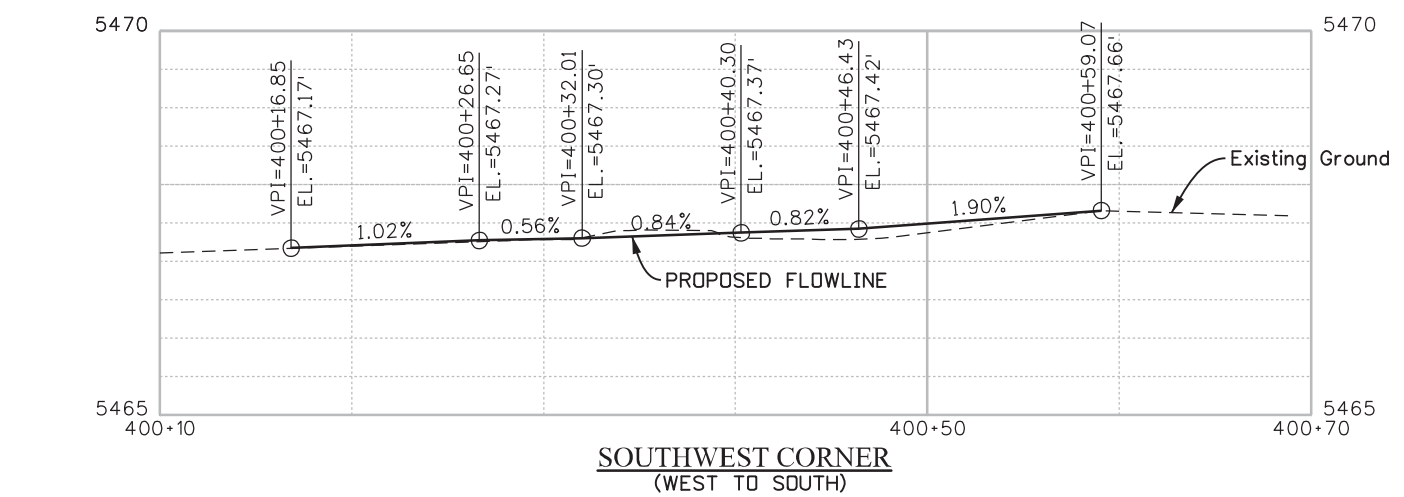
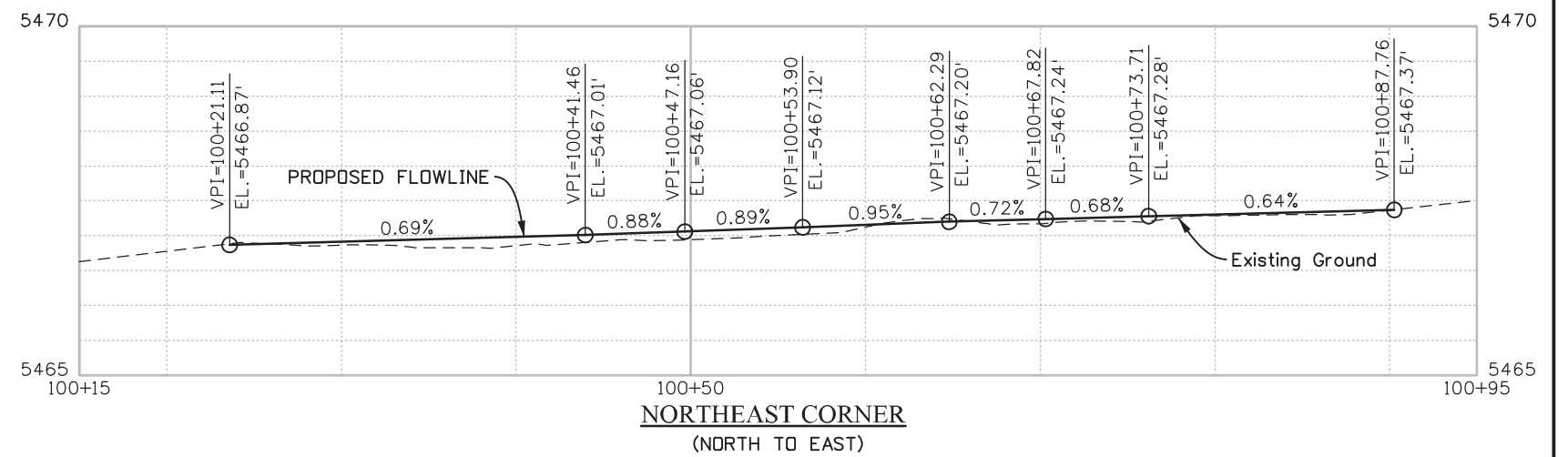
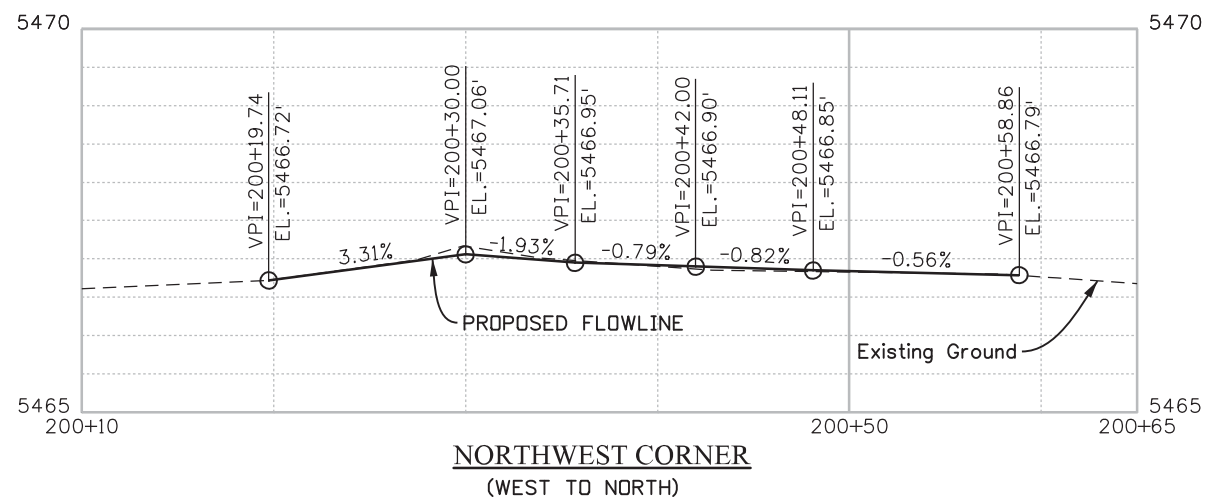
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Sheet Revisions		
Date:	Comments	Init.



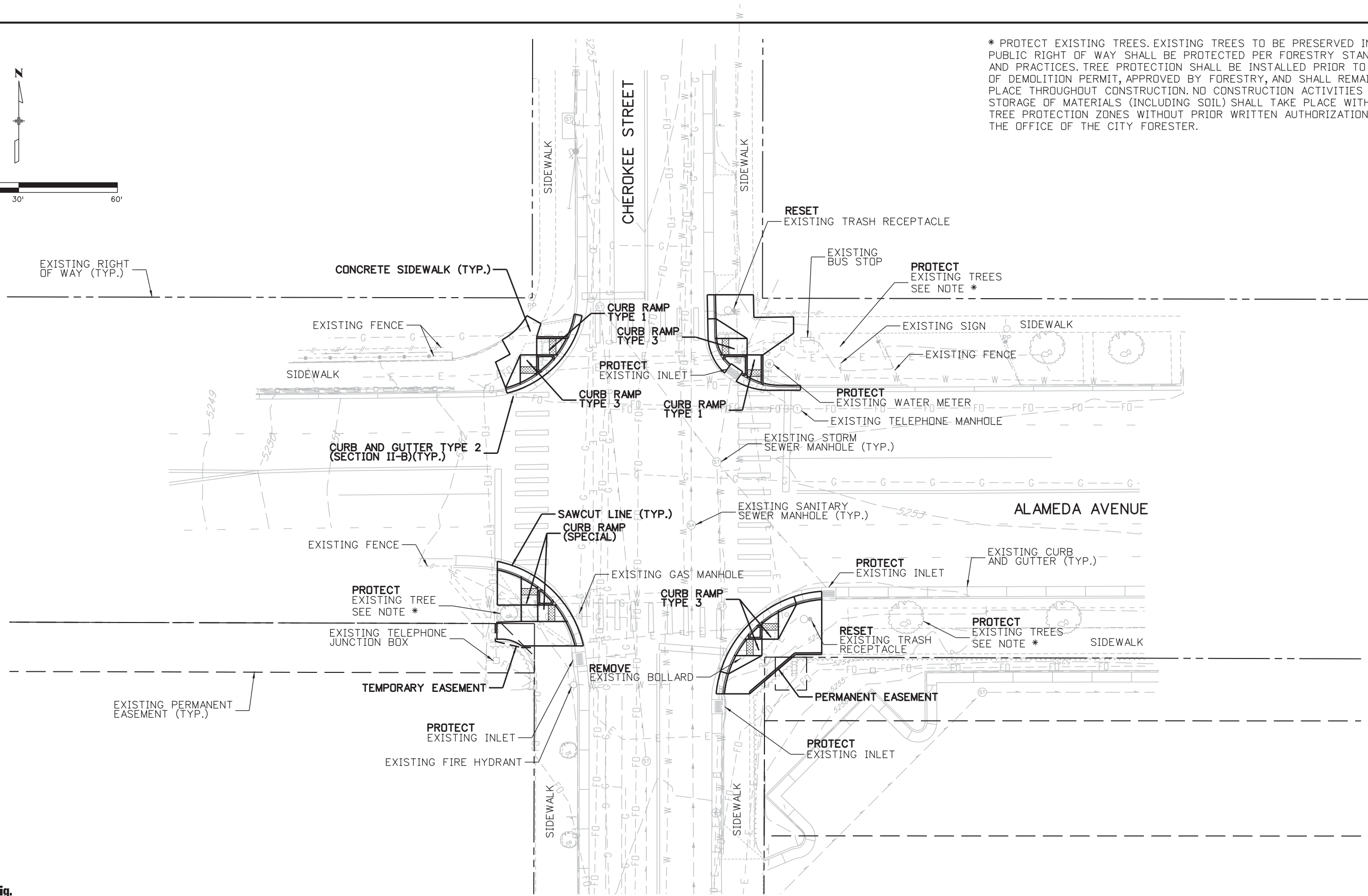
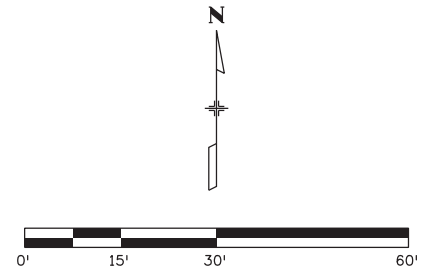
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**DENVER TRAFFIC SIGNAL REBUILD
 FLOWLINE PROFILES
 EVANS AVE & HOLLY ST**

Designer: PJS
 Detailer: LMR
 Sheet Subset: PROFILE Subset Sheets: 6 of 12

Project No./Code
 2016-PROJMSR-0000211
 Sheet Number **29**

* PROTECT EXISTING TREES. EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS AND PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.



11:18:10 AM P:\14-009\05 Traffic Signal Rebuild - Mill Levy 7B - CCD\14009\Drawings\14009DES_Plan_AL-AL-CH.dgn



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Print Date: 3/7/2017	0000
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TRAFFIC SIGNAL REBUILD - MILL LEVY 7B	

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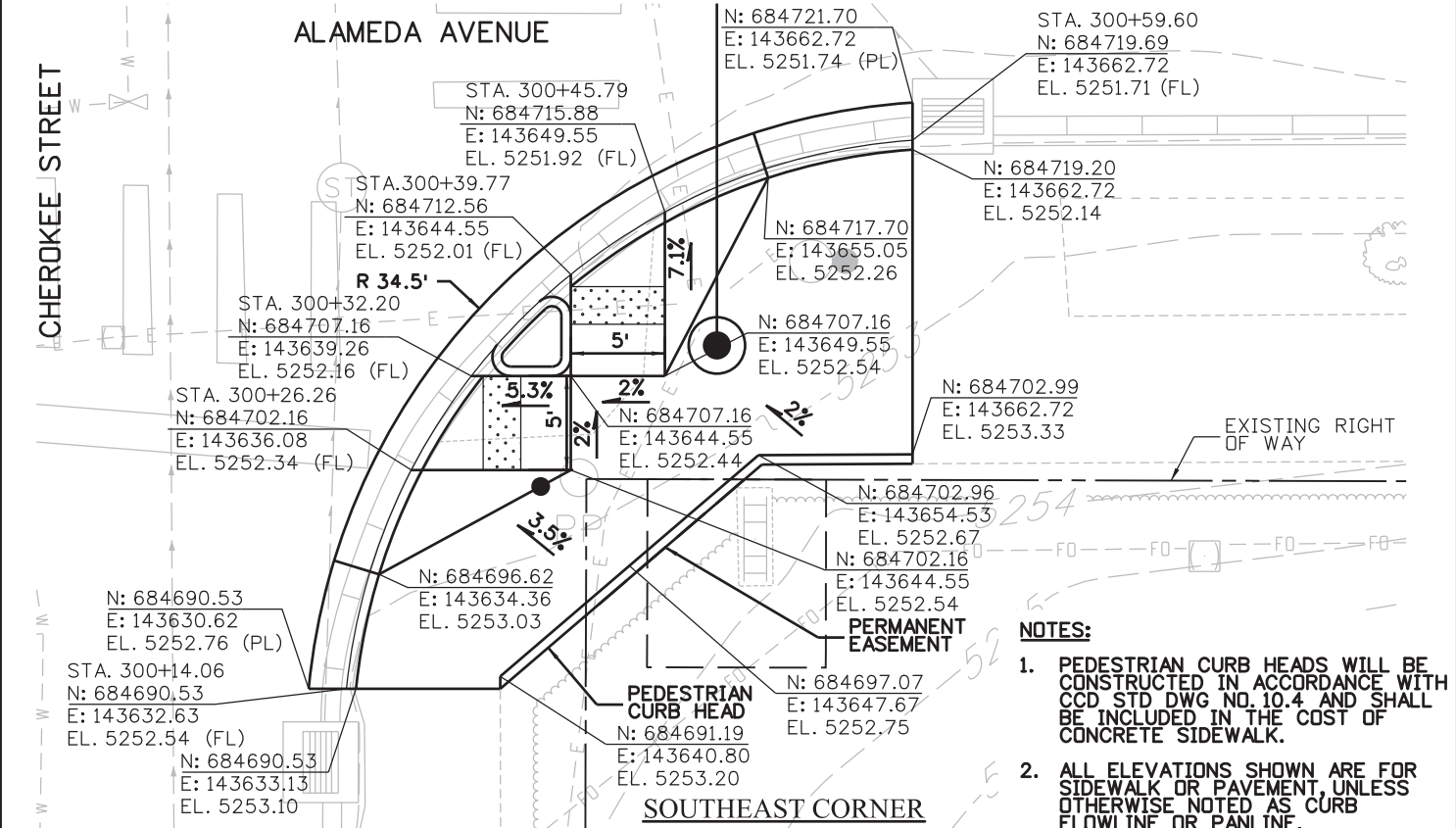
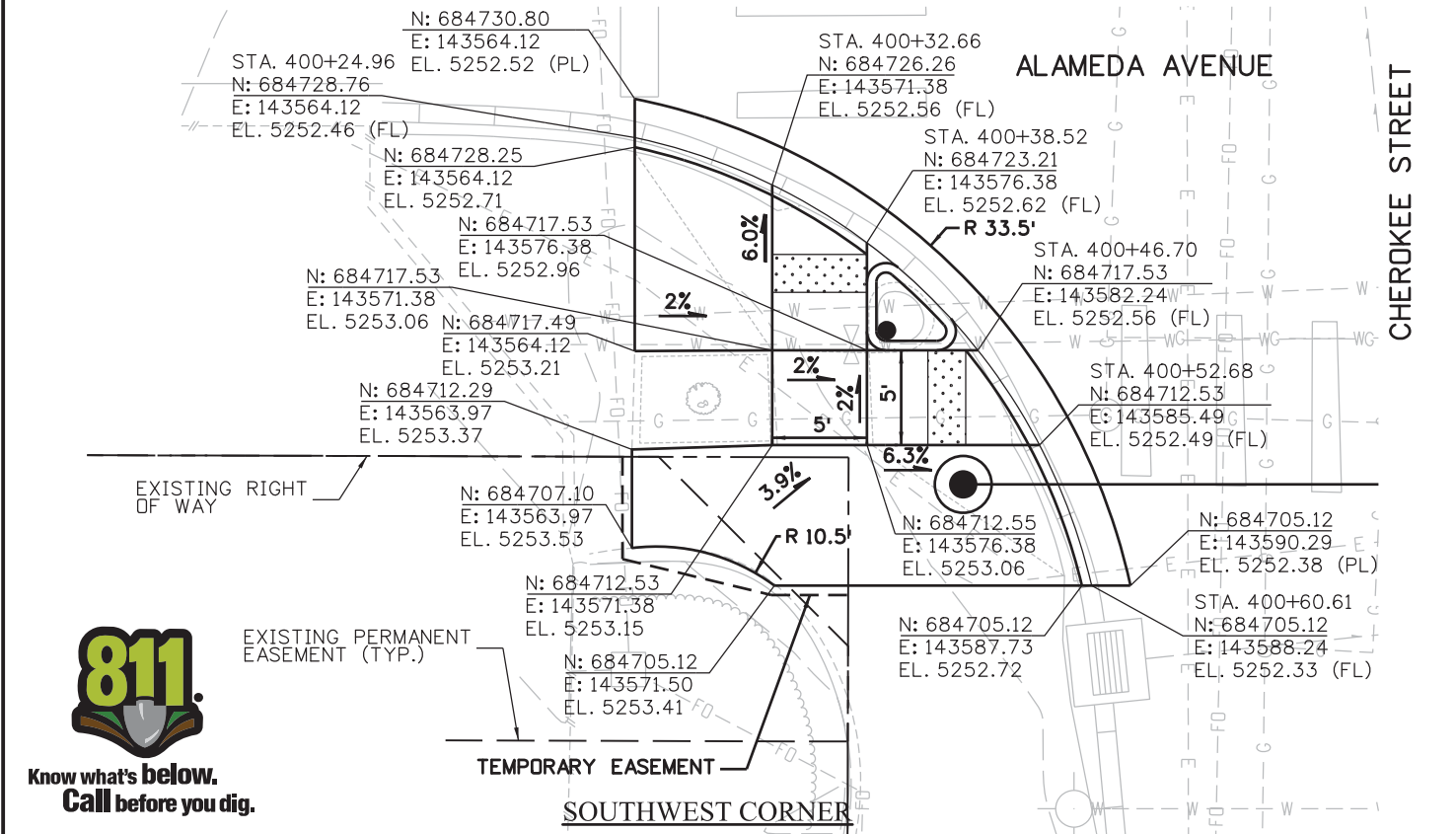
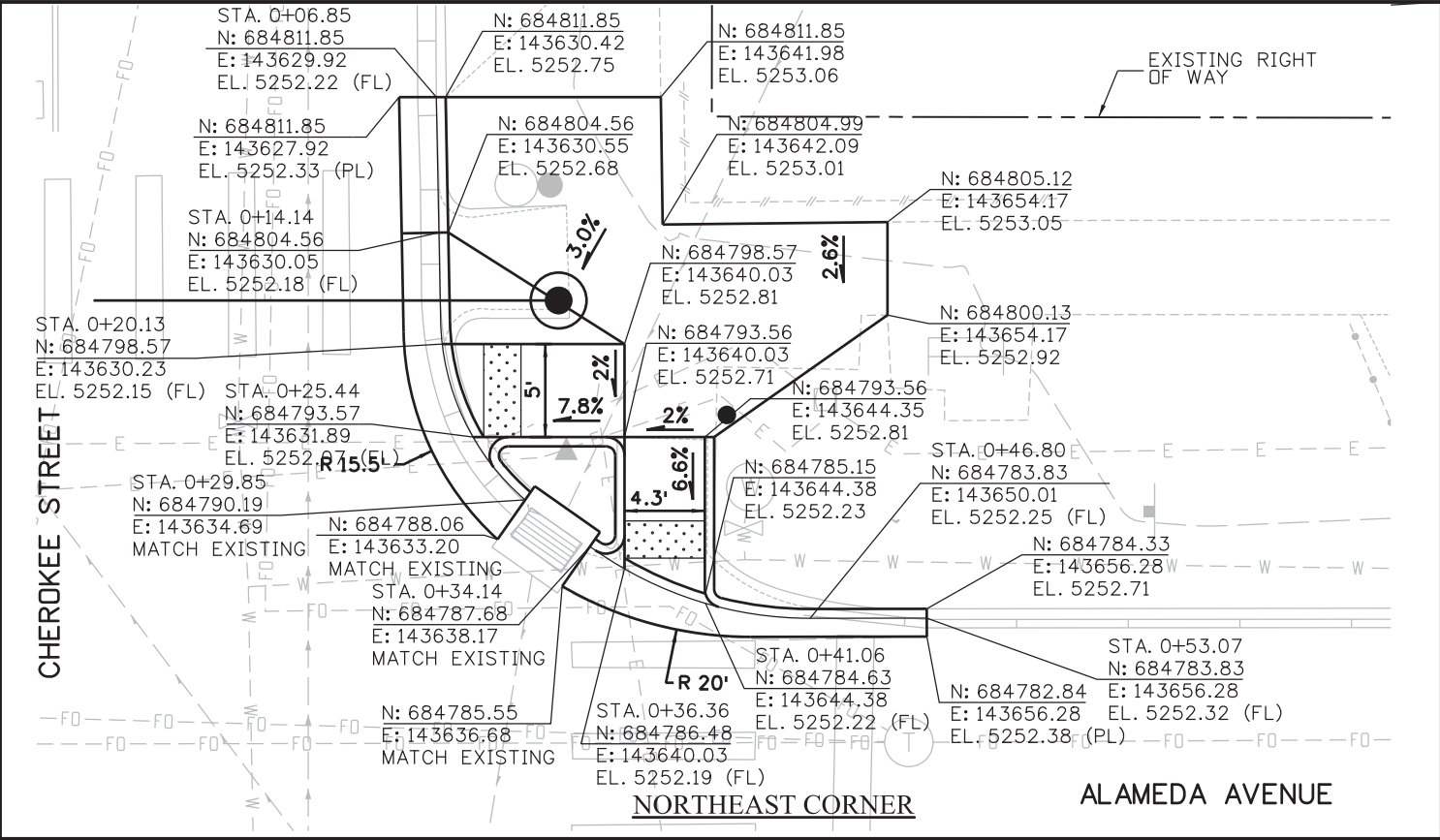
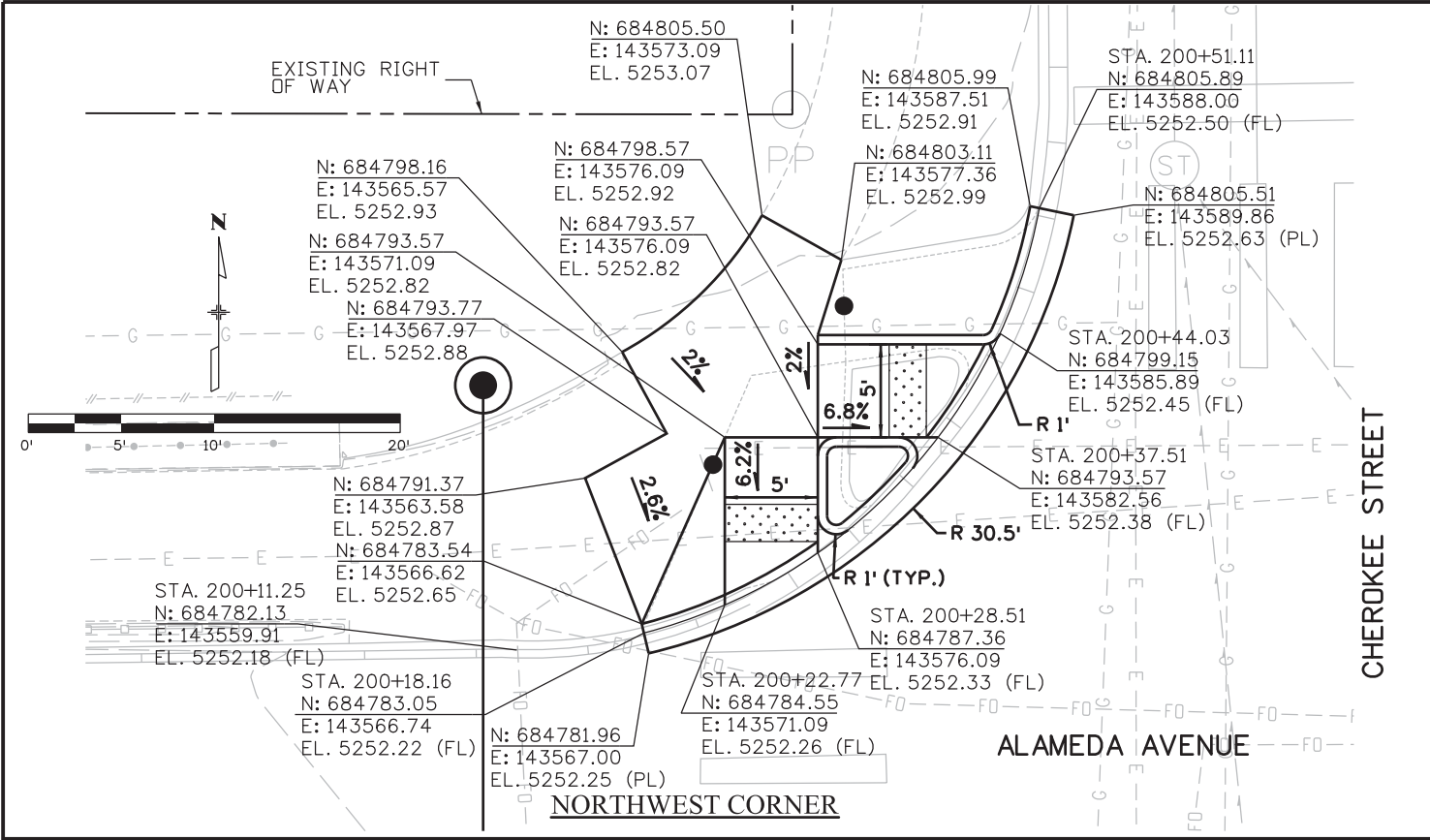
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 201 West Colfax Avenue
 Denver, CO 80202
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As Constructed
No Revisions:
Revised:
Void:

DENVER TRAFFIC SIGNAL REBUILD CIVIL PLAN ALAMEDA AVE & CHEROKEE ST			
Designer:	LMR		
Detailer:	LMR		
Sheet Subset:	CIVIL	Subset Sheets:	7 of 12

Project No./Code
2016-PRDJMSTR-0000211
Sheet Number
30



- NOTES:**
1. PEDESTRIAN CURB HEADS WILL BE CONSTRUCTED IN ACCORDANCE WITH CCD STD DWG NO. 10.4 AND SHALL BE INCLUDED IN THE COST OF CONCRETE SIDEWALK.
 2. ALL ELEVATIONS SHOWN ARE FOR SIDEWALK OR PAVEMENT UNLESS OTHERWISE NOTED AS CURB FLOWLINE OR PANLINE.



Print Date: 3/7/2017
 File Name: 14009DES_Int_AL-CH.dgn
 Horiz. Scale: 1:10 Vert. Scale: N/A
 TRAFFIC SIGNAL REBUILD - MILL LEVY 7B

Sheet Revisions			
Date:	Comments	Init.	

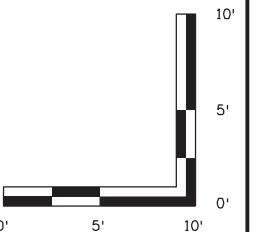
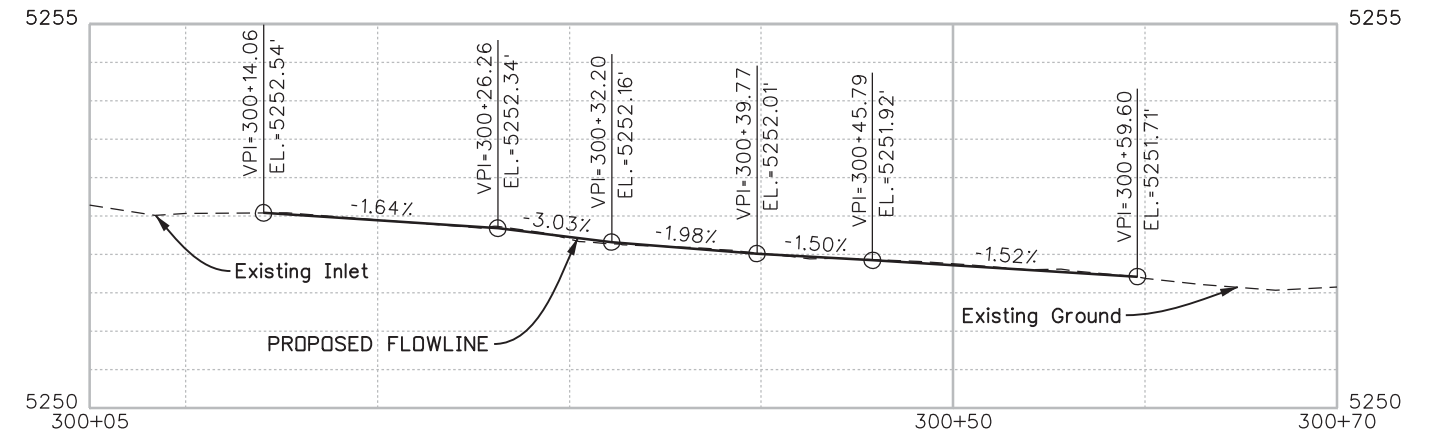
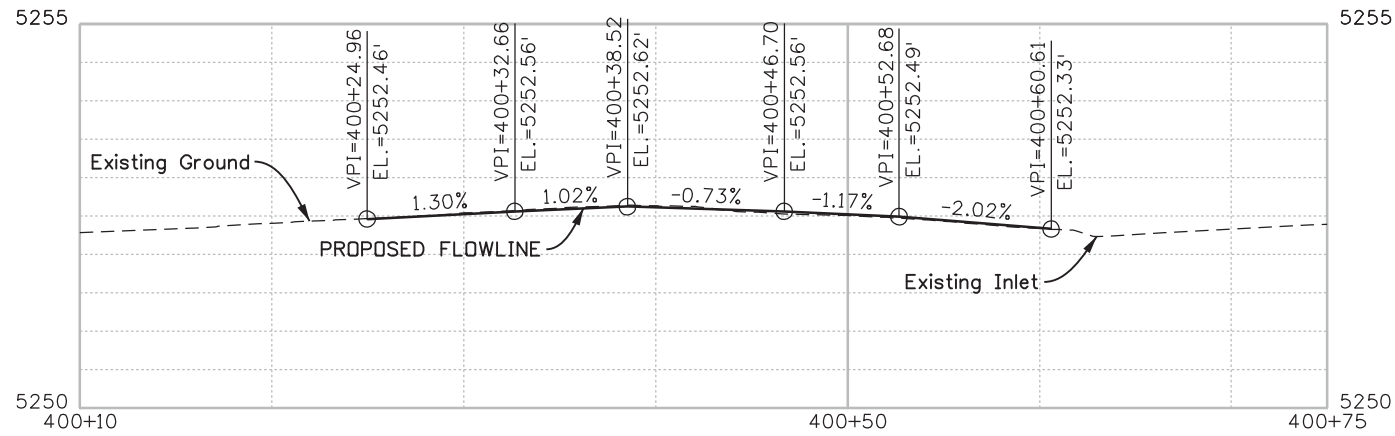
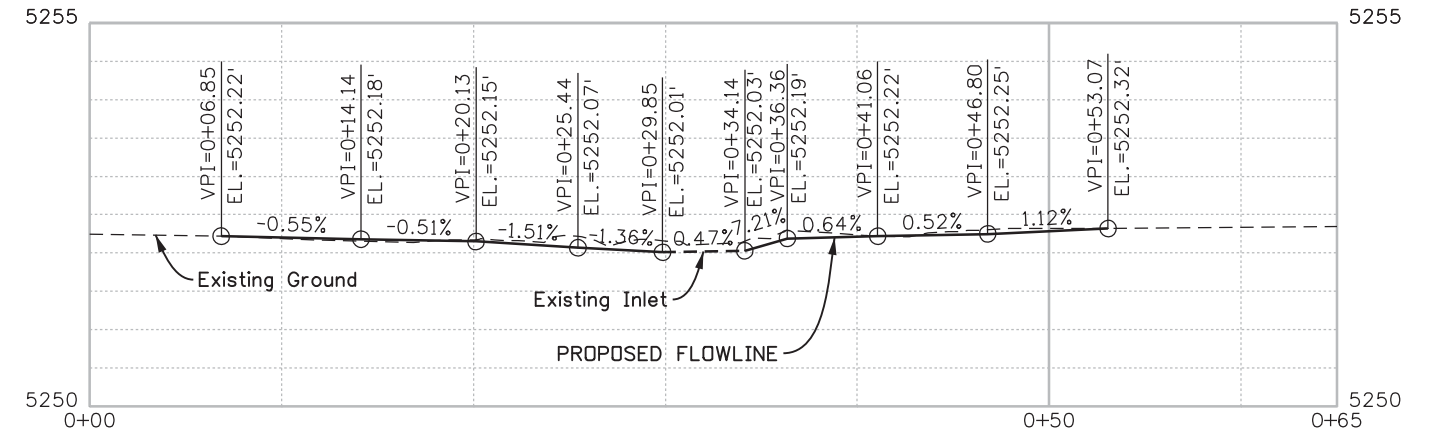
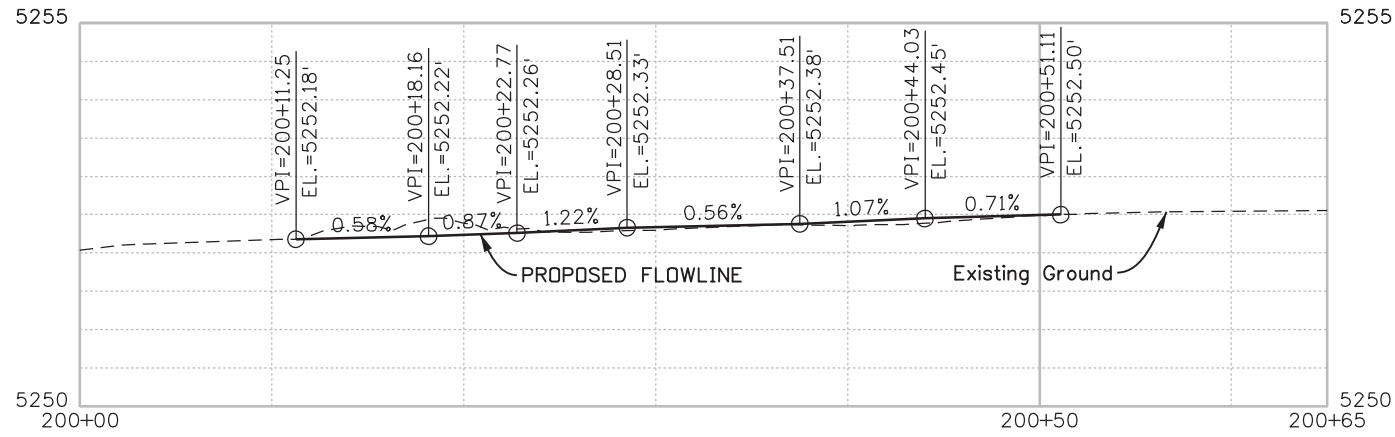
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 Traffic Engineering Services
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As Constructed	No Revisions:	Revised:	Void:
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DENVER TRAFFIC SIGNAL REBUILD CORNER DETAILS ALAMEDA AVE & CHEROKEE ST			
Designer:	LMR		
Detailer:	LMR		
Sheet Subset:	CIVIL	Subset Sheets:	8 of 12

Project No./Code	2016-PRDJMSTR-0000211
Sheet Number	31

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TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
MULLER ENGINEERING COMPANY

Sheet Revisions		
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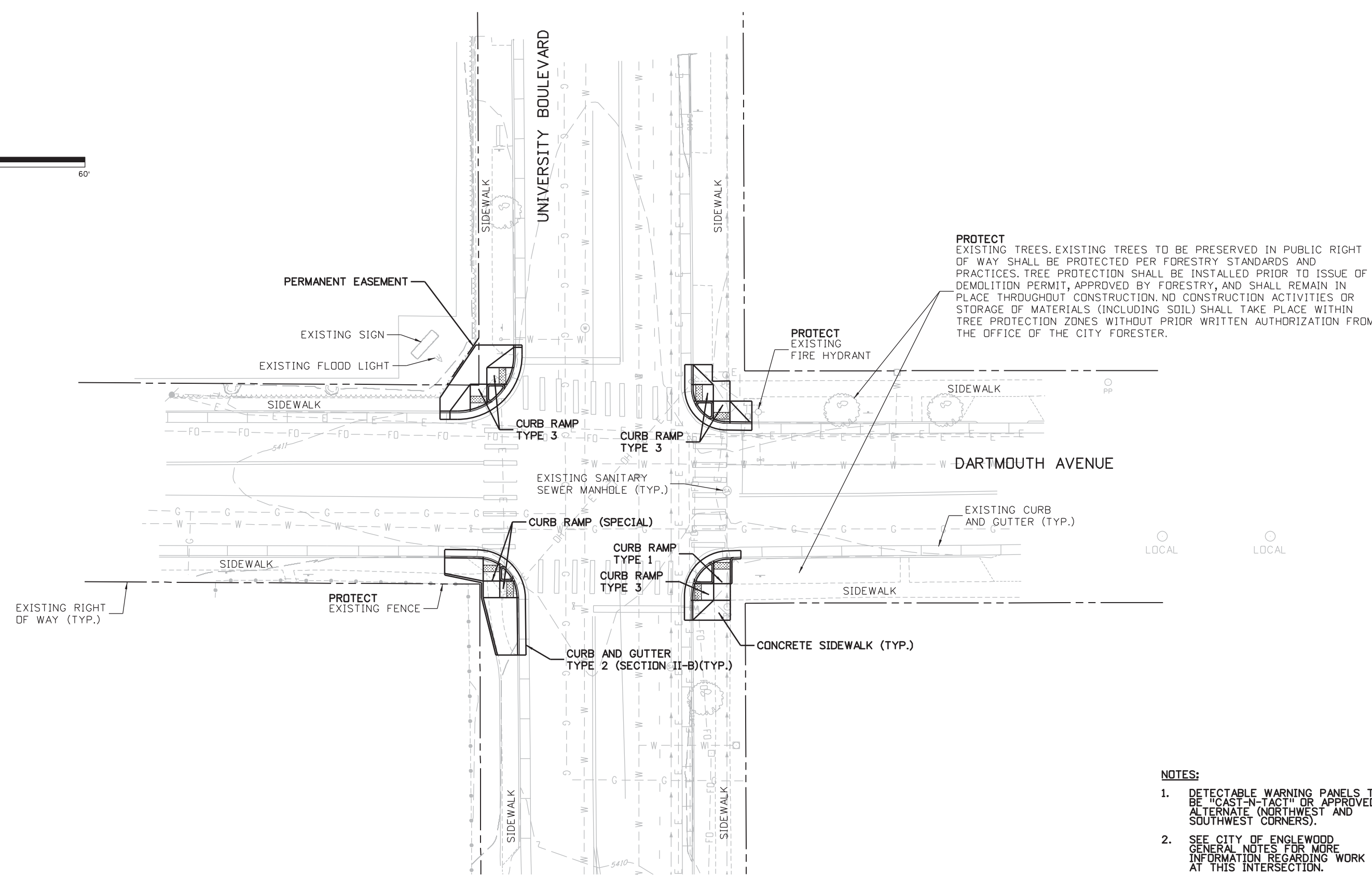
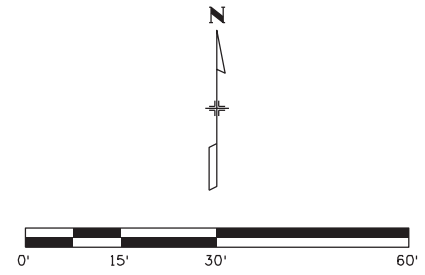
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Traffic Engineering Services
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Denver, CO 80202
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As Constructed
No Revisions:
Revised:
Void:

DENVER TRAFFIC SIGNAL REBUILD	
FLOWLINE PROFILES	
ALAMEDA AVE & CHEROKEE ST	
Designer:	PJS
Detailer:	LMR
Sheet Subset:	PROFILE
Subset Sheets:	9 of 12

Project No./Code
2016-PROJMSTR-0000211
Sheet Number
32



PROTECT
EXISTING TREES. EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS AND PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.

PROTECT
EXISTING
FIRE HYDRANT

PERMANENT EASEMENT

EXISTING SIGN

EXISTING FLOOD LIGHT

CURB RAMP
TYPE 3

CURB RAMP
TYPE 3

EXISTING SANITARY
SEWER MANHOLE (TYP.)

CURB RAMP (SPECIAL)

CURB RAMP
TYPE 1
CURB RAMP
TYPE 3

DARTMOUTH AVENUE

EXISTING CURB
AND GUTTER (TYP.)

EXISTING RIGHT
OF WAY (TYP.)

PROTECT
EXISTING FENCE

CURB AND GUTTER
TYPE 2 (SECTION II-B)(TYP.)

CONCRETE SIDEWALK (TYP.)

LOCAL

LOCAL

NOTES:

1. DETECTABLE WARNING PANELS TO BE "CAST-N-TACT" OR APPROVED ALTERNATE (NORTHWEST AND SOUTHWEST CORNERS).
2. SEE CITY OF ENGLEWOOD GENERAL NOTES FOR MORE INFORMATION REGARDING WORK AT THIS INTERSECTION.



Know what's below.
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Leah 2:21:27 PM P:\14-009.05 Traffic Signal Rebuild - Mill Levy 7B - CCD\14009\Design\Drawings\14009DES_Plan_UN-DM.dgn

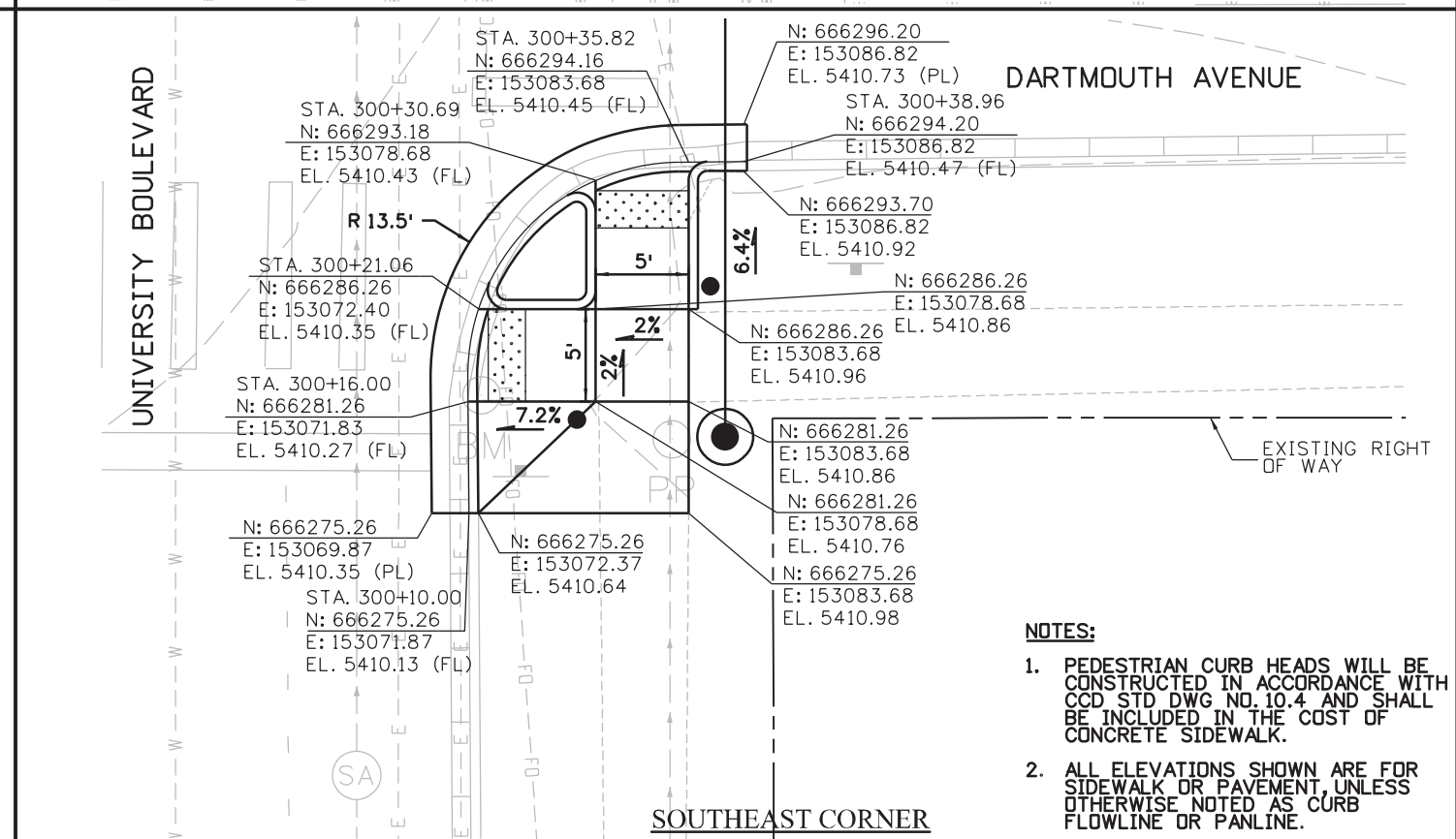
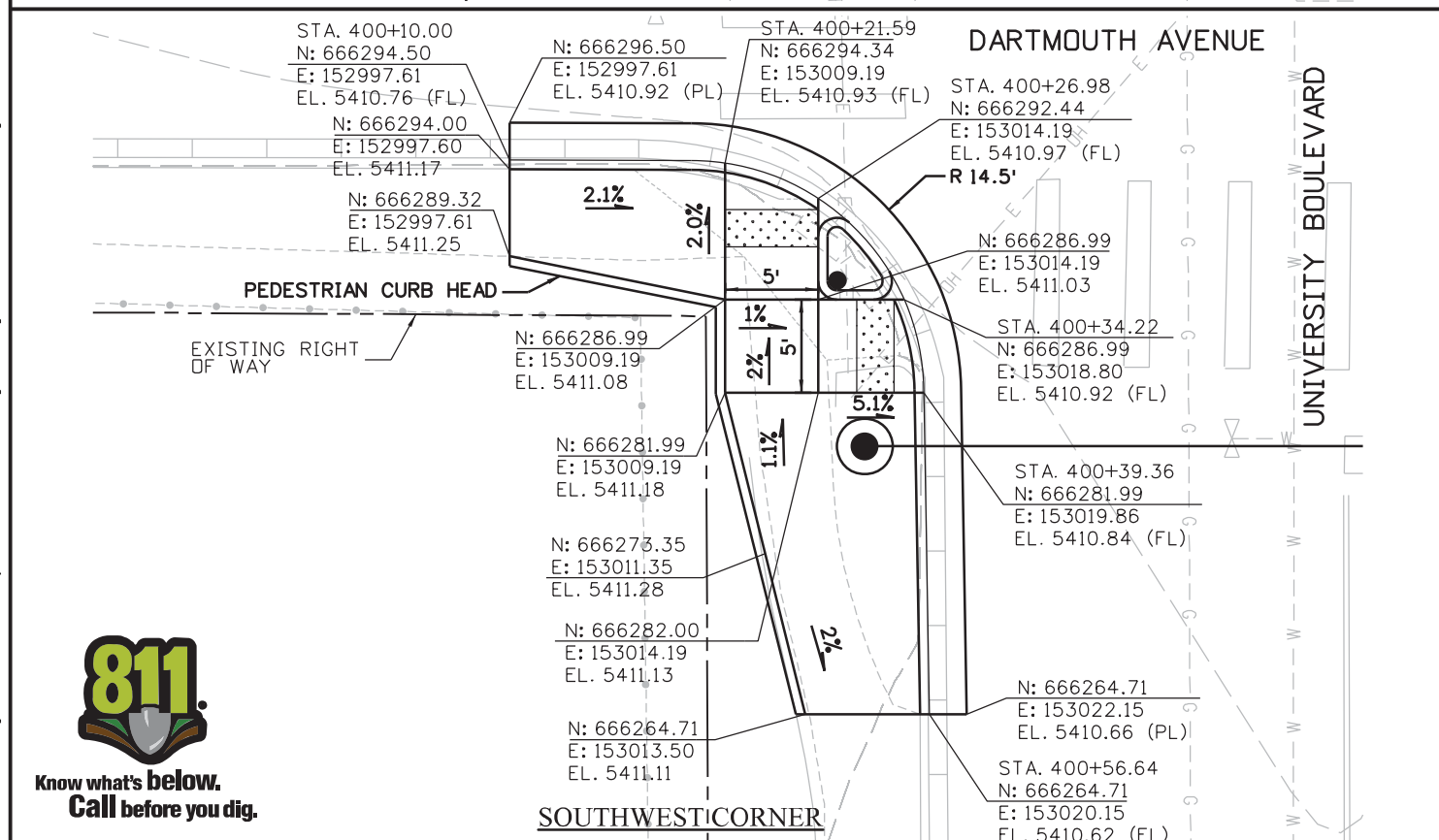
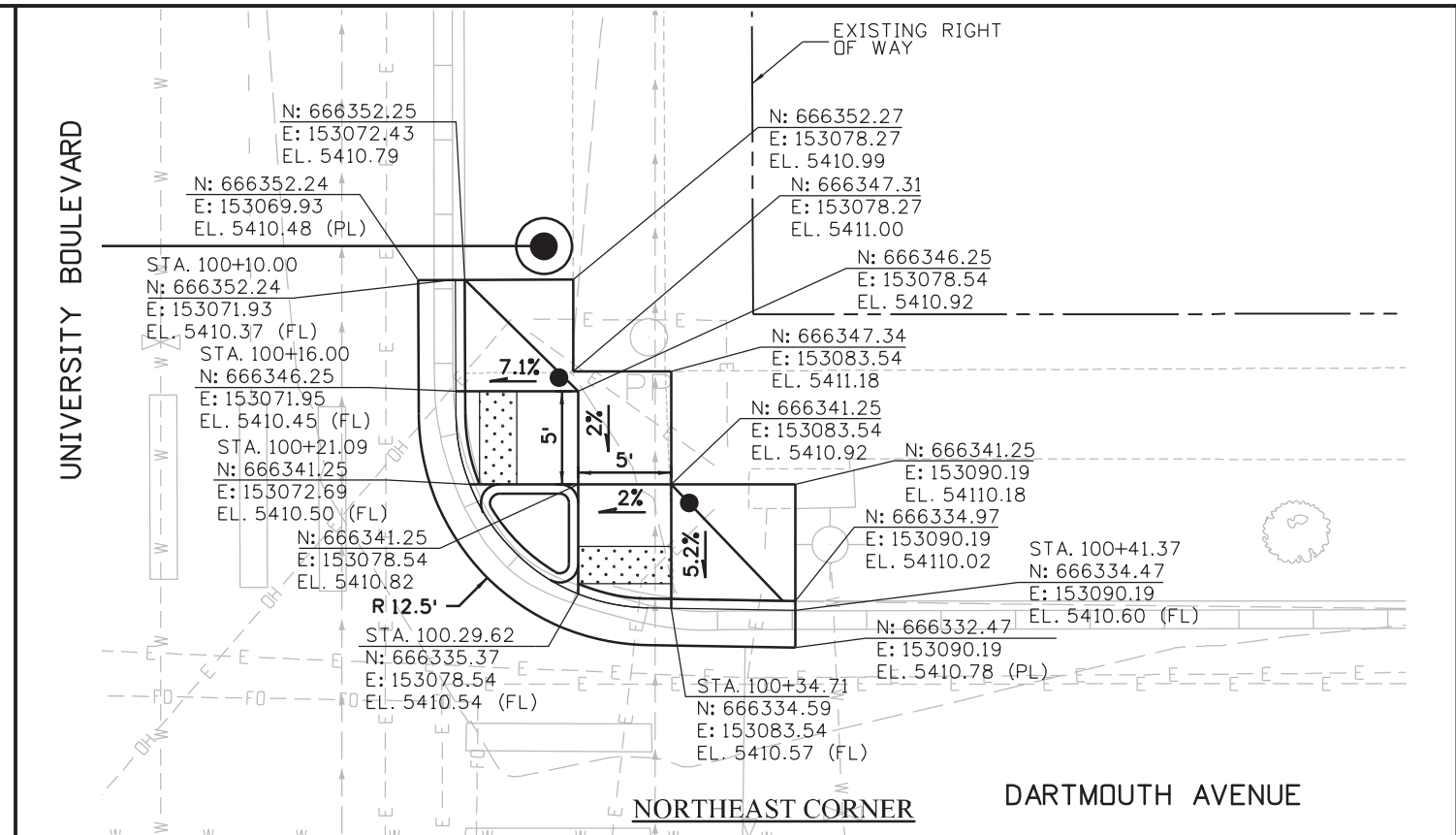
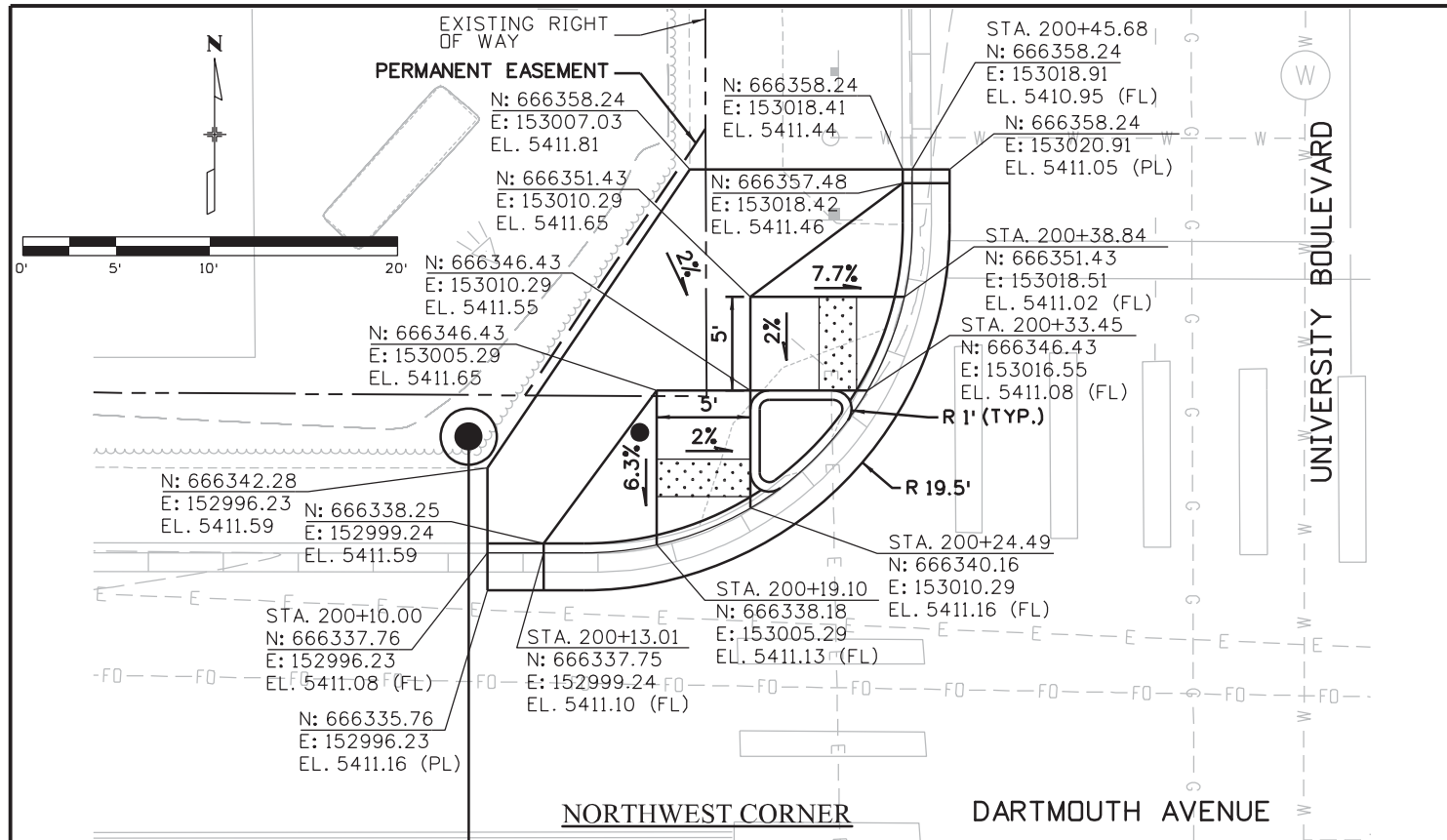
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TRAFFIC SIGNAL REBUILD - MILL LEVY 7B



Sheet Revisions		
Date:	Comments	Init.

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As Constructed	DENVER TRAFFIC SIGNAL REBUILD		Project No./Code
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	UNIVERSITY BLVD & DARTMOUTH AVE		Sheet Number 33
	No Revisions:	Designer: LMR	
Revised:	Detailer: LMR		
Void:	Sheet Subset: CIVIL		



- NOTES:**
1. PEDESTRIAN CURB HEADS WILL BE CONSTRUCTED IN ACCORDANCE WITH CCD STD DWG NO. 10.4 AND SHALL BE INCLUDED IN THE COST OF CONCRETE SIDEWALK.
 2. ALL ELEVATIONS SHOWN ARE FOR SIDEWALK OR PAVEMENT, UNLESS OTHERWISE NOTED AS CURB FLOWLINE OR PANLINE.

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TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
MULLER ENGINEERING COMPANY

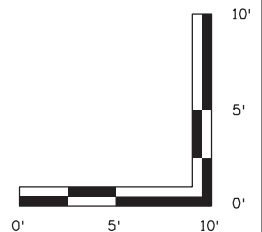
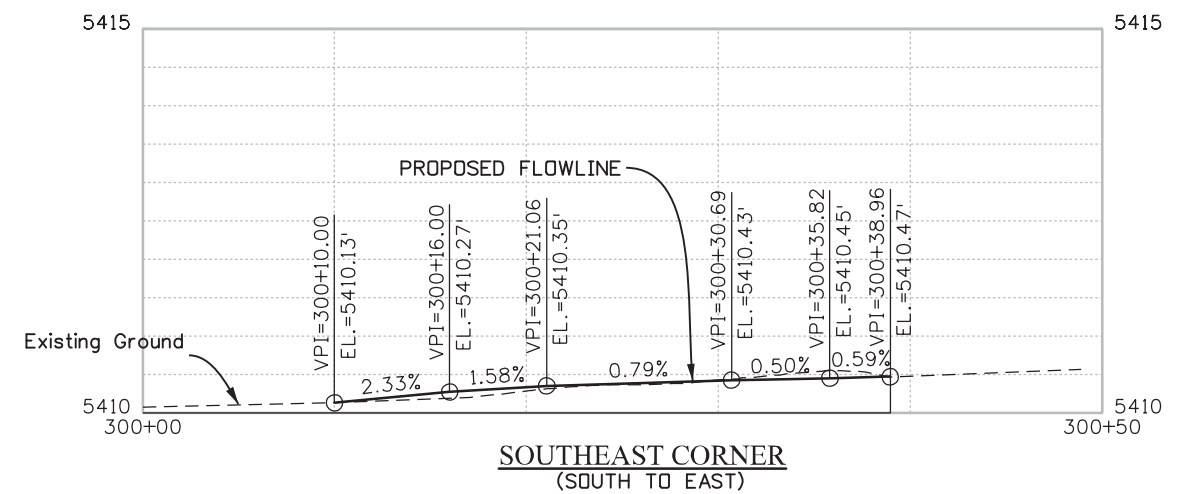
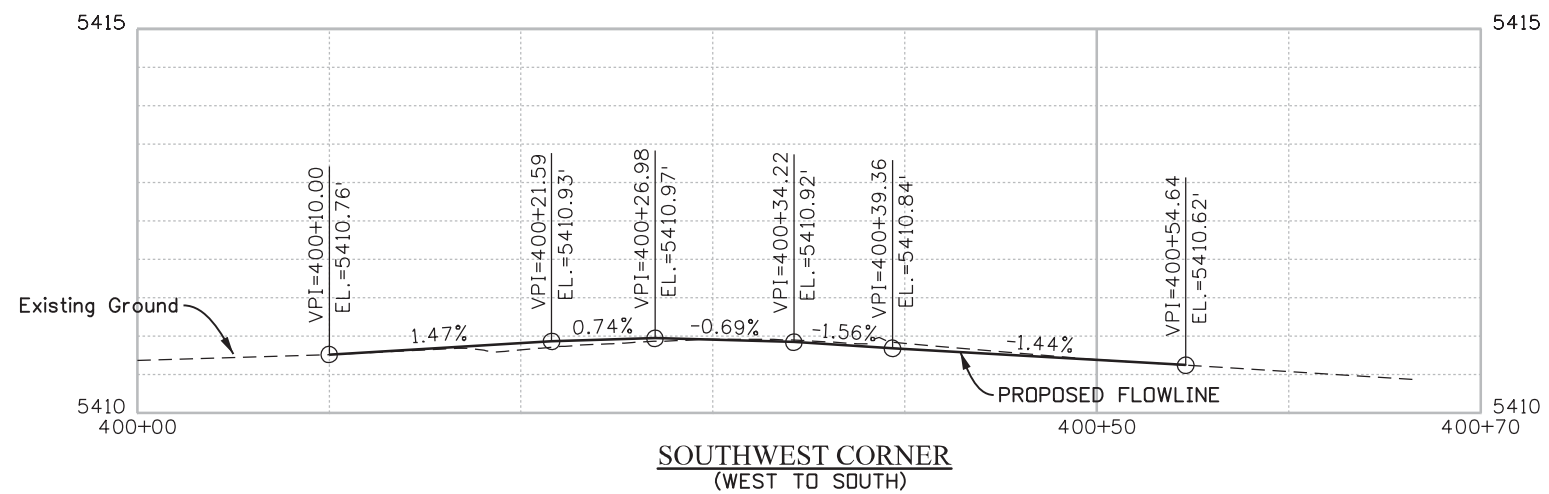
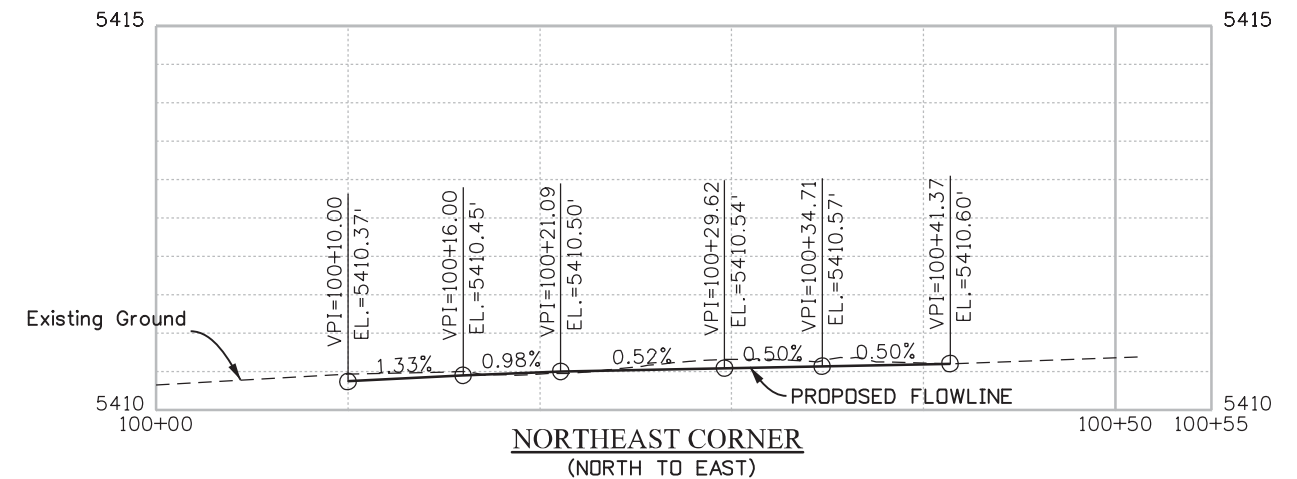
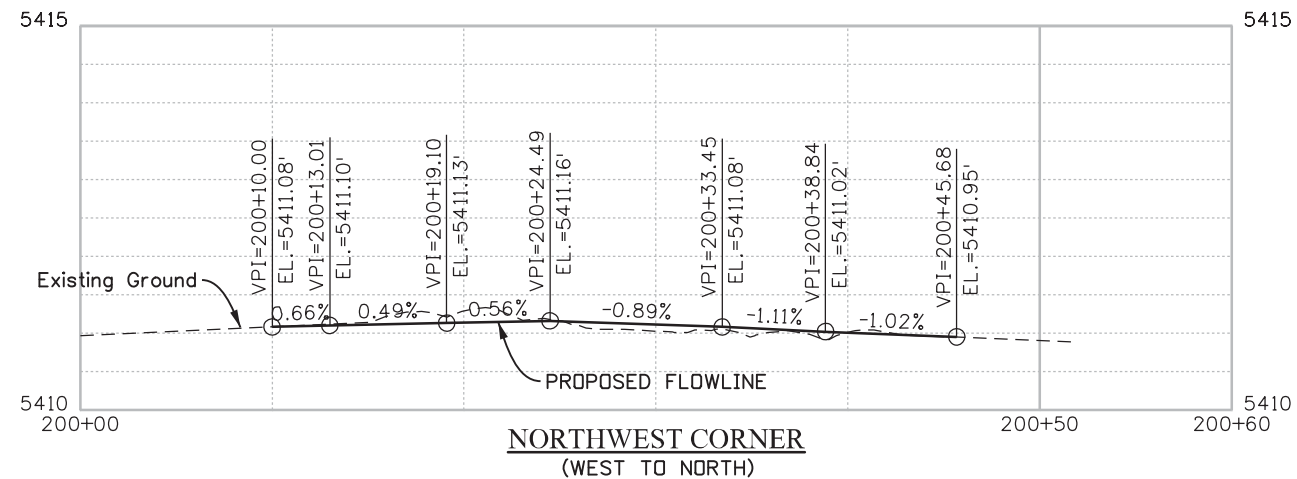
Sheet Revisions		
Date:	Comments	Init.

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No Revisions:	CORNER DETAILS		
Revised:	UNIVERSITY BLVD & DARTMOUTH AVE		2016-PROJUMSTR-0000211
Void:	Designer: LMR		Sheet Number 34
	Detailer: LMR		
	Sheet Subset: CIVIL	Subset Sheets: 11 of 12	

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File Name: 14009DES_Profile_UN-DM.dgn
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TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

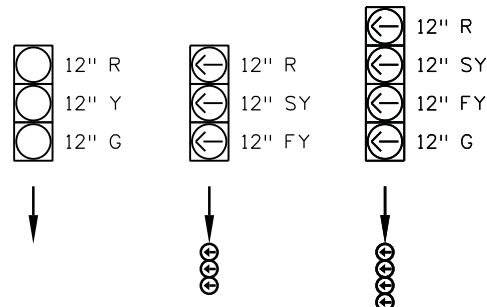
DENVER
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Denver, CO 80202
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As Constructed	DENVER TRAFFIC SIGNAL REBUILD FLOWLINE PROFILES	
No Revisions:	UNIVERSITY BLVD & DARTMOUTH AVE	
Revised:	Designer: PJS	
Void:	Detailer: LMR	
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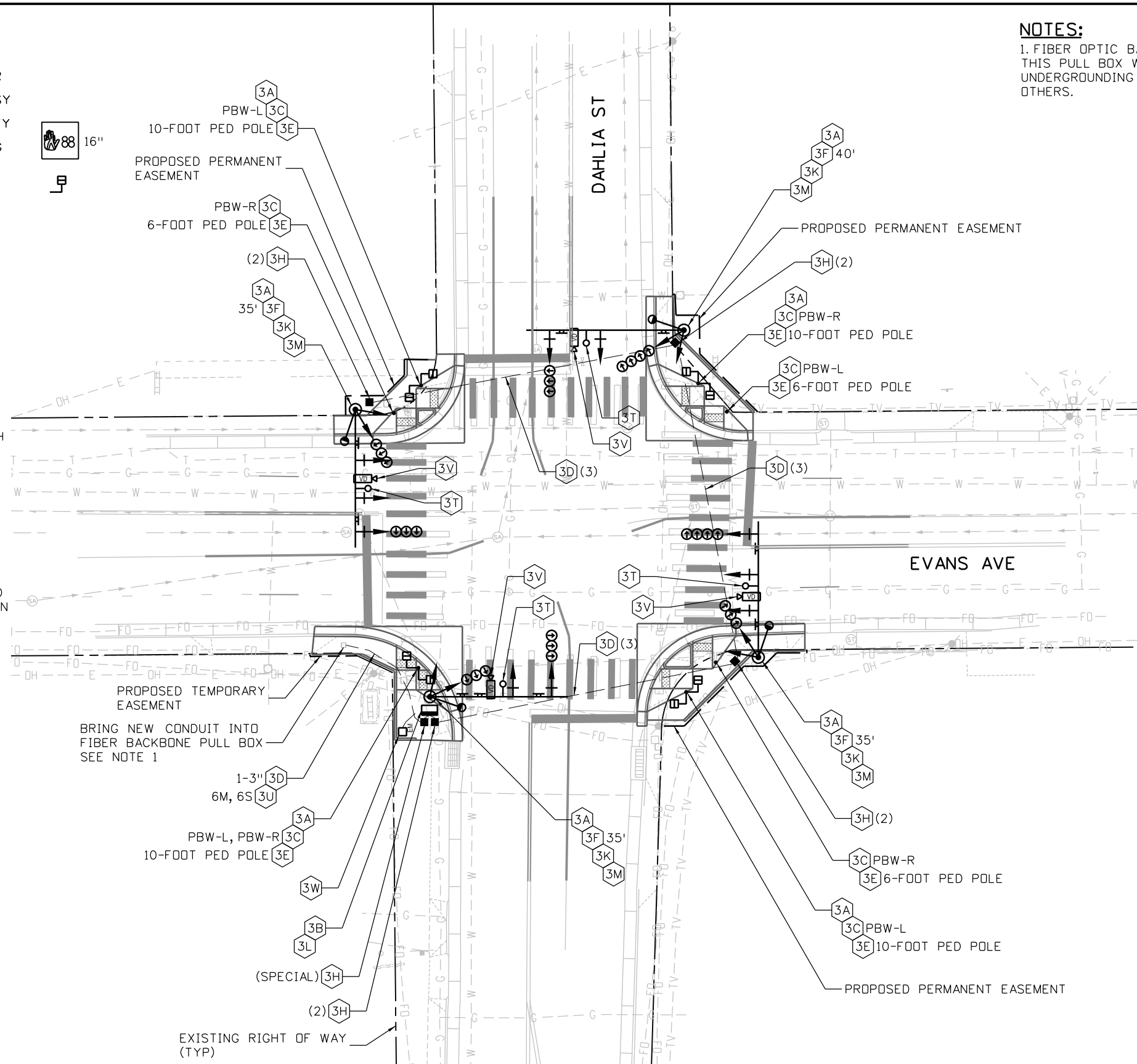
Project No./Code	2016-PROJMSTR-0000211
Sheet Number	35

PROPOSED SIGNAL HEADS



INSTALLATIONS

- 3A INSTALL SIGNAL HEAD OR HEADS
- 3B INSTALL SIGNAL CABINET, CONTROLLER, AND ASSOCIATED EQUIPMENT
- 3C INSTALL PUSH BUTTON
- 3D INSTALL CONDUIT
- 3D (3) INSTALL THREE CONDUITS (TWO 3-INCH CONDUITS AND ONE 2-INCH CONDUIT)
- 3E INSTALL SIGNAL POLE
- 3F INSTALL MAST ARM - (LENGTH AS SHOWN)
- 3H (SPECIAL) INSTALL PULL BOX MARKED "TRAFFIC COMM" ON LID
- 3H (2) INSTALL TWO PULL BOXES, ONE MARKED "TRAFFIC" AND ONE MARKED "ELECTRIC" ON LIDS
- 3K ELECTRIC UTILITY COMPANY TO INSTALL SIGNAL POLE
- 3L ELECTRIC UTILITY COMPANY TO INSTALL POWER FEED. CONTRACTOR TO EXTEND TO CONTROLLER
- 3M ELECTRIC UTILITY COMPANY TO INSTALL LUMINAIRE
- 3T INSTALL OPTICDM
- 3U INSTALL INTERCONNECT (SIZE AND TYPE AS SHOWN)
- 3V INSTALL VIDEO DETECTION CAMERA
- 3W INSTALL ELECTRIC METER

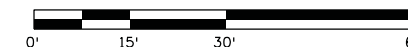


NOTES:

1. FIBER OPTIC BACKBONE PULL BOX LOCATION IS APPROXIMATE. THIS PULL BOX WILL BE INSTALLED AS PART OF THE UNDERGROUNDING OF OVERHEAD UTILITIES TO BE PERFORMED BY OTHERS.

PHASE DIAGRAM

1	2	3	4
↻	←	N/A	↕
5	6	7	8
N/A	→	N/A	↕



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File Name: 26 Signal-Evans and Dahlia.dgn
Horiz. Scale: 1:30 Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440 DENVER, COLORADO 80202 FAX: 303-325-7743

Sheet Revisions		
Date:	Comments	Init.

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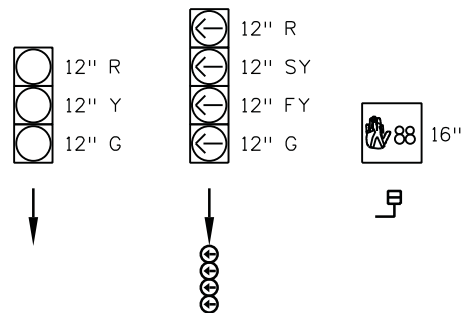
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No Revisions:
Revised:
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DENVER TRAFFIC SIGNAL REBUILD	
TRAFFIC SIGNAL PLAN	
EVANS AVE & DAHLIA ST	
Designer: MSR	
Detailer: MSR	
Sheet Subset: SIGNAL	Subset Sheets: 1 of 4

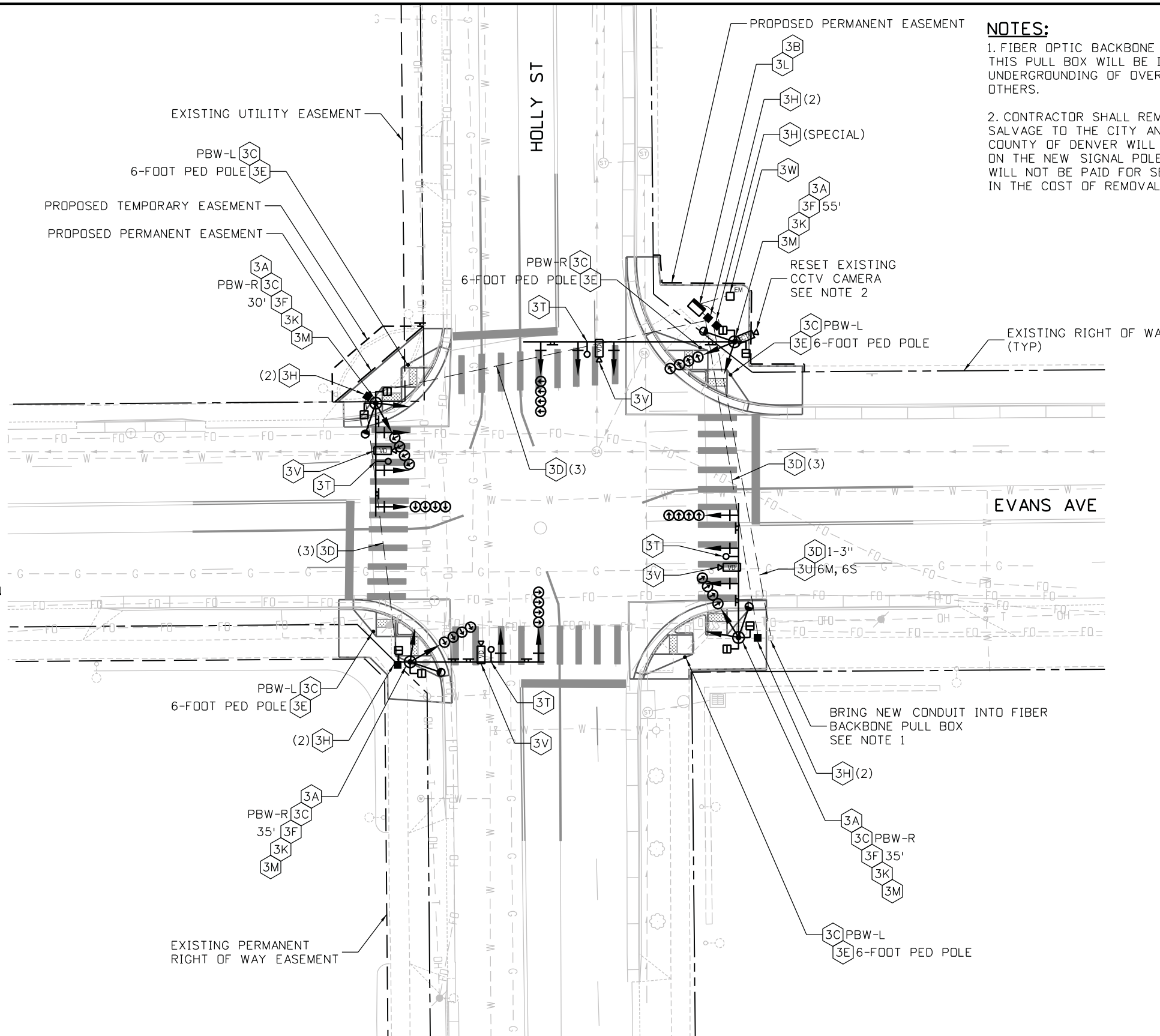
Project No./Code
2016-PRDJMSTR-0000211
Sheet Number
36

PROPOSED SIGNAL HEADS



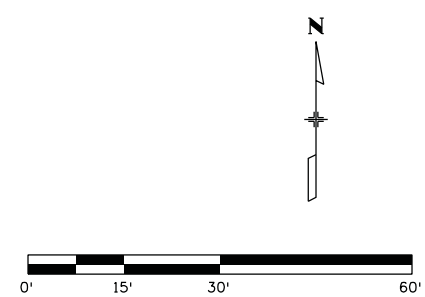
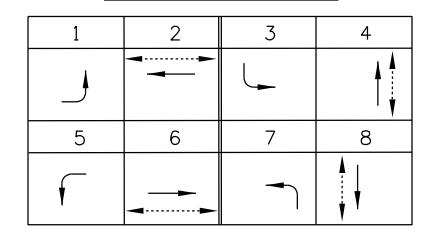
INSTALLATIONS

- 3A INSTALL SIGNAL HEAD OR HEADS
- 3B INSTALL SIGNAL CABINET, CONTROLLER, AND ASSOCIATED EQUIPMENT
- 3C INSTALL PUSH BUTTON
- 3D INSTALL CONDUIT
- 3D (3) INSTALL THREE CONDUITS (TWO 3-INCH CONDUITS AND ONE 2-INCH CONDUIT)
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- 3M ELECTRIC UTILITY COMPANY TO INSTALL LUMINAIRE
- 3T INSTALL OPTICDM
- 3U INSTALL INTERCONNECT (SIZE AND TYPE AS SHOWN)
- 3V INSTALL VIDEO DETECTION CAMERA
- 3W INSTALL ELECTRIC METER



NOTES:
 1. FIBER OPTIC BACKBONE PULL BOX LOCATION IS APPROXIMATE. THIS PULL BOX WILL BE INSTALLED AS PART OF THE UNDERGROUNDING OF OVERHEAD UTILITIES TO BE PERFORMED BY OTHERS.
 2. CONTRACTOR SHALL REMOVE EXISTING CCTV CAMERA AND SALVAGE TO THE CITY AND COUNTY OF DENVER. THE CITY AND COUNTY OF DENVER WILL INSTALL THE EXISTING CCTV CAMERA ON THE NEW SIGNAL POLE. REMOVAL AND DELIVERY OF CAMERA WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF REMOVAL OF TRAFFIC SIGNAL EQUIPMENT.

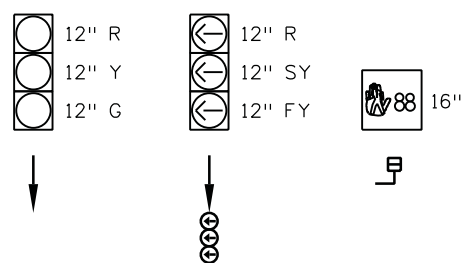
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Print Date: 11/10/2016	Sheet Revisions				As Constructed	DENVER TRAFFIC SIGNAL REBUILD		Project No./Code
File Name: 27 Signal-Evans and Holly.dgn	Date:	Comments	Init.			No Revisions:	TRAFFIC SIGNAL PLAN	
Horiz. Scale: 1:30					Revised:	EVANS AVE & HOLLY ST		
Vert. Scale: N/A					Void:	Designer: MSR		
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B						Detailer: MSR		
apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440 DENVER, COLORADO 80202 FAX: 303-325-7743				Department of Public Works Traffic Engineering Services 201 West Colfax Avenue Denver, CO 80202 (720) 865-3150		Sheet Subset: SIGNAL	Subset Sheets: 2 of 4	Sheet Number 37

PROPOSED SIGNAL HEADS



RESETS

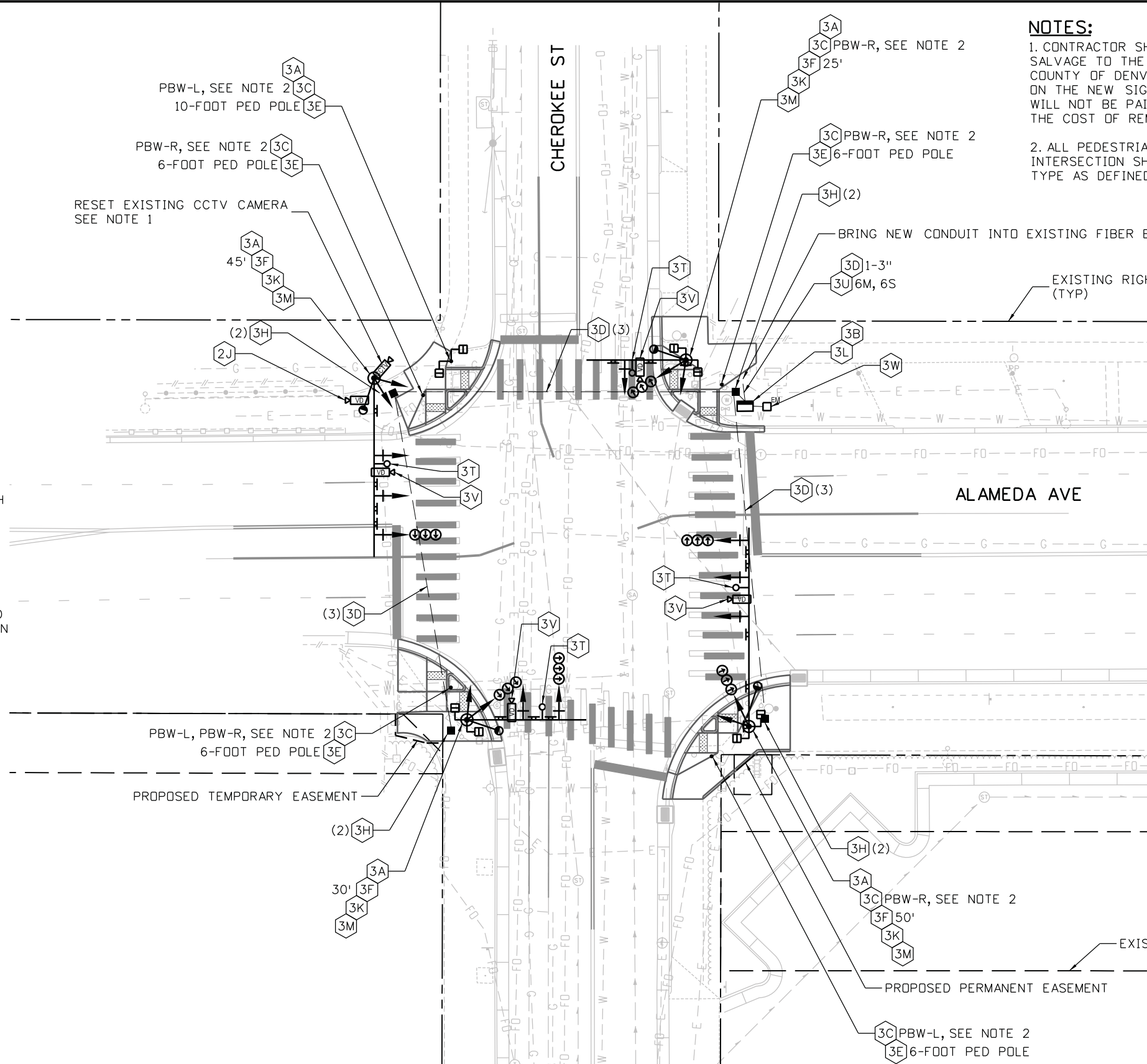
(2J) RESET DETECTOR

INSTALLATIONS

- (3A) INSTALL SIGNAL HEAD OR HEADS
- (3B) INSTALL SIGNAL CABINET, CONTROLLER, AND ASSOCIATED EQUIPMENT
- (3C) INSTALL PUSH BUTTON
- (3D) INSTALL CONDUIT
- (3D) (3) INSTALL THREE CONDUITS (TWO 3-INCH CONDUITS AND ONE 2-INCH CONDUIT)
- (3E) INSTALL SIGNAL POLE
- (3F) INSTALL MAST ARM - (LENGTH AS SHOWN)
- (3H) (2) INSTALL TWO PULL BOXES, ONE MARKED "TRAFFIC" AND ONE MARKED "ELECTRIC" ON LIDS
- (3K) ELECTRIC UTILITY COMPANY TO INSTALL SIGNAL POLE
- (3L) ELECTRIC UTILITY COMPANY TO INSTALL POWER FEED. CONTRACTOR TO EXTEND TO CONTROLLER
- (3M) ELECTRIC UTILITY COMPANY TO INSTALL LUMINAIRE
- (3T) INSTALL OPTICOM
- (3U) INSTALL INTERCONNECT (SIZE AND TYPE AS SHOWN)
- (3V) INSTALL VIDEO DETECTION CAMERA
- (3W) INSTALL ELECTRIC METER



RESET EXISTING CCTV CAMERA
SEE NOTE 1

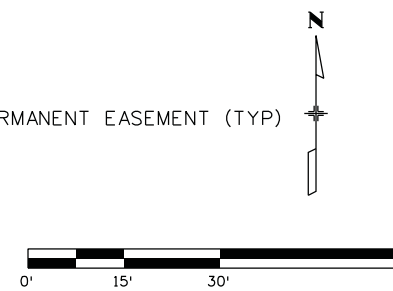


NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING CCTV CAMERA AND SALVAGE TO THE CITY AND COUNTY OF DENVER. THE CITY AND COUNTY OF DENVER WILL INSTALL THE EXISTING CCTV CAMERA ON THE NEW SIGNAL POLE. REMOVAL AND DELIVERY OF CAMERA WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF REMOVAL OF TRAFFIC SIGNAL EQUIPMENT.
2. ALL PEDESTRIAN PUSH BUTTON STATIONS AT THIS INTERSECTION SHALL BE OF AN ACCESSIBLE PEDESTRIAN SIGNAL TYPE AS DEFINED IN THE STANDARD SPECIAL PROVISIONS.

PHASE DIAGRAM

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5	←→	7	↑↓
N/A	N/A	N/A	N/A



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Print Date: 3/8/2017
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Horiz. Scale: 1:30 Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440 DENVER, COLORADO 80202 FAX: 303-325-7743

Sheet Revisions		
Date:	Comments	Init.

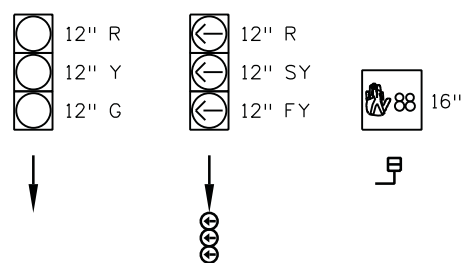
Department of Public Works
Traffic Engineering Services
201 West Colfax Avenue
Denver, CO 80202
(720) 865-3150

As Constructed
No Revisions:
Revised:
Void:

DENVER TRAFFIC SIGNAL REBUILD	
TRAFFIC SIGNAL PLAN	
ALAMEDA AVE & CHEROKEE ST	
Designer: MSR	
Detailer: MSR	
Sheet Subset: SIGNAL	Subset Sheets: 3 of 4

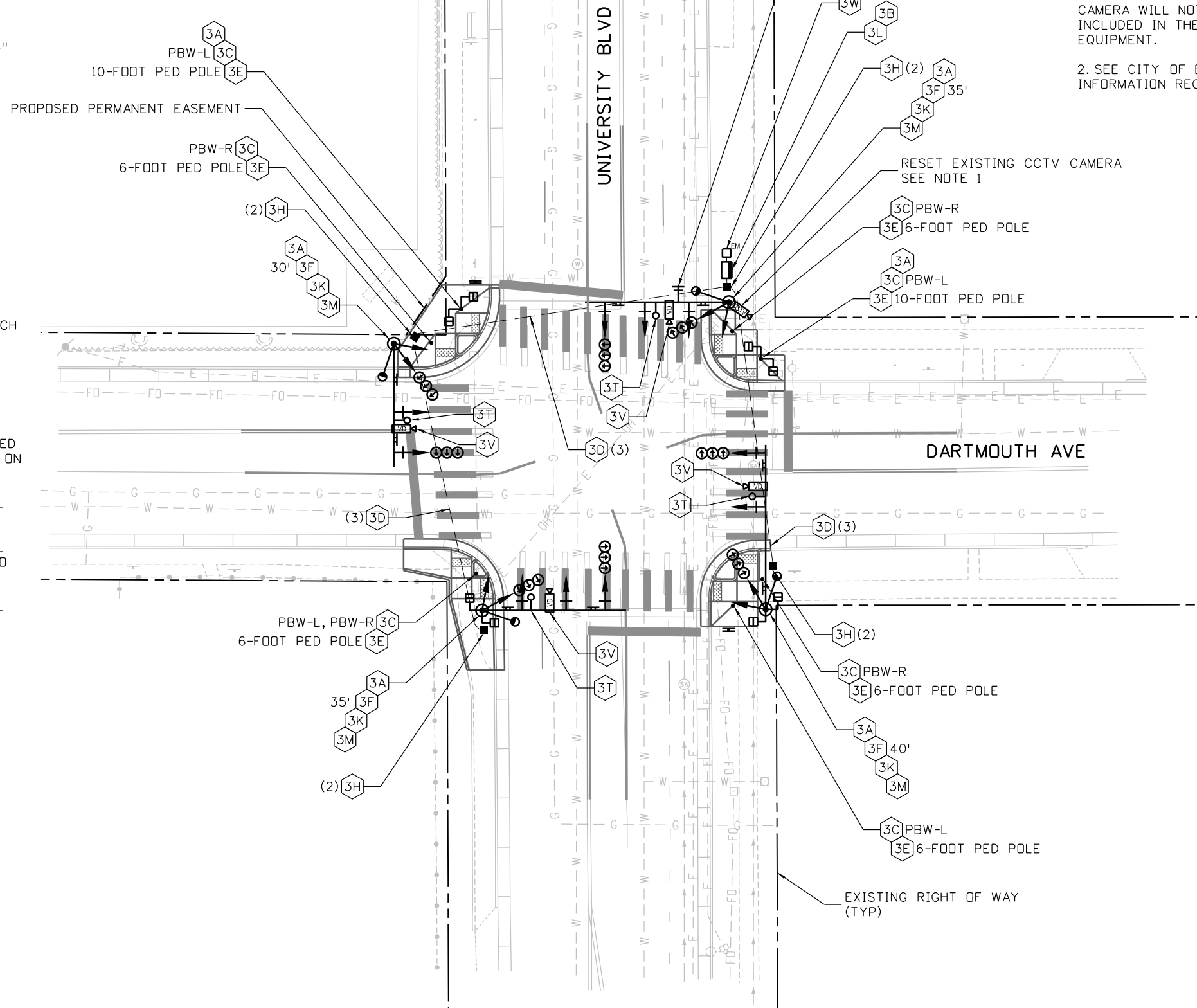
Project No./Code
2016-PRDJMSTR-0000211
Sheet Number
38

PROPOSED SIGNAL HEADS



INSTALLATIONS

- 3A INSTALL SIGNAL HEAD OR HEADS
- 3B INSTALL SIGNAL CABINET, CONTROLLER, AND ASSOCIATED EQUIPMENT
- 3C INSTALL PUSH BUTTON
- 3D (3) INSTALL THREE CONDUITS (TWO 3-INCH CONDUITS AND ONE 2-INCH CONDUIT)
- 3E INSTALL SIGNAL POLE
- 3F INSTALL MAST ARM - (LENGTH AS SHOWN)
- 3H (2) INSTALL TWO PULL BOXES, ONE MARKED "TRAFFIC" AND ONE MARKED "ELECTRIC" ON LIDS
- 3K ELECTRIC UTILITY COMPANY TO INSTALL SIGNAL POLE
- 3L ELECTRIC UTILITY COMPANY TO INSTALL POWER FEED. CONTRACTOR TO EXTEND TO CONTROLLER
- 3M ELECTRIC UTILITY COMPANY TO INSTALL LUMINAIRE
- 3T INSTALL OPTICOM
- 3V INSTALL VIDEO DETECTION CAMERA
- 3W INSTALL ELECTRIC METER

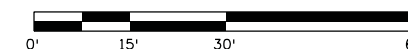


NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING CCTV CAMERA AND SALVAGE TO THE CITY AND COUNTY OF DENVER. THE CITY AND COUNTY OF DENVER WILL INSTALL THE EXISTING CCTV CAMERA ON THE NEW SIGNAL POLE. REMOVAL AND DELIVERY OF CAMERA WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF REMOVAL OF TRAFFIC SIGNAL EQUIPMENT.
2. SEE CITY OF ENGLEWOOD GENERAL NOTES FOR MORE INFORMATION REGARDING WORK AT THIS INTERSECTION.

PHASE DIAGRAM

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5	↕	7	8
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Horiz. Scale: 1:30 Vert. Scale: N/A
TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440 DENVER, COLORADO 80202 FAX: 303-325-7743

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Date:	Comments	Init.

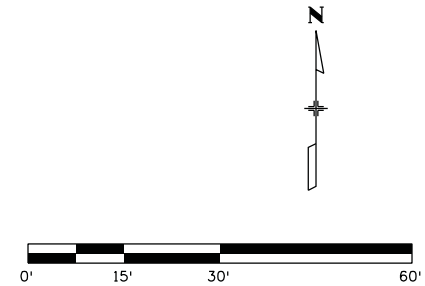
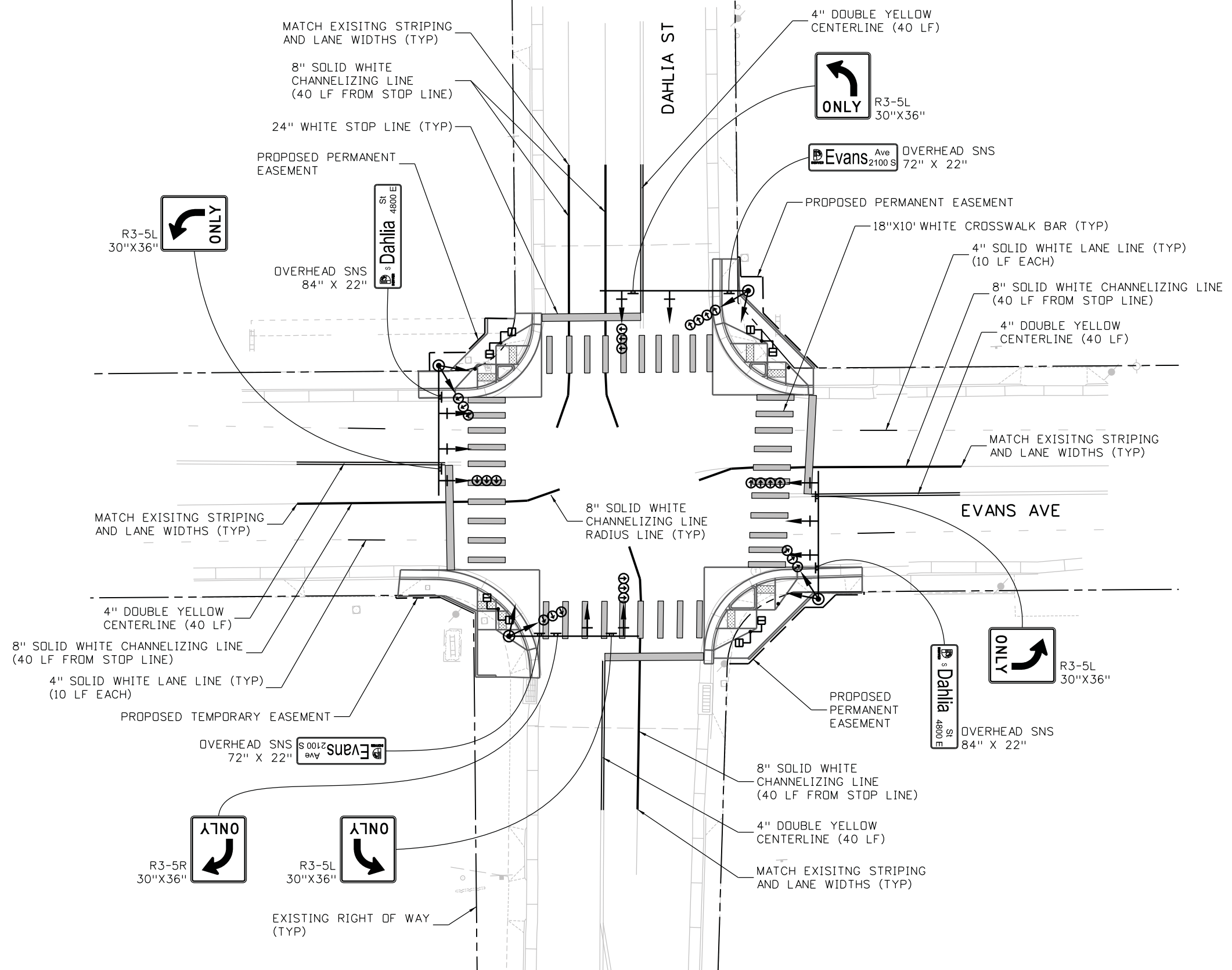
Department of Public Works
 Traffic Engineering Services
 201 West Colfax Avenue
 Denver, CO 80202
 (720) 865-3150

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No Revisions:
Revised:
Void:

DENVER TRAFFIC SIGNAL REBUILD	
TRAFFIC SIGNAL PLAN	
UNIVERSITY BLVD & DARTMOUTH AVE	
Designer: MSR	
Detailer: MSR	
Sheet Subset: SIGNAL	Subset Sheets: 4 of 4

Project No./Code
2016-PRDJMSTR-0000211
Sheet Number
39

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apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440
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 (720) 865-3150

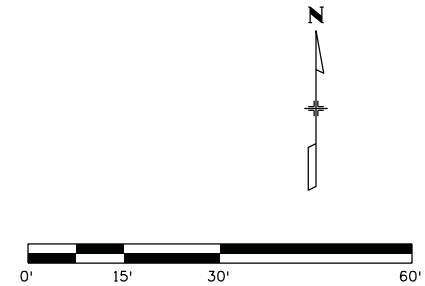
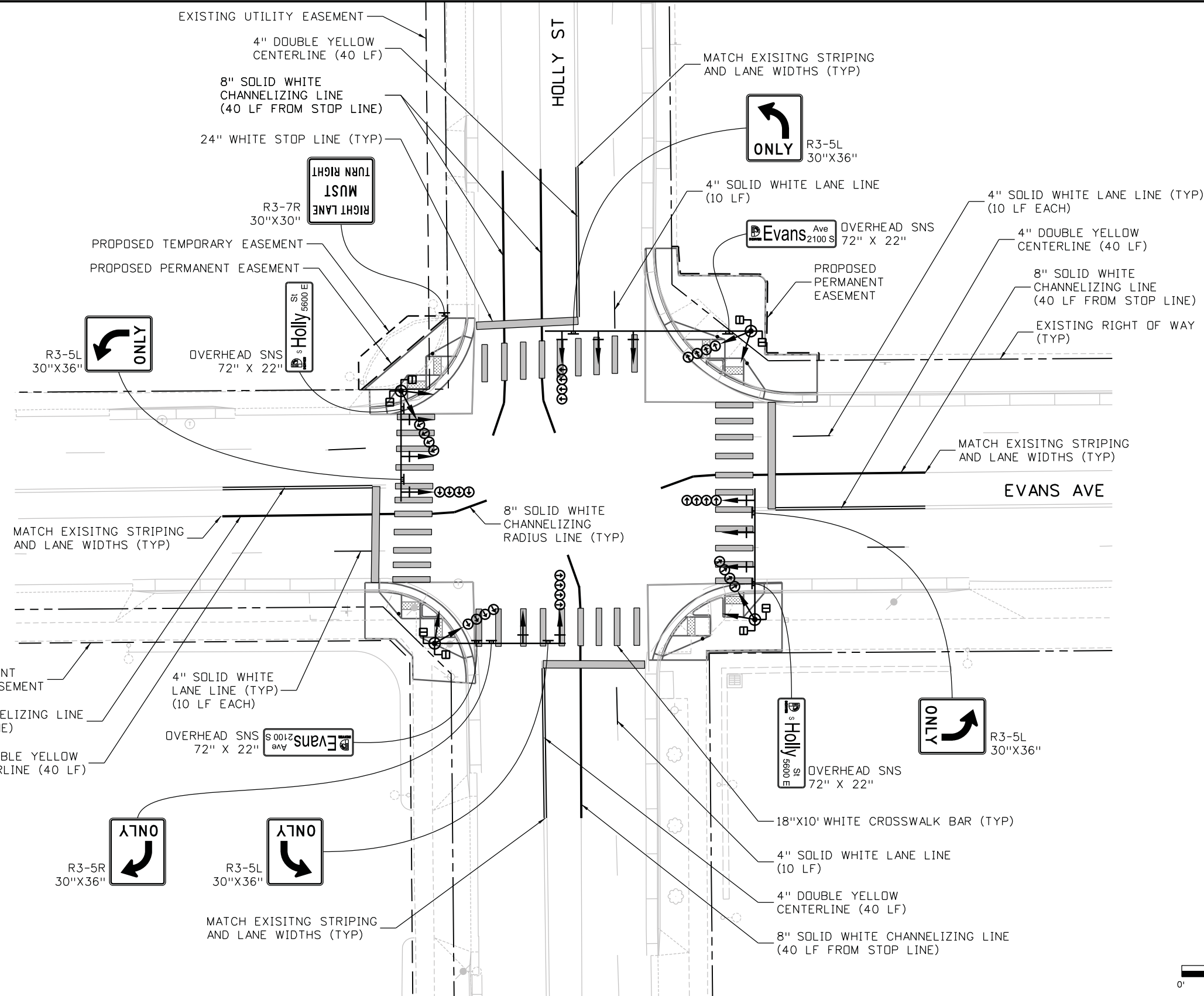
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No Revisions:
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**DENVER TRAFFIC SIGNAL REBUILD
 SIGNING AND STRIPING PLAN
 EVANS AVE & DAHLIA ST**

Designer: MSR
 Detailer: MSR
 Sheet Subset: S&S Subset Sheets: 1 of 4

Project No./Code
 2016-PRDJMSTR-0000211
 Sheet Number **40**

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apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440
 DENVER, COLORADO 80202 FAX: 303-325-7743

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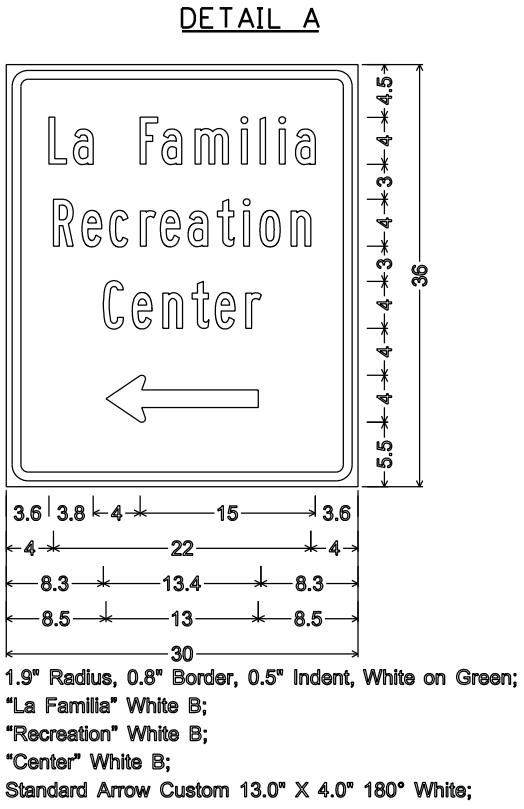
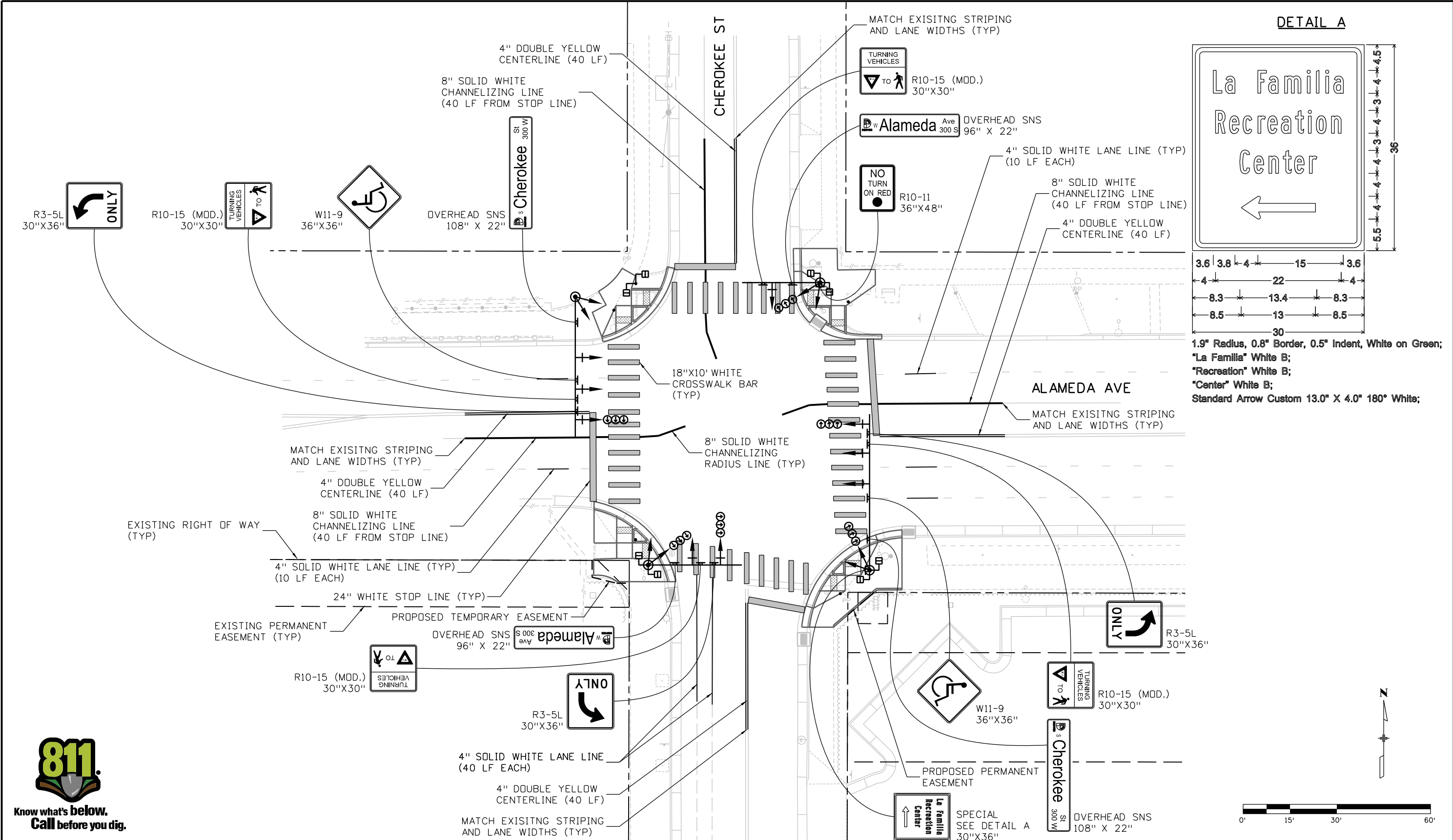


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No Revisions:
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DENVER TRAFFIC SIGNAL REBUILD SIGNING AND STRIPING PLAN EVANS AVE & HOLLY ST			
Designer:	MSR		
Detailer:	MSR		
Sheet Subset:	S&S	Subset Sheets:	2 of 4

Project No./Code
2016-PRDJMSTR-0000211
Sheet Number
41

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apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440
 DENVER, COLORADO 80202 FAX: 303-325-7743

Sheet Revisions		
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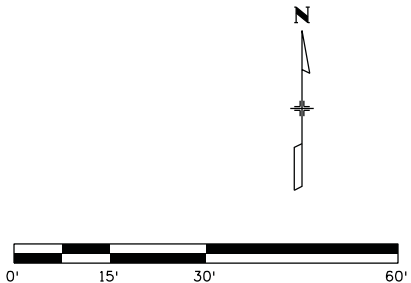
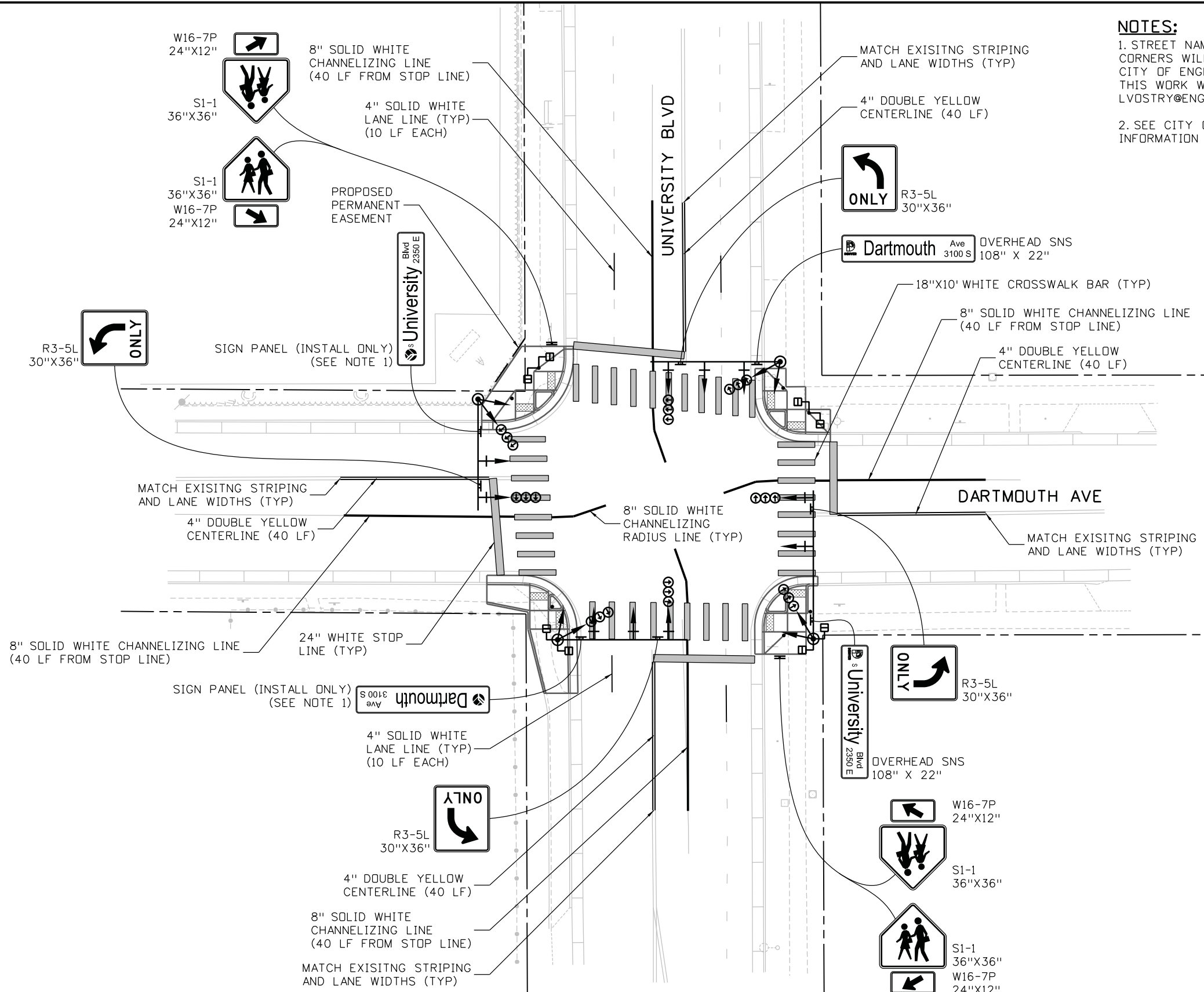
DENVER TRAFFIC SIGNAL REBUILD SIGNING AND STRIPING PLAN ALAMEDA AVE & CHEROKEE ST	
Designer:	MSR
Detailer:	MSR
Sheet Subset:	S&S
Subset Sheets:	3 of 4

Project No./Code
2016-PRDJMSTR-0000211
Sheet Number 42

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NOTES:

1. STREET NAME SIGNS FOR NORTHWEST AND SOUTHWEST CORNERS WILL BE FURNISHED TO THE CONTRACTOR BY THE CITY OF ENGLEWOOD. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH LADD VOSTRY AT 303-762-2511 OR LVOSTRY@ENGLEWOODGOV.ORG.
2. SEE CITY OF ENGLEWOOD GENERAL NOTES FOR MORE INFORMATION REGARDING WORK AT THIS INTERSECTION.



Print Date: 11/16/2016
 File Name: 33 S&S-University and Dartmouth.dgn
 Horiz. Scale: 1:30 Vert. Scale: N/A
 TRAFFIC SIGNAL REBUILD - MILL LEVY 7B
apexdesign 1675 LARIMER ST, STE 480 PH: 303-339-0440
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 (720) 865-3150

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DENVER TRAFFIC SIGNAL REBUILD SIGNING AND STRIPING PLAN UNIVERSITY BLVD & DARTMOUTH AVE			
Designer:	MSR		
Detailer:	MSR		
Sheet Subset:	S&S	Subset Sheets:	4 of 4

Project No./Code	2016-PRDJMSTR-0000211
Sheet Number	43