

**CITY AND COUNTY OF DENVER**  
**STATE OF COLORADO**



**DENVER**  
**THE MILE HIGH CITY**

**DEPARTMENT OF PUBLIC WORKS**

**Bid Form Package**

**Contract Number: 201843268**



**SHE 2015**

**Traffic Signal Upgrades**

**July 23, 2018**



## NOTICE OF APPARENT LOW BIDDER

Sturgeon Electric Company, Inc.  
12150 E. 112th Ave.  
Henderson, CO 80640

The EXECUTIVE DIRECTOR OF PUBLIC WORKS has considered the Bids submitted on **September 13, 2018**, for work to be done and materials to be furnished in and for:

### 201843268 SHE 2015 Traffic Signal Upgrades

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: **bid item numbers (201-00000 through 630-80380) which includes Ninety-seven (97) total bid items plus five (5) force accounts**, the total estimated cost thereof being: **Two Million Two Hundred Fifty-Four Thousand Seven Hundred Eighty-One Dollars And Seventy-Five Cents (\$2,254,781.75).**

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](http://www.denvergov.org/dpw)  
p. 720.865.8630 | f. 720.865.8795

**NOTICE OF APPARENT LOW BIDDER**

CONTRACT NO. 201843268

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

Dated at Denver, Colorado this 3<sup>rd</sup> day of October 2018.

CITY AND COUNTY OF DENVER

By *Eulois Cleckley*  
Eulois Cleckley  
Executive Director of Public Works

cc: Kristen Moore (CAO), Treasury (taxaadmin@denvergov.org), Imogene Manuelito, (DSBO), John Yu, (PM), Prevailing Wage, File.

**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 checked="" type="checkbox"/>
BF-6+	a.) Fill in individual bid item dollars and totals in Numerical figures only b.) Complete all blanks c.) Legal name required	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
BF-7	a.) Write out bid total or bid totals in words and figures in the blank form space(s) provided b.) Calculate Textura® Construction Payment Management System Fee from chart on pg. BF-3 and write % and fee in the space provided	<input checked="" type="checkbox"/>
BF-8	a.) List all subcontractors who are performing work on this project	<input checked="" type="checkbox"/>
BF-9 – BF-10	a.) Fully complete List of Proposed Disadvantaged Business Enterprise Bidders, Subcontractors, Suppliers, Manufacturers, or Brokers – check appropriate boxes.	<input checked="" type="checkbox"/>
BF-11	a.) Complete all blanks b.) If Addenda have been issued, complete bottom section.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
BF-12	a.) Complete appropriate sections - signature(s) required. b.) If corporation, then corporate seal required.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
BF-13	a.) Fully complete Commitment to Participation	<input checked="" type="checkbox"/>
BF-16	a.) If applicable, fully complete Joint Venture Affidavit (Submit 10 days prior to Bid Opening date)	<input checked="" type="checkbox"/>
BF-17 – BF-19	a.) If applicable, fully complete Joint Venture Eligibility Form (Submit 10 days prior to Bid Opening date)	<input checked="" type="checkbox"/>
BF-20	a.) Fill in all Bid Bond blanks b.) Signatures required c.) Corporate Seal if required d.) Dated e.) Attach Surety Agents Power of Attorney or Certified or cashier's check made out to the Manager of Revenue referencing Bidder's Company and Contract Number.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" 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 checked="" type="checkbox"/>
BF-25 - BF-27	Complete all CDOT forms, including: a.) Contractors Performance Capability Statement b.) Anti-Collusion Affidavit c.) Assignment of Anti-Trust Claims	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" 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 Value	Project Fee (GC + Sub Usage)
\$250,000 - \$499,999.99	\$1,625
\$500,000 - \$999,999.99	\$3,250
\$1,000,000 - \$2,999,999.99	\$5,850
\$3,000,000 - \$4,999,999.99	\$9,100
\$5,000,000 - \$9,999,999.99	\$12,220
\$10,000,000 - \$19,999,999.99	\$20,345
\$20,000,000 - \$49,999,999.99	\$32,500
\$50,000,000 - \$99,999,999.99	\$48,750
\$100,000,000 - \$199,999,999.99	\$69,095
\$200,000,000 - \$299,999,999.99	\$85,345
\$300,000,000 - \$399,999,999.99	\$109,720
\$400,000,000 - \$499,999,999.99	\$142,220
\$500,000,000 - \$999,999,999.99	\$162,500
\$1,000,000,000 - \$1,999,999,999.99	\$345,345
\$2,000,000,000 - \$4,999,999,999.99	\$650,000
\$5,000,000,000 - \$9,999,999,999.99	\$1,015,625
\$10,000,000,000 or greater	\$1,503,125

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. 201843268  
FEDERAL AID PROJECT NO. SHE M320-092/20303**

**SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico**

**BIDDER:** Sturgeon Electric Company, Inc.  
**(Legal Name per Colorado Secretary of State)**

**ADDRESS:** 12150 East 112th Ave  
Henderson, CO 80640  
   
 

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. 201843268, SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico, made available to the undersigned bidder pursuant to Notice of Invitation for Bids dated July 23, 2018.

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

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

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

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

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

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

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

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

**BIDDER:**

Name: Sturgeon Electric Company, Inc.

By:   
Jim Bushnell

Title: Vice President, Colorado Traffic

**ATTEST:**

By:   
Assistant Secretary, Krysta Brewer

[SEAL]



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

**BID FORM**

**CONTRACT NO. 201843268  
FEDERAL AID PROJECT NO. SHE M320-092/20303**

**SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico**

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

**BIDDER** Sturgeon Electric Company, Inc.

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 **July 23, 2018**, to furnish all required materials, tools, appliances, equipment and plant; to perform all necessary labor and to undertake and complete: **CONTRACT NO. 201843268, SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico** in Denver, Colorado, in full accordance with and conformity to the Plans, Technical Specifications, and Contract Documents hereto attached or by reference made a part hereof, at and for the following price(s) set forth on this Bid Form.

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

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

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

<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
201-00000	<b>CLEARING AND GRUBBING</b> at the unit price of \$ <u>3,021.00</u> per lump sum.	1 LS	\$ <u>3,021.00</u>
202-00195	<b>REMOVAL OF MEDIAN COVER</b> at the unit price of \$ <u>41.65</u> per square yard.	69 SY	\$ <u>2,873.85</u>
202-00200	<b>REMOVAL OF SIDEWALK</b> at the unit price of \$ <u>25.00</u> per square yard.	701 SY	\$ <u>17,525.00</u>
202-00203	<b>REMOVAL OF CURB AND GUTTER</b> at the unit price of \$ <u>5.45</u> per linear foot.	1,454 LF	\$ <u>7,924.30</u>
202-00206	<b>REMOVAL OF CONCRETE CURB RAMP</b> at the unit price of \$ <u>55.60</u> per square yard.	205 SY	\$ <u>11,398.00</u>
202-00210	<b>REMOVAL OF CONCRETE PAVEMENT</b> at the unit price of \$ <u>41.65</u> per square yard.	87 SY	\$ <u>3,623.55</u>
202-00220	<b>REMOVAL OF ASPHALT MAT</b> at the unit price of \$ <u>70.05</u> per square yard.	694 SY	\$ <u>48,614.70</u>
202-00250	<b>REMOVAL OF PAVEMENT MARKING</b> at the unit price of \$ <u>2.20</u> per square yard.	6,466 SF	\$ <u>14,225.20</u>
202-00828	<b>REMOVAL OF TRAFFIC SIGNAL EQUIPMENT</b> at the unit price of \$ <u>34,000.00</u> per lump sum.	1 L S	\$ <u>34,000.00</u>
202-04005	<b>CLEAN VALVE BOX</b> at the unit price of \$ <u>347.00</u> per each.	1 EACH	\$ <u>347.00</u>
203-00050	<b>UNSUITABLE MATERIALS</b> at the unit price of \$ <u>191.00</u> per cubic yard.	25 CY	\$ <u>4,775.00</u>
203-01597	<b>POTHOLING</b> at the unit price of \$ <u>280.00</u> per each.	88 EACH	\$ <u>24,640.00</u>

<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
203-01620	<b>SWEEPING</b> at the unit price of \$ <u>138.00</u> per hour.	92 HOUR	\$ <u>12,696.00</u>
208-00008	<b>EROSION LOG (9 INCH)</b> at the unit price of \$ <u>5.55</u> per linear foot.	570 LF	\$ <u>3,163.50</u>
208-00035	<b>AGGREGATE BAG</b> at the unit price of \$ <u>13.60</u> per linear foot.	400 LF	\$ <u>5,440.00</u>
208-00045	<b>CONCRETE WASHOUT STRUCTURE</b> at the unit price of \$ <u>816.00</u> per each.	5 EACH	\$ <u>4,080.00</u>
208-00050	<b>STORM DRAIN INLET PROTECTION</b> at the unit price of \$ <u>277.00</u> per each.	16 EACH	\$ <u>4,432.00</u>
208-00070	<b>VEHICLE TRACKING PAD</b> at the unit price of \$ <u>622.00</u> per each.	1 EACH	\$ <u>622.00</u>
208-00103	<b>REMOVAL AND DISPOSAL OF SEDIMENT (LABOR)</b> at the unit price of \$ <u>143.00</u> per hour.	90 HOUR	\$ <u>12,870.00</u>
208-00105	<b>REMOVAL AND DISPOSAL OF SEDIMENT (EQUIPMENT)</b> at the unit price of \$ <u>207.00</u> per hour.	90 HOUR	\$ <u>18,630.00</u>
208-00106	<b>SWEEPING (SEDIMENT REMOVAL)</b> at the unit price of \$ <u>138.00</u> per hour.	90 HOUR	\$ <u>12,420.00</u>
208-00107	<b>REMOVAL OF TRASH</b> at the unit price of \$ <u>87.00</u> per hour.	90 HOUR	\$ <u>7,830.00</u>
208-00206	<b>EROSION CONTROL SUPERVISOR</b> at the unit price of \$ <u>378.00</u> per day.	25 DAY	\$ <u>9,450.00</u>
210	<b>RESET RADIO COMMUNICATION ANTENNA (YAGI AND OMNI)</b> at the unit price of \$ <u>865.00</u> per each.	3 EACH	\$ <u>2,595.00</u>

<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
210	<b>RESET MICROWAVE VEHICLE RADAR DETECTOR (MVRD)</b> at the unit price of \$ <u>865.00</u> per each.	1 EACH	\$ <u>865.00</u>
210-04010	<b>ADJUST MANHOLE</b> at the unit price of \$ <u>2,720.00</u> per each.	3 EACH	\$ <u>8,160.00</u>
210-04020	<b>MODIFY INLET</b> at the unit price of \$ <u>2,763.00</u> per each.	1 EACH	\$ <u>2,763.00</u>
210-04050	<b>ADJUST VALVE BOX</b> at the unit price of \$ <u>1,158.00</u> per each.	1 EACH	\$ <u>1,158.00</u>
211-03005	<b>DEWATERING</b> at the unit price of \$ <u>12,100.00</u> per each.	2 EACH	\$ <u>24,200.00</u>
212-00050	<b>SOD</b> at the unit price of \$ <u>10.10</u> per square foot.	692 SF	\$ <u>6,989.20</u>
212-00100	<b>TREE RETENTION AND PROTECTION</b> at the unit price of \$ <u>515.00</u> per each.	3 EACH	\$ <u>1,545.00</u>
213-00067	<b>ROCK MULCH (WEED FREE)</b> at the unit price of \$ <u>12.25</u> per square foot.	185 SF	\$ <u>2,266.25</u>
304-06000	<b>AGGREGATE BASE COURSE (CLASS 6)</b> at the unit price of \$ <u>70.55</u> per ton.	200 TON	\$ <u>14,110.00</u>
403-00720	<b>HOT MIX ASPHALT (PATCHING) (ASPHALT)</b> at the unit price of \$ <u>215.00</u> per ton.	100 TON	\$ <u>21,500.00</u>
403-34851	<b>HOT MIX ASPHALT (GRADING SX) (100) (PG 64-28)</b> at the unit price of \$ <u>220.35</u> per ton.	192 TON	\$ <u>42,307.20</u>

<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
412-00800	<b>CONCRETE PAVEMENT (8 INCH)</b> at the unit price of \$ <u>104.00</u> per square yard.	147 SY	\$ <u>15,288.00</u>
503-00036	<b>DRILLED CAISSON (36 INCH)</b> at the unit price of \$ <u>410.00</u> per linear foot.	34 LF	\$ <u>13,940.00</u>
503	<b>DRILLED CAISSON (36 INCH)(VACUUM)</b> at the unit price of \$ <u>410.00</u> per linear foot.	134 LF	\$ <u>54,940.00</u>
503-00048	<b>DRILLED CAISSON (48 INCH)</b> at the unit price of \$ <u>463.00</u> per linear foot.	31 LF	\$ <u>14,353.00</u>
503	<b>DRILLED CAISSON (48 INCH)(VACUUM)</b> at the unit price of \$ <u>463.00</u> per linear foot.	122 LF	\$ <u>56,486.00</u>
607-11525	<b>FENCE (PLASTIC)</b> at the unit price of \$ <u>8.70</u> per linear foot.	250 LF	\$ <u>2,175.00</u>
608-00000	<b>CONCRETE SIDEWALK</b> at the unit price of \$ <u>76.00</u> per square yard.	615 SY	\$ <u>46,740.00</u>
608-00010	<b>CONCRETE CURB RAMP</b> at the unit price of \$ <u>182.00</u> per square yard.	402 SY	\$ <u>73,164.00</u>
609-20010	<b>CURB TYPE 2 (SECTION B)</b> at the unit price of \$ <u>20.75</u> per linear foot.	162 LF	\$ <u>3,361.50</u>
609-21010	<b>CURB AND GUTTER TYPE 2 (SECTION I-B)</b> at the unit price of \$ <u>33.75</u> per linear foot.	183 LF	\$ <u>6,176.25</u>
609-21020	<b>CURB AND GUTTER TYPE 2 (SECTION II-B)</b> at the unit price of \$ <u>37.20</u> per linear foot.	1,150 LF	\$ <u>42,780.00</u>
610-00030	<b>MEDIAN COVER MATERIAL (CONCRETE)</b> at the unit price of \$ <u>12.05</u> per square foot.	1,047 SF	\$ <u>12,616.35</u>

<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
613-00206	<b>2 INCH ELECTRICAL CONDUIT (BORED)</b> at the unit price of \$ <u>25.40</u> per linear foot.	1,623 LF	\$ <u>41,224.20</u>
613-00306	<b>3 INCH ELECTRICAL CONDUIT (BORED)</b> at the unit price of \$ <u>26.00</u> per linear foot.	3,516 LF	\$ <u>91,416.00</u>
613-07000	<b>PULL BOX (SPECIAL)</b> at the unit price of \$ <u>1,690.00</u> per each.	6 EACH	\$ <u>10,140.00</u>
613-10000	<b>WIRING</b> at the unit price of \$ <u>44,950.00</u> per lump sum.	1 L S	\$ <u>44,950.00</u>
613-13040	<b>LUMINAIRE LED 5300 LUMENS</b> at the unit price of \$ <u>710.00</u> per each.	20 EACH	\$ <u>14,200.00</u>
613	<b>ELECTRIC METER PEDESTAL CABINET AND BASE</b> at the unit price of \$ <u>4,310.00</u> per each.	5 EACH	\$ <u>21,550.00</u>
614-00011	<b>SIGN PANEL (CLASS I)</b> at the unit price of \$ <u>37.30</u> per square foot.	398 SF	\$ <u>14,845.40</u>
614-00035	<b>SIGN PANEL (SPECIAL)</b> at the unit price of \$ <u>39.50</u> per square foot.	315 SF	\$ <u>12,442.50</u>
614-00216	<b>STEEL SIGN POST (2X2 INCH TUBING)</b> at the unit price of \$ <u>48.00</u> per linear foot.	173 LF	\$ <u>8,304.00</u>
614-70150	<b>PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)</b> at the unit price of \$ <u>548.00</u> per each.	40 EACH	\$ <u>21,920.00</u>
614-70336	<b>TRAFFIC SIGNAL FACE (12-12-12)</b> at the unit price of \$ <u>835.00</u> per each.	85 EACH	\$ <u>70,975.00</u>

<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
614-70448	<b>TRAFFIC SIGNAL FACE (12-12-12-12)</b> at the unit price of \$ <u>1,010.00</u> per each.	28 EACH	\$ <u>28,280.00</u>
614-72860	<b>PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN</b> at the unit price of \$ <u>328.00</u> per each.	40 EACH	\$ <u>13,120.00</u>
614-72863	<b>PEDESTRIAN PUSH BUTTON POST ASSEMBLY</b> at the unit price of \$ <u>1,465.00</u> per each.	18 EACH	\$ <u>26,370.00</u>
614	<b>EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM</b> at the unit price of \$ <u>7,320.00</u> per each.	5 EACH	\$ <u>36,600.00</u>
614	<b>INTERSECTION DETECTION SYSTEM (FLIR)(CAMERA)</b> at the unit price of \$ <u>7,840.00</u> per each.	20 EACH	\$ <u>156,800.00</u>
614-75848	<b>TRAFFIC SIGNAL CONTROLLER AND CABINET</b> at the unit price of \$ <u>26,100.00</u> per each.	5 EACH	\$ <u>130,500.00</u>
614-81120	<b>TRAFFIC SIGNAL-LIGHT POLE STEEL (1-20 FOOT MAST ARM)</b> at the unit price of \$ <u>10,610.00</u> per each.	2 EACH	\$ <u>21,220.00</u>
614-81135	<b>TRAFFIC SIGNAL-LIGHT POLE STEEL (1-35 FOOT MAST ARM)</b> at the unit price of \$ <u>11,910.00</u> per each.	3 EACH	\$ <u>35,730.00</u>
614-81140	<b>TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)</b> at the unit price of \$ <u>12,610.00</u> per each.	1 EACH	\$ <u>12,610.00</u>
614-81145	<b>TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM)</b> at the unit price of \$ <u>14,370.00</u> per each.	1 EACH	\$ <u>14,370.00</u>

<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
614-81150	<b>TRAFFIC SIGNAL-LIGHT POLE STEEL (1-50 FOOT MAST ARM)</b> at the unit price of \$ <u>14,730.00</u> per each.	2 EACH	\$ <u>29,460.00</u>
614-81155	<b>TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST ARM)</b> at the unit price of \$ <u>15,270.00</u> per each.	2 EACH	\$ <u>30,540.00</u>
614-81160	<b>TRAFFIC SIGNAL LIGHT POLE STEEL (1-60 FOOT MAST ARM)</b> at the unit price of \$ <u>17,475.00</u> per each.	2 EACH	\$ <u>34,950.00</u>
614-81165	<b>TRAFFIC SIGNAL-LIGHT POLE STEEL (1-65 FOOT MAST ARM)</b> at the unit price of \$ <u>18,480.00</u> per each.	3 EACH	\$ <u>55,440.00</u>
614-81170	<b>TRAFFIC SIGNAL-LIGHT POLE STEEL (1-70 FOOT MAST ARM)</b> at the unit price of \$ <u>18,705.00</u> per each.	4 EACH	\$ <u>74,820.00</u>
614-86105	<b>TELEMETRY (FIELD)</b> at the unit price of \$ <u>6,025.00</u> per each.	5 EACH	\$ <u>30,125.00</u>
614	<b>FIBER OPTIC CABLE (SINGLE MODE) (6 STRAND)</b> at the unit price of \$ <u>14.05</u> per linear foot.	130 LF	\$ <u>1,826.50</u>
614	<b>FIBER OPTIC CABLE(MULTI MODE)(6 SINGLEMODE/42 MULTIMODE STRAND)</b> at the unit price of \$ <u>10.60</u> per linear foot.	840 LF	\$ <u>8,904.00</u>
614	<b>FIBER OPTIC CABLE TERMINATION PANEL (6 STRAND)</b> at the unit price of \$ <u>2,125.20</u> per each.	1 EACH	\$ <u>2,125.20</u>
614-87333	<b>CLOSED CIRCUIT TELEVISION CAMERA (TRAFFIC SURVEILLANCE)</b> at the unit price of \$ <u>4,750.00</u> per each.	5 EACH	\$ <u>23,750.00</u>



<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
625-00000	<b>CONSTRUCTION SURVEYING</b> at the unit price of \$ <u>17,540.00</u> per lump sum.	1 L S	\$ <u>17,540.00</u>
626-00000	<b>MOBILIZATION</b> at the unit price of \$ <u>86,000.00</u> per lump sum.	1 L S	\$ <u>86,000.00</u>
627-00005	<b>EPOXY PAVEMENT MARKING</b> at the unit price of \$ <u>365.00</u> per gallon.	8 GAL	\$ <u>2,920.00</u>
627-30405	<b>PREFORMED THERMOPLASTIC PAVEMENT MARKING (WORD- SYMBOL)</b> at the unit price of \$ <u>17.05</u> per square foot.	230 SF	\$ <u>3,921.50</u>
627-30410	<b>PREFORMED THERMOPLASTIC PAVEMENT MARKING (XWALK- STOP LINE)</b> at the unit price of \$ <u>10.90</u> per square foot.	5,634 SF	\$ <u>61,410.60</u>
629-01001	<b>SURVEY MONUMENT (TYPE 1)</b> at the unit price of \$ <u>165.00</u> per each.	56 EACH	\$ <u>9,240.00</u>
630-00000	<b>FLAGGING</b> at the unit price of \$ <u>23.50</u> per hour.	950 HOUR	\$ <u>22,325.00</u>
630-00003	<b>UNIFORMED TRAFFIC CONTROL</b> at the unit price of \$ <u>117.00</u> per hour.	80 HOUR	\$ <u>9,360.00</u>
630-00007	<b>TRAFFIC CONTROL INSPECTION</b> at the unit price of \$ <u>152.00</u> per day.	40 DAY	\$ <u>6,080.00</u>
630-00012	<b>TRAFFIC CONTROL MANAGEMENT</b> at the unit price of \$ <u>601.00</u> per day.	120 DAY	\$ <u>72,120.00</u>
630-80335	<b>BARRICADE (TYPE 3 M-A) (TEMPORARY)</b> at the unit price of \$ <u>60.00</u> per each.	4 EACH	\$ <u>240.00</u>

<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
630-80341	<b>CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)</b> at the unit price of \$ <u>33.25</u> per each.	20 EACH	\$ <u>665.00</u>
630-80342	<b>CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)</b> at the unit price of \$ <u>44.00</u> per each.	24 EACH	\$ <u>1,056.00</u>
630-80344	<b>CONSTRUCTION TRAFFIC SIGN (SPECIAL)</b> at the unit price of \$ <u>19.25</u> per square foot.	72 SF	\$ <u>1,386.00</u>
630-80350	<b>VERTICAL PANEL</b> at the unit price of \$ <u>22.50</u> per each.	150 EACH	\$ <u>3,375.00</u>
630-80355	<b>PORTABLE MESSAGE SIGN PANEL</b> at the unit price of \$ <u>3,725.00</u> per each.	2 EACH	\$ <u>7,450.00</u>
630-80358	<b>ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL (C TYPE)</b> at the unit price of \$ <u>1,125.00</u> per each.	4 EACH	\$ <u>4,500.00</u>
630-80363	<b>DRUM CHANNELIZING DEVICE (WITH LIGHT) (FLASHING)</b> at the unit price of \$ <u>27.75</u> per each.	20 EACH	\$ <u>555.00</u>
630-80380	<b>TRAFFIC CONE</b> at the unit price of \$ <u>5.30</u> per each.	200 EACH	\$ <u>1,060.00</u>

<b>Item No.</b>	<b>Description and Price</b>	<b>Estimated Quantity</b>	<b>Estimated Cost</b>
700-70010	<b>F/A MINOR CONTRACT REVISIONS</b> at the unit price of \$ <u>25,000.00</u> per force account.	1 F A	\$ <u>25,000.00</u>
700-70021	<b>F/A ON-THE-JOB TRAINEE</b> at the unit price of \$ <u>640.00</u> per force account.	1 F A	\$ <u>640.00</u>
700-70034	<b>F/A ENVIRONMENTAL</b> at the unit price of \$ <u>2,500.00</u> per force account.	1 F A	\$ <u>2,500.00</u>
700-70082	<b>F/A FURNISH &amp; INSTALL ELECTRICAL SERVICE</b> at the unit price of \$ <u>50,000.00</u> per force account.	1 F A	\$ <u>50,000.00</u>
700-70380	<b>F/A EROSION CONTROL</b> at the unit price of \$ <u>5,000.00</u> per force account.	1 F A	\$ <u>5,000.00</u>

**Bid Items Total Amount (201-00000 through 630-80380 (Ninety-seven [97] total bid items plus 5 Force Accounts) \$ 2,248,931.75**

**Textura ® Fee from table on Page BF-3 (based on Bid Items Total Amount) \$ 5,850.00**

**Bid Items Total Amount plus Textura® Fee equals Total Bid Amount \$ 2,254,781.75**

<b>Total Bid Amount</b> Two Million, Two Hundred Fifty Four Thousand, Seven Hundred Eighty One Dollars and Seventy Five Cents. <hr/> <p style="text-align: center;">Dollars (\$ 2,254,781.75 )</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 in the sum of the full amount of this bid, executed by a surety company acceptable to the Manager.

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

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

Name: \_\_\_\_\_ Name: \_\_\_\_\_

Address: \_\_\_\_\_ Address: \_\_\_\_\_

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


NONE

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

Item of Work	Percent (%) of Total; Work	Proposed Subcontractor and Address
Directional Drilling	2.86%	Drilltech Directional Boring
		7080 York Street Denver, CO 80229
Traffic Control	5.6%	Legacy Traffic Management, LLC.
		1390 S. Cherokee ST., Denver, CO. 80233
Concrete	10.35%	Affordable Concrete, LCC
		9725 E. Hampden Ave. S100, Denver, CO. 80231
Asphalt	5.86%	Western States Contracting
		8101 West I-25 Frontage RD. Frederick, CO. 80516
Pavement Markings	3.8%	American Striping Company
		3075 South Tejon Street Englewood, CO. 80110
Enviromental	2.75%	Smith Environmental & Engineering
		250 Perry Lane, Dacono, CO. 80514

(Copy this page if additional room is required.)

**CITY AND COUNTY OF DENVER  
DEPARTMENT OF PUBLIC WORKS  
201843268**

 <b>DENVER</b> OFFICE OF ECONOMIC DEVELOPMENT	<b>List of Proposed DBE Bidders, Subcontractors, Suppliers (Manufacturers) or Brokers</b>		Office of Economic Development Division of Small Business Opportunity Compliance Unit 201 W. Colfax Ave. Dept. 807 Denver, CO 80202 Phone: 720-913-1999 <a href="mailto:DSBO@denvergov.org">DSBO@denvergov.org</a>				
	City & County of Denver Project No.: 201843268						
The undersigned Bidder proposes to utilize all listed firms. The following DBE(s) firms listed are CURRENTLY certified by the City and County of Denver or UCP. Only the level of DBE participation listed at the bid opening will count toward satisfaction of the project goal. Only bona fide commissions may be counted for Brokers. DBE prime bidders must detail their bid information below. Please copy and attach this page to list additional DBE.							
<b>Non-Certified Prime Bidder</b>							
Business Name: Sturgeon Electric Company, Inc.							
Address: 12150 E. 112th Ave, Henderson, CO. 80640		Contact Person: Tim McGinn					
Type of Service: Electrical Construction		Dollar Amount \$:	Percent of Project:				
<b>Certified DBE Prime Bidder</b>							
Business Name:							
Address:		Contact Person:					
Type of Service:		Dollar Amount \$:	Percent of Project:				
<b>Subcontractors, Suppliers Manufacturers or Brokers (check one box)</b>							
<input type="checkbox"/>	Subcontractor (√)	<input checked="" type="checkbox"/>	Supplier (√)	<input type="checkbox"/>	Manufacturer (√)	<input type="checkbox"/>	Broker (√)
Business Name: AM Signal, INC.							
Address: 8100 Southpark Way, Unit A10 Littleton, CO. 80120		Type of Service: Traffic Signal Supply					
Contact Person: Maureen Undzis		Dollar Amount \$: 101,301.00	Percent of Project: 4.7%				
<input checked="" type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>	Manufacturer (√)	<input type="checkbox"/>	Broker (√)
Business Name: Legacy Traffic Management, LLC							
Address: 1390 S. Cherokee St. Denver Co. 80233		Type of Service: Traffic Control					
Contact Person: Jesse Leonard		Dollar Amount \$: 120,394.00	Percent of Project: 5.6%				
<input checked="" type="checkbox"/>	Subcontractor (√)	<input type="checkbox"/>	Supplier (√)	<input type="checkbox"/>	Manufacturer (√)	<input type="checkbox"/>	Broker (√)
Business Name: American Striping Company							
Address: 3075 South Tejon Street, Englewood, CO. 80110		Type of Service: Pavement Marking					
Contact Person: Tony Cicco		Dollar Amount \$: 82,622.00	Percent of Project: 3.8%				

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:			
<input type="checkbox"/>	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:			
<input type="checkbox"/>	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:			
<input type="checkbox"/>	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:			
<input type="checkbox"/>	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:			
<input type="checkbox"/>	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:			
<input type="checkbox"/>	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:			
<input type="checkbox"/>	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 DBE(s) was furnished to the Bidder prior to the bid opening. The undersigned Bidder agrees that after the bid opening, it shall submit to the City an executed and completed DBE "Letter of Intent" in five working days (5), on each of its DBE or DBE subcontractors. The "Letter of Intent" form is contained in the Contract Documents.

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

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

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

Business Address of Bidder: 12150 East 112th Ave

City, State, Zip Code: Henderson, CO 80640

Telephone Number of Bidder: 303-286-8000 Fax No. 303-286-1811

Contact Name for this Project: Tim McGinn

Social Security or Federal Employer ID Number of Bidder: 84-0681206

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

Mill Levy 7

For information relative thereto, please refer to:

Name: Dani Abbot

Title: Contract Administrator

Address: City and County of Denver 201 W. Colfax Ave. Dept #614, Denver, CO 80202

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

Addenda Number 1 Date 8/28/2018

Addenda Number \_\_\_\_\_ Date \_\_\_\_\_

Addenda Number \_\_\_\_\_ Date \_\_\_\_\_

Dated this 30th day of August, 2018



**Signature of Bidder:**

If an Individual: \_\_\_\_\_ doing business  
as \_\_\_\_\_

If a Partnership: \_\_\_\_\_  
by: \_\_\_\_\_, General Partner.

If a Corporation: Sturgeon Electric Company, Inc.  
a Michigan, Corporation,  
by: *[Signature]*, its ~~XXXXXXXXXX~~  
Jim Bushnell, Vice President, Colorado Traffic

Attest:  
*[Signature]*  
Assistant Secretary Krysta Brewer (Corporate Seal)

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

Firm: \_\_\_\_\_

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

By: \_\_\_\_\_ (If a Corporation)  
Attest: \_\_\_\_\_  
Title: \_\_\_\_\_ Secretary (Corporate Seal)

Firm: \_\_\_\_\_

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

By: \_\_\_\_\_ (If a Corporation)  
Attest: \_\_\_\_\_  
Title: \_\_\_\_\_ Secretary (Corporate Seal)

Firm: \_\_\_\_\_

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

By: \_\_\_\_\_ (If a Corporation)  
Attest: \_\_\_\_\_  
Title: \_\_\_\_\_ Secretary (Corporate Seal)

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



**COMMITMENT TO DBE  
PARTICIPATION**

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](mailto:DSBO@denvergov.org)

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

The Bidder/Proposer is committed to the minimum of 12 % DBE utilization on the project, and will submit Letters of Intent (LOI) for each subcontractor/subconsultant listed in the Bid Forms as follows:  
**Hard Bids:** Five (5) business days after the bid opening.  
**Request for Proposals/Qualifications:** With the proposal when due.

The Bidder/Proposer is unable to meet the project goal of \_\_\_\_\_ % DBE, but is committed to a minimum of \_\_\_\_\_ % DBE utilization on the project. The Bidder/Proposer understands that they must submit a detailed statement of their good faith effort under sealed bid procedures, as a matter of responsiveness, or with initial proposals, under contract negotiation procedures; or no later than five (5) days after bid opening as a matter of responsibility as in accordance with regulations of the U.S. Department of Transportation, 49 CFR Part 26 §26.53

The Bidder/Proposer is a certified DBE in good standing with the City and is committed to self-perform a minimum of 30% of the work on the contract.

**Bidder/Proposer (Name of Firm):** Sturgeon Electric Company, Inc.

**Firm's Representative (Please print):** Timothy McGinn

**Signature (Firm's Representative):**

**Title:** Estimator Traffic

**Address:** 12150 E 112th Ave.

**City:** Henderson

**State:** CO.

**Zip:** 80640

**Phone:** 303-286-8000

**Fax:**

**Email:** [tmcginn@myrgroup.com](mailto:tmcginn@myrgroup.com)

**A copy of the DBE 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 [dsbo@denvergov.org](mailto:dsbo@denvergov.org)
- FOR RFPs and RFQs: LOIs should be included with Submittal

<b>Contract No.:</b> 201843268		<b>Project Name:</b> SHE 2015 Traffic Signal Upgrade	
<b>A. The Following Section is To Be Completed by the Bidder/Consultant</b> <b>This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE, EBE or DBE</b>			
<b>Name of Bidder/Consultant:</b> Sturgeon Electric Company, Inc.		<b>Self-Performing:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Phone:</b> 303-286-8000
<b>Contact Person:</b> Timothy McGinn		<b>Email:</b> <a href="mailto:tmcginn@myrgroup.com">tmcginn@myrgroup.com</a>	<b>Fax:</b>
<b>Address:</b> 12150 E 112th Ave.		<b>City:</b> Henderson	<b>State:</b> CO <b>Zip:</b> 80640
<b>B. The Following Section is To Be Completed by the M/WBE, SBE, EBE or DBE, at any Tier</b> <b>This Letter of Intent Must be Signed by the M/WBE, SBE, EBE or DBE and Bidder/Consultant</b>			
<b>Name of Certified Firm:</b> AM Signal, Inc.		<b>Phone:</b> 720-348-6925	
<b>Contact Person:</b> Maureen Undzis		<b>Email:</b> <a href="mailto:maureen@amsignalinc.com">maureen@amsignalinc.com</a>	<b>Fax:</b> 720-348-6950
<b>Address:</b> 8100 Southpark Way, Unit A10		<b>City:</b> Littleton	<b>State:</b> CO <b>Zip:</b> 72002
<b>Please check the designation which applies to the certified firm.</b>	<b>M/WBE</b> (v) <input checked="" type="checkbox"/>	<b>SBE</b> (v) <input checked="" type="checkbox"/>	<b>EBE</b> (v) <input checked="" type="checkbox"/>
			<b>DBE</b> (v) <input checked="" type="checkbox"/>
<b>Indirect Utilization:</b> 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:			
<b>A Copy of the M/WBE, SBE, EBE or DBE Letter of Certification must be Attached</b>			
Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. <b>On unit price bids only, identify which bid line items the M/WBE/SBE/EBE/DBEs scope of work or supply corresponds to.</b>			
614-72860, 614-72863, 614-Intersection Detection System, 614-86105			
<input type="checkbox"/>	<b>Subcontractor/Subconsultant</b> (v)	<input checked="" type="checkbox"/>	<b>Supplier</b> (v)
<input type="checkbox"/>		<input type="checkbox"/>	<b>Broker</b> (v)
<b>Bidder</b> 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:			
\$ 101,301.00		4.7 %	
<b>Consultant</b> 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: \$			
<b>Bidder/Consultant's Signature:</b>		<b>Date:</b> 9/17/2018	
<b>Title:</b> Estimator			
<b>M/WBE, SBE, EBE or DBE or Self-Performing Firm's Signature:</b>		<b>Date:</b> 9/17/2018	
<b>Title:</b> Operations Analyst			
If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void.			



**DENVER**  
OFFICE OF ECONOMIC  
DEVELOPMENT

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 [dsbo@denvergov.org](mailto:dsbo@denvergov.org)
- FOR RFPs and RFQs: LOIs should be included with Submittal

Contract No.: 201843268		Project Name: SHE 2015 Traffic Signal Upgrade					
<b>A. The Following Section is To Be Completed by the Bidder/Consultant</b> This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE, EBE or DBE							
Name of Bidder/Consultant: Sturgeon Electric Company, Inc.				Self-Performing: <input type="checkbox"/> Yes <input type="checkbox"/> No		Phone: 303-286-8000	
Contact Person: Timothy McGinn			Email: <a href="mailto:tmcginn@mytgroup.com">tmcginn@mytgroup.com</a>			Fax:	
Address: 12150 E 112th Ave.			City: Henderson		State: CO	Zip: 80640	
<b>B. The Following Section is To Be Completed by the M/WBE, SBE, EBE or DBE, at any Tier</b> 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: 303-455-5950			
Contact Person: Tony Cicco			Email: <a href="mailto:Office@americanstriping.com">Office@americanstriping.com</a>			Fax: 303-500-9181	
Address: 3075 S. Fern St			City: Englewood		State: CO	Zip: 80110	
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"/>
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:		N/A					
<b>A Copy of the M/WBE, SBE, EBE or DBE Letter of Certification must be Attached</b>							
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/DBEs scope of work or supply corresponds to.</u>							
202-00250, 627-00005, 627,30405, 627-30410							
<input checked="" type="checkbox"/>	Subcontractor/Subconsultant (✓)		<input type="checkbox"/>	Supplier (✓)		<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:							
\$ 82,622.00				3.8%		%	
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: <i>[Signature]</i>						Date: 9/13/18	
Title: Estimator							
M/WBE, SBE, EBE or DBE or Self-Performing Firm's Signature: <i>[Signature]</i>						Date: 9/13/18	
Title: 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.							



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

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- Certification Letter must be submitted with LOI
- Submit the attached completed checklist with this letter
- Email to [dsbo@denvergov.org](mailto:dsbo@denvergov.org),
- FOR RFPs and RFQs: LOIs should be included with Submittal

Contract No.: 201843268		Project Name: SHE 2015 Traffic Signal Upgrade					
<b>A. The Following Section Is To Be Completed by the Bidder/Consultant</b> This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE, EBE or DBE							
Name of Bidder/Consultant: Sturgeon Electric Company, Inc.				Self-Performing: <input type="checkbox"/> Yes <input type="checkbox"/> No		Phone: 303-286-8000	
Contact Person: Timothy McGinn			Email: <a href="mailto:tmcginn@myrgroup.com">tmcginn@myrgroup.com</a>			Fax:	
Address: 12150 E 112th Ave.			City: Henderson			State: CO	Zip: 80640
<b>B. The Following Section is To Be Completed by the M/WBE, SBE, EBE or DBE, at any Tier</b> This Letter of Intent Must be Signed by the M/WBE, SBE, EBE or DBE and Bidder/Consultant							
Name of Certified Firm: Legacy Traffic Management						Phone: 720.708.6334	
Contact Person: Jesse Leonard			Email: <a href="mailto:jesse@legacytraffic.net">jesse@legacytraffic.net</a>			Fax:	
Address: 1390 S Cherokee St			City: Denver			State: CO	Zip: 80223
Please check the designation which applies to the certified firm.		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:							
<b>A Copy of the M/WBE, SBE, EBE or DBE Letter of Certification must be Attached</b>							
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/DBEs scope of work or supply corresponds to.</u>							
630-00000, 630-00003, 630-00007,630-00012, 630-80335, 630-80341, 630-80342, 630-80344, 630-80350							
630-80355, 630-80358, 630-80363, 630-80380							
X	Subcontractor/Subconsultant (✓)		Supplier (✓)			Broker (✓)	
<b>Bidder</b> 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:							
\$ 120,394.00						5.6 %	
<b>Consultant</b> 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:						Date: 9/14/2018	
Title: Estimator							
M/WBE, SBE, EBE or DBE or Self-Performing Firm's Signature: Jesse Leonard						Date: 09/13/2018	
Title: Owner							
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.*

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

<b>Select One ✓</b>	<b>SUBMITTED VIA...</b> 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 checked="" type="checkbox"/>	Email to <a href="mailto:DSBO@denvergov.org">DSBO@denvergov.org</a>

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.

# NOT APPLICABLE



**DENVER**  
OFFICE OF ECONOMIC  
DEVELOPMENT

## 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](mailto: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 initiating action under Federal or State laws concerning false statements.

Name of Firm: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

### Notary Public

County of \_\_\_\_\_

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

Subscribed and sworn before me this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

Notary 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: \_\_\_\_\_

# NOT APPLICABLE

 <p><b>DENVER</b> OFFICE OF ECONOMIC DEVELOPMENT</p>	<p><b>JOINT VENTURE ELIGIBILITY FORM</b></p>	<p>Office of Economic Development Division of Small Business Opportunity Compliance Unit 201 W. Colfax Ave. Dept. 907 Denver, CO 80202 Phone: 720-913-1999 <a href="mailto:DSBO@denvergov.org">DSBO@denvergov.org</a></p>
<p><b>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.</b></p> <p>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.</p> <p>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.</p> <p>If you have questions regarding this process, please contact DSBO at 720-913-1999.</p>		
<b>Joint Venture Information</b>		
Name:		Contact Person:
Address:		
City:	State:	Zip: Phone:
<b>Joint Venture Participants</b>		
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:		
<b>General Information</b>		
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)		



# NOT APPLICABLE

<b>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)</b>
<b>JOINT VENTURE ELIGIBILITY FORM</b>
<b>General information</b>
<b>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)</b>
<b>Describe the SBE/EBE/MBE/WBE or DBE's share in the profits of the joint venture:</b>
<b>Describe the SBE/EBE/MBE/WBE or DBE's share in the risks of the joint venture:</b>
<b>Describe the roles and responsibilities of each joint venture participant with respect to managing the joint venture (use additional sheets if necessary):</b>
<b>a. SBE/EBE/MBE/WBE or DBE joint venture participant:</b>
<b>b. Non- SBE/EBE/MBE/WBE or DBE joint venture participant:</b>
<b>Describe the roles and responsibilities of each joint venture participant with respect to operation of the joint venture (use additional sheets if necessary):</b>
<b>a. SBE/EBE/MBE/WBE or DBE joint venture participant:</b>
<b>b. Non- SBE/EBE/MBE/WBE or DBE joint venture participant:</b>

# NOT APPLICABLE

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 <b>number</b> 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/MWBE/DBE	SBE/EBE/MWBE/DBE	Joint Venture
Management			
Administrative			
Support			
Hourly Employees			
<b>JOINT VENTURE ELIGIBILITY FORM</b>			
<b>General Information</b>			
Please provide the name of the person who will be responsible for hiring employees for the joint venture.			
Who will they be employed by?			
Are any of the proposed joint venture employees currently employees of any of the joint venture partners?			
	<input type="checkbox"/>	Yes (✓)	<input type="checkbox"/> No (✓)
If yes, please list the number and positions and indicate which firm currently employs the individual(s), (use additional sheets if necessary)			
Number of employees		Position	Employed By
<u>Attach</u> 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 Sturgeon Electric Company, 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 Oblige, in full and just sum of five percent of the accompanying bid amount Dollars, (\$ 5%), 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 August 23, 2018, for the construction of: Contract No. 201843268, SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico, as set forth in detail in the Contract Documents for the City and County of Denver, Colorado, and said Oblige 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 Oblige 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 therefor, on the prescribed form presented to him for signature, enter into a written contract with the Oblige 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 Oblige, 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 Oblige 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 23rd day of August, 2018.

ATTEST

  
Secretary

Sturgeon Electric Company, Inc.

Principal  
By Scott Greenhalge  
Title Vice President

Liberty Mutual Insurance Company

Surety  
By Sheree Hsieh  
Sheree Hsieh, Attorney-in-Fact

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

[SEAL]

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. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. To confirm the validity of this Power of Attorney call 610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

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

### POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation 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, Michael M. Bill, Michael H. Bill, Edward L. Mounighan, Cynthia L. Jenkins, Ginger J. Krahn, Brenda Johnston, Cindy Stellhorn, Sheree Hsieh, Rebecca A. Virt, Kimberly E. Kinkead, Michael J. Marsella of the city of Indianapolis, state of Indiana its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge the following surety bond:

Principal Name: Sturgeon Electric Company, Inc.  
Obligee Name: City and County of Denver  
Surety Bond Number: n/a Bond Amount: five percent of the accompanying bid amount

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 7th day of December, 2017.



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 7th day of December, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty 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 King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Upper Merion Twp., Montgomery County  
My Commission Expires March 28, 2021  
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 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, Renee C. Llewellyn, the undersigned, Assistant Secretary, 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 23rd day of August, 2018.



By: Renee C. Llewellyn  
Renee C. Llewellyn, Assistant Secretary



Office of Economic Development  
 Division of Small Business Opportunity  
 201 W. Colfax Ave, Dept. 907  
 Denver, CO 80202  
 p: 720.913.1999  
 f: 720.913.1809  
[www.denvergov.org/dsbo](http://www.denvergov.org/dsbo)

## 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: tmcginn@myrgroup.com

Please include the Email address of the contact person facilitating this solicitation for the City and County of Denver: tmcginn@myrgroup.com

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 checked="" type="checkbox"/> Public Works |  |

Project Name: SHE2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa and Mexico

BID / RFP No.: 201843069

Name of Contractor/Consultant: Sturgeon Electric Company, Inc.

What industry is your business? Electrical Contractor

Address:  
12150 East 112th Ave  
Henderson, CO 80640

Business Phone No.: 303-286-8000

Business Facsimile No.: 303-286-1811

OED - 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?

- 1-10                       51-100  
 11-50                      over 100

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

Full-time 100%                      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?                       Yes                       No  
2.2 Procurement and supply chain activities?                       Yes                       No  
2.3 Customer service?                       Yes                       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.

See attached Supplier Diversity Program & Equal Opportunity Employment Policy

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.

N/A

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

- Monthly  Annually  
 Quarterly  Not Applicable  Other As Needed

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.

See Attached Supplier Diversity Program & Equal Opportunity Employment Policy

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 \_\_\_\_\_

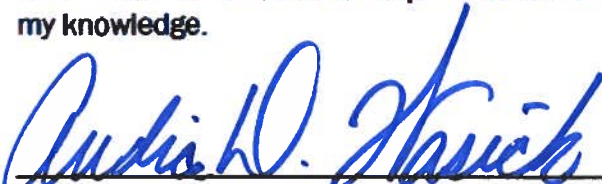
8.2 If you responded that you do not have a diversity and inclusiveness committee, describe any plans your company may have to establish such a committee.

None

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 [X0101@denvergov.org](mailto:X0101@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

August 30, 2018

\_\_\_\_\_  
Date

Audia Wasick, Administrative Assistant

\_\_\_\_\_  
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.: 201843268  
PROJECT NAME: SHE 2015 Traffic Signal Upgrades**

**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 OPENING POSTPONEMENT**

Please note the new bid opening date of September 13, 2018 at 11:00am. Webb Building, 201 W. Colfax Ave., Denver, CO 80202; Conference Room 6.G.7.

**QUESTIONS AND ANSWERS**

1. In reference to bid item 203-00050 (Unsuitable Materials); Can the City provide a specification and description of this pay item?  
*Response: Unsuitable materials shall be defined by the 2017 CDOT Standard Specifications for Road and Bridge Construction: Section 203.05 (c)*
2. In reference to bid item 211-03005 (Dewatering); Can the City provide a specification and description of this pay item?  
*Response: Dewatering shall be the removal of excessive high water table during drilling/vacuuming operation of the traffic signal caissons. The removal of excess water shall be per the approved SWMP and/or in accordance with the 2017 CDOT Standard Specifications for Road and Bridge Construction: Section 107.25*
3. Traffic Signal poles currently have a 20-24-week lead time. Will the NTP, PO release and project schedule take this lead time into consideration?  
*Response: Yes, this project anticipates a 120-day lead time in material order and this additional time is built into the project schedule. If the duration to get the material is longer, Denver will extend the contract accordingly.*
4. Who is responsible for providing material (asphalt, concrete, etc.) testing?  
*Response: Per this project's special provision – Revision of Section 601, subsection 601.07, the contractor is responsible for Quality Control testing of concrete and Denver will perform Quality Assurance. Due to the limited quantities of HMA patch, no testing of the asphalt patch will be required.*
5. With the first phase of this work not under way, is there a potential for land closure restrictions or sidewalk closure restrictions?  
*Response: Denver does not anticipate any potential land sidewalk closure restrictions on this project.*
6. Will the City allow early ordering of signal poles to accommodate for the current lead time of 24 weeks?  
*Response: Denver will not object to the winning contractor to pre-order the signal poles prior to the contract execution.*
7. Will work be allowed to commence before the signal poles are scheduled to deliver, or would the City not want work to begin until the materials are present?  
*Response: Once a NTP is issued, Denver will not object to the contractor beginning construction prior to the signal poles arrival.*

8. I did not see the time count for this project listed, what is the time count? Is than an anticipated date for NTP?

*Response: Denver anticipates a duration of 12 to 16 weeks to execute the construction contract from bid opening date.*

9. Is there any Glendale or Cherry Creek tax or permits required for this project?

*Response: Denver anticipates the contractor will need to acquire a Glendale occupancy/construction permit. All applicable permit fees will be by project cost.*

10. Will night work be allowed?

*Response: Yes, however all night work requests will need to be approved by the Engineer and the City Traffic Engineer and in accordance with the criteria/requirements of Denver's Noise ordinance prior to start of night work.*

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

 FOR C7

Lesley B. Thomas  
City Engineer

8/28/18

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

9/12/18  
Date

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

Project #  
SHE M320-092

1. List names of partnerships or joint ventures  none

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

a. Key personnel changes  none

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b. Key equipment changes  none

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

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


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

Contractor's firm or company name  
Sturgeon Electric Company, Inc.

By   
Jim Bushnell  
Title Vice President, Colorado Traffic

Date  
8-30-2018

2<sup>nd</sup> Contractor's firm or company name (if joint venture)

By  
Title

Date

Form 605

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

Project No.: SHE M320-092

Location: City and County Denver

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

I further attest that:

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

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

Contractors firm or company name:  
Sturgeon Electric Company, Inc.

By: *Jim Bushnell* Date: 8-30-2018  
Title: Vice President, Colorado Traffic

2<sup>nd</sup> Contractors firm or company name:

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: \_\_\_\_\_

Sworn to before me this 30th day of August 2018

Notary Public  
Julia Bagwell

My commission expires:

*Julia M Bagwell*  
*2 mar 2022*

NOTE: THIS DOCUMENT MUST BE SIGNED IN INK.

**JULIA M BAGWELL  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20104006193  
MY COMMISSION EXPIRES MARCH 02, 2022**


**COLORADO DEPARTMENT OF TRANSPORTATION  
ASSIGNMENT OF ANTITRUST CLAIMS**

Project No.:  
SHE M320-092

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

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

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

Contractors firm or company name: Sturgeon Electric Company, Inc.	By: Jim Bushnell 	Date: 8-30-2018
	Title: Vice President, Colorado Traffic	
2 <sup>ND</sup> Contractors firm or company name:	By:	Date:
	Title:	

Form 621

CITY AND COUNTY OF DENVER

STATE OF COLORADO



**DENVER**  
THE MILE HIGH CITY

DEPARTMENT OF PUBLIC WORKS

Bid Documents Package

Contract Number: 201843268



SHE 2015


Traffic Signal Upgrades

July 23, 2018

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

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

**STATEMENT OF QUANTITIES**

<u>Item No.</u>	<u>Description</u>	<u>Estimated</u>	<u>Quantity</u>
201-00000	CLEARING AND GRUBBING	1	LS
202-00195	REMOVAL OF MEDIAN COVER	69	SY
202-00200	REMOVAL OF SIDEWALK	701	SY
202-00203	REMOVAL OF CURB AND GUTTER	1,454	LF
202-00206	REMOVAL OF CONCRETE CURB RAMP	205	SY
202-00210	REMOVAL OF CONCRETE PAVEMENT	87	SY
202-00220	REMOVAL OF ASPHALT MAT	694	SY
202-00250	REMOVAL OF PAVEMENT MARKING	6,466	SF
202-00828	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1	LS
202-04005	CLEAN VALVE BOX	1	EACH
203-00050	UNSUITABLE MATERIALS	25	CY
203-01597	POTHOLING	88	EACH
203-01620	SWEEPING	92	HOUR
208-00008	EROSION LOG (9 INCH)	570	LF
208-00035	AGGREGATE BAG	400	LF
208-00045	CONCRETE WASHOUT STRUCTURE	5	EACH
208-00050	STORM DRAIN INLET PROTECTION	16	EACH
208-00070	VEHICLE TRACKING PAD	1	EACH
208-00103	REMOVAL AND DISPOSAL OF SEDIMENT (LABOR)	90	HOUR





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

**STATEMENT OF QUANTITIES**

<u>Item No.</u>	<u>Description</u>	<u>Estimated</u>	<u>Quantity</u>
208-00105	REMOVAL AND DISPOSAL OF SEDIMENT (EQUIPMENT)	90	HOUR
208-00106	SWEEPING (SEDIMENT REMOVAL)	90	HOUR
208-00107	REMOVAL OF TRASH	90	HOUR
208-00206	EROSION CONTROL SUPERVISOR	25	DAY
210	RESET RADIO COMMUNICATION ANTENNA (YAGI AND OMNI)	3	EACH
210	RESET MICROWAVE VEHICLE RADAR DETECTOR (MVRD)	1	EACH
210-04010	ADJUST MANHOLE	3	EACH
210-04020	MODIFY INLET	1	EACH
210-04050	ADJUST VALVE BOX	1	EACH
211-03005	DEWATERING	2	EACH
212-00050	SOD	692	SF
212-00100	TREE RETENTION AND PROTECTION	3	EACH
213-00067	ROCK MULCH (WEED FREE)	185	SF
304-06000	AGGREGATE BASE COURSE (CLASS 6)	200	TON
403-00720	HOT MIX ASPHALT (PATCHING) (ASPHALT)	100	TON
403-34851	HOT MIX ASPHALT (GRADING SX) (100) (PG 64-28)	192	TON
412-00800	CONCRETE PAVEMENT (8 INCH)	147	SY



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

**STATEMENT OF QUANTITIES**

<u>Item No.</u>	<u>Description</u>	<u>Estimated</u>	<u>Quantity</u>
503-00036	DRILLED CAISSON (36 INCH)	34	LF
503	DRILLED CAISSON (36 INCH)(VACUUM)	134	LF
503-00048	DRILLED CAISSON (48 INCH)	31	LF
503	DRILLED CAISSON (48 INCH)(VACUUM)	122	LF
607-11525	FENCE (PLASTIC)	250	LF
608-00000	CONCRETE SIDEWALK	615	SY
608-00010	CONCRETE CURB RAMP	402	SY
609-20010	CURB TYPE 2 (SECTION B)	162	LF
609-21010	CURB AND GUTTER TYPE 2 (SECTION I-B)	183	LF
609-21020	CURB AND GUTTER TYPE 2 (SECTION II-B)	1,150	LF
610-00030	MEDIAN COVER MATERIAL (CONCRETE)	1,047	SF
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	1,623	LF
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	3,516	LF
613-07000	PULL BOX (SPECIAL)	6	EACH
613-10000	WIRING	1	LS
613-13040	LUMINAIRE LED 5300 LUMENS	20	EACH
613	ELECTRIC METER PEDESTAL CABINET AND BASE	5	EACH
614-00011	SIGN PANEL (CLASS I)	398	SF
614-00035	SIGN PANEL (SPECIAL)	315	SF



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

**STATEMENT OF QUANTITIES**

<u>Item No.</u>	<u>Description</u>	<u>Estimated</u>	<u>Quantity</u>
614-00216	STEEL SIGN POST (2X2 INCH TUBING)	173	LF
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	40	EACH
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	85	EACH
614-70448	TRAFFIC SIGNAL FACE (12-12-12-12)	28	EACH
614-72860	PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN	40	EACH
614-72863	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	18	EACH
614	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM	5	EACH
614	INTERSECTION DETECTION SYSTEM (FLIR)(CAMERA)	20	EACH
614-75848	TRAFFIC SIGNAL CONTROLLER AND CABINET	5	EACH
614-81120	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-20 FOOT MAST ARM)	2	EACH
614-81135	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-35 FOOT MAST ARM)	3	EACH
614-81140	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	1	EACH
614-81145	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM)	1	EACH
614-81150	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-50 FOOT MAST ARM)	2	EACH
614-81155	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST ARM)	2	EACH



**STATEMENT OF QUANTITIES**

<u>Item No.</u>	<u>Description</u>	<u>Estimated</u>	<u>Quantity</u>
614-81160	TRAFFIC SIGNAL LIGHT POLE STEEL (1-60 FOOT MAST ARM)	2	EACH
614-81165	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-65 FOOT MAST ARM)	3	EACH
614-81170	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-70 FOOT MAST ARM)	4	EACH
614-86105	TELEMETRY (FIELD)	5	EACH
614	FIBER OPTIC CABLE (SINGLE MODE) (6 STRAND)	130	LF
614	FIBER OPTIC CABLE(MULTI MODE)(6 SINGLEMODE/42 MULTIMODE STRAND)	840	LF
614	FIBER OPTIC CABLE TERMINATION PANEL (6 STRAND)	1	EACH
614-87333	CLOSED CIRCUIT TELEVISION CAMERA (TRAFFIC SURVEILLANCE)	5	EACH
625-00000	CONSTRUCTION SURVEYING	1	LS
626-00000	MOBILIZATION	1	LS
627-00005	EPOXY PAVEMENT MARKING	8	GAL
627-30405	PREFORMED THERMOPLASTIC PAVEMENT MARKING (WORD-SYMBOL)	230	SF
627-30410	PREFORMED THERMOPLASTIC PAVEMENT MARKING (XWALK-STOP LINE)	5,634	SF
629-01001	SURVEY MONUMENT (TYPE 1)	56	EACH
630-00000	FLAGGING	950	HOURL



**STATEMENT OF QUANTITIES**

<u>Item No.</u>	<u>Description</u>	<u>Estimated</u>	<u>Quantity</u>
630-00003	UNIFORMED TRAFFIC CONTROL	80	HOURL
630-00007	TRAFFIC CONTROL INSPECTION	40	DAY
630-00012	TRAFFIC CONTROL MANAGEMENT	120	DAY
630-80335	BARRICADE (TYPE 3 M-A) (TEMPORARY)	4	EACH
630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	20	EACH
630-80342	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	24	EACH
630-80344	CONSTRUCTION TRAFFIC SIGN (SPECIAL)	72	SF
630-80350	VERTICAL PANEL	150	EACH
630-80355	PORTABLE MESSAGE SIGN PANEL	2	EACH
630-80358	ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL (C TYPE)	4	EACH
630-80363	DRUM CHANNELIZING DEVICE (WITH LIGHT) (FLASHING)	20	EACH
630-80380	TRAFFIC CONE	200	EACH
700-70010	F/A MINOR CONTRACT REVISIONS	1	F A
700-70021	F/A ON-THE-JOB TRAINEE	1	F A
700-70034	F/A ENVIRONMENTAL	1	F A
700-70082	F/A FURNISH & INSTALL ELECTRICAL SERVICE	1	F A
700-70380	F/A EROSION CONTROL	1	F A

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

**NOTICE OF INVITATION FOR BIDS  
FEDERAL AID PROJECT NO. SHE M320-092/20303  
CITY OF DENVER CONTRACT NO. 201843268**

**SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico**

**BID SCHEDULE:  
11:00 a.m., Local Time  
AUGUST 23, 2018**

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: Dani Abbott 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., 2<sup>nd</sup> Floor, Denver, CO 80202 and/or [www.work4denver.com](http://www.work4denver.com).

**GENERAL STATEMENT OF WORK:**

Project includes upgrading 5 intersections located in the South Colorado Blvd Corridor from Cherry Creek No. Blvd to Mexico Ave to enhance signal visibility and address safety issues. The traffic signal upgrades will remove and replace existing signals with current CCD standard mast arm signals with 12" signal indications, 16" countdown pedestrian faces, ATC controller with backup UPS, infrared vehicle detection systems, emergency pre-emption systems, close circuit TV traffic monitoring, and Ethernet switch for communication. New concrete construction, including ADA curb ramps, sidewalks, curb and gutter, new sign package and paint/paving marking package, as well.

**ESTIMATED CONSTRUCTION COST:**

The estimated cost of construction for this project is between \$1,774,000.00 and \$2,170,000.00.

**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](http://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](http://www.work4denver.com). To download digital Contract Documents at a cost of \$10.00 per download, reference eBid Document Number #5858531. Contact QuestCDN at 952-233-1632 or [info@questcdn.com](mailto:info@questcdn.com) for assistance.

**PRE-BID CONFERENCE:**

A pre-bid conference will be held for this Project at 9:00 a.m., local time, on August 7, 2018. This meeting will take place at: 201 W. Colfax Ave., conference room 4.I.2, Denver, CO 80202.

**DEADLINE TO SUBMIT QUESTIONS:** August 14, 2018, 2:00 p.m., local time.

**PREQUALIFICATION REQUIREMENTS:**

Each bidder must be prequalified in category 1D1--Traffic Signals at the \$3,000,000 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](http://www.denvergov.org/prequalification) or call 720-865-2539 for prequalification information ONLY.

**DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION:**

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

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

**12% Disadvantaged Business Enterprise (DBE)**

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

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

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

**MISCELLANEOUS:**

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

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

Publication Dates: July 23, 24, 25, 2018  
Published In: The Daily Journal

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

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

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

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

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

**IB-7 ONLY ONE BID ACCEPTED**

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

**IB-8 BID GUARANTEE**

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

The bid guarantee shall be in the amount of **five percent (5%)** of the total bid unless otherwise specified in the Notice of Invitation for Bids and on the form appearing in the Contract Documents in the Bid Form and Submittal Package. Failure to submit a 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-4, COMPLETING AND SIGNING BID FORMS.

**IB-12 CONTRACTOR'S BULLETIN BOARD**

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

**IB-13 PRE-BID MEETING**

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

**IB-14 ADDENDA**

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

**IB-15 BID OPENING**

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

**IB-16 EVALUATION OF BIDS AND BASIS OF BID SELECTION**

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

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

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

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

**IB-17 NOTICE TO APPARENT LOW BIDDER**

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

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

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

**IB-18 EXECUTION OF CONTRACT**

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

documentation of compliance with any other conditions precedent to execution of the Contract by the City set forth in the Contract Documents. The insurance and bond forms contained in the Contract Special Conditions Section of the Contract Documents must be used in satisfying these supplemental document requirements.

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

**IB-19 BONDING REQUIREMENTS**

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

**IB-20 INSURANCE REQUIREMENTS**

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

**IB-21 PERMITS AND LICENSES**

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

**IB-22 WAGE RATE REQUIREMENTS**

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

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

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

#### **IB-23 TAX REQUIREMENTS**

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

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

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

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

#### **IB-24 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 DISADVANTAGED BUSINESS ENTERPRISE (DBE) REQUIREMENTS**

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

Consequently, the Bidders must fully comply with the DBE requirements of Part 26 in bidding and performing hereunder.

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

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

In order to comply with the bid requirements of Part 26, a Bidder shall either meet the established DBE Project goal or, in the alternative, demonstrate that the bidder has made sufficient good faith efforts to meet the goal. In preparing a bid to meet the established DBE Project goal, bidders should consider the following instructions relating to compliance with Part 26:

1. Under Part 26, the Director of the Division of Small Business Opportunity establishes a project goal for this project. The specific goal for this project is stated in the Notice of Invitation for Bids bound herein.
2. In preparing its bid, each Bidder shall list on the Bid Form pages entitled "List of Proposed Disadvantage Business Enterprise Bidders, Sub-contractors, Suppliers, Manufacturers, or Brokers" the name, address, work description/supply, committed level of participation and other required information for each DBE of any tier which the bidder intends to use in performing the Work on this Project. Only DBEs identified and the levels of participation listed for each on this Bid Form page at the time of bid opening will be considered in determining whether the bidder has met the designated participation goal. Additional, revised or corrected participation submitted after bid opening will not be considered in determining responsiveness.
3. All DBE firms listed on the Bid Form must be properly certified under guidelines of the Department of Transportation 49 CFR Part 26 by the City of Denver DSBO's Office or the State of Colorado Department of Transportation (CDOT's) Office in order to count towards meeting the designated goals. Both DSBO and CDOT maintain a current listing of certified DBE firms. The DBE Directory is located at [www.dot.state.co.us/app\\_ucp/](http://www.dot.state.co.us/app_ucp/). Bidders are encouraged to utilize these directories to assist them in locating DBEs for the work/supply required on the project. The most current directories must be utilized in preparing a bid. DBE certification does not, however, constitute a representation or warranty by the City as to the qualification of any listed firm.
4. In accordance with the requirements of Part 26, DSBO will evaluate each bid to determine the responsiveness of the bid to Part 26 requirements. In determining if a Bidder's committed levels of participation meet or exceed the stated DBE goal, DSBO will base its calculation of applicable amounts and percentages on the total base bid amount, not including any listed alternates, of each bid as follows:
  - a. The bid information provided by the agency will be used to determine the total base bid amount of each bid. Each Bidder's total base bid amount will be multiplied by the DBE percentage goal established for the project to determine the exact dollar amounts of required DBE participation for the Project. These amounts will then be compared against the dollar amounts for the DBE firm(s) committed for participation by the Bidder. If the total dollar amount of participation listed meets or exceeds the established DBE dollar amount goal listed, then the DSBO will determine that goals have been met.

- b. In addition, DSBO will determine the exact commitment percentage for each listed DBE firm by dividing the dollar amount listed for each firm by the total base bid dollar amount submitted by the bidder. These individual percentages, when totaled for all listed DBEs, will establish the total committed percentage level of DBE participation that the bidder must comply with during the life of the Contract. In all cases, the committed percentage level of DBE participation must equal or exceed the assigned DBE goal for the Project.
  - c. In providing the exact dollar amount of participation for each listed DBE firm a bidder should take care never to round up in determining whether or not the total of these amounts meets or exceeds the established percentage goal. The goal must be met or exceeded by both dollar amounts and percentage for DSBO to determine that the bidder has met or exceeded the applicable DBE goal.
  - d. As previously mentioned compliance with the DBE goal will be determined on the base bid alone. If a bid contains alternates, participation contained in any alternate will not count towards satisfaction of the Project goals. However, should any designated alternate be selected by the City for inclusion in the Contract ultimately awarded, the DBE goal percentage level submitted at bid time, on the base bid, will also apply to the selected alternates and must be maintained for the life of the Contract on the total contract amount, including any alternate work. Thus, even though such participation will not be considered in evaluating bids, Bidders are urged to consider participation in preparing bids for designated alternates.
  - e. On projects where force account or allowance bid items have been included, bidders must meet the DBE goal percentage based upon the total base bid, including all such items that he submitted to the City. However, when a force account or allowance is designated by the City to be either performed or purchased from a specific company, the bidder may back out the dollar amount of the force account or allowance from the total base bid and meet the DBE goal on the remaining reduced amount.
5. In accordance with Part 26 the City and County of Denver will require the total DBE participation commitment to be achieved in accordance with the following:

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

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

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

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

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

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

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

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

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

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

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



such advertisements shall begin at least fifteen (15) days prior to bid opening. If the City publishes notice for bids on a project less than fifteen (15) days prior to bid opening, verification of advertisements for at least four (4) consecutive days shall be provided.

- c. Verification of efforts made by the Bidder to contact, by written notice, all certified DBEs who have the capability to perform the work of the contract, that their interest in the contract is being solicited, in sufficient time to allow the DBEs to participate effectively is required. The notice shall expressly describe the potential subcontracting, supplier or broker opportunities for all applicable certification categories for the particular project.
- d. Verification that, reasonably consistent with industry practice and the Bidder's past practices on similar projects, the Bidder analyzed the needs of the project in light of such industry practice and past practice, together with the goal of facilitating DBE participation on the project, and identified portions of the work to be performed by DBEs in order to achieve the project goal.
- d. For each DBE which contacted the Bidder or which the Bidder contacted or attempted to subcontract with, consistent with industry practice, a statement giving the reasons why the Bidder and the DBE did not succeed in reaching a subcontracting, supplier, manufacturer or broker agreement.
- e. Verification that the Bidder rejected DBEs because they did not submit the lowest bid or they were not qualified. Such verification shall include a verified statement of the amounts of all bids received from potential subcontractors, suppliers, manufacturers or brokers on the project and a verified statement that the Bidder rejected DBEs because they did not submit the lowest bid from among such bids or were not qualified.
- f. Verification that the Bidder made efforts to assist DBEs in obtaining bonds, if any are required.

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

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

work designated for performance by a DBE at the time of Contract award, then such amendment, change order or other modification shall be contemporaneously submitted to the DSBO. Those amendments, change orders, force accounts or other Contract modifications that involve a changed scope of work that cannot be performed by existing project subcontractors or by the Bidder shall be subject to goals for DBEs equal to the original goal on the Contract which were included in the bid or showing of a good faith efforts.

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

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

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

#### **IB-26 DISCLOSURE OF INFORMATION**

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

#### **IB-27 GENERAL BIDDING INFORMATION**

Bidders are instructed to contact the Contract Administrator designated below for this Project for pre-bid, post-bid and general City bidding information. Bidders can also visit [www.work4denver.com](http://www.work4denver.com) for information, both general and project specific. The Contract Administrator assigned to this project is Dani Abbott who can be reached via email at [pw.procurement@denvergov.org](mailto:pw.procurement@denvergov.org).

#### **IB-28 FEDERAL REQUIREMENTS**

This project is funded, in whole or in part, by federal funding made available through the Federal Highway Administration ("FHWA") and administered by the Colorado Department of Transportation ("CDOT"). As such, each bidder must comply review and comply with certain bid requirements (the "Federal Forms") in formulating and submitting its bid for the Project, and, if awarded a contract pursuant to this bid, must comply with certain "Federal Requirements." The required Federal Forms are included in the Bid Package at pages BF-25 through BF-29. The Federal Requirements are attached to the Bid Document Package, pages at BDP-

62 through BDP-73. The Contractor shall be presumed to have considered and completed all Federal Requirements and Forms as part of its bid and shall be presumed to have carefully considered and accounted for all costs of complying with the Federal Requirements in formulating and submitting a bid hereunder.

**IB-29 PAYMENT PROCEDURE REQUIREMENTS**

Contractor recognizes and agrees that it shall be required to use the Textura® Construction Payment Management System (CPM System) for this Project. 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 Value	Project Fee (GC + Sub Usage)
\$250,000 - \$499,999.99	\$1,625
\$500,000 - \$999,999.99	\$3,250
\$1,000,000 - \$2,999,999.99	\$5,850
\$3,000,000 - \$4,999,999.99	\$9,100
\$5,000,000 - \$9,999,999.99	\$12,220
\$10,000,000 - \$19,999,999.99	\$20,345
\$20,000,000 - \$49,999,999.99	\$32,500
\$50,000,000 - \$99,999,999.99	\$48,750
\$100,000,000 - \$199,999,999.99	\$69,095
\$200,000,000 - \$299,999,999.99	\$85,345
\$300,000,000 - \$399,999,999.99	\$109,720
\$400,000,000 - \$499,999,999.99	\$142,220
\$500,000,000 - \$999,999,999.99	\$162,500
\$1,000,000,000 - \$1,999,999,999.99	\$345,345
\$2,000,000,000 - \$4,999,999,999.99	\$650,000
\$5,000,000,000 - \$9,999,999,999.99	\$1,015,625
\$10,000,000,000 or greater	\$1,503,125

For more information:

<http://www.denvergov.org/constructioncontracts/ContractAdministration/BiddingProcess/TexturaPaymentSystem/ta/bid/443165/Default.aspx>

**RULES AND REGULATIONS  
REGARDING**

**EQUAL EMPLOYMENT OPPORTUNITY**

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

**RULE I - DEFINITIONS**

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

**RULE II - NOTICE OF HEARING**

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

### **RULE III - HEARING**

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

### **REGULATIONS**

#### **REGULATION NO. 1 - ORDINANCE:**

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

#### **REGULATION NO. 2 - EXEMPTIONS:**

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

#### **REGULATION NO. 3 - DIRECTOR OF CONTRACT COMPLIANCE:**

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

#### **REGULATION NO. 4 - GOALS AND TIMETABLES:**

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

**REGULATION NO. 5 - AWARD OF CONTRACTS:**

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

**REGULATION NO. 6 - PUBLICATION AND DUPLICATION:**

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

**REGULATION NO. 7 - NOTICE TO PROCEED:**

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

**REGULATION NO. 8 - CONTRACTS WITH SUBCONTRACTORS:**

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

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

**REGULATION NO. 9 - AGENCY REFERRALS:**

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

**REGULATION NO. 10 - CLAUSES:**

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

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

All amendments to the appendices shall be included by reference.

**REGULATION NO. 11 - SHOW CAUSE NOTICES:**

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

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

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

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

**APPENDIX A**

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

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

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



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

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

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

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

## APPENDIX B

### EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

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

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

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

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

**EQUAL EMPLOYMENT OPPORTUNITY IS THE LAW**

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

Title VII of the Civil Rights Act of 1964

*Administered by:* The Equal Employment Opportunity Commission

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

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

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

Executive Order No. 11256

*Administered by:* The Office of Federal Contract Compliance Programs

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

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

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

## APPENDIX E

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

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

Timetables:     Until Further Notice

Goals:

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

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

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

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

## STANDARD FEDERAL ASSURANCES

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

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

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

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

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

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

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

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

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

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

1. As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
- d. "Minority" includes:
  - (1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
  - (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);
  - (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
  - (4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

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

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

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

contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the contractor during the training period and the contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or female sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with

all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

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

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

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

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

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

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

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

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

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

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor union, contractor community, or other similar groups of which the contractor is a member and



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

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

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

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

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

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

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

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

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

**APPENDIX F**

**AFFIRMATIVE ACTION REQUIREMENTS**

**EQUAL EMPLOYMENT OPPORTUNITY**

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

**NOTICE**

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

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

/s/

Manager of Public Works  
City and County of Denver

**EQUAL OPPORTUNITY PROVISIONS (Cont'd)**

**A. REQUIREMENTS - AN AFFIRMATIVE ACTION PLAN:**

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

**1. GOALS AND TIMETABLES:**

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

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

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

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

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

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

**2. SPECIFIC AFFIRMATIVE ACTION STEPS:**

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

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

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

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

**3. NON - DISCRIMINATION:**

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

#### **4. COMPLIANCE AND ENFORCEMENT:**

In all cases, the compliance of a contractor will be determined in accordance with its obligations under the terms of these Bid Conditions. All contractors performing or to perform work on projects subject to these Bid Conditions hereby agree to inform their subcontractors in writing of their respective obligations under the terms and requirements of these Bid Conditions, including the provisions relating to goals of minority and female employment and training.

##### **A. CONTRACTORS SUBJECT TO THESE BID CONDITIONS:**

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

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

##### **B. OBLIGATIONS APPLICABLE TO CONTRACTORS:**

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

**C. GENERAL REQUIREMENTS:**

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

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

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

**FEDERAL AID PROJECT NO. SHE M320-092/20303  
CITY OF DENVER CONTRACT NO. 201843268**

**SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico**

**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

**STURGEON ELECTRIC COMPANY, INC.  
12150 E. 112<sup>TH</sup> Ave.  
Henderson, CO 80640**

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

**WITNESSETH**, Commencing on **July 23, 2018**, and for at least three (3) days the City advertised that sealed bids would be received for furnishing all labor, tools, supplies, equipment, materials, and everything necessary and required for the following:

<p><b>FEDERAL AID PROJECT NO. SHE M320-092/20303 CITY OF DENVER CONTRACT NO. 201843268</b></p>
--

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

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

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

**1. CONTRACT DOCUMENTS**

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

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

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

**2. SCOPE OF WORK**

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

**3. TERMS OF PERFORMANCE**

The Contractor agrees to undertake the performance of the Work under this Contract within ten (10) days after being notified to commence work by issuance of a Notice to Proceed in substantially the form contained herein from the Manager and agrees to fully complete said Work within **240 (Two hundred forty)** consecutive calendar days from the effective date of said Notice, plus such extension or extensions of time as may be granted in accordance with the provisions of the General Contract Conditions and any applicable Special Contract Conditions.

**4. TERMS OF PAYMENT**

The City agrees to pay the Contractor for the performance of all of the Work required under this Contract, and the Contractor agrees to accept as the Contractor's full and only compensation therefore, such sum or sums of money as may be proper in accordance with the price or prices set forth in the Contractor's Bid Form hereto attached and made a part hereof for **bid item numbers 201-00000 through 630-80380 (Ninety-seven [97] total bid items plus 5 Force Accounts), the total estimated cost thereof being Two Million Two Hundred Fifty-Four Thousand Seven Hundred Eighty-One Dollars and Seventy-Five cents (\$2,254,781.75).** 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 work under this contract, the Contractor may not refuse to hire, discharge, promote or demote, or discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, gender, age, military status, sexual orientation, gender identity or gender expression, marital status, or physical or mental disability. The Contractor shall insert the foregoing provision in all subcontracts.

**6. DBE AND EQUAL OPPORTUNITY REQUIREMENTS**

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



**7. WAGE RATE REQUIREMENTS**

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

**8. APPLICABILITY OF LAWS**

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

**9. APPROPRIATION**

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

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

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

**10. APPROVALS**

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

**11. ASSIGNMENT**

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

**12. DISPUTES RESOLUTION PROCESS**

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

**13. CONTRACT BINDING**

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

**14. PARAGRAPH HEADINGS**

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

**15. SEVERABILITY**

It is understood and agreed by the parties hereto that, if any part, term, or provision of this Contract, except for the provisions of this Contract requiring prior appropriation and limiting the total amount to be paid by the City, is by the courts held to be illegal or in conflict with any law of the State of Colorado, the validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular part, term or provision held to be invalid.

**16. ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS:**

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

**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: 201843268

Vendor Name: STURGEON ELECTRIC COMPANY, INC.

By: Jim Bushnell

Name: Jim Bushnell  
(please print)

Title: Vice President CB TRADES  
(please print)

ATTEST: [if required]

By: \_\_\_\_\_

Name: \_\_\_\_\_  
(please print)

Title: \_\_\_\_\_  
(please print)



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

**Construction Contract General Conditions**

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

**SPECIAL CONTRACT CONDITIONS**

**SC-1 CONSTRUCTION SPECIFICATIONS**

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

City and County of Denver:

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

*City and County of Denver Traffic Standard Drawings*

Wastewater Management Division

– *Standard Detail Drawings*

– *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 2015 Series, City and County of Denver Amendments 2016)

*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, (5<sup>th</sup> floor), Denver, CO 80202. The *Standard Specifications for Construction, GENERAL CONTRACT CONDITIONS* is available at: [http://www.denvergov.org/dpw\\_contract\\_admin/ContractAdministration/ContractorReferenceDocuments/tabid/440535/Default.aspx](http://www.denvergov.org/dpw_contract_admin/ContractAdministration/ContractorReferenceDocuments/tabid/440535/Default.aspx). *Transportation Standards and Details for the Engineering Division* and the Wastewater Management Division – *Standard Detail Drawings*, are available at <http://www.denvergov.org>.

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

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

**SC-2 ENGINEERING DIVISION / CITY ENGINEER**

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

**SC-3 CITY DELEGATION OF AUTHORITY**

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

**Denver Department of Public Works /Engineering Division,**

<u>Project Manager</u>		<u>Telephone</u>
City Project Manager		
John Yu		720-865-3176
<u>Consultant</u>	<u>Name</u>	<u>Telephone</u>
Design Consultant	Consultant Contact	
HDR	Rick Plenge	303-318-6322

**SC-4 LIQUIDATED DAMAGES**

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

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

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

**SC-5 SUBCONTRACTS**

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

**SC-6 RESERVED**

**SC-7 PAYMENTS TO CONTRACTORS**

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

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

<u>Agency/Firm</u>	<u>Name</u>	<u>Telephone</u>
Public Works/Engineering Division	Ed Haun	721-913-4522

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.

**SC-8 CONSTRUCTION INSPECTION BY THE CITY**

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

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

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

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

**SC-9 DISPOSAL OF NON-HAZARDOUS WASTE AT DADS**

In accordance with the Landfill Agreement made between the City and Waste Management of Colorado, Inc., bidders will be required to haul dedicated loads (non-hazardous entire loads of waste) to the Denver-Arapahoe Disposal Site ("DADS") for disposal. DADS is located at Highway 30 and Hampden Avenue in Arapahoe County, Colorado. The City will pay all fees associated with such disposal but the bidder shall be responsible for the costs of transporting the loads. Non-hazardous waste is defined as those substances and materials not defined or classified as hazardous by the Colorado Hazardous Waste Commission pursuant to C.R.S. §25-15-101(6), as amended from time to time, and includes construction debris, soil and asbestos. Bidders shall not use Gun Club Road between I-70 and Mississippi Avenue as a means of access to DADS.

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

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

**SC-11 TERMINOLOGY**

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

**SC-12 TECHNICAL SPECIFICATIONS**

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

**SC-13 MODIFICATION TO GENERAL CONTRACT CONDITION 405**

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

G.C. 405.2 shall include the following:

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

**SC-14 MODIFICATION TO GENERAL CONTRACT CONDITION 809**

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

Add G.C. 809.3 as follows:

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

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

**SC-15 FEDERAL REQUIREMENTS**

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

**SC-16 ATTORNEY’S FEES**

Colorado Revised Statute 38-26-107 requires that in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this project, the City shall withhold from payments to the Contractor sufficient funds to insure the payment of any such claims. Should the City and County of Denver be made a party to any lawsuit to enforce such unpaid claims or any lawsuit arising out of or relating to such withheld funds, the Contractor agrees to pay to the City its costs and a reasonable attorney’s fee which cost shall be included as a Cost of the Work.

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

**SC-17 CONTRACT FORMS**

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

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

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

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

**SC 18: INSURANCE**

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

(1) **General Conditions:** Contractor agrees to secure, at or before the time of execution of this Agreement, the following insurance covering all operations, goods or services provided pursuant to this Agreement. Contractor shall keep the required insurance coverage in force at all times during the term of the Agreement, or any extension thereof, during any warranty period, and for eight (8) years after termination of the Agreement. The required insurance shall be underwritten by an insurer licensed or authorized to do business in Colorado and rated by A.M. Best Company as “A-”VIII or better. Each policy shall contain a valid provision or endorsement requiring notification to the City in the event any of the required policies be canceled or non-renewed before the expiration date thereof. Such written notice shall

be sent to the parties identified in the Notices section of this Agreement. Such notice shall reference the City contract number listed on the signature page of this Agreement. Said notice shall be sent thirty (30) days prior to such cancellation or non-renewal unless due to non-payment of premiums for which notice shall be sent ten (10) days prior. If such written notice is unavailable from the insurer, contractor shall provide written notice of cancellation, non-renewal and any reduction in coverage to the parties identified in the Notices section by certified mail, return receipt requested within three (3) business days of such notice by its insurer(s) and referencing the City's contract number. If any policy is in excess of a deductible or self-insured retention, the City must be notified by the Contractor. Contractor shall be responsible for the payment of any deductible or self-insured retention. The insurance coverages specified in this Agreement are the minimum requirements, and these requirements do not lessen or limit the liability of the Contractor. The Contractor shall maintain, at its own expense, any additional kinds or amounts of insurance that it may deem necessary to cover its obligations and liabilities under this Agreement.

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

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

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

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

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

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

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

(9) **Additional Provisions:**

- (a) For Commercial General Liability, the policies must provide the following:
  - (i) That this Agreement is an Insured Contract under the policy;
  - (ii) Defense costs in excess of policy limits;

- (iii) A severability of interests or separation of insureds provision (no insured vs. insured exclusion); and
  - (iv) A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by the City.
- (b) For claims-made coverage:
  - (i) The retroactive date must be on or before the contract date or the first date when any goods or services were provided to the City, whichever is earlier
- (c) Contractor shall advise the City in the event any general aggregate or other aggregate limits are reduced below the required per occurrence limits. At their own expense, and where such general aggregate or other aggregate limits have been reduced below the required per occurrence limit, the Contractor will procure such per occurrence limits and furnish a new certificate of insurance showing such coverage is in force.

**SC-19 GREENPRINT DENVER REQUIREMENTS**

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

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

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

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

**PERFORMANCE AND PAYMENT BOND**

Bond No. 014212113

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned STURGEON ELECTRIC COMPANY, INC., 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 Two Million Two Hundred Fifty-Four Thousand Seven Hundred Eighty-One Dollars and Seventy-Five cents (\$2,254,781.75) 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. 201843268, SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico, 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.

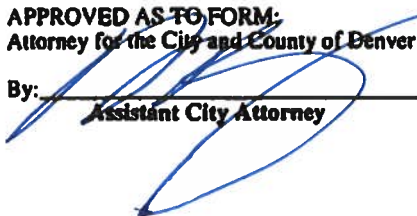
IN WITNESS WHEREOF, said Contractor and said Surety have executed these presents as of this  
10th day of December, 2018

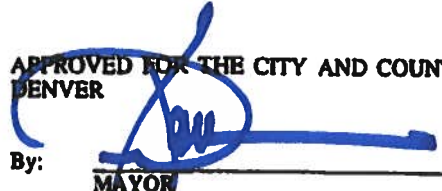

Attest:  
  
Secretary



Sturgeon Electric Company, Inc.  
Contractor  
By:   
President  
Liberty Mutual Insurance Company  
Surety  
By:   
Attorney-in-Fact Sheree Hsieh

(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:   
EXEC. DIR. OF PUBLIC WORKS

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. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. To confirm the validity of this Power of Attorney call 610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

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

### POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation 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, Michael M. Bill, Michael H. Bill, Edward L. Mounichan, Cynthia L. Jenkins, Ginger J. Krutz, Brenda Johnston, Cindy Shelton, Sherie Heish, Rebecca A. Vint, Kimberly E. Kirkland, Michael J. Marnella of the city of Indianapolis, state of Indiana its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge the following surety bond:

Principal Name: Sturgeon Electric Company, Inc.  
Obligee Name: City and County of Denver  
Surety Bond Number: 014212113 Bond Amount: \$2,254,781.75

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 7th day of December, 2017.



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 88  
COUNTY OF MONTGOMERY

On this 7th day of December, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty 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 King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Upper Merion Twp., Montgomery County  
My Commission Expires March 28, 2021  
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 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, Renee C. Llewellyn, the undersigned, Assistant Secretary, 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 10th day of December, 2018



By: Renee C. Llewellyn  
Renee C. Llewellyn, Assistant Secretary



O 317 805 7500 F 317 805 7515  
A 571 MONON BLVD., SUITE 400, CARMEL, IN 46032  
W MJINSURANCE.COM

PERFORMANCE AND PAYMENT BOND  
Surety Authorization

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

December 10, 2018

Re: Sturgeon Electric Company, Inc.

Contract No.: 201843268  
Federal Project No.: SHE M320-092/20303  
Project Name: SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida,  
Iowa & Mexico  
Contract Amount: \$2,254,781.75  
Performance and Payment Bond No.: 014212113

Dear Assistant City Attorney,

The Performance and Payment Bonds covering the above captioned project were executed by this agency, through the authorization of Liberty Mutual Insurance Company on December 10, 2018.

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 317 805-7500.

Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read 'Sheree Hsieh', written in a cursive style.

Sheree Hsieh,

Attorney-in-Fact to Liberty Mutual Insurance Company



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. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. To confirm the validity of this Power of Attorney call 610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

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

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Obligee Name: City and County of Denver  
Surety Bond Number: 014212113 Bond Amount: \$2,254,781.75

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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

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IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Upper Merion Twp., Montgomery County  
My Commission Expires March 28, 2021  
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 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, Renee C. Llewellyn, the undersigned, Assistant Secretary, 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 10th day of December, 2018.



By: Renee C. Llewellyn  
Renee C. Llewellyn, Assistant Secretary



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
12/13/2018

**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 have ADDITIONAL INSURED provisions or 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).**

<b>PRODUCER</b> Arthur J. Gallagher Risk Management Services, Inc. 2850 Golf Road Rolling Meadows IL 60008	<b>CONTACT NAME:</b> Shannon Lentz <b>PHONE (A/C, No, Ext):</b> 630-285-4418 <b>FAX (A/C, No):</b> 630-285-3922 <b>E-MAIL ADDRESS:</b> shannon_lentz@ajg.com														
<b>INSURED</b> Sturgeon Electric Company, Inc. 12150 E. 112th Avenue Henderson, CO 80640	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">INSURER(S) AFFORDING COVERAGE</th> <th style="text-align: left;">NAIC #</th> </tr> <tr> <td>INSURER A : Zurich American Insurance Company</td> <td>16535</td> </tr> <tr> <td>INSURER B : AGCS Marine Insurance Company</td> <td>22837</td> </tr> <tr> <td>INSURER C : American Zurich Insurance Company</td> <td>40142</td> </tr> <tr> <td>INSURER D :</td> <td></td> </tr> <tr> <td>INSURER E :</td> <td></td> </tr> <tr> <td>INSURER F :</td> <td></td> </tr> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A : Zurich American Insurance Company	16535	INSURER B : AGCS Marine Insurance Company	22837	INSURER C : American Zurich Insurance Company	40142	INSURER D :		INSURER E :		INSURER F :	
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**COVERAGES**

**CERTIFICATE NUMBER: 1677650061**

**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 INSD	SUBR 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 checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER	Y	Y	GLOB37415424	9/30/2018	9/30/2018	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>EACH OCCURRENCE</td><td style="text-align: right;">\$ 1,000,000</td></tr> <tr><td>DAMAGE TO RENTED PREMISES (Ea occurrence)</td><td style="text-align: right;">\$ 100,000</td></tr> <tr><td>MED EXP (Any one person)</td><td style="text-align: right;">\$ 10,000</td></tr> <tr><td>PERSONAL &amp; ADV INJURY</td><td style="text-align: right;">\$ 1,000,000</td></tr> <tr><td>GENERAL AGGREGATE</td><td style="text-align: right;">\$ 2,000,000</td></tr> <tr><td>PRODUCTS - COM/OP AGG</td><td style="text-align: right;">\$ 2,000,000</td></tr> <tr><td></td><td style="text-align: right;">\$</td></tr> </table>	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 - COM/OP AGG	\$ 2,000,000		\$
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C 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 N	N/A	WC837415222 (A/O/S) WC837415322(MA/M)	9/30/2018 9/30/2018	9/30/2018 9/30/2018	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><input checked="" type="checkbox"/> PER STATUTE</td> <td><input type="checkbox"/> OTHER</td> <td></td> </tr> <tr><td>E.L. EACH ACCIDENT</td><td></td><td style="text-align: right;">\$ 1,000,000</td></tr> <tr><td>E.L. DISEASE - EA EMPLOYEE</td><td></td><td style="text-align: right;">\$ 1,000,000</td></tr> <tr><td>E.L. DISEASE - POLICY LIMIT</td><td></td><td style="text-align: right;">\$ 1,000,000</td></tr> </table>	<input checked="" type="checkbox"/> PER STATUTE	<input type="checkbox"/> OTHER		E.L. EACH ACCIDENT		\$ 1,000,000	E.L. DISEASE - EA EMPLOYEE		\$ 1,000,000	E.L. DISEASE - POLICY LIMIT		\$ 1,000,000		
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B	Property Floater			MXI93069373	9/30/2018	9/30/2019	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>See Below</td><td style="text-align: right;">\$ 3,500,000</td></tr> </table>	See Below	\$ 3,500,000												
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**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**  
 Policy #MXI93069373 - Property Floater - Covered Property - Materials of Others in the Care, Custody and Control of Named Insured  
 Description of Job : 841619 Denver 2018 Traffic Signal Upgrades Denver Project #201843268  
 Additional Insured, Waiver of Subrogation and Primary/Non-Contributory for the following where required by written contract :  
 City & County of Denver, its elected and appointed officials, employees and volunteers  
 A severability of interest/cross suits liability clause is included under the General Liability coverage as evidenced herein as required by written contract.

**CERTIFICATE HOLDER**

**CANCELLATION**

1556 City & County of Denver ATTN : Dani Abbott 201 W Colfax Ave Dept 614 Denver CO 80202	<p><b>SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.</b></p> <p>AUTHORIZED REPRESENTATIVE</p>
--	---

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

**CONTRACT NO.: 201843268  
PROJECT NAME: SHE 2015 Traffic Signal Upgrades**

**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 OPENING POSTPONEMENT**

Please note the new bid opening date of September 13, 2018 at 11:00am. Webb Building, 201 W. Colfax Ave., Denver, CO 80202; Conference Room 6.G.7.

**QUESTIONS AND ANSWERS**

1. In reference to bid item 203-00050 (Unsuitable Materials); Can the City provide a specification and description of this pay item?  
*Response: Unsuitable materials shall be defined by the 2017 CDOT Standard Specifications for Road and Bridge Construction: Section 203.05 (c)*
2. In reference to bid item 211-03005 (Dewatering); Can the City provide a specification and description of this pay item?  
*Response: Dewatering shall be the removal of excessive high water table during drilling/vacuuming operation of the traffic signal caissons. The removal of excess water shall be per the approved SWMP and/or in accordance with the 2017 CDOT Standard Specifications for Road and Bridge Construction: Section 107.25*
3. Traffic Signal poles currently have a 20-24-week lead time. Will the NTP, PO release and project schedule take this lead time into consideration?  
*Response: Yes, this project anticipates a 120-day lead time in material order and this additional time is built into the project schedule. If the duration to get the material is longer, Denver will extend the contract accordingly.*
4. Who is responsible for providing material (asphalt, concrete, etc.) testing?  
*Response: Per this project's special provision – Revision of Section 601, subsection 601.07, the contractor is responsible for Quality Control testing of concrete and Denver will perform Quality Assurance. Due to the limited quantities of HMA patch, no testing of the asphalt patch will be required.*
5. With the first phase of this work not under way, is there a potential for land closure restrictions or sidewalk closure restrictions?  
*Response: Denver does not anticipate any potential land sidewalk closure restrictions on this project.*
6. Will the City allow early ordering of signal poles to accommodate for the current lead time of 24 weeks?  
*Response: Denver will not object to the winning contractor to pre-order the signal poles prior to the contract execution.*
7. Will work be allowed to commence before the signal poles are scheduled to deliver, or would the City not want work to begin until the materials are present?  
*Response: Once a NTP is issued, Denver will not object to the contractor beginning construction prior to the signal poles arrival.*

8. I did not see the time count for this project listed, what is the time count? Is than an anticipated date for NTP?

*Response: Denver anticipates a duration of 12 to 16 weeks to execute the construction contract from bid opening date.*

9. Is there any Glendale or Cherry Creek tax or permits required for this project?

*Response: Denver anticipates the contractor will need to acquire a Glendale occupancy/construction permit. All applicable permit fees will be by project cost.*

10. Will night work be allowed?

*Response: Yes, however all night work requests will need to be approved by the Engineer and the City Traffic Engineer and in accordance with the criteria/requirements of Denver's Noise ordinance prior to start of night work.*

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



Lesley B. Thomas  
City Engineer

8/28/18

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

9/12/18

Date





**NOTICE OF APPARENT LOW BIDDER**  
***(SAMPLE)***

Date

To:

201843268

Gentlemen:

The MANAGER OF PUBLIC WORKS has considered the Bids submitted on August 23, 2018 for work to be done and materials to be furnished in and for:

**PROJECT No. 201843268 SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico**

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, Engineering Division, Project Management Office within the time limit set forth in the Bid Proposal.

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

- a. One original plus four copies of the Power of Attorney relative to Performance and/or Payment Bond; and,
- b. ACORD Insurance Certificates: General Liability and Automotive Liability, Workman's Compensation Employer Liability; or any other coverage required by contract.

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. 201843268  
Page 2

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

Dated at Denver, Colorado this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

CITY AND COUNTY OF DENVER

By \_\_\_\_\_  
Manager of Public Works

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

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Current Date

*( S A M P L E )*

Name  
Company  
Street  
City/State/Zip

**Federal Aid Project No. SHE M320-092/20303  
City of Denver Project No. 201843268, SHE 2015: Colorado Blvd at Cherry Creek N/Virginia,  
Ohio, Florida, Iowa & Mexico**

**NOTICE TO PROCEED**

In accordance with General Contract Condition 302 of the Standard Specifications for Construction, General Contract Conditions, 2011 Edition, you are hereby authorized and directed to proceed on **201843268 SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio, Florida, Iowa & Mexico** with the work of constructing contract number, as set forth in detail in the contract documents for the City and County of Denver.

With a contract time of 240 (Two hundred forty) calendar days, the project must be complete on or before

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

Very truly yours,

Lesley B. Thomas  
City Engineer

By:

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

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DEPARTMENT OF PUBLIC WORKS

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

Form fields for project name, contractor name, subcontractor name, date, subcontract number, and payment details.

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...

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...

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...

As additional consideration for the payments referenced above, the undersigned agrees to defend, indemnify and hold harmless the City, its officers, employees, agents and assigns and the above-referenced Contractor from and against all costs, losses, damages, causes of action, judgments under the subcontract...

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.

Notary Public/Commissioner of Oaths section and signature line for Subcontractor.





**Instructions for Completing the  
Contractor/Consultant  
Certification of Payment Form**

**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 work or task order.

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).



Date

Name  
Company  
Street  
City/State/Zip

(SAMPLE)

RE: Certificate of Contract Release for  
FEDERAL AID PROJECT NO. SHE M320-092/20303  
CITY OF DENVER CONTRACT NO. 201843268, SHE 2015: Colorado Blvd at Cherry Creek N/Virginia, Ohio,  
Florida, Iowa & Mexico

Certificate of Contract Release

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

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

---

Contractor's Signature

Date Signed

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

Denver Public Works/Office of the Executive Director  
201 West Colfax Avenue, Dept 608 | Denver, CO 80202  
[www.denvergov.org/dpw](http://www.denvergov.org/dpw)  
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**REQUIRED CONTRACT PROVISIONS  
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

**ATTACHMENTS**

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

**I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

**II. NONDISCRIMINATION**

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under



this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

#### **10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

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

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### 1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

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

## 2. Withholding

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

## 3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### 4. Apprentices and trainees

##### a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

##### b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

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

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.**

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

## VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

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

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

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

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

Shall be fined under this title or imprisoned not more than 5 years or both."

#### **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

#### **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

##### **1. Instructions for Certification – First Tier Participants:**

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

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.



i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

\*\*\*\*\*

## 2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

### 2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

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

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\*\*\*\*\*

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

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

CITY AND COUNTY OF DENVER

STATE OF COLORADO



**DENVER**  
THE MILE HIGH CITY

DEPARTMENT OF PUBLIC WORKS

Prevailing Wage Rates

Contract Number: 201843268



SHE 2015

Traffic Signal Upgrades

July 23, 2018



**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](http://www.denvergov.org/csa)

TO: All Users of the City of Denver Prevailing Wage Schedules  
FROM: Susan Keller, Human Resources Technician, Classification & Compensation  
DATE: Wednesday, January 17, 2018  
SUBJECT: Latest Change to Prevailing Wage Schedules

Please be advised, prevailing wage rates for some building, heavy, highway, and residential construction trades have not been updated by the United States Department of Labor (DOL) since March 1, 2002. The Career Service 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 5, 2018** 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. CO180019  
Superseded General Decision No. CO20170019  
Modification No. 0  
Publication Date: 01/05/2018  
(7 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.

Attachments as listed above.

General Decision Number: CO180019 01/05/2018 CO19

Superseded General Decision Number: CO20170019

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 \$10.35 for calendar year 2018 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 \$10.35 per hour (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 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number                      Publication Date  
  0                                      01/05/2018

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.

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\* ENGI0009-008 05/01/2017

	Rates	Fringes
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.).....	\$ 27.60	10.10
(3)-Loader (under 6 cu. yd.) Denver County.....	\$ 27.60	10.10
(3)-Motor Grader (blade- rough) Douglas County.....	\$ 27.60	10.10
(4)-Crane (50 tons and under), Scraper (single bowl, under 40 cu. yd).....	\$ 27.75	10.10
(4)-Loader (over 6 cu. yd) Denver County.....	\$ 27.75	10.10
(5)-Drill Rig Caisson (Watson 2500 similar or larger), Crane (51-90 tons), Scraper (40 cu.yd and over),.....	\$ 27.92	10.10
(5)-Motor Grader (blade- finish) Douglas County.....	\$ 27.92	10.10
(6)-Crane (91-140 tons).....	\$ 28.55	10.10

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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

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

**Office of Human Resources  
Supplemental rates  
(Specific to the Denver Projects)  
Revised 4/11/2017)**

<b>Classification</b>		<b>Base</b>	<b>Fringe</b>
Ironworker (Ornamental)		\$26.05	\$12.00
Laborer	Removal of Asbestos	\$21.03	\$8.55
Line Construction	Lineman, Gas Fitter/Welder	\$36.88	\$9.55
	Line Eq Operator/Line Truck Crew	\$25.74	\$8.09
Millwright		\$28.00	\$10.00
Pipefitter		\$30.45	\$12.85
Plumber		\$30.19	\$13.55
Power Equipment Operator (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 Operator	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
Truck Driver	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

- **Ironworker - Ornamental**
  - Set pedestrian and ornamental railings on bridges
  - Erect and construct wrought iron fences (not performed by Group I Laborers)
  - Set bike racks
  - Set handrails
  
- **Laborer - Asbestos**
  - Abatement of asbestos or remediation of hazardous materials inside or outside of a building
  - Asbestos Workers and Insulators do not perform abatement or remediation work
  
- **Power Equipment Operator (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

- **Power Equipment Operator**

NOTE: Any equipment listed below being used in tunnel work, below or above ground shall be paid no less than \$2.00 per hour above the listed wage rates.

- **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, haulage motor man, pugmill, portable screening plant with or without a spray bar, screening plants, with classifier.
- **Group 3** - Asphalt screed, asphalt plant, backfiller, bituminous spreader or laydown machine; cableway signalman, caisson drill, William MF, similar or larger; C.M.I. and similar, concrete batching plants, concrete finish machine, concrete gang saw on concrete paving, concrete mixer, less than 1 yd., concrete placement pumps, under 8 inches, distributors, bituminous surfaces dozer, drill, diamond or core, drill rigs, rotary, churn, or cable tool, elevating graders, elevator operator, equipment, lubricating and service engineer, grout machine, gunnite machine, hoist, 1 drum, horizontal directional drill operator, sandblasting machine, single unit portable crusher, with or without washer, tie tamper, wheel mounted, tractor, 70 hp and over with or without attachments, trenching machine operator, winch on truck.
- **Group 4** - Cable operated power shovels, draglines, articulated truck operator, clamshells, and backhoes, 5 cubic yards and under, concrete mixer over 1 cubic yard, concrete paver 34E or similar, concrete placement pumps, 8 inches and over, grade checker, hoist, 2 drums, hydraulic backhoe, 3/4 yds and over, loader, over 6 cubic yards, mechanic, mixer mobile, multiple unit portable crusher, with or without washer; pile driver, tractor with side boom, roto- mill and similar, welder.
- **Group 5** - Cable operated power shovels, draglines, clamshells and backhoes over 5 cubic yards, caisson drill Watson 2500 similar or larger, hoist 3 drum or more, mechanic – welder (heavy-duty).
- **Group 6** - Cableway, derrick, quad nine push unit, wheel excavator, belt or elevating loader
- **Group 7** - tower cranes all types

- **Truck Driver**

- **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.

- Trade classification workers cannot be classified as common laborers for performing incidental cleanup from the installation of their craft. Common Laborers perform final cleanup of the entire jobsite.
- Go to <http://www.denvergov.org/Auditor> to view the Prevailing Wage Clarification Document for a list of complete classifications used.

CITY AND COUNTY OF DENVER

STATE OF COLORADO



**DENVER**  
THE MILE HIGH CITY

DEPARTMENT OF PUBLIC WORKS

Technical Specifications

Contract Number: 201843268



SHE 2015

Traffic Signal Upgrades

July 23, 2018

**CITY AND COUNTY OF DENVER  
PUBLIC WORKS - TRANSPORTATION  
2015 SAFETY HAZARD ELIMINATION PROJECT  
CITY PROJECT MASTER NO. 2015-PROJMSTR-0000511  
CCD PRO TRACKING NO. PWTES 2018-080**

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 Specifications for Construction for this Project shall consist of the applicable sections and subsections, numbered Section 200 through Section 700, of the 2017 "Colorado Department of Transportation Standard Specifications for Road and Bridge Construction."

The Colorado Department of Transportation General Provisions consists of Sections 100 through 109 of the above mentioned specifications. With the exception of General Provision Sections 101, 105, 106, 107 & 108 all other General Provisions are not applicable to this Project and are hereby deleted. In place of the deleted sections, the City and County of Denver "Standard Specifications for Construction, General Contract Conditions," 2011 Edition, shall apply to this contract. Supplements or amendments to the Standard Specifications for Construction, General Contract Conditions are listed in the Special Contract Conditions.

The following Project Special Provisions take precedence over Specifications or Plans and supplement or amend the referenced "Standard Specifications for Road and Bridge Construction" adopted in 2011 by the Colorado Department of Transportation, which is to be used to control construction of this Project.

**DETAILED CONSTRUCTION SPECIFICATIONS**

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

**STANDARD CONSTRUCTION DETAILS**

It is the intent of the City to use applicable details from the 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: <https://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  
PUBLIC WORKS - TRANSPORTATION  
2015 SAFETY HAZARD ELIMINATION PROJECT  
CITY PROJECT MASTER NO. 2015-PROJMSTR-0000511  
CCD PRO TRACKING NO. PWTES 2018-080**

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  
PUBLIC WORKS - TRANSPORTATION  
2015 SAFETY HAZARD ELIMINATION PROJECT  
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## **COMMENCEMENT AND COMPLETION OF WORK**

**Section 108 of the Standard Specifications is hereby revised for this project as follows:**

**Subsection 108.03 shall include the following:**

The Contractor's progress schedule may be a Bar Chart Schedule.

Salient features to be shown on the Contractor's Progress Schedule are:

1. Notice to Proceed
2. Mobilization(s)
3. Erosion Control
4. Removals
5. Utilities
6. Curb and Gutter, Median Cover Material, Curb Ramps
7. Sidewalks
8. Traffic Signals
9. Signing and Striping
10. Hot Mix Asphalt
11. Construction Traffic Control
12. Landscape Restoration

**REVISION OF SECTION 101  
DEFINITION AND TERMS**

**Section 101 of the Standard Specifications is hereby revised for this project as follows:**

Technical Specifications related to construction materials and methods for the Work under this Contract shall consist of the *State Department of Highways, Division of Highways, State of Colorado, Standard Specifications for Road and Bridge Construction* dated 2011.

Certain terms utilized in the Specifications referred to in the paragraph above shall be interpreted to have different meaning within the scope of this Contract. A summary of redefinitions follows:

- Subsection 101.28** “**Department**” shall mean the City and County of Denver, Colorado.
- Subsection 101.29** “**Engineer**” shall mean the Director of Public Works, Denver, Colorado, or designated representative.
- Subsection 101.39** “**Laboratory**” shall mean City and County of Denver, Colorado or their designated representative.
- Subsection 101.51** “**Project Engineer**” shall mean the Director of Public Works, Denver, Colorado, or designated representative.
- Subsection 101.76** “**State**” shall mean City and County of Denver, Colorado (where applicable).

**REVISION OF SECTION 105  
COOPERATION BETWEEN CONTRACTORS**

**Section 105 of the Standard Specifications is hereby revised for this project as follows:**

**Subsection 105.10 shall include the following:**

Other construction agencies may be working in the vicinity of the project. The Contractor shall conduct the work so as not to interfere with or hinder the progress or completion of the work being performed by other agencies or contractors. All Traffic control conflicts that arise between the needs of the various construction contractors and other agencies shall be brought to the attention of the Engineer. The Engineer will decide the method of resolution.

**REVISION OF SECTION 107  
PERFORMANCE OF SAFETY CRITICAL WORK**

**Section 107 of the Standard Specifications is hereby revised as follows:**

**Add subsection 107.061 immediately following subsection 107.06 as follows:**

**107.061 Performance of Safety Critical Work.** The following work elements are considered safety critical work for this project:

- (1) Overhead traffic signal mast arm and signal pole assemblies with luminaire arms
- (2) Overhead power lines on the north leg of Florida Avenue at Colorado Boulevard intersection
- (3) Work requiring the use of cranes or other lifting equipment

The Contractor shall submit, for record purposes only, an initial detailed construction plan that addresses safe construction of each of the safety critical elements. An erection plan, it shall be included as a part of this plan. The detailed construction plan shall be submitted two weeks prior to the safety critical element conference described below. The construction plan shall be stamped "Approved for Construction" and signed by the Contractor. The construction plan will not be approved by the Engineer.

The Construction Plan shall include the following:

- (1) Safety Critical Element for which the plan is being prepared and submitted.
- (2) Contractor or subcontractor responsible for the plan preparation and the work.
- (3) Schedule, procedures, equipment, and sequence of operations, that comply with the working hour limitations
- (4) Temporary works required: falsework, bracing, shoring, etc.
- (5) Additional actions that will be taken to ensure that the work will be performed safely.
- (6) Names and qualifications of workers who will be in responsible charge of the work:
  - A. Years of experience performing similar work
  - B. Training taken in performing similar work
  - C. Certifications earned in performing similar work
- (7) Names and qualifications of workers operating cranes or other lifting equipment
  - A. Years of experience performing similar work
  - B. Training taken in performing similar work
  - C. Certifications earned in performing similar work
- (8) The construction plan shall address how the Contractor will handle contingencies such as:
  - D. Unplanned events (storms, traffic accidents, etc.)
  - E. Structural elements that don't fit or line up
  - F. Work that cannot be completed in time for the roadway to be reopened to traffic
  - G. Replacement of workers who don't perform the work safely
  - H. Equipment failure
  - I. Other potential difficulties inherent in the type of work being performed

**-2-**  
**REVISION OF SECTION 107**  
**PERFORMANCE OF SAFETY CRITICAL WORK**

(9) Name and qualifications of Contractor's person designated to determine and notify the Engineer in writing when it is safe to open a route to traffic after it has been closed for safety critical work.

A safety critical element conference shall be held two weeks prior to beginning construction on each safety critical element. The Engineer, the Contractor, the safety critical element subcontractors, and the Contractor's Engineer shall attend the conference. Required pre-erection conferences may be included as a part of this conference.

After the safety critical element conference, and prior to beginning work on the safety critical element, the Contractor shall submit a final construction plan to the Engineer for record purposes only. The Contractor's Engineer shall sign and seal temporary works related to construction plans for the safety critical elements, and Temporary Works. The final construction plan shall be stamped "Approved for Construction" and signed by the Contractor.

The Contractor shall perform safety critical work only when the Engineer is on the project site. The Contractor's Engineer shall be on site to inspect and provide written approval of safety critical work for which he provided stamped construction details. Unless otherwise directed or approved, the Contractor's Engineer need not be on site during the actual performance of safety critical work, but shall be present to conduct inspection for written approval of the safety critical work.

When ordered by the Engineer, the Contractor shall immediately stop safety critical work that is being performed in an unsafe manner or will result in an unsafe situation for the traveling public. Prior to stopping work, the Contractor shall make the situation safe for work stoppage. The Contractor shall submit an acceptable plan to correct the unsafe process before the Engineer will authorize resumption of the work.

When ordered by the Engineer, the Contractor shall remove workers from the project that are performing the safety critical work in a manner that creates an unsafe situation for the public in accordance with subsection 108.05.

Should an unplanned event occur or the safety critical operation deviate from the submitted plan, the Contractor shall immediately cease operations on the safety critical element, except for performing any work necessary to ensure worksite safety, and provide proper protection of the work and the traveling public. If the Contractor intends to modify the submitted plan, he shall submit a revised plan to the Engineer prior to resuming operations.

All costs associated with the preparation and implementation of each safety critical element construction plan will not be measured and paid for separately, but shall be included in the work.

Nothing in the section shall be construed to relieve the Contractor from ultimate liability for unsafe or negligent acts or to be a waiver of the Colorado Governmental Immunity Act on behalf of the City and County of Denver.

**REVISION OF SECTION 107  
WORKER SAFETY**

**Section 107 of the Standard Specifications is hereby revised for this project as follows:**

**Subsection 107.06 shall include the following:**

Contractors shall comply with the CCD Noise Control Ordinance for all construction activities scheduled to occur between the hours of 9:00 p.m. to 7:00 a.m. Monday – Friday and 5:00 p.m. and 8:00 a.m. Saturday through Sunday if noise levels are expected to exceed 50 dBA in residential areas or 60 dBA in commercial areas. Nighttime construction activities exceeding noise levels during these restricted hours may not be initiated without first obtaining this permit variance from CCD.

Under any circumstances where nighttime construction activities will take place between the restrictive hours listed above where noise levels will exceed the noise impact thresholds, the contractor is required to apply for a construction noise variance no less than one month before the startup date for construction. Note: the CCD board only meets the 2<sup>nd</sup> Thursday of every month.

Applications shall be submitted through the Denver Department of Environmental Health (DEH) at a cost of \$25.00 for application processing.

The contractor is responsible for fulfilling the requirements set forth by the CCD and is responsible for obtaining the permit variance prior to the construction startup date. All exemption requests and permitting requirements will not be paid for separately, but will be included in the work. Copies of the final application approval shall be provided to CDOT R1 Noise Specialist (Jordan Rudel) for recording and documentation purposes demonstrating compliance with the local agencies regulations.

If the Contractor is ordered to cease operations due to violations of a noise ordinance as a result of equipment back up alarms, the Contractor shall take whatever actions are necessary to comply with the ordinance and continue work on the project. This includes the option of using an observer in lieu of using the equipment's back up alarms as allowed by 29 CFR 1926.601(b) (4) (II) of the OSHA Safety and Health Standards. Should the Contractor fail to mitigate the noise ordinance violation, the Contractor shall be deemed to have waived any right to a claim as a result of work suspension or being required to perform the work at times not specified in the Contract.

If the Contractor uses an observer in lieu of back up alarms, the Contractor shall follow all of the OSHA requirements regarding the use of observers.

All costs incidental to the foregoing requirements shall be included in the original contract prices for the project.

**REVISION OF SECTION 107  
PROTECTION OF EXISTING VEGETATION**

**Section 107 of the Standard Specifications is hereby revised for this project as follows:**

**Subsection 107.12 shall include the following:**

The Contractor shall save all existing vegetation (including trees, shrubs, ground covers, grasses, wetlands & riparian) in this area, except for that vegetation, which must be removed to accommodate construction of the project, per the plans. Specific areas of vegetation to be protected shall be as directed by the Engineer and shall be protected by using orange construction fencing, wire fencing with metal posts or silt fence. Fencing for trees shall be installed at the drip line of the tree or as approved by the Engineer. Equipment shall not be installed or stockpile material within 15 feet of existing trees to remain.

The Contractor shall perform all the work in such a manner that the least environmental damage will result. All questionable areas or items shall be brought to the attention of the Engineer for approval prior to removal or any damaging activity.

The Contractor shall promptly report any vegetation damaged or scarred during construction to the Engineer for assessment of damages. Damaged or destroyed fenced vegetation, shall be replaced at the expense of the Contractor. Vegetation of replaceable size shall be replaced at the Contractor's expense. When trees, shrubs beyond replaceable size or wetlands have been damaged or destroyed, the Contractor shall be liable for the appraised value based upon the official current publications. For trees and shrubs use the International Society of Arboriculture, Guide for Plant Appraisals. The Contractor shall pay any fines or jail time should a wetland be damaged, at no cost to the project. The value of disturbed vegetation shall be calculated according to the following formula:

$(\text{Vegetation size}) \times (\text{Species}) \times (\text{Location}) \times (\text{Condition}) \times (\text{Arborist or Wetland Specialist}) =$   
Vegetation value

A consulting Arborist retained by the Department will determine the value of the trees and shrubs. A consulting Wetland Specialist shall determine the value of the wetland or wetland species. This value will be deducted from any money due to the Contractor.

The determination as to whether a plant is of replacement size or beyond will be made by the City's Landscape Architect or Wetland Specialist. Contact Jim Myers at CCD Forestry Department.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is repaired to the Engineer's satisfaction at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

**REVISION OF SECTION 108  
PROSECUTION AND PROGRESS**

**Section 108 of the Standard Specifications is hereby revised for this project as follows:**

**Subsection 108.03 shall include the following:**

The Contractor shall establish daily working hours for the project and submit them to the Engineer for approval along with the Progress Schedule. All work performed by the Contractor or any of the Contractor's agents during a working day shall be accomplished within these pre-established working hours. Daily working hours shall not exceed 10 consecutive hours for each 24 hour working day. Neither the Contractor nor any of the Contractor's agents shall work at times outside of the daily working hours without prior approval by the Engineer. Requests for changes in working hours shall be submitted to the Engineer in writing at least 48 hours before the proposed change in working hours would take effect.



## REVISION OF SECTION 201 CLEARING AND GRUBBING

**Section 201 of the Standard Specifications is hereby revised to include:**

**Subsection 201.02, paragraph 2 shall be deleted and replaced with the following:**

Removals shall be completed to the proposed subgrade elevation for the work, or as designated by the Engineer.

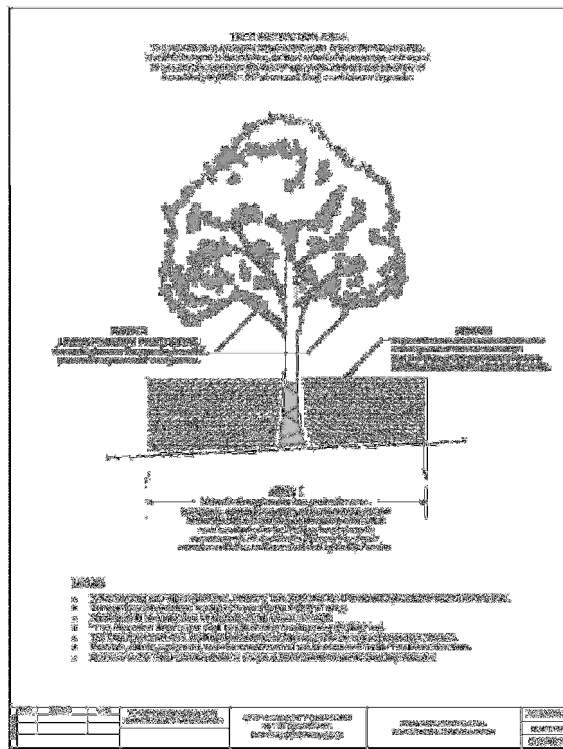
Removal of trees with less than a 4 inch diameter, when measured 24 inches or less above the existing grade, will not be measured and paid for separately. These tree removals will be included in the clearing and grubbing work.

**Subsection 201.02, paragraph 8 shall be deleted and replaced with the following:**

All tree trimming will be performed by the City and County of Denver through the City Forester's Office. Contact Jim Myers two (2) days prior.

**Subsection 201.02 is hereby revised to include:**

All trees designated to remain shall be protected in accordance with Denver's Standard Detail for Tree Protection Area – see detail.



**REVISION OF SECTION 202  
REMOVAL OF STRUCTURES, ASPHALT MAT AND OBSTRUCTIONS**

**Section 202 of the Standard Specifications is hereby revised as follows:**

All equipment, labor, hauling, sorting, removal, delivery and documentation of recyclable materials as per SC-20 "Greenprint Denver Requirements" will not be paid separately; all costs incurred by the Contractor to meet the requirements of SC-20 shall be included in the removal of the related appurtenance.

**Subsection 202.02 shall be revised to include the following:**

The Engineer will mark the limits of removals in the field.  
Removals in the vicinity of trees to remain shall conform to applicable provisions of the Tree Retention and Protection specification, as prepared by Denver Forestry.

**Subsection 202.03 is hereby replaced as follows:**

All salvable material shown on the plans shall be removed, without unnecessary damage, in sections or pieces that may be readily transported, and delivered by the Contractor to the location noted on the plans, or as directed by the Engineer. The Contractor shall be held responsible for the safekeeping of all salvable materials during the period of the Contract until they are delivered to the City. The Contractor shall make good or replace at his own expense any such materials damaged, stolen or otherwise lost prior to receipt by the City. All salvable materials, as designated on the plans, shall remain the property of the City.

**Subsection 202.07 is hereby replaced as follows:**

All concrete pavement, sidewalks, structures, curbs, gutters, asphalt pavement, etc., designated for removal, shall be broken into pieces and disposed of outside the limits of the project, unless otherwise designated on the plans, or as directed by the Engineer.

Old concrete construction which abuts new construction, edges of pavement, sidewalks, curbs, etc., to be left in place shall be saw cut to true line with a vertical face.

Where old asphalt construction abuts new construction, edges of asphalt pavement, patching, etc., asphalt to be left in place shall be wheel cut or sawcut to a neat vertical face with minimal jagged edges to the satisfaction of the Engineer. The Engineer, at his discretion, may require asphalt to be sawcut.

Removal of stone curb shall include the complete removal of the curb head and concrete foundation. No payment will be made for sprinkler relocation, utility relocation, etc., beyond the limits of construction as shown on the plans. Stone curb designated for salvage shall be carefully removed to prevent damage and delivered to the location indicated in the plans or specifications, or as directed by the Engineer.

**Subsection 202.09 shall be revised to include the following:**

Removal of asphalt mat from gutters shall be accomplished by planing, and/or scraping. If the existing gutter is to remain, the gutter shall be cleaned by sandblasting until the pan is completely clean of residue. Gutters which are excessively (greater than one-quarter inch in depth) planed or damaged shall be removed and replaced by the Contractor at his expense. If gutter is designated for removal, no separate payment shall be made for asphalt removal.

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**REVISION OF SECTION 202  
REMOVAL OF STRUCTURES, ASPHALT MAT AND OBSTRUCTIONS**

**Subsection 202.11 shall be revised to include the following:**

Removal of concrete paving, crosspans, curb ramps, driveways will be measured by area in square yards, regardless of thickness, and pay for removal of sidewalk.

Removal of asphalt mat will be measured by square yard. If the existing asphalt mat is over 9" thick, the unit price will be increased in proportion to the additional thickness (18" asphalt mat will be paid at twice the unit price). If the asphalt mat is greater than 4" and is over concrete pavement, both asphalt removal and concrete pavement removal will be paid. If the asphalt mat is less than 4" and is over concrete pavement, only concrete pavement removal will be paid.

Removal of asphalt mat (planning or milling) will be measured by the square yard, regardless of thickness.

Removal of asphalt mat from concrete gutter and other concrete designated to remain shall be measured by the square yard. Removal of asphalt mat from gutter shall include sandblasting and compressed air cleaning as part of that pay item.

Remove Siphon will be measured as a lump sum for each siphon and shall include: removing the connector pipe, two (2) inlets, grates and frames, any related materials, concrete, metal, sealant, debris, excavation and suitable backfill placed and compacted, all materials, labor equipment, hauling and disposal needed to complete this item.

**Subsection 202.12 is hereby deleted and replaced as follows:**

The accepted quantities will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule. Payment shall be full compensation for sawcutting, scraping, sandblasting, removing, hauling and disposal of such items, excavation and subsequent backfill (with moisture/density control per the Revision of Subsection 203.07) to proposed subgrade elevation. The price shall also include salvageable materials removed, their custody, preservation, storage, haul and disposal as provided herein.

Payment will be made under:

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Removal of Sidewalk	Square Yard
Removal of Curb and Gutter	Linear Foot
Removal of Concrete Curb Ramp	Linear Foot
Removal of Concrete Pavement	Square Yard
Removal of Asphalt Mat	Square Yard

When the Contract does not include pay items for Removal of Structures and Obstructions, the removal will not be paid for separately but shall be included in 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 Public Works – Transportation (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).

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 luminaire), 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 luminaire 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 at (720) 865-4000.

**Subsection 202.12 shall include the following:**

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

Removal of Traffic Signal Equipment shall be per each intersection. Payment includes all labor, equipment, and materials necessary to complete the work.

**REVISION OF SECTION 203  
POTHOLING**

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

**Subsection 203.05(g) Excavation shall include the following:**

The work shall include One Pothole per utility per conduit crossing or as approved by the Engineer.

All surface material disturbed by potholing shall be restored in kind in accordance with the provisions of the most recent release of the *Standards and Details for the City and County of Denver*.

- All potholes must be core drilled.
- All potholes must be backfilled using only one of the following methods:
  - Wet Sand
  - Flowfill
  - Flashfill
  - The Contractor may submit a written request to use a material not specified above (squeegee, pea gravel, and native material will not be allowed)
- Potholes in an asphalt street must be patched back using hot bituminous asphalt, minimum 9-inch in depth.
- Potholes in a concrete street must be patched back with fast curing high strength concrete no less than 8000 psi in 28 days and a 3000 psi in 60 minutes.
- Full concrete panel replacement is required when a third pothole is core drilled in the same panel. The contractor that cut the last pothole (i.e. 3rd) will be required to replace the panel.
- Any pothole in a sidewalk will require a full panel replacement.
- Any pothole in the curb and gutter or any drainage way will require at a minimum, a half panel replacement.

**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.

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

Payment will be made under:

**Pay Item**  
Potholing

**Pay Unit**  
Each

**REVISION OF SECTION 203  
SWEEPING**

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

**Subsection 203.01 shall include the following:**

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

**Subsection 203.04 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 203.13 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 203.14 of the Standard Specifications shall be modified as follows:**

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Sweeping	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), as required by CDPHE.

*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.

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**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.

*Minor SWMP Modification:* Modification to the SWMP that does NOT increase the scope or change hydrology of the Project but: modifies/improves specific BMPs in use at site, indicates progression in phasing of the Project, or specifies relocation of previously approved BMPs within the Project. 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: <https://www.colorado.gov/pacific/cdphe/news/water-quality-permits>

*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.



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**REVISION OF SECTION 208  
EROSION CONTROL**

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.

*Stormwater Management Plan (SWMP):* The Stormwater Management Plan contains the requirements necessary to accomplish all 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 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.

Any preparation of or adjustments to a SWMP must be performed either by or under the supervision of a Professional Engineer or Landscape Architect, licensed in the State of Colorado. 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.

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**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 SWMP 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. Because a SWMP and CASDP are not necessary for the Project, all cost for performance of the following notes shall not be paid for separately, but shall be included in the work unless otherwise specified in the section.

“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 CDOT as a result of construction activities associated with this Project. All removals shall be conducted in a timely manner.

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EROSION CONTROL**

The Contractor shall be held responsible for remediation of any adverse impacts to the CCD or CDOT 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)

Approved erosion and sediment control ‘Best Management Practices’ shall be maintained and kept in good repair 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. Best Management Practice (BMP) installation details and maintenance shall conform 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.

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.

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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 concrete waste shall be removed from the containment area and properly disposed of. 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.
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)

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**REVISION OF SECTION 208  
EROSION CONTROL**

**PART V: CONSTRUCTION REQUIREMENTS**

**A) SCHEDULES:**

At least 10 working days prior to the beginning of any construction work, the Contractor shall submit for approval a schedule for accomplishment of temporary and permanent BMPs shown in the SWMP. This schedule shall specifically indicate the sequence of clearing and grubbing, earthwork operations, and construction of temporary and permanent BMPs. The schedule shall include BMPs for all areas within the Project boundaries, including but not limited to, haul roads, borrow pits, and storage and other staging sites. Work shall not be started until the BMP schedule has been approved in writing by the Project Manager, and on site pre-construction inspection is performed and approved by CCD's NPDES inspector. Once the work has started, and during the active construction period, the Contractor shall update the schedule for all BMPs on a regular basis, and as required to keep the SWMP in compliance.

**B) CONSTRUCTION IMPLEMENTATION:**

The Contractor shall incorporate into the Project all BMPs that are appropriate for the current phase of work, as outlined in the accepted schedule.

**C) UNFORSEEN CONDITIONS:** The Contractor shall direct the ECS (under the supervision of a Professional Engineer licensed in the State of Colorado) to design and implement BMPs for correcting conditions unforeseen during design of the Project, or as possible for emergency situations, which arise during construction. The Project's SWMP, UDFCD Vol 3 standards and details, and CDOTs "Erosion Control and Storm-Water Quality Guide," and any approved modification to these documents as proposed by the Contractor, shall be used as reference documents for the purpose of designing appropriate BMPs. Measures and methods proposed by the Contractor to deal with unforeseen conditions shall be reviewed and approved in writing by the Permit Enforcement Authority and the Project Manager prior to implementation and construction.

In an emergency situation, the Contractor shall use best judgment for immediately responding to the emergency situation as it arises, and shall notify the Permit Enforcement Authority and ECS of the emergency situation and BMPs employed in response as soon as practical after installation.

**D) PERMITS:**

The Contractor shall obtain all required permits for the Project including those required by federal, state, and local agencies. The Contractor shall obtain (or transfer from the City when specified) required erosion control and water quality permits and shall be responsible for compliance with all requirements under any such permits.

**E) EROSION CONTROL SUPERVISOR:**

Contractor shall assign to the Project an employee or subcontractor to serve as Erosion Control Supervisor (ECS). The ECS shall be a person other than the Contractor's superintendent, foreman, or equivalent supervisory position. The ECS shall be experienced in aspects of BMP construction and have satisfactorily completed a Colorado DOT or equivalent ECS training program authorized by the City. Proof that this requirement has been met shall be submitted to the Project Manager at least ten working days prior to the beginning of any soil disturbance work. A list of authorized ECS training programs is available from the City upon request. Additionally, per definition, the ECS 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).

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**REVISION OF SECTION 208  
EROSION CONTROL**

The ECS shall be responsible for oversight of the implementation, maintenance, and revision of the SWMP for the duration of the Project. CCD requires the ECS to fulfill responsibilities as outlined by CDPS such as having financial control and authority to implement BMPs. The ECS's responsibilities shall be as follows:

- 1) Ensure compliance with all water quality permits or certifications in effect during the construction work.
- 2) Supervise the installation, construction, and maintenance of all BMPs specified in the Contract and coordinate the construction of BMPs with all other construction operations.
- 3) Direct the implementation of suitable BMPs as necessary to correct unforeseen conditions or emergency situations. Direct the dismantling of those features when their purpose has been fulfilled due to completion of each Project phase unless the Permit Enforcement Authority agrees that the features be left in place.
- 4) Attend the preconstruction conference, erosion control preconstruction inspection, Project scheduling meetings, weekly construction/ field meetings, substantial completion and final stabilization inspections, and other meetings regarding construction that could impact water quality.
- 5) Evaluate all non-stormwater coming onto the site, such as springs, seeps, and landscape irrigation return flow. If such flow is identified, the ECS shall propose appropriate SWMP modifications to the Contractor to protect off-site water from becoming contaminated with sediment or other pollutants.
- 6) Coordinate with the Contractor to implement necessary actions to reduce anticipated or presently existing water quality or erosion problems resulting from construction activities.
- 7) Coordinate with the Contractor to ensure all labor, material, and equipment deployed to meet SWMP requirements is judged appropriately.
- 8) During construction, update and record the following items in the SWMP as changes occur:
  - (i) Construction boundaries (may require Major SWMP Modification)
  - (ii) Areas of disturbance (may require Major SWMP Modification)
  - (iii) Areas used for storage of construction materials, equipment, soils, or wastes.
  - (iv) Location of any dedicated asphalt or concrete batch plants.
  - (v) Location of construction offices and staging areas.
  - (vi) Location of work access routes during construction.
  - (vii) Location of borrow and waste.
  - (viii) Location of temporary and permanent stabilization

The ECS shall start a new site map before the current one becomes illegible. All site maps shall remain with the SWMP paperwork.

- 9) Amend the SWMP whenever there are: additions, deletions, or changes in locations of BMPs. SWMP revisions shall be recorded immediately. Items shall be dated and signed at time of occurrence. Specifically, amendments shall include the following:
  - (i) A change in design, construction, operation, or maintenance of the site which would require the implementation of new or revised BMPs; or
  - (ii) Changes when the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity.
  - (iii) Changes when temporary BMPs are no longer necessary from changes in Project phase and are removed. All inspection and maintenance activities or other repairs shall be documented.

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**REVISION OF SECTION 208  
EROSION CONTROL**

All inspection and maintenance activities or other repairs shall be documented. The SWMP and documentation shall be kept on the Project site at all times.

- 10) Modify the site map with arrows to indicate direction of surface and storm water flowing across the Project site.
- 11) When adding or revising BMPs in the SWMP, amend the narrative to explain what, when, where, why, and how the BMP is being used, and add a detail to the SWMP.
- 12) If using existing topography, vegetation, etc. as a BMP, label it as such in the SWMP site map; amend the Narrative to explain when, why, and how the BMP is being used in the SWMP.
- 13) Record on the SWMP, and implement the approved plan for concrete and asphalt saw cutting, grinding, and milling containment and removal.
- 14) Update the potential pollutants list in the SWMP throughout construction meeting CASDP requirements.
- 15) Spills, leaks, or overflows that result in the discharge of pollutants shall be documented on the inspection form. The ECS shall record the time and date, weather conditions, reasons for spill, and how it was remediated. The ECS shall immediately report to the Contractor and Project Manager the following instances of noncompliance:
  - (i) Noncompliance which may endanger health or environment.
  - (ii) Spills or discharge of hazardous substance or oil which may cause pollution of the City MS4 or State Waters.
  - (iii) Discharge of stormwater which may cause an exceedance of a water quality standard.
- 16) Perform a thorough inspection of the stormwater management system at least every seven (7) days and within 24 hours after any precipitation or snowmelt event with the potential to cause surface erosion. If no land disturbing construction activities are present during a storm event, post-storm event inspections shall be conducted prior to commencing any new land disturbing construction activities, but no later than seventy-two (72) hours following the storm event. The inspection records shall be kept on-site in a written or previously approved format. Inspections shall be conducted during the progress of the work, during work suspensions, or until Final Stabilization of all disturbed areas is approved by Permit Enforcement Authority and shall include the following services at a minimum:
  - (i) The construction site perimeter, disturbed areas, and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. BMPs identified in the SWMP shall be observed to ensure that they are operating correctly.
  - (ii) The description of potential pollutant sources, and the BMPs identified in the SWMP, shall be revised and modified as appropriate based on the results of the inspection as soon as practicable after such inspection. Modification to the SWMP shall be implemented in a timely manner and in accordance with applicable Permit requirements.
  - (iii) The operator shall keep a record of inspections. Uncontrolled releases of sediment or polluted storm water or measurable quantities of sediment found off the site shall be recorded with a brief explanation as to the measures taken to prevent future releases as well as any measures taken to clean up the sediment that has left the site. Inspection records shall be made available to the City upon request. Note: documentation of uncontrolled releases at site DOES NOT alleviate any State or Federal requirements for reporting of discharges or upset conditions. Care shall be taken to ensure compliance with all regulatory requirements at site.

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EROSION CONTROL**

- (iv) Seven (7) day inspections are required during construction and at all times until Final Stabilization has been achieved. Seeding and mulching of disturbed areas does NOT count as final stabilization until such time as 70% pre disturbed vegetative cover has been achieved. Sites with growth in place sufficient to deter erosion that have not yet achieved final stabilization may petition the City to grant an alternative inspection schedule while awaiting additional growth for final stabilization. These inspections must be conducted in accordance with the above paragraphs.

**F) APPLYING BMPs TO STABILIZE SITE:**

The duration of the exposure of incomplete construction to the effects of weather shall be as short as practicable. BMPs such as: seeding, surface roughening, mulching, applying tackifier, use of geotextiles and matting, permanent landscaping, or other selected BMPs shall be applied within fourteen (14) calendar days of completion of grading/soil disturbance activities to stabilize the construction site unless disturbed area is within 100 feet of an MS4 or State Waters or has slopes of 3 to 1 or greater in which case BMPs shall be implemented within seven (7) calendar days of completion of grading activities. Disturbed areas where work is temporarily halted shall be temporarily stabilized within seven (7) days after the activity ceased unless work is to be resumed within thirty (30) calendar days after the activity ceased.

Clearing and grubbing operations shall be scheduled and performed to minimize both the area of the Project disturbed at a given time and the amount of time that disturbed areas remain open. BMPs such as temporary seeding are required between successive construction stages when disturbed areas will not be stable or active for thirty (30) calendar days or more. No payment will be made for additional work required because the Contractor has failed to properly coordinate the BMP schedule, thus causing previously stabilized areas to be disturbed by operations that could have been performed prior to the stabilization. Upon failure of the Contractor to coordinate the permanent BMPs with the grading operations in a manner to effectively control erosion and prevent water pollution, the Permit Enforcement Authority can suspend the Contractor's grading operations and the Project Manager can withhold monies due to the Contractor on current estimates until such time that all aspects of the work are coordinated in an acceptable manner.

**G) WORK OUTSIDE LIMITS OF CONSTRUCTION:** Non-contiguous areas outside the limits of construction that are used by the Contractor that include, but are not limited to, borrow pits, haul routes, storage and disposal areas, field offices, maintenance, batching areas, etc., shall have appropriate BMPs implemented by the Contractor at the Contractor's expense. Should said areas meet applicable CASDP Permit criteria, the Contractor shall obtain a separate CASDP or amend existing CASDP for each area as applicable at no additional expense to the City.

**H) MAINTENANCE:** The Contractor shall continuously maintain erosion and sediment control BMPs on a daily basis or as directed by the ECS so that they function properly during and after construction (including work suspensions) until Final Stabilization has been approved by the Permit Enforcement Authority. Maintenance includes, but is not limited to, the following items:

- (i) From the time seeding and mulching work begins until the date the Project has reached Substantial Completion of Erosion Control, the Contractor shall keep all seeded areas stabilized at all times. Any damage to seeded areas or to mulch materials shall be promptly repaired.
- (ii) All inspection sediment removal, and BMP maintenance activities to comply with all Federal, State & Local erosion control permit requirements until Final Stabilization is reached.



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EROSION CONTROL**

- (iii) All removal and replacement of existing BMPs due to damage to same suffered either by the contractor, outside agencies, the public, or acts of God.
- (iv) All required mechanical and/ or manual street sweeping.
- (v) Discretionary changes required of any regulatory enforcement officer.

If the Contractor fails to maintain the BMPs in accordance with the Contract, or as directed, the City may at the expiration of a period of 48 hours, after having given the Contractor written notice, proceed to maintain BMPs as deemed necessary. The cost thereof will be deducted from any compensation due, or which may become due to the Contractor under this Contract.

I) MINOR SWMP MODIFICATIONS: Shall be made in the field by the Contractor and thoroughly documented in the Contractor's SWMP narrative and drawings. Should the Permit Enforcement Authority deem minor field modifications inadequate, the Contractor may be required to a) make specific modifications as requested by the Permit Enforcement Authority or b) return to the original approved design specifications. Minor SWMP Modifications are allowed, covered under the original CASDP, and required as part of standard maintenance and operation.

J) MAJOR SWMP MODIFICATION: The City reserves the right to require changes in the Work or Project Limits that may require a Major Modification to the SWMP and/ or CASDP due to unforeseen circumstances. Should this occur, the Contractor will be responsible for the following (as applicable) and applying for CASDP amendment:

- (i) Make required revisions to comply with changing Federal or State rulemaking if it occurs within timeframe of the Project
- (ii) Make required revisions due to unforeseen or unplanned conditions leading to deficient Drawings/ SWMP (hazardous materials encountered, landfills, expansion of work limits, etc.)
- (iii) Prepare revised SWMP elements endorsed by a Professional Engineer licensed in the State of Colorado.

K) SUBSTANTIAL COMPLETION OF EROSION CONTROL: When a CASDP is required for the Project, Substantial Completion of the Project as defined by the City and County of Denver General Contract Conditions cannot be reached until Substantial Completion of Erosion Control has been granted. Granting of Substantial Completion of Erosion Control must be requested by the Contractor and be approved by the Permit Enforcement Authority in the form of a "Certificate of Substantial Completion of Erosion Control".

L) FINAL STABILIZATION: Granting of Final Stabilization must be requested by the Contractor and be approved by the Permit Enforcement Authority. Other permanent soil stabilization techniques may be proposed, in writing, by the Contractor and used upon approval, in writing, by the Project Manager and Permit Enforcement Authority.

The Contractor shall follow the following procedures for approval of Final Stabilization:

- (i) The Contractor shall file Inactivation Request for Construction Activities Stormwater Discharge Permit (available within CASDP guidance documents) with the Permit Enforcement Authority.
- (ii) The Contractor shall coordinate with the Permit Enforcement Authority to hold a Final Inactivation Inspection.
- (iii) If passing, the Permit Enforcement Authority transmits a letter of approval for Final Stabilization.

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EROSION CONTROL**

- (iv) If not passing, the Permit Enforcement Authority transmits a letter of denial for Final Stabilization with associated inspection report to Contractor.
- (v) Stabilization, inspection and maintenance requirements shall continue until confirmation of having met final closure requirements have been granted in writing by the Permit Enforcement Authority.  
When Final Stabilization has been reached, the Permit Enforcement Authority shall issue a "Certificate of Final Stabilization".
- (vi) Once the Inactivation request is approved by the City and County of Denver, the contractor can apply to close the State Stormwater Permit.

**M) FINAL ACCEPTANCE:**

CASDP obligations (including reaching Final Stabilization) may hinder the ability to reach Final Acceptance for the overall Project as defined in the City General Contract Conditions.

**PART VI: CONSTRUCTION OF BMPs**

BMPs shall be constructed so that they conform to all requirements as set forth within the Project SWMP. They shall meet all requirements set forth within each BMP detail and shall be installed and maintained so that they function in an effective and operable manner.

**PART V: BASIS OF PAYMENT**

Because a SWMP and CASDP are not necessary for the Project, all cost for performance of the Work to furnish, install, maintain, replace (if not due to contractor negligence), remove, and dispose of BMPs specified in the Contract shall not be paid for separately, but shall be included in the work. Only Storm Drainage Inlet Protection will be measured and pay for separately in accordance with Section 608 of the Storm Drain Inlet Protection of this specification.

All other work required as set forth in this Revised Section 208 –Erosion Control including all materials, equipment and labor, to permit, set-up, maintain, document, remove and clean-up all erosion control BMP's as per current City of Denver Stormwater Management Plans /(SWMP) requirements will not be paid separately; all costs incurred by the Contractor to meet the requirements of this Section regarding Erosion Control unless provide for in the Bid shall be included in the related appurtenance.

The cost for any corrective actions required by the State or City due to contractor's failure to obtain or comply with applicable Permits will be borne by the Contractor, including fines and penalties. In the case of failures on the part of the Contractor in controlling erosion, sedimentation, and/or water pollution, the City may provide the necessary corrective actions. All corrective action costs, including Project engineering costs, will be charged to the Contractor, and appropriate deduction will be made from the Contractor's monthly pay estimate.

The sole remedy for additional costs associated with installation of BMPs as required by regulatory agencies to ensure compliance with local and State requirements shall be included in the cost of the adjacent concrete repair work as provided in the Bid Schedule of this Contract. The Contractor however may submit a separate itemized Change Order for any required Major SWMP Modification proposed by the City during the course of the Project.

**REVISION OF SECTION 208  
STORM DRAIN INLET PROTECTION**

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

**Subsection 208.05(j) Construction of BMPs shall include the following:**

Storm drainage inlet protection shall be placed at the nearest downstream inlet or any inlets immediately adjacent to any construction excavation or areas that require concrete work. The inlet protection shall be sewn geotextile fabric unit enclosing a porous structure in the form of a cylindrical tube placed in front of and extending beyond the inlet opening on both sides. The inlet protection shall be a Beaver Dam style as manufactured by Dandy Products Inc. (1-800-591-2284) ([www.dandyproducts.com](http://www.dandyproducts.com)) or approved equal.

Storm Drain protection shall remain in place throughout the entire project time to ensure protection of each individual construction site.

The Contractor shall review the sites which have completed construction to ensure that the inlet protection is achieving the proper protection and remediate all issues for the entire project time.

**Subsection 208.12 shall include the following:**

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 the project.

**Pay Item**

Storm Drain Inlet Protection

**Pay Unit**

Each

**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 MICROWAVE VEHICLE RADAR DETECTOR (MVRD)**

**Section 210 of the Standard Specifications is hereby revised for this project as follows:  
Subsection 210.01 is hereby revised to include the following:**

This work consists of resetting microwave and transponder for Transit Signal Priority system. This work shall be to reset the existing microwave vehicle radar detector to new the new traffic signal pole as shown on the plans.

**Subsection 210.02 is hereby revised to include the following:**

Resetting of the microwave and transponder is to be done in accordance with the plans. It is the Contractor's responsibility to document the condition of this equipment 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 equipment is relocated should be brought to the Engineers' attention prior to removal. If necessary, new material shall be used at the direction of the Engineer.

The Contractor shall coordinate with the Engineer, 48 hours prior to resetting this equipment.

**Subsection 210.12 is hereby revised as follows:**

Reset Microwave Vehicle Radar Detector (MVRD) will be measured as an each for one unit (microwave and transponder)

**Subsection 210.13 is hereby revised to as follows:**

Payment will be made under:

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Reset Microwave Vehicle Radar Detector (MVRD)	Each

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

**REVISION OF SECTION 210  
RESET RADIO COMMUNICATION ANTENNA (YAGI AND OMNI)**

**Section 210 of the Standard Specifications is hereby revised for this project as follows:  
Subsection 210.01 is hereby revised to include the following:**

This work consists of resetting radio communication antenna (YAGI and OMNI) for traffic communications. This work shall be to reset the existing radio communication antenna to the new traffic signal pole as shown on the plans.

**Subsection 210.02 is hereby revised to include the following:**

Resetting of the radio communication antenna is to be done in accordance with the plans. It is the Contractor's responsibility to document the condition of this equipment 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 equipment is relocated should be brought to the Engineers attention prior to removal. If necessary, new material shall be used at the direction of the Engineer.

The Contractor shall coordinate with the Engineer, 48 hours prior to resetting this equipment.

**Subsection 210.12 is hereby revised as follows:**

Reset Radio Communication Antenna (YAGI and OMNI) will be measured as an each for one unit.

**Subsection 210.13 is hereby revised to as follows:**

Payment will be made under:

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Reset Radio Communication Antenna (YAGI and OMNI)	Each

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

**REVISION OF SECTION 210  
RESET STRUCTURES**

**Section 210 of the Standard Specifications is hereby revised as follows:**

**Subsection 210.01 is hereby revised to include the following:**

This work shall also consist of restoring existing landscaping that is disturbed during construction to its original or improved condition. This item applies to all landscaping within the limits of construction. Materials used to restore landscaping shall be replaced "in-kind" unless otherwise approved by the Engineer.

**Subsection 210.02 shall include the following:**

"Restore Landscaping, In Kind" shall include restoring all landscaping that is disturbed within the limits of construction. This includes landscape concrete and asphalt pavers, landscape rock, flowers, shrubs and landscape timbers. The Contractor shall be required to maintain the landscaping planting in accordance with Section 214.

**Subsection 210.09 shall include the following:**

Signs and traffic signals shall be reset in accordance with the City and County of Denver Transportation Engineering requirements at locations indicated on the plans. It will be the Contractor's responsibility to supply and install any new materials needed to restore the signs and traffic signals to service at the new location.

**Subsection 210.10 shall include the following:**

Manholes, water meters and valves shall be adjusted in accordance with the applicable standards of the Utility Owner. The Contractor will be responsible for determining the proper Utility Owner and coordinating these adjustments.

Survey range boxes shall be adjusted as directed by the Engineer.

Reset Inlet Grate will include for each existing single inlet all materials, equipment and labor, to remove and dispose of the existing castings and provide and place new castings with mounting hardware, grout and up to 1 course of standard brick riser as per Wastewater Standard Details DRWG NO. S-716 and all other labor, equipment, materials and hauling and disposals necessary to complete the work.

Restoration of landscaping beyond limits outlined on the plans and/or as marked in the field by the Engineer will not be paid for.

**Subsection 210.12 shall include the follows:**

The quantity to be measured where items are reset, adjusted or restored on a "square foot" basis shall be the actual number of square feet of the items completed and accepted.

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**REVISION OF SECTION 210  
RESET STRUCTURES**

**Subsection 210.13 shall be revised to include the follows:**

<u>Pay Item</u>	<u>Pay Unit</u>
Adjust Manhole, Meter, Valve	Each
Modify Inlet	Each

When the contract does not include pay items for Reset Structures, these items will not be paid for separately but shall be included in the work.



**REVISION OF SECTION 212  
SEEDING, FERTILIZER AND SODDING**

**Section 212 of the Standard Specifications is hereby revised as follows:**

**Subsection 212.01 shall include the following:**

Work performed in areas under the jurisdiction of Denver Parks and Recreation Department shall conform to the standards of that Department.

**Subsection 212.04 shall include the following:**

At the direction of the Engineer seeding will be accepted in lieu of sodding.

**Subsection 212.08 is hereby revised to include the following:**

Topsoil shall not be paid for separately but shall be included in the work. Sodding beyond the limits outlined on the plans and/or as marked in the field by the Engineer will not be paid for.

Payment will be made under:

**Pay Item**  
Sodding

**Pay Unit**  
Square Foot

When the contract does not include pay items for Seeding, Fertilizer and Sodding, these items will not be paid for separately but shall be included in the work.

**REVISION OF SECTION 212  
LANDSCAPE RESTORATION**

**Section 212 of the Standard Specifications is hereby revised for this project as follows:**

**Subsection 212.01 shall include the following:**

Disturbance of existing landscaping shall be minimized wherever possible. The Contractor shall notify the Engineer or Project Manager of any potential disturbance before beginning of work.

Landscape restoration shall consist of the repair and/or replacement of all landscape materials that may be damaged through the actions of the Contractor or his agents. This work may include but is not limited to sod, fencing, plantings, sprinkler systems and decorative features.

Sod shall be measured and paid for by Section 212: Seeding, Fertilizer and Sodding, and Rock Mulch shall be measured and paid for by Section 613: Rock Mulch (Weed Free). All other landscape repair, including sprinkler system repair, and/or replacement of landscape materials shall be included in the cost of landscape restoration.

**Subsection 212.07 shall include the following:**

Landscape Restoration shall not be measured separately but shall be included in the work of Clearing and Grubbing.

**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 may 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.

If contaminated groundwater is encountered, all groundwater brought to the surface shall not be directly discharged (or allowed to run off) into a storm sewer, wetlands, ditch, or any waters of the State. The water shall be contained in tanks or drums and properly disposed in accordance with all local, state and federal regulations.

**Subsection 250.03 shall include the following:**

The Contractor shall follow a material management plan (MMP) to ensure hazardous materials and contaminated groundwater is handled properly. The MMP will be prepared by PW Transportation and Denver Environmental Quality.

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. If contaminated soil and/or groundwater are encountered, the Contractor's Health and Safety Officer and/or Monitoring Technician shall be called out to the site to supervise 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 Environmental Quality 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.

**Subsection 250.09 shall include the following:**

All work including monitoring, sampling, handling, material disposal and analytical costs (if necessary) will be paid using Environmental Health and Safety Management (Each).

**Subsection 250.10 shall include the following:**

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Removal and Disposal of Sediment (Labor)	Each
Removal and Disposal of Sediment (Equipment)	Each

**REVISION OF SECTION 304  
AGGREGATE BASE COURSE**

**Section 304 of the Standard Specifications is hereby revised as follows:**

**Subsection 304.06 is revised as follows:**

All material within the street section and under ADA ramps in vehicle turning path should be compacted to 95% of maximum density as determined in accordance with AASHTO T-180; all areas outside the street section shall be compacted to 90% of the maximum density determined in accordance with AASHTO T-180. It is the Contractor's responsibility to provide Quality Control density testing and provide test results in a testing frequency, method and report as per Pre-construction submittal approved by the City Project Manager. Quality Control testing, reports and submittals will not be paid for separately but shall be included in the work. All materials and work necessary to complete the work shall not be paid for separately, but shall be included in the work.

**Subsection 304.08 is hereby revised as follows:**

Payment will be made under:

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Aggregate Base Course (Class 6)	Ton

When the contract does not include pay items for Aggregate Base Course, these items will not be paid for separately but shall be included in the work.

**REVISION OF SECTION 306  
RECONDITIONING**

**Section 306 of the Standard Specifications is hereby revised as follows:**

**Subsection 306.01 shall be revised to include the following:**

All existing subgrade on alleys and streets from back of curb to back of curb shall be reconditioned.

**Subsection 306.02 shall be revised to include:**

Unless otherwise indicated on the plans, the density requirements for reconditioning shall be:  
Clay Soils - 95% of the maximum density determined in accordance with AASHTO T-99  
Granular Soils - 95% of the maximum density determined in accordance with AASHTO T-180.  
It is the Contractor's responsibility to provide Quality Control density testing and provide test results in a testing frequency, method and compile comprehensive reports as per Pre-construction submittal approved by the City Project Manager. Quality Control testing, reports and submittals will not be paid for separately but shall be included in the work.

**Subsection 306.04 is revised as follows:**

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

**REVISION OF SECTION 401 & 403  
PLANT MIX PAVEMENTS**

Sections 401 and 403 of the Standard Specifications for Road and Bridge Construction are hereby deleted and replaced with the Comprehensive Specifications for the Metropolitan Government Pavement Engineers Council (MGPEC), included herein. Section 9.16 of the MGPEC Specifications is hereby deleted and replaced as follows:

HMAP patching or overlay shall be paid by the ton by batch ticket. Tack Coat will not be measured and paid for separately but shall be included in the cost of the work.

It is the Contractor's responsibility to provide Quality Control density testing and provide test results in a testing frequency, method and report as per Pre-construction submittal approved by the City Project Manager. Quality Control testing, reports and submittals will not be paid for separately but shall be included in the work.

Payment will be made under:

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Hot Mix Asphalt (Patching) (Asphalt)	Ton
Hot Mix Asphalt (Grading SX) (100) (PG 64-28)	Ton

When the contract does not include pay items for Plant Mix Pavements, these items will not be paid for separately but shall be included in the work.

**REVISION OF SECTION 412  
PORTLAND CEMENT CONCRETE PAVEMENT**

**Section 412 of the Standard Specifications is hereby revised as follows:**

**Subsection 412.01 shall be revised to include the following:**

This work shall also include driveway, crossspan, bus pad and alley paving.

**Subsection 412.03 shall be revised to include the following:**

Mix designs must be submitted for approval by the Engineer and shall be designed for the opening times required by the Traffic Control Plan. Such mix designs shall be submitted in a timely manner so as not to delay the scheduled commencement of the project, taking into account time for testing of the mix by the Contractor's laboratory. It is the Contractor's responsibility to provide Quality Control concrete strength testing and provide test results in a testing frequency, method and report as per Pre-construction submittal approved by the City Project Manager. Quality Control testing, reports and submittals will not be paid for separately but shall be included in the work.

**Subsection 412.04 shall be deleted and replaced with Subsection 601.05, with the following revisions:**

When High Early Strength is requested by the engineer for the convenience of the City, field strength of 2500 psi shall be achieved in 24 hours or less. An additional charge per cubic yard will be negotiated and paid for high early concrete when directed to be used by the Project Manager. If high early concrete is placed by the contractor without the request of the City the entire additional cost will be borne by the contractor. When directed by the Project Manager, a maturity meter (James Instrument Model No. 3006), or equal, shall be used to monitor on-site maturity of pavement concrete. The Contractor shall establish a maturity versus strength relationship for the concrete mixture being used. This correlation may be achieved by casting and curing cylinders on site, monitoring temperature and maturity of cylinders and paving concrete versus time, and testing cylinders at time intervals to establish the correlation.

**Subsection 412.07 shall be revised to include the following:**

The Contractor is required to submit a detailed breakdown of paving equipment, vibratory devices, finishing tools, and provisions for protection from or avoidance of damage from weather impacts. This information shall be submitted for approval by the Engineer prior to commencing any construction activities.

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**REVISION OF SECTION 412  
PORTLAND CEMENT CONCRETE PAVEMENT**

**Subsection 412.12 shall be revised to include the following:**

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.

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 412.13(a) 1, shall be deleted and replaced with the following:**

*Longitudinal Construction Joints* Keyways in longitudinal construction joints are optional. Deformed steel tie bars of specified length, size, spacing, and material shall be placed perpendicular to the longitudinal joints by an approved method. When adjacent lanes of pavement are constructed separately, Grade 40 (not Grade 60) tie bars may be bent at right angles against the form of the first lane constructed and straightened into final position before the concrete of the adjacent lane is placed. If epoxy-coated steel tie bars are bent and then straightened into final position, at the Engineer's discretion the bars shall be repainted with epoxy coating prior to placement of the adjacent concrete. The tie bars shall be inserted into the plastic state concrete between the auger and the vibrators. Other methods of the bar placement may be acceptable if the Contractor can demonstrate satisfactory performance of his alternate method. Proposals of alternate methods or additional costs associated with other methods shall be at the Contractor's expense.

**Subsection 412.13(b), delete the first sentence and replace it with the following:**

Weakened plane joints shall be formed by sawing to the depth specified on the drawings, in accordance with the requirements of this subsection or as otherwise approved by the Engineer, except as follows: When required to adhere to the City Noise Control Ordinance, joints shall be formed initially by deep tooling or "soft-cut" methods, followed by sawing at the first available time within the ordinance.

**Subsection 412.13(b) 2, delete the first and second paragraphs and replace with the following:**

Transverse weakened plane joints shall be formed by sawing a groove in hardened concrete in accordance with plan details.

The Contractor shall cut the transverse and longitudinal joints to the width and depth required. The cut shall be made with a power driven saw. Any damage to the concrete pavement such as spalling or fracturing shall be repaired by the Contractor as directed by the Engineer at no cost to the project. The joints shall be immediately flushed with water to remove any sawing residue from the joint and pavement surface.

If concrete approaches or any widening beyond the width of the initial pass is constructed subsequent to the driving lanes, transverse weakened plane joints shall immediately be formed in the approaches extending from any joints in the driving lanes.



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**REVISION OF SECTION 412  
PORTLAND CEMENT CONCRETE PAVEMENT**

**Subsection 412.13(b) 2, shall be revised to include the following:**

The time schedule for sawing weakened plane joints shall be as follows: Every second joint shall be sawed 2 to 12 hours after pavement placement, provided the concrete has sufficiently set so as to preclude the dislodging of aggregate particles by the saw. Unless otherwise directed by the Engineer, the exact time of sawing shall be determined by the Contractor and will be dependent on weather conditions, ambient temperature, mix characteristics and other factors that may affect the setting time of the concrete. Every effort shall be made to saw early enough to control or limit random cracking. The intermediate joints shall be sawed prior to opening to traffic, but in no case longer than 48 hours after placement of the concrete.

The Contractor shall adhere to the City Noise Control Ordinance. In the event that the need for saw cutting is anticipated during restricted time periods, a "soft-cut" saw shall be used before restricted hours, or deep tooling of joints shall be performed on plastic concrete, followed by saw cutting of the concrete as soon as possible during unrestricted hours. At the discretion of the Engineer, saw cutting will be prohibited between 10:00 p.m. and 7:00 a.m.

**Subsection 412.18 shall be revised and include the following:**

412.18 Sealing Joints.

In addition, the Engineer may elect to check for bonding or adherence to the sides of the joint. Material shall conform to Subsection 705.01(a).

The joint material must withstand a 20 pound pull force applied perpendicular to the joint as indicated in "COLORADO PROCEDURE 67-90".

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**REVISION OF SECTION 412  
PORTLAND CEMENT CONCRETE PAVEMENT**

**Subsection 412.22 shall be deleted and replaced with the following:**

The pavement shall be cleaned and opened to traffic in accordance with the time requirements shown on the plans or in the specifications.

Pavement shall not be opened until it has reached a compressive strength of 2500 psi in-place, regardless of the curing time required by the Traffic Control Plan. The TCP may necessitate the required compressive strength to be attained within 72 hours or less.

**Subsection 412.24 shall be revised to include the following:**

Payment under Concrete Pavement shall be full compensation for all materials and labor required to complete the various pavement sections, including expansion joints, areas of thickened edges, driveways, bus pads and alley paving.

New curb and gutter that is adjacent to new concrete pavement will not be measured and paid for separately but included in the square yard measurement for concrete pavement. Measurement and payment will be to back of curb except where curb ramp limits overlap.

**Pay Item**

Concrete Pavement (8 Inch)

**Pay Unit**

Square Foot

When the contract does not include pay items for Portland Cement Concrete Pavement, these items will not be paid for separately but shall be included in the work.

**SECTION 413  
CONCRETE PATCHING AND CURB HEAD REPLACEMENT**

**DESCRIPTION**

**413.01** This work consists of patching and curb head replacement on existing concrete pavement.

**MATERIALS**

A.	Bond Strength: ASTM C-882	1 Day 7 Days	1500 psi 2500 psi
B.	Length Change:	28 Days Dry 28 Days Wet	-0.05% +0.05%
C.	Compressive Strength: ASTM C-109	2 Hours 1 Day 7 Days	2500 psi 5000 psi 7000 psi

**413.02** Concrete patching material must be a one component system that requires an exact addition of water. They must meet the following performance requirements at maximum water. Aggregate shall consist of 3/8" clean, washed and dried gravel or crushed stone of reasonably uniform quality throughout.

Five Star Highway Patch by U.S. Grout Corporation and HD-50 Heavy Duty Concrete Patch by Dayton Superior Corporation are approved concrete patching material.

**CONSTRUCTION REQUIREMENTS**

**413.03** Preparation of Concrete Surface:

Remove all grease, oil, dirt, curing compounds, laitance and other deleterious materials from the concrete. Roughen the surfaces by sand blasting and provide a near vertical face on the edges of existing concrete to ensure bond. Loose or broken concrete shall be removed. If any existing rebar reinforcing is exposed, it shall be sandblasted. All surfaces shall be thoroughly saturated, and free standing excess water shall be removed with clean compressed air before applying the structural repair material. Minimum depth of patching is 2 inches.

**413.04** Placing Concrete Patch Material:

Carefully read and understand the manufacturer's instructions as printed on the container. The mixing operation should be close to the repair area. A mortar mixer is recommended. For small quantities, an electric drill and paddle mixer is recommended. The mixing order for mortar type mixer shall be as follows:

1. Clean water shall be placed in the mixer at the rate specified on the container instructions. Water content is critical; do not deviate from the amount specified.
2. When temperatures exceed 90°F, a prepackaged set retarder shall be used as recommended by the manufacturer. Add retarder to mixing water, maximizing dispersion in the mix.
3. For pours with greatest depth exceeding 3", 3/8 inch clean washed pea gravel shall be added to the mix at a rate not to exceed 25 lbs. per 50 lb. pail.

**SECTION 413  
CONCRETE PATCHING AND CURB HEAD REPLACEMENT**

4. Add the repair material. This sequence is important in order to produce a consistent mix and to reduce mixing time. Allow approximately 3 minutes mixing time.
5. When pouring large volumes of material, special consideration should be given to maintaining a continuous flow of material producing a wet leading edge. More than one mixer may be necessary to deliver enough material to insure no cold joints.

Place the mixed material into the prepared area, starting from one side of the repair and working to the other side. Do not place the repair material in lifts. Work the material firmly into the bottom and sides of the repair. Screed the material to the desired level. Close up edges of the repair with a trowel. Finish the material to the desired texture. Do not re-temper the material. Clean the mixer and tools periodically with water to prevent build-up, especially in hot temperatures. As soon as the material sets, all exposed surfaces must be thoroughly saturated for 30 minutes.

**413.5** Concrete Curb Head Replacement. Concrete curb head that was paved with the concrete pavement shall be constructed as follows:

1. Remove broken curb head and concrete pieces from sound concrete.
2. Place no. 4 deformed bars, 18" O.C. by drilling. Place no. 4 horizontal bars across vertical bars per detail, attached herein.
3. Prior to pouring new curb head, sand blast existing concrete pavement at curb head location or use other cleaning method as approved by the Engineer.
4. Saturate sand blasted area and remove standing water immediately prior to replacing concrete.
5. Consolidate concrete by use of high frequency internal vibrators.
6. Provide 1/8" open joint in curb head at existing contraction joints in concrete pavement.

**METHOD OF MEASUREMENT**

**413.06** Concrete patching will be measured by the square foot at the depth specified or as required by the Engineer. Curb head replacement will be measured by the lineal foot along the front of the curb head.

**BASIS OF PAYMENT**

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

<u>Pay Item</u>	<u>Pay Unit</u>
Concrete Patching	Square Yard
Concrete Curb Head Replacement	Linear Feet

All work necessary and incidental to the concrete patching and curb head replacement will not be measured and paid for separately but shall be included in the work.

**REVISION OF SECTION 503  
DRILLED AND VACUUMED 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 consisted of constructing the Traffic Signal Pole Foundations using either a drill or vacuum method at the locations as shown on the plans and as directed by the Engineer. The placing of reinforcing steel and concrete in the excavated holes must in accordance with these specifications and in conformity with the lines and grades on the plans or established.

Traffic Signal Pole Foundations 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:**

Caisson excavations performed with a vacuum pothole machine will be to prevent drilling through existing utilities. The locations where vacuum method is employed shall be per the approved plans or at the discretion of the Engineer.

**Section 503.08 is hereby revised to include the following:**

Drilled or Vacuumed Caissons (36 Inch and 48 Inch) will be measured by the linear foot from the elevation shown on the plans to the bottom of the hole excavated.

**Section 503.09 is hereby revised to include the following:**

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Drilled Caisson (36 Inch)	Linear Foot
Vacuumed Caisson (36 Inch)	Linear Foot
Drilled Caisson (48 Inch)	Linear Foot
Vacuumed Caisson (48 Inch)	Linear Foot

The unit price of drilled or vacuumed caissons (36 Inch and 48 Inch) shall be full compensation for making all excavations; hauling and disposal of excavated material; performing all necessary pumping; furnishing and placing required concrete and anchor bolts 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.

**REVISION OF SECTION 601  
STRUCTURAL CONCRETE**

**Section 601 of the Standard Specifications is hereby revised as follows:**

Table 601-1, footnote (7) shall be revised to include the following:

When No. 67 or No. 57 coarse aggregate is used as the largest aggregate in the mix, the required air content shall be 5% to 8%.

**Subsection 601.05, Paragraph 5, Item (2), referencing the use of fly ash, shall be deleted.**

**Subsection 601.06, Item 7, is modified as follows:**

(7) Supplier's Mix I.D. number

**Subsection 601.07, (d) is deleted. Self-contained mobile mixers will not be allowed.**

It is the Contractor's responsibility to provide Quality Control concrete strength testing and provide test results in a testing frequency, method and report as per Pre-construction submittal approved by the City Project Manager. Quality Control testing, reports and submittals will not be paid for separately but shall be included in the work.

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

**Section 608 of the Standard Specifications is hereby revised for this project as follows:**

**Subsection 608.01 shall be deleted in its entirety and replaced with the following:**

Concrete Sidewalk construction shall conform to the requirements of the City and County of Denver's Standard Details for Curb/Gutter and Sidewalk (Detail 5.2 through 5.4).

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

Concrete Driveway construction shall conform to the requirements of the City and County of Denver's Standard Detail for Standard Commercial Driveway (Detail 6.0 through 6.2).

**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, curb ramps (may be Class D, B, or P), and driveways 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.

Concrete for bike lane curb ramps will be colored. The concrete color shall be Davis Color # 860 (Dark Gray).

Detectable warnings on curb ramps shall be Armor-Tile Tactile Systems or approved equal. Installation of the detectable warnings on ADA curb ramps shall be in strict accordance with the manufacturer's recommendations.

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, curb ramps, and driveways 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.

DO NOT ALL CALCIUM CHLORIDE as accelerator or for anything else except for ice removal.

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

**Subsection 608.03(a) shall include the following:**

Delete the third sentence and add:

Where excavation to the finished grade elevation results in subgrade of unsuitable soil, the Engineer may designate the unsuitable material to be removed and replaced with approved material. Removal of unsuitable material shall be paid for as Unsuitable Materials in accordance with Revision of Section 203.05(c), and backfilled with Class 6 Aggregate Base Course, or other material approved by the Engineer.

**Subsection 608.03(d) shall be revised to include the following:**

Finishing shall occur only after the disappearance of bleed water. The addition of superficial water to the surface of the concrete to assist in finishing operations will not be permitted. Sprinkling of pigment onto the fresh surface will not be permitted.

**Subsection 608.03(e) shall be revised to include the following:**

For Bikeways, control joints shall be zipstrip or sawcut to a minimum depth of  $\frac{1}{4}$  of the total slab thickness and no greater than  $\frac{1}{4}$  inch wide. Control joints shall be spaced at 10 feet on center or as noted on the plans. Any damage to the concrete such as spalling, dislodging of aggregate particles, or cracking will be repaired by the Contractor at no additional cost to the Project. If said damage cannot be adequately repaired to the satisfaction of the Engineer, the Contractor shall remove and replace the damaged concrete at no additional cost to the Project.

**Subsection 608.03(f) shall be revised to include the following:**

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.

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 608.06 shall be revised to include the following:**

Excavation to proposed subgrade elevation will not be paid for separately but shall be included in the work associated with Section 201, Clearing and Grubbing or Section 202, Removal of Structures and Obstructions.

It is the Contractor's responsibility to provide Quality Control concrete strength testing and provide test results in a testing frequency, method and report as per Pre-construction submittal approved by the City Project Manager. Quality Control testing, reports and submittals will not be paid for separately but shall be included in the work.



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

Payment will be made under:

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Concrete Sidewalk	Square Yard
Concrete Curb Ramp	Square Yard

Payment shall be full compensation for labor and materials including, but not limited to, detectable warnings truncated dome, reconditioning, grading, backfill, curing compound, control and expansion joint and sealant as required to complete these Pay Items.

Excavation to proposed subgrade elevation will not be paid for separately but shall be included in the work associated with Section 202, Removal of Structures, Asphalt Mat and Obstructions.

**REVISION OF SECTION OF 609  
CURB AND GUTTER**

**Section 609 of the Standard Specification is hereby revised as follows:**

**Subsection 609.01 (f) shall be revised to include the following:**

Combination Curb, Gutter, and Sidewalk  
Variable Height Curb Head  
Curb and Gutter, Variable Height Curb Head

**Subsection 609.02 shall be revised as follows:**

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 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.

**Subsection 609.03(a) shall be revised as follows:**

*Excavation:* Excavation shall conform to the requirements of the Revision of Section 608, Subsection 608.03(a).

**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) shall be revised to include the following:**

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(i) shall be revised to include the following:**

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.

It is the Contractor’s responsibility to provide Quality Control concrete strength testing and provide test results in a testing frequency, method and report as per Pre-construction submittal approved by the City Project Manager. Quality Control testing, reports and submittals will not be paid for separately but shall be included in the work.

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**REVISION OF SECTION OF 609  
CURB AND GUTTER**

**Subsection 609.07 shall be revised to include the following:**

Payment will be made under:

**Pay Item**

Curb Type 2 (Section B)  
Curb and Gutter Type 2 (Section I-B)  
Curb and Gutter Type 2 (Section II-B)

**Pay Unit**

Linear Foot  
Linear Foot  
Linear Foot

Payment shall be full compensation for labor and materials including, but not limited to, reconditioning, grading, backfill, curing compound, control and expansion joint and sealant as required completing these Pay Items.

Excavation to proposed subgrade elevation will not be paid for separately but shall be included in the work associated with Section 202, Removal of Structures and Obstructions.

**REVISION OF SECTION 610  
MEDIAN COVER MATERIAL**

**Section 610 of the Standard Specifications shall be revised for this project as follows:**

**Subsection 610.02 shall include the following:**

Aggregate for concrete median cover material shall be #67 or #57. Thickness for concrete median cover material shall be 6 inch.

**Subsection 610.03 shall include the following:**

Landscape weed barrier fabric shall be installed in accordance with Subsection 420.08.

**Subsection 610.05 shall include the following:**

The accepted quantities will be paid for at the contract unit price for each of the pay items listed below.

Payment will be made under:

**Pay Item**

Median Cover Material (Concrete)

**Pay Unit**

Square Foot

**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.

<u>Manufacturers</u>	<u>Catalog Numbers</u>
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 PULL TAPE (MULE TAPE)**

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

**Subsection 613.08 shall include the following:**

Each new conduit shall be equipped with a pull tape (mule tape). The pull tape shall be design and manufacture that prevents cutting or burning into the conduit during cable installation.

Material

The pull tape shall have clearly printed sequential footage and shall be:

1. Manufactured from a flat, woven polyester material of low elongation
2. Lubricated to reduce friction
3. Light enough to be blown into conduit or inner duct

Strand rope will not be acceptable.

Size and Strength

The pull tape shall have a minimum width of 3/4 inch and a minimum average tensile strength of 2500 pounds. No knots are allowed.

**Subsection 613.11 shall include the following:**

Electrical conductor pull tape in new conduit will not be paid for separately, but shall be included in the cost of conduits.

**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:**

This work is for the installation electrical conduits. These conduits (laterals) shall be to connect the already installed traffic signal conduits to the traffic signal controller cabinets, electric meters, and traffic signal poles. The conduit installation shall be in accordance with this specification:

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 CDOT 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 #12 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.

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

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

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. At these locations, the Contractor shall carefully excavate around the pull box and install the new conduit in the pull box in a manner that meets the requirements of this Special Provision. The Contractor shall not damage the existing pull box. If the existing pull boxes 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.

**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 Engineer. 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:**

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



**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:**

**Pay Item**

Electric Meter Pedestal Cabinet and Base

**Pay Unit**

Each

**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 LED Street Light Luminaire 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 luminaire wired for 120 volts.

**Subsection 613.11 shall include the following:**

<u>Pay Item</u>	<u>Pay Unit</u>
Install Luminaire LED 5300 Lumens	Each

Luminaire shall be measured and paid by the number of luminaire installed. The item shall include all labor, materials, and ancillary hardware required to provide a fully-functional system to the satisfaction of the Engineer.

**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:**

All traffic communication pull boxes shall have the words “TRAFFIC COMM” physically impressed (not painted) on its top. These 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 613.12 shall include the following:**

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Pull Box (Special)	Each
Pull Box (Type A & B) (Incidental To Conduit)	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 614  
CONCRETE FOOTING (TRAFFIC SIGNAL POLE)**

**Section 614 of the Standard Specifications is hereby revised to include the following:**

**Subsection 614.01 shall include the following:**

This work consists of installing concrete footing (foundations) for traffic signal pedestal pole; traffic signal imbedded steel poles (span wire poles); and traffic signal street light poles (no mast arms). Locations of the concrete footing (foundations) are shown on the plans or as directed by the Engineer.

**Subsection 614.08 (g) shall include the following:**

Concrete Footing (Pedestal Pole) shall conform to the requirements of the City and County of Denver's Traffic Signal Standard Detail sheet no. 16.1.13 and detail nos. 4 and 5.

Concrete Footing (Imbedded Steel Pole) for span wire traffic signal poles shall conform to the requirements of the City and County of Denver's Traffic Signal Standard Detail sheet no. 16.1.14 and detail no. 6.

Concrete Footing (Traffic Street Light Pole – no mast arm) shall conform to the requirements of the City and County of Denver's Traffic Signal Standard Detail sheet no. 16.1.15, Foundations for XCEL Facilities, and detail no. 9.

**Subsection 614.13 shall include the following:**

Concrete Footings for Pedestal Poles, Imbedded Steel Poles, and Traffic Street Light Poles will not be measured and pay for separately but shall be included in the cost of Pedestal Poles, Imbedded Steel Poles, and Traffic Signal Light Poles installation.

**REVISION OF SECTION 614  
LED PEDESTRIAN SIGNAL HEADS (COUNT DOWN)**

**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:**

LED Pedestrian Signal Heads (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) (Count Down)	Each

## REVISION OF SECTION OF 614 TRAFFIC CONTROL DEVICES

**Section 614 of the Standard Specification is hereby revised as follows:**

**Subsection 614.08 (h) shall include the following:**

“Light Emitting Diode” (LED) signal lenses shall be installed in all Red, Yellow, Green, signal displays. The LED signal lenses for the 12” and 8” circular balls and 12” circular arrows are hereby added to the Standard Specifications and shall comply with the following specifications:

Manufacturer Requirements and Approvals:

- The manufacturer supplying product to this specification shall have a minimum of 13 years of experience in the manufacture of LED Traffic Signals with High Flux LEDs used in the North American market.
- Manufacturers supplying products to this specification must be a registered participant and have the unique long life module part numbers being provided certified and listed on the Intertek-ETL LED Traffic Signal Modules Certification Program approved products website prior to bid opening.
- Manufacturers supplying products to this specification shall manufacture and assemble product on an Intertek ETL audited line located in the USA.
- Unique part number shall be listed on manufacturers label proving difference between standard modules and long life modules.
- If requested, documentation shall be provided by manufacturer demonstrating the changes made to their standard product that allows for ITE specification compliance over 15 year warranty period.

Physical & Mechanical Requirements:

General

- Tinted or Non-Tinted Lens. Unless designated otherwise in the below table the standard lens color shall be tinted with a color meeting the colors required in paragraph 4.2 of the ITE specification. The products shall be available with non-tinted lenses as an option.
- The LED module shall utilize high flux LEDs rated at 1 watt or higher and have an incandescent, non-pixelated appearance when illuminated. The use of low power LEDs, for example 5 mm LEDs, is not permissible in the design and production of long life arrow products.
- The external lens shall have a smooth outer surface to prevent the build up of dirt/dust and shall be designed to minimize the potential for sun phantom signals.
- All LEDs utilized to illuminate circular signal modules, shall be LEDs that have been manufactured utilizing materials that have industry acceptance as being suitable for uses in outdoor applications. At no time is the use of LEDs that utilize AlGaAs technology acceptable.
- The thermal management system used in the traffic ball must be self- contained and internal to the traffic module. At no time shall the thermal management system used for the power supply or LEDs form any part of the external surface of the LED module.
- All plastic components shall be molded and assembled in the USA. This includes: back housing, spreading lens and front lens. Certificate of manufacturing location must be available and supplied at time of bid requested.
- All lenses shall be hard coated in the USA. Certificate of manufacturing location must be available and supplied at time of bid requested. All reflectors shall be metalized in the USA. Certificate of manufacturing location must be available and supplied at time of bid requested.

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**REVISION OF SECTION 614  
TRAFFIC CONTROL DEVICES**

Module Identification

- In addition to the required ITE labeling all modules must be labeled with the ETL Verified label shown in Figure 1. This label designates the compliance and listing with the Intertek-ETL Traffic Signal Certification Program.

Electrical:

General

- The following color scheme shall be used for all modules AC power leads: White for Common, Red for the Red ball signal, Yellow for the Yellow ball signal, and Brown for the Green ball signal.
- The AC power leads shall exit the module via a rubber grommetted strain relief, and shall be terminated with insulated female quick connect terminals with spade/tab adapters. The leads shall be separate at the point at which they leave the module.
- All external wiring utilized in the LED traffic signal module shall be anti-capillary type wire to prevent the wicking of moisture to the interior of the module.
- LED Module and power supply shall be design to remain ITE compliant over a 15 year life.
- To minimize the temperature exposure of the power supply all power supplies should be located at the bottom of the module when the arrow is facing left.
- For additional protection from moisture, all power supplies shall be conformal coated for additional protection.

Transient Voltage Protection

- In addition to the transient test requirements defined in the Design Qualification Testing section of ITE Vehicle Traffic Control Signal Heads (VTCSH) specification all power supplies used in the circular signals supplied to this specification shall be capable of passing an additional ring-wave surge testing in accordance with the IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000V and less) AC Power Circuits, ANSI/IEEE C62.41.2-2002, 6KV, 100 kHz ring-wave with an output impedance of 30 ohms. The short circuit current shall be 200 Amps.

Power

- Typical wattages at 25° C for the 12" circular arrow LED traffic Signal Modules shall be: Red - 8 watts, Yellow - 13 watts, and Green - 8 watts.
- Typical wattages at 25° C for the 12" circular ball LED traffic Signal Modules shall be: Red - 7 watts, Yellow - 11 watts, and Green - 7 watts. Typical wattages at 25° C for the 8" circular ball LED traffic Signal Modules shall not exceed: Red - 8 watts, Yellow - 10 watts, and Green - 8 watts.

Quality Assurance

General

- Upon Request, the supplier must provide an Intertek-ETL test report for the base model being supplied to this specification.
- The base products must be listed in the Intertek Directory of LED Traffic Signal Modules Certified Products listing at the time of bid. Upon request the supplier must provide a copy of the listing in the bid package.

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**REVISION OF SECTION 614  
TRAFFIC CONTROL DEVICES**

Warranty Requirements:

Warranty

- Manufacturers shall provide a detailed written warranty issued by the factory of module origin with the following minimum provisions:
- Modules shall, at the manufacturer's option, be repaired or replaced if the module fails to function as intended due to workmanship or material defects within the first 15 years from the date of delivery.
- Modules shall, at the manufacturer's option, be repaired or replaced if the module exhibit luminous intensities less than the minimum specified values within the first 15 years of the date of delivery.
- Upon request, the LED lamp module manufacturer shall provide written documentation of its ability to satisfy a worst-case, catastrophic warranty claim.
- A current corporate annual report duly-certified by an independent auditing firm, containing financial statements illustrating sufficient cash-on-hand and net worth to satisfy a worst-case, catastrophic warranty claim is an example of suitable documentation.
- The documentation shall clearly disclose:
  - The country in which the factory of module origin is located
  - The name of the company or organization that owns the factory of module origin including any and all of its parent companies and/or organizations, and their respective country of corporate citizenship
- For firms with business and/or corporate citizenship in the United States of less than fifteen years, the process by which the end-users/owners of the modules will be able to obtain worst-case, catastrophic warranty service in the event of bankruptcy or cessation-of-operations by the firm supplying the modules within North America, or in the event of bankruptcy or cessation-of-operations by the owner of the factory of origin, shall be clearly disclosed.

**Subsection 614.14 shall include the following:**

LED signal lenses 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 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 is for the installation of a composite Traffic Signal Controller Cabinet Base in accordance with City & County of Denver standards. The contractor shall furnish the base that will fit the P-size traffic signal controller cabinet and shall install it at the locations as shown on the plan.

Dimensions of the cabinet base are as shown in the latest edition of the City & County of Denver Traffic Engineering Services STD DWG NO. 16.1.16

**Subsection 614.10 shall include the following:**

Prior to starting cabinet base installation, Contractor shall obtain field verification of the location of the cabinet from the Engineer.

Cabinet base installation shall include all labor and materials to completely install a new P-size cabinet base as directed in the plans. The item shall include all excavation, conduit installation and modification work, backfill and restoration of adjacent surface area.

**Subsection 614.13 shall include the following:**

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

**Subsection 614.14 shall include the following:**

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

**REVISION OF SECTION 614  
TRAFFIC SIGNAL CONTROLLER AND CABINET**

**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 the furnishing, assembling, programming, and installing a completed Traffic Signal Controller and Cabinet assembly. The Cabinet assembly shall be assembled in accordance with the City and County of Standards and Specifications, and the completed Traffic Signal Controller and Cabinet shall include but not limited to the traffic signal controller, malfunction management units (MMU), vehicle detector amplifiers, other ancillary hardware, and traffic signal cabinet base as per City and County of Denver standards. The Contractor shall install the completed Traffic Signal Controller and Cabinet assembly at the locations as shown in the plans.

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

Traffic Signal Controllers – General

This specification sets forth the minimum requirements for a shelf-mountable, two through twelve phases, fully-actuated, digital, solid-state traffic controller. The controller shall meet, as a minimum, all applicable sections of the NEMA Standards Publication No. TS2-1998. Where differences occur, this specification shall govern. Controller versions shall be capable to comply with NEMA TS2 Types 1 and 2. Type 2 versions of the controller shall be capable of operating as a Type 1. The controller shall meet or exceed the specifications of the Econolite model Cobalt ATE fully actuated controller (<https://www.econolite.com/wp-content/uploads/sites/9/2016/10/controllers-cobalt-datasheet.pdf>), or an equivalent approved by the City and County of Denver Transportation & Mobility.

**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 in the plans. Contact Chris Lillie at 720-865-0466 for cabinet assembly requirements and all other necessary auxiliary hardware.

Controller cabinet assemblies shall include an integrated uninterruptible power supply (UPS) units and an Ethernet Field Switch that comply with the City and County of Denver standards (see UPS and Ethernet Field Switch specifications).

**Subsection 614.09 shall include the following:**

The Contractor shall assemble the traffic signal controller, cabinet and other auxiliary hardware to the City and County of Denver standards and specifications. The Contractor shall coordinate with Traffic Operations Center for instructions prior to assembling of the Traffic Signal Controller and Cabinet assembly and the programming of the traffic signal timing. The Contractor shall bench test the completed Controller and Cabinet assembly to ensure operations in accordance with the desire program, timing and operation as per City and County of Denver's criteria.

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**REVISION OF SECTION 614  
TRAFFIC SIGNAL CONTROLLER AND CABINET**

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

**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 furnishing, assembling, and installing the Traffic Signal Controllers and Cabinet assembly shall include all labor, materials, ancillary hardware, traffic signal cabinet base, wiring and wiring re-connection (including Xcel Energy power feed) required to provide and 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 for the referenced item.

**Subsection 614.14 shall include the following:**

<u>Pay Item</u>	<u>Pay Unit</u>
Traffic Signal Controller and Cabinet	Each

**REVISION OF SECTION 614  
CLOSED CIRCUIT TELEVISION CAMERA (TRAFFIC MONITORING)**

**Section 614 of the Standard Specifications is hereby revised to include the following:**

**Subsection 614.01 shall include the following:**

This work consists of the installation of a closed-circuit television camera at the locations shown on the plans.

**Subsection 614.08 shall include the following:**

(m) Closed Circuit Television Camera (Traffic Monitoring)

Closed circuit television camera shall be the Panasonic WV-X6531NS.

The following accessories shall be provided for each IP camera:

Panasonic PAPM4 Pole Mount Bracket

Panasonic PWM20G Gooseneck Black

Transformer Altronix T2428100 24 VAC.

Veracity VOR-OS Outsource Midspan 15/20W POE 802.3AF Injector – 1 port

**Subsection 614.10 shall include the following:**

The closed-circuit television camera shall be installed in accordance with the details shown in the plans and in accordance with manufacturer's recommendations. The Contractor shall deliver the camera and accessories to the City and County of Denver's Traffic Operations Department at 5440 Roslyn, Denver, Colorado at least 4 weeks prior to installation for the camera calibration and set up. The Contractor shall pick up the camera and shall install it at the proper location. The Contractor shall make arrangements for a City and County of Denver Traffic Operations' representative to be on-site to ensure proper installation.

**Subsection 614.13 shall include the following:**

Closed circuit television cameras will be measured by the actual number of closed circuit television cameras that are installed and accepted. All accessories shall not be measured separately.

**Subsection 614.14 shall include the following:**

**Pay Item**

Closed Circuit Television Camera (Traffic Monitoring)

**Pay Unit**

Each

Payment will be full compensation for all labor, materials, accessories, and equipment required to complete the work.

**REVISION OF SECTION 614  
ETHERNET MANAGED SWITCH**

**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 the installation of an Ethernet Managed Field Switch in the CCD controller cabinets. The Contractor shall furnish and install the switch within the Traffic Signal Cabinet as an integral part of the Traffic Signal Controller and Cabinet Assembly.

**Subsection 614.08 shall include the following:**

The Ethernet Managed Field Switch installation is hereby added to the Special Provision and the Ethernet Switch shall comply with the following specifications:

General System Requirements –The Ethernet Managed Field Switch shall be one that is currently stock by the City and County of Denver or approved equal. The current Ethernet Managed Field Switch that is stocked by the City and County of Denver is the Hirschmann Managed Fast/Gigabit Industrial Ethernet Switch and comprises of the following parts:

- (1) Quantity 1- “OpenRAIL Switch Power - Managed Fast/Gigabit Industrial Ethernet Switch, Fanless Design, Power over Ethernet (PoE+) Support with up to 24 Ports and 120 Watt, 24x 10/100 Mbit/s Ethernet Ports, 4x 10/100/1000 Mbit/s Ethernet Ports, 4x FE/GE Combo Ports”  
The OpenRAIL Switch Power currently stock by the City and County of Denver is the HIRSCHMANN RSPE32-24044O7T99-TPPZ999HHSE2AXX.X.XX
- (2) Quantity 4 - “SFP Fiberoptic Gigabit Ethernet Transceiver, Extended Temperature Range, 1 x 1000BASE-LX with LC Connector, SFP-GIG-LX/LC EEC”  
The Gigabit Ethernet Transceiver currently stock by the City and County of Denver is the HIRSCHMANN 942 196-002
- (3) Quantity 2 - “Empty Module Slot Cover, RSPM”  
The Empty Module Slot Cover currently stock by the City and County of Denver to be used for the HIRSCHMANN RSPE32-24044O7T99-TPPZ999HHSE2AXX.X.XX OpenRAIL Switch Power is the HIRSCHMANN 942131001 RSPM-COVER
- (4) Quantity 1 - 48VDC Rail Power Supply”  
The 48VDC Rail Power Supply currently stock by the City and County of Denver to be used with the HIRSCHMANN RSPE32-24044O7T99-TPPZ999HHSE2AXX.X. OpenRail Switch Power is the BELDEN 942 200-001, “RPS 260/PoE EEC.

Test Requirements - Contractor shall supply one unit of Ethernet Managed Field Switch to the Engineer for specification compliance testing and approval. If the product passes the compliance test and 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-PW Transportation and Mobility, the unit will be returned to the Contractor. The Contractor shall supply other units until satisfactory test results are achieved

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**REVISION OF SECTION 614  
ETHERNET MANAGED SWITCH**

**Subsection 614.13 shall include the following:**

The Ethernet Managed Switch will be not be measured and paid separately but shall be considered included in the unit cost for the controller and cabinet. Furnish, installation and testing of the units are considered included in the work, as are labor and materials required for completion and acceptance of the item. Each individual package shall contain one Ethernet Managed Field Switch, set of mounting bracket(s), Installation and User guides, and Product Registration Card.

**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:**

This work is for the installation of the double conversion uninterruptible power supply system (UPS). The installed UPS system shall be a fully integrated system within the new controller cabinet and shall provide emergency battery power to the traffic signal controller. The Contractor shall furnish and install the UPS within the new traffic signal cabinet at locations as shown in the plans. 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.

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**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.

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.



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

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 a simple and field programmable without the use of an external connected device such as a laptop or computer.

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.

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

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 stand alone 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.

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.

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

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)  
Efficiency: 83 %  
Input configuration: 3 wire with ground  
Input Protection: 15 amp re-settable breaker ( on UPS 700)

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

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.

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**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

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**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:

Uninterrupted Power Supply System installation shall be for a complete system and successful operation of the item. The UPS installation will be tested in accordance with this specification or as directed by the Engineer. The UPS system shall not be measured and paid for separately but shall be included in the cost of the Traffic Signal Controller and Cabinet. UPS installation 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:

Traffic signal uninterrupted power supply system will not be paid for separately, but shall be included in the cost of the Traffic Signal Controller and 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 ± 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 ½ 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 ¾" 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 5/16" mounting holes 4" X 6 ¾" for the 5" X 7 ¾" sign and 7" X 10" for the 9" x 12" sign. The pedestrian instruction signs shall have rounded corners ¾" radius for the 5" X 7 ¾" sign and 1 ½" radius for the 9" X 12" sign.



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

**Subsection 614.13 shall include the following:**

Pedestrian Push Button and Instruction Sign shall be measured by the number of units installed and accepted.

**Subsection 614.14 shall include the following:**

<u>Pay Item</u>	<u>Pay Unit</u>
Pedestrian Push Button and Instruction Sign	Each

**REVISION OF SECTION 614  
PEDESTRIAN PUSH BUTTON POST ASSEMBLY**

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

**Subsection 614.08 (g) shall include the following:**

***Pedestrian Push Button Post Assembly*** shall conform to the requirements of the City and County of Denver's Standard Detail 7, Standard drawing No. 16.1.14 dated 1/12/12. Pedestrian Push Buttons and Signs shall be handled through other items.

**Subsection 614.13 shall include the following:**

Pedestrian Push Button Post Assembly shall be measured by the number of units installed and shall include post, foundation and all work necessary to complete the item.

**Subsection 614.14 shall include the following:**

Payment will be made under:

<u><b>Pay Item</b></u>	<u><b>Pay Unit</b></u>
Pedestrian Push Button Post Assembly	Each

**REVISION OF SECTION 614  
EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM**

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

**Subsection 614.08 shall include the following:**

System Description:

The emergency vehicle traffic signal priority control system 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.
- 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.

**REVISION OF SECTION 614  
EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM**

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 34O C to plus 60O C. (minus 30O F. to plus 140O 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 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 34O C to plus 60O C. (minus 30O F. to plus 140O F.)

**REVISION OF SECTION 614  
EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM**

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 34O C to plus 60O C (minus 30O F. to plus 140O F.)
6. Shall operate in 0 to 95 % humidity.

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 (167O 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 (176O F.), minimum average wall thickness - 1.14mm (.045").
11. Finished O.D.: 7.62mm (0.3") max.

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**REVISION OF SECTION 614  
EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM**

*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.

*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.

- 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.

**REVISION OF SECTION 614  
EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM**

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.
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:**

Emergency Vehicle Traffic Signal Priority Control System units shall include a four-channel card and the number of detectors as shown on the plans. Emergency Vehicle Traffic Signal Priority Control System 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>
Emergency Vehicle Traffic Signal Priority Control System	Each

**REVISION OF SECTION 614  
INTERSECTION DETECTION SYSTEM (FLIR)(CAMERA)**

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

**Subsection 614.01 shall include the following:**

This work is for the installation of a fully-functional FLIR vehicle detection camera system. The Contractor shall furnish and install the FLIR vehicle detection camera system at the locations as shown in the plans or as directed by the Engineer.

**Subsection 614.08 shall include the following:**

*Detection Camera:*

The detection camera shall consist of a thermal camera, thermal lens, and enclosure; and shall meet the following specifications:

- *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.
- *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.
- *Power*  
The detection camera shall be powered by a 120/240VAC, 50/60Hz power source or by a 24VDC (±10%) power source.
- *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.
- *Certifications & Environmental*

The detection camera shall meet the following Certifications and Environmental specifications:

<i>Certifications</i>	Comply with Electromagnetic Compatibility - 2004/108/EG Comply with FCC Part 15, Class A
<i>Weatherproof</i>	IP66 ingress protection standards (minimum)
<i>Operating Temperature</i>	-34°C to +74°C (-29°F to +165°F) (minimum)
<i>Relative Humidity</i>	Up to 100% non-condensing
<i>Shock &amp; vibration</i>	NEMA II

- *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



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**REVISION OF SECTION 614  
INTERSECTION DETECTION SYSTEM (FLIR)(CAMERA)**

detection camera, shall be designed to withstand a wind load of 120km/h (or 75mph) with a 30-second gust factor.

- *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.

*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:

- *Functionality*

The thermal video processor shall provide the following functionality:

<i>Detector Display</i>	Capable of displaying bike detection regions on the thermal video image with associated outputs with output status shown on the screen
<i>Detector Placement</i>	By using a portable PC with graphical user interface software or web server
<i>Detector Function</i>	Capable of detecting within the view of the connected detection camera the presence of bicycles in user defined bicycle detection regions
<i>Detector Type</i>	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.
<i>Detector Modification</i>	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
<i>Detector Failure State</i>	Provide a constant call on each active detection channel, in the event of unacceptable interference or loss of the thermal video signal
<i>Regions per Video Output</i>	Up to 4 (minimum)
<i>Detector Delay &amp; Extension</i>	Defined between 0.1-99 seconds and pulse mode between 0-500ms in 10ms increments.
<i>Direction Sensitivity</i>	Able to make a detector directional sensitive

*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 (maximum).

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**REVISION OF SECTION 614**  
**INTERSECTION DETECTION SYSTEM (FLIR)(CAMERA)**

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:

- *Certifications and Environmental*

The interface card shall meet the following Certifications and Environmental specifications:

<i>Certifications</i>	Comply with Electromagnetic Compatibility - 2004/108/EG
<i>Weatherproof</i>	Comply with FCC Part 15, Class A
<i>Operating Temperature</i>	IP66 ingress protection standards (minimum) -34°C to +74°C (-29°F to +165°F) (minimum)
<i>Relative Humidity</i>	0-95% non-condensing (minimum)
<i>Shock &amp; vibration</i>	NEMA II

*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:

- *Functionality*

The interface card shall provide the following functionality:

<i>Cabinet/Controller Compatibility</i>	US: EDGE card for TS-1 cabinet and 2070 TS-1 and TS-2 controllers Rest of World: EURO card for various standard controllers
<i>Status Indicators</i>	Visual for state of each detection output, visual state of power status (ON/OFF), visual state of camera status (operational/not operational)
<i>Identification</i>	Individually addressable with serial number, MAC address, IP-address, subnet mask and default gateway
<i>Program Retention</i>	Continue to operate in accordance with previous program after recovering from communication system or power failure
<i>Time Synchronization</i>	Manually or NTP time source
<i>Detector Failure State</i>	Provide a constant call on each active detection channel, in the event of unacceptable interference or loss of the thermal video signal
<i>Regions per Video Output</i>	Up to 4 (minimum)
<i>Detector Delay &amp; Extension</i>	Defined between 0.1-99 seconds and pulse mode between 0-500ms in 10ms increments.
<i>Direction Sensitivity</i>	Able to make a detector directional sensitive

**REVISION OF SECTION 614  
INTERSECTION DETECTION SYSTEM (FLIR)(CAMERA)**

- *Communication*

The interface card shall meet the following specifications:

<i>Controller Interface Output</i>	Contact closure via interface backplane, providing up to four channels of vehicle detection with no front panel connectors being used
<i>ETHERNET</i>	RJ45 port for hard-wired system set-up and monitoring
<i>USB</i>	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°C to +74°C (-29°F to +165°F) (minimum)

- *Remote*

- Communications*

Remote communications to allow remote management specified herein shall be provided via the interface card and shall meet the following specifications:

- a) *Functionality*

Remote communications shall provide the following functionality:

<i>Cabinet/Controller Compatibility</i>	US: TS-1 cabinet and 2070 TS-1 and TS-2 controllers when Rest of World: EURO card for various standard controllers
<i>Thermal Video Compression</i>	MJPEG, MPEG-4 (ISO 14496-2) and/or H.264 (ISO/IEC MPEG-4 AVC)
<i>Thermal Video Frame Rate</i>	Constant and variable 10 frames per second (minimum)
<i>Thermal Video Bandwidth</i>	Between 32 kbps and 4 Mbps (minimum)
<i>Status Indicators Identification</i>	Ethernet link/activity Individually addressable with serial number, MAC address, IP-address, subnet mask and default gateway
<i>Program Retention</i>	Continue to operate in accordance with previous program after recovering from communication system or power failure

- Communication*

The remote communications shall meet the following specifications:

<i>Ethernet Port</i>	One 10/100Base-T front-panel RJ45 port (minimum)
<i>Thermal Video Input</i>	Via front panel connector

- *Power*

The interface card shall meet the following power specifications:

<i>Input Voltage</i>	24VDC ±10% (via cabinet detector rack backplane)
<i>Power Consumption</i>	10W (maximum)

**REVISION OF SECTION 614  
INTERSECTION DETECTION SYSTEM (FLIR)(CAMERA)**

- *Physical Properties*

The interface card shall meet the following physical properties specifications:

<i>Size</i>	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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- *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.

- *Certifications and Environmental*

The input/output main and expansion cards shall meet the following Certifications and Environmental specifications:

<i>Certifications</i>	Comply with FCC Part; 15 NEMA TS 2-2003 v02.06
<i>Operating Temperature</i>	-37°C to 74°C (-35°F to 165°F) (minimum)
<i>Humidity</i>	0 – 95% non-condensing

*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:

- *Diagnostic & Health Monitoring*

<i>Management Status</i>	Provide real-time status display of services required to access, troubleshoot, and archive data from the thermal video imaging detection system network connected devices
<i>Network Device View</i>	Provide view of all thermal video imaging detection system network connected devices
<i>Operation Log</i>	Support retrieving, displaying, and saving operational messages, warnings, and errors

**REVISION OF SECTION 614  
INTERSECTION DETECTION SYSTEM (FLIR)(CAMERA)**

• *Remote Management & Maintenance*

<i>Video Viewing/Recording</i>	Support viewing and recording streaming video including detector overlay
<i>Device Management</i>	Support creating, editing, downloading, and uploading detector configurations
<i>Remote Firmware Updates</i>	Support updating firmware of any device from a remote location
<i>Remote Backup/Restore</i>	Support backup/restore device configuration from remote location
<i>Access Permissions</i>	Support password implementation
<i>Clock Synchronization</i>	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 614.13 shall include the following:**

Intersection detection system (FLIR)(camera) shall be measured and paid by the number of cameras installed and accepted at each intersection. The item shall include all labor, materials, and ancillary hardware required to provide a fully functional camera system to the satisfaction of the Project Manager.

**Subsection 614.14 shall include the following:**

<u>Pay Item</u>	<u>Pay Unit</u>
Intersection Detection System (FLIR)(Camera)	Each

**REVISION OF SECTION 614  
TRAFFIC SIGNAL POLES – GENERAL**

**Section 614 of the Standard Specifications is hereby revised as follows:**

**Subsection 614.08 (g) shall include the following:**

The Contractor shall furnish and install mast arm traffic signal poles, traffic signal light poles, pedestal poles, and the mast arms. The mast arm traffic signal poles, light poles and the mast arms will be the type manufactured an approved manufacture in accordance with the City and County of Denver's standards and specifications. General specifications of the traffic signal light poles, and traffic signal poles with mast arms are as follows:

**TRAFFIC SIGNAL POLES:** All traffic signal poles (traffic light poles and traffic poles with mast arms) shall conform to City and County of Denver's Traffic Standard Details 16.1.3 and 16.1.9 to 16.1.12.

Traffic Signal Pedestal Poles shall conform to the requirements of the City and County of Denver's Traffic Signal Standard Detail 16.1.13.

The Contractor shall furnish and install either a 5300 Lumens LED luminaire as shown on the plans or as directed by the Engineer. The LED luminaire shall be in accordance with the City and County of Denver's specifications and Sections 613 - LIGHTING (LUMINAIRE)(LED 5300 LUMENS). The luminaire shall be installed on the traffic signal poles with a 10 foot luminaire arm as per the City and County of Denver's Traffic Standard Details 16.1.3, and 16.1.9 to 16.1.12.

**FINISH:** All traffic signal mast arm poles shall be finish in accordance with Valmont finish process F540 or equal – galvanized, epoxy primer and powder coated in accordance with the following specifications:

**PAINTING:** All traffic signal mast arm poles shall be powder coated in accordance with the following specifications:

**General:**

**Super Durable Powder Coating:** The super durable powder coating shall consist of a Urethane or Triglycidylisocyanurate (TGIC) Polyester Powder, and provide a minimum of 3 times the gloss retention, color retention and ultraviolet light (UV) resistance as standard powder coatings. Color shall be dark olive green, in conformance with Federal Specification No. 14056.

**Surface Preparation:**

The exterior steel surface shall be blast cleaned to Steel Structures Painting Council Surface Preparation Specification No. 6 (SSPC-SP6) requirements utilizing cast steel abrasives conforming to the Society of Automotive Engineers (SAE) Recommended Practice J827. The blast method is a recirculating, closed cycle centrifugal wheel system with abrasive conforming to SAE Shot Number S280.

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**REVISION OF SECTION 614  
TRAFFIC SIGNAL POLES – GENERAL**

**Interior Color:**

Interior surfaces (pole shafts only) at the base end for a length of approximately 2.0' shall be mechanically cleaned and coated with a zinc rich epoxy powder. The coating shall be electrostatically applied and cured in a gas fired convection oven by heating the steel substrate to a minimum of 350 degrees Fahrenheit and a maximum of 400 degrees Fahrenheit.

**Exterior Coating:**

All exterior surfaces shall be coated with Urethane or Triglycidylisocyanurate (TGIC) Polyester Powder to a minimum film thickness of 2.0 mils (0.002"). The coating shall be electrostatically applied and cured in a gas fired convection oven by heating the steel substrate to a minimum of 350 degrees Fahrenheit and a maximum of 400 degrees Fahrenheit. The thermosetting powder resin shall provide both intercoat as well as substrate fusion adhesion that meets 5A or 5B classifications of ASTM D3359.

**Packaging:**

Prior to shipment, small poles shall be wrapped in 0.188" thick Ultraviolet inhibiting plastic backed foam. Larger poles shall be cradled in a 1.0" rubberized foam base.

**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.

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 to 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:**

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Traffic Signal-Light Pole Steel (1-20 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-35 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-40 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-45 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-50 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-55 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-60 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-65 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-70 Foot Mast Arm)	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 locations as identified in the plans. This work also includes providing and installing all necessary fiber optic lateral cables and 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.

**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.

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.



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**REVISION OF SECTION 614  
TELEMETRY (FIELD)**

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.

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;

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**REVISION OF SECTION 614  
TELEMETRY (FIELD)**

- 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:

**Pay Item**  
Telemetry (Field)

**Pay Unit**  
Each

**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.

**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.

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**REVISION OF SECTION 614**  
**LOOSE TUBE FIBER OPTIC CABLE**

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.

**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.

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**REVISION OF SECTION 614  
LOOSE TUBE FIBER OPTIC CABLE**

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 ripcord placed 180 degrees apart. DJ/SA designs shall have one ripcord under both the inner jacket and steel armor.

**Cable Cross-Sections:**

**Single Jacket (SJ)**



Figure 1 – Single Jacket

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**REVISION OF SECTION 614**  
**LOOSE TUBE FIBER OPTIC CABLE**

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 (20 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)

**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**

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

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**REVISION OF SECTION 614**  
**LOOSE TUBE FIBER OPTIC CABLE**

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.

Multimode Fibers

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	<input type="checkbox"/> 0.5 dB/km Max Added Loss 80 % <input type="checkbox"/> 0.25 dB/km Added Loss
Cable Aging	EIA/TIA-455-3 IEC 794-1-F1	<input type="checkbox"/> 1.0 dB/km Max Added Loss 80 % <input type="checkbox"/> 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

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.

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.

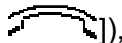
For standard striped outer jackets, printed characters shall be indent printed with white characters for red, green, orange, yellow, blue striped cables, light-blue characters for white striped cables, or as otherwise specified by the customer.

The characters shall be of proper height and space to produce good legibility. Character heights of 2mm 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 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 defective marking and re-mark characters with the original color.

Method B: Leave the defective marking on the jacket and re-mark 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.



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**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)
- Arrow and the words “CABLE END” to indicate position of the outside cable end (red paint)
- Arrow and the words “ROLL THIS WAY” to indicate direction reel should be rolled to prevent loosening (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.



Figure 2 – Reel Stickers

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**REVISION OF SECTION 614  
LOOSE TUBE FIBER OPTIC CABLE**

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 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 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 metallic protection rings, plywood covers, or other.

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

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**REVISION OF SECTION 614  
LOOSE TUBE FIBER OPTIC CABLE**

- 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

**Quality Assurance Provisions**

Prior to installation, all optical fibers shall be 100% attenuation tested. The attenuation of each fiber shall be provided with each cable reel.

The cable manufacturer shall be ISO9001-registered.

All optical fibers shall be tested and documentation submitted for both on-reel testing and testing of fiber after installation.

If any finer strands are tested and fail to meet the minimum requirements provided in the Project Special Provision for Test Fiber Optic Cable, the entire reel of fiber optic cable shall be rejected.

**Optical Splice Closures**

Splices are not allowed without the authorization of the Engineer. If splices are authorized, each such splice shall occur in a new pull box to be installed by the Contractor, or an existing manhole or pull box already installed along the route.

All splices shall be enclosed in a splice closure. Coyote Runt or Pup Type closures or approved equal shall be used. All closures shall include a 1-inch future port kit (part no. 8003408 Pre-Formed Line Products or approved equal). The Coyote Runt Closure or approved equal shall be used at locations with three (3) fiber optic cables. In locations requiring more than three (3) fiber optic cables, the Coyote Pup Closure or approved equal shall be used. Following successful splicing, said splice enclosure shall be placed inside the described pull box or manhole. Contractor shall accomplish the work using splicing tools and hardware recommended by the cable manufacturer.

Size of the splice closure at specific locations shall be governed by the number of splices required. The average splice loss shall not exceed 0.2dB for any given span.

**Buffer Tube Fan-Out**

Fan-out kit tools and tool kit consumables shall be of the same manufacture as the fan-out kit. Fanned-out cables shall be terminated at the controller telemetry panel or in the Contractor-furnished termination enclosure as shown in the plans. The fan-out kit shall be placed inside the cabinet side wall-mounted termination enclosure.

The number of fibers to be landed and terminated shall be as shown in the plans.

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**REVISION OF SECTION 614**  
**LOOSE TUBE FIBER OPTIC CABLE**

Termination Enclosure

Contractor shall furnish and install a cabinet side wall-mounted termination enclosure for storage of the fan-out kit and broken-out fibers. This enclosure shall be sized to accommodate the patch panel called out in the plans. Optional guard and dust proofing components shall be included. Contractor shall furnish and install all connector panels, connectors, adaptors, jumpers and/or pigtails required to establish the final connection to the controller.

10.0 Materials List

Prior to ordering, the Contractor shall provide the Engineer with a proposed list of materials to be used for fiber optic cable and peripherals thereto. The list of materials shall include fiber optic backbone and lateral cable, patch cord cable, connectors, miscellaneous cabling, optical splice closures, buffer tube fan-out kits and termination enclosures.

**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 is for furnishing and 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.

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**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 multimode 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 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** 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.

**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.



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**REVISION OF SECTION 625  
CONSTRUCTION SURVEYING**

**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.

**629.09 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.

**629.10 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.

**629.11 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.

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 as a lump sum item.

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**REVISION OF SECTION 625  
CONSTRUCTION SURVEYING**

**BASIS OF PAYMENT**

**625.13** Payment for construction surveying will be a lump sum payment. Payment 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.

Traffic control for construction surveying will be paid for in accordance with Section 625.

When the contract does not include pay items for Construction Surveying, this item will not be paid for separately but shall be included in the work.

**REVISION OF SECTION 627  
PAVEMENT MARKING**

**Section 627 of the Standard Specifications is revised as follows:**

**Subsection 627.01 is revised to include the following:**

The Contractor is responsible for installation and removal of temporary pavement marking. The Contractor shall coordinate the work of the striping Contractor, including traffic control devices and flaggers.

**Subsection 627.03 is revised to include the following:**

The Contractor shall replace permanent pavement markings damaged or removed as a result of the work. Pavement marking material shall be new material of the same type which existed prior to the work commencing.

**REVISION OF SECTION 627 AND 713  
EPOXY PAVEMENT MARKING**

**Sections 627 and 713 of the Standard Specifications are hereby revised for this project as follows:**

**Section 627.05 shall include the following:**

Modified Epoxy Pavement Marking shall conform to subsection 713.17.

**Subsection 627.13 shall include the following:**

<b>Pay Item</b>	<b>Pay Unit</b>
Epoxy Pavement Marking	Gallon

**In subsection 713.17, delete (f) and (k), and replace with the following:**

(f) *Color.* The epoxy material, without drop-on beads, shall correspond following requirements:

White – Federal Standard No. 595B-17925. The Yellowness Index (YI) of white shall not exceed 8.0 per ASTM E-313-10 initially.

After 72 QUV exposure per ASTM G-154 with a UVA-340 Lamp at an irradiance of 0.89 W/m<sup>2</sup>/nm with alternating cycles of 4 hours U.V @ 140° F, and 4 hours humidity @ 122° F the YI shall not exceed 15 when measured per ASTM E-313.

The YI, after 500-hour QUV testing as above, shall not exceed 27.

Yellow – Materials for pavement markings shall meet the initial daytime chromaticity that fall within the box created by the following corner points:

Initial Daytime Chromaticity Coordinates (Corner Points)

	1	2	3	4
x	0.530	0.510	0.455	0.472
y	0.456	0.485	0.444	0.400

After 72-hour QUV exposure per ASTM G-154 with a UVA-340 Lamp at an irradiance of 0.89 W/m<sup>2</sup>/nm with alternating cycles of 4 hours U.V @ 140° F, and 4 hours humidity @ 122° F the Yellow shall fall within the initial chromaticity coordinates stated above.

(k) *Abrasion Resistance.* The abrasion resistance shall be evaluated on Taber Abrader with a 1000 gram load and CS-17 wheels. The duration of the test shall be 1000 cycles. The wear index shall be calculated based on ASTM test method C-501 and the wear index for the catalyzed material shall not be more than 60. The tests shall be run on cured samples of material which have been applied at film thickness of 15 ± ½ mils to code S-16 stainless steel plates. The samples shall be allowed to cure at 75 ± 2 °F for a minimum of 72 hours prior to performing the indicated tests.

## **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 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 is in place within the project limits. A diligent search of construction zones and project limits shall be performed by the PLS.

**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.

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**REVISION OF SECTION 629  
SURVEY MONUMENTATION**

**629.05 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**

**629.09** - The accepted items and quantities will be paid for at the contract unit price per each. Approval of the Engineer is required prior to undertaking any work identified as part of this Section.

Payment will be made under:

<u><b>Pay Item</b></u>	<u><b>Pay Unit</b></u>
Survey Monument (Type 1)	Each

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:

**Pay Item**

Uniformed Traffic Control

**Pay Unit**

Hour

**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 630.02 General shall include the following:**

The flagger's STOP/SLOW sign paddle shall be 18 inches with letters six inches high.

**Subsection 630.05 Traffic Cones shall include the following:**

Steel drum channelizing devices shall not be used for traffic control

**Subsection 630.06 Channelizing Devise (fixed) 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)(1) 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.



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**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 on 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 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 an 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.

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**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 non-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.

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**REVISION OF SECTION 630  
CONSTRUCTION ZONE TRAFFIC CONTROL**

**Subsection 630.15 is hereby deleted and replaced with the following:**

The Contractor shall furnish all other personnel – including flaggers, traffic control inspector, and traffic control supervisor - and other materials necessary to perform the Construction Zone Traffic Control as required and these quantities will not be measured but will be included in the cost of Traffic Control Management.

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, 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.

Payment will be made under:

<b><u>Pay Item</u></b>	<b><u>Pay Unit</u></b>
Flagging	Hour
Traffic Control Management	Day
Traffic Control Inspection	Day
Barricade (Type 3 M-A) (Temporary)	Each
Construction Traffic Sign (Panel Size A)	Each
Construction Traffic Sign (Panel Size B)	Each
Construction Traffic Sign (Special)	Each
Advance Warning Flashing or Sequence Arrow Panel (C Type)	Each
Portable Message Sign Panel	Each
Vertical Panel	Each
Drum Channelizing Device (With Light) (Flashing)	Each
Traffic Cone	Each

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.

**REVISION OF SECTION 705  
JOINT, WATERPROOFING AND BEARING MATERIALS**

**Section 705 of the Standard specifications is hereby revised for this project as follows:**

**Subsection 705.01(a) shall be revised to include the following:**

Sealant shall be heated only for the time limit recommended by the manufacturer. Also, the sealant shall not be reheated more times than recommended by the manufacturer.

**Subsection 705.01 shall be revised to include the following:**

(c) Hot Joint Sealants, Concrete Pavement. Hot-poured joint sealer material for concrete slab joints shall conform to the requirements of ASTM D 1190 or ASTM D 3405 and to the following:

Mortar blocks for the bond test shall be as described in ASTM D 1191 Coal tar base material is not acceptable.

The shipping containers shall be marked by the manufacturer with the name of the material, the name and brand of the manufacturer, the weight, the batch number and the safe heating temperature.

The materials shall be stored in accordance with manufacturer's recommendations, but they shall not be exposed to ambient temperatures in excess of 125 degrees F, or stored in direct sunlight.

The sealer material shall be melted in a heating kettle, or tank, constructed as a double boiler, with a space between the inner and outer shells filled with oil, asphalt, or other material for heat transfer and for positive temperature control.

The heating and melting unit shall be equipped so that the heat may be adjusted to provide control of the temperature of the heating medium used for melting the sealer material. The sealer material shall not be subjected to temperatures in excess of 450 degrees F at any stage or time during the melting operation.

## FORCE ACCOUNT ITEMS

### DESCRIPTION

This Special Provision contains the City and County of Denver's estimate for Force Account 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. Force Account 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.

Force Account work valued at \$5,000 or less that must be performed by a licensed journeyman in order to comply with federal, state, or local codes, may be paid for after receipt of an itemized statement endorsed by the Contractor.

<u>Item No.</u>	<u>Force Account Items</u>	<u>Quantity</u>	<u>Estimated Amount</u>
F/A 01	Minor Contract Revision	F/A	\$25,000
F/A 02	On-the-Job Trainee	F/A	\$640
F/A 03	Environmental Health & Safety Management	F/A	\$2,500
F/A 04	Furnish & Install Electrical Service	F/A	\$50,000
F/A 05	Erosion Control	F/A	\$5,000

Force Account descriptions include:

- F/A 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.
- F/A 02 On-The-Job Trainee - This work is described in the Standard Special Provision – On The Job Training.
- F/A 03 Environmental Health & Safety Management – This work is described in Section 250 - Environmental, Health, and Safety Management of the Standard Specifications.
- F/A 04 Furnish & Install Electrical Service – This force account 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.
- F/A 05 Erosion Control – This work consists of stormwater BMPs authorized and approved by the Engineer. This Force Account 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.

-1-  
**UTILITIES**

The known utilities within the limits of this project are:

Utility	Contact/Email	Phone/Fax
CenturyLink 7759 S Wheeling Ct Englewood, CO 80112	Travis Young <a href="mailto:Travis.Young@centurylink.com">Travis.Young@centurylink.com</a>	720-578-5291
Comcast Cable 8490 Umatilla St Federal Heights, CO 80206	Kip West <a href="mailto:Kip_West@comcast.com">Kip_West@comcast.com</a>	720-347-9992
Xcel Energy – Local Govt PM 1123 W 3rd Avenue Denver, CO 80223	Marisa Montoya <a href="mailto:Marisa.L.Montoya@xcelenergy.com">Marisa.L.Montoya@xcelenergy.com</a>	303-571-3720
Xcel Energy – Electric 1123 W 3rd Avenue Denver, CO 80223	Wendy Volmer <a href="mailto:Wendy.Volmer@xcelenergy.com">Wendy.Volmer@xcelenergy.com</a>	303-571-3169
Xcel Energy – Gas 1123 W 3rd Avenue Denver, CO 80223	Wendy Volmer <a href="mailto:Wendy.Volmer@xcelenergy.com">Wendy.Volmer@xcelenergy.com</a>	303-571-3169
Denver Water Department 1600 W 12th Avenue Denver, CO 80204	Ray Batts <a href="mailto:Ray.Batts@denverwater.org">Ray.Batts@denverwater.org</a>	303-628-6682
Denver Wastewater Management 2000 W 3rd Avenue Denver, CO 80223	Walt Hime <a href="mailto:Walt.Hime@denvergov.org">Walt.Hime@denvergov.org</a>	303-446-3663
Denver Traffic Operations 201 W Colfax Ave, Dept 508 Denver, CO 80202	John Yu <a href="mailto:John.Yu@denvergov.org">John.Yu@denvergov.org</a>	720-865-3176
Denver Traffic Operations 5440 Roslyn St Denver, CO 80216	Chris Lillie <a href="mailto:Chris.Lillie@denvergov.org">Chris.Lillie@denvergov.org</a>	720-865-4066
CDOT Fiber Optic Backbone 425-C Corporate Circle Golden, CO 80401	Jill Scott <a href="mailto:Jill.Scott@state.co.us">Jill.Scott@state.co.us</a>	303-512-5805
City of Glendale 950 S Birch Street Glendale, CO 80246	Joshua Bertrand <a href="mailto:JBertrand@glendale.co.us">JBertrand@glendale.co.us</a>	303-639-4500

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 in accordance with the plans and specifications and as directed by the Engineer. The Contractor shall also 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.

-2-  
**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 Executive Director 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 Executive Director of Public Works requests, in writing, that the relocation commences."

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 Executive Director 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 Executive Director 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.

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.

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.



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**UTILITIES**

It shall be the contractor's responsibility to protect all WMD facilities, including but not limited to storm sewer inlets, within the area of construction. Protection shall include, but not limited to, all steps necessary to prevent subsidence of the soil adjacent to or near WMD facilities. A list of the known storm sewer inlets and manholes are as follows:

- SW corner of Colorado Boulevard and Cherry Creek Drive North.
- NW and SE corners of Colorado Boulevard and Ohio Avenue.
- NE and SE corners of Colorado Boulevard and Florida Avenue.
- NW, NE and SE corners of Colorado Boulevard and Iowa Avenue.
- All four corners of Colorado Boulevard and Mexico Avenue.

At the northwest corner of Colorado Boulevard and Florida Avenue, the City Contractor shall modify an existing WMD storm sewer inlet to accommodate the proposed ADA curb ramps, concrete pavement, and traffic signal pole construction as shown on the plans. The modify of the existing storm sewer inlet shall be as follows:

- Modify the existing WMD storm sewer inlet at station 10+46.98 to the proposed curb return flowline elevation of 5419.69. Top of inlet to match top of ADA curb ramp raised median.

Coordinate all required inspections with WMD forces.

Notify the utility owner in writing 5 days immediately prior to required inspections of utility work performed by the Contractor.

Denver Water Department Work Elements:

All work on Denver Water Department facilities shall be performed by contractors on the current list of Denver Water Department Pre-Qualified Contractors.

At the northwest corner of Colorado Boulevard and Iowa Avenue, the City Contractor shall clean and adjust the existing Denver Water valve boxes per the Denver Water Engineering Standards. The water valve box is located in the concrete sidewalk of the intersection, and the City Contractor shall adjust this existing water valve boxes to  $\frac{1}{4}$ " to  $\frac{1}{2}$ " below final grades of the new concrete sidewalk surface.

Coordinate all required inspections with Denver Water Department forces.

Notify the utility owner in writing 5 days immediately prior to required inspections of utility work performed by the Contractor.

Notify the utility owner in writing one week immediately prior to each utility work element expected to be coordinated with construction.

**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.

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**UTILITIES**

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. This work includes the relocation of the overhead Xcel Energy power lines. 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 relocate power poles, raise power distribution lines, and remove street light standards and traffic signal poles with luminaires as shown on the plans.

Relocation and removal work to be performed by Xcel Energy within the project site is:

Colorado Boulevard & Florida Avenue: Xcel Energy shall relocate the existing power pole and overhead aerial line on the Colorado Boulevard and Florida Avenue intersection to accommodate the proposed roadway construction and traffic signal pole as shown on the plans. The relocation will begin at 175 feet east of the intersection to 425 feet west of the intersection for an approximately 600 linear feet. The CCD Contractor shall coordinate construction with and provide surveying of rights-of-way and roadway features to ensure proper placement by Xcel Energy. The work request has been sent to Xcel Energy during the design phase and the work is expected to be completed by August of 2018.

All cost from Xcel Energy's power pole, overhead aerial lines and power feed relocation and removal work shall be per the franchise agreement and will be at no cost to the project.

After the CCD Contractor has completed the installation for the traffic signal poles and luminaires including conduit, electric meter foundation and pedestal, and wiring to the power source at each location 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. All cost charges from the power service provider, and all necessary materials, labor and coordination required to establish new power sources required for permanent operation of equipment as shown in the plans shall be reimbursed from the Force Account Furnish and Install Electrical Service.

After the Proposed traffic signals are operational, Xcel forces shall disconnect the power to the existing traffic signals. After the 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.

All cost from Xcel Energy's disconnection of the existing power source and removal of the existing traffic signal pole and luminaires work shall be per the franchise agreement and will be at no cost to the project.

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.

-5-  
**UTILITIES**

Denver Wastewater Management:

Inspect and accept in writing the work performed by the Contractor listed in Part 1 above.

The Contractor shall notify the utility owner 5 days immediately prior to required inspections of utility work performed by the Contractor.

Denver Water Department:

Inspect and accept in writing the work performed by the Contractor listed in Part 1 above.

The Contractor shall notify the utility owner 5 days immediately prior to required inspections of utility work performed by the Contractor.

CenturyLink:

The Contractor shall be responsible for the coordination of Century Link manhole adjustment work to be performed by Century Link. The Contractor shall contact Century Link to request, and process to completion, required coordination to adjust the three Century Link manholes as shown on the plans.

Manhole adjustment work to be performed by Century Link within the project site is:

At the Northwest corner of Colorado Boulevard and Florida Avenue, the Century Link shall adjust three (3) existing Century Link telephone manholes to accommodate the proposed ADA curb ramps, concrete pavement, and traffic signal pole construction as shown on the plans. The three existing manholes shall be adjusted to as follows:

- Adjust manhole at station 10+48.76, 11.29' RT to proposed grade. Approximate existing elevation: 5420.05; proposed elevation: 5420.15.
- Adjust manhole at station 10+50.28, 2.10' LT to proposed grade. Approximate existing elevation: 5420.14; proposed elevation: 5420.25.
- Adjust manhole at station 10+54.58, 7.01' RT to proposed grade. Approximate existing elevation: 5420.20; proposed elevation: 5420.25.

The CCD Contractor shall coordinate construction with and provide surveying of rights-of-way and roadway designs/elevations to ensure proper manhole adjustment by Century Link. The utility clearance request has been sent to Century Link during the design phase and the work is expected to be completed by March 30, 2019.

The Contractor shall provide the utility owner written notice 45 days immediately prior to the utility work at the intersection that is to be coordinated with construction.

Comcast Cable:

The Contractor shall be responsible for the coordination of relocation and removal work to be performed by Comcast Cable. This work includes the relocation of the overhead Comcast Cable lines. The Contractor shall contact Comcast Cable to request, and process to completion, required coordination to relocate cable lines as shown on the plans.

Relocation and removal work to be performed by Comcast Cable within the project site is:

-6-  
**UTILITIES**

Colorado Boulevard & Florida Avenue: Comcast Cable shall relocate the existing cable line within the Colorado Boulevard and Florida Avenue intersection to accommodate the proposed roadway construction and traffic signal pole as shown on the plans. The relocation will begin at 112 feet east of the intersection to 153 feet west of the intersection for an approximately 265 linear feet. The CCD Contractor shall coordinate construction with and provide surveying of rights-of-way and roadway features to ensure proper placement by Comcast Cable. The utility clearance request has been sent to Comcast Cable during the design phase and the work is expected to be completed by March 30, 2018.

All cost from Comcast Cable's relocation work shall be by Comcast Cable and will be at no cost to the project.

The Contractor shall provide the utility owner written notice 45 days immediately prior to the utility work at the intersection that is to be coordinated with construction.

**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? (CDOT can provide details to contractor)
- Are there limiting factors preventing this work from being conducted during the day? (CDOT can provide details to contractor)
- 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 (CDOT can provide details to contractor)
- 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 (CDOT can provide details to contractor from Roadway Construction Noise Model)
- Detail existing ambient sound levels (L90, Leq, Lmax) for the same areas (at least 1 night of pre-work Surveillance; 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? (CDOT can

**DENVER (ONLY) NOISE ORDINANCE – PERMIT  
VARIANCE APPLICATION TEMPLATE**

- provide details to contractor)
- Are there adverse health effects other than noise to be concerned with as a result of the proposed work? (CDOT can provide details to contractor)

**6(d) (3) Maintain Harmony with the Spirit and Purpose of the Ordinance:**

(CDOT can provide details to contractor for sec 6(d) (3))

- 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 Surveillance 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 (CDOT can provide details to contractor)

**6 (f) Petitioner Information**

[Company Name and Address]

[Contact Person/Project Manager info]

**6 (g) Petitioner's Signature**

Sincerely,

[Name and Title]

Note: In addition to this template, CDOT can provide an example of a previously written (City and County of Denver) variance application at the contractor's request.

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.

CITY AND COUNTY OF DENVER  
STATE OF COLORADO



DEPARTMENT OF PUBLIC WORKS

Plans/Drawings

Contract Number: 201843268



SHE 2015

Traffic Signal Upgrades

July 23, 2018



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# DEPARTMENT OF TRANSPORTATION STATE OF COLORADO

HIGHWAY CONSTRUCTION BID PLANS OF PROPOSED  
FEDERAL AID PROJECT NO. SHE M320-092  
SUBACCOUNT NO. 20303

2015 SAFETY HAZARD ELIMINATION PROJECT  
COLORADO BLVD. AT CHERRY CREEK NORTH / VIRGINIA, OHIO, FLORIDA, IOWA AND MEXICO

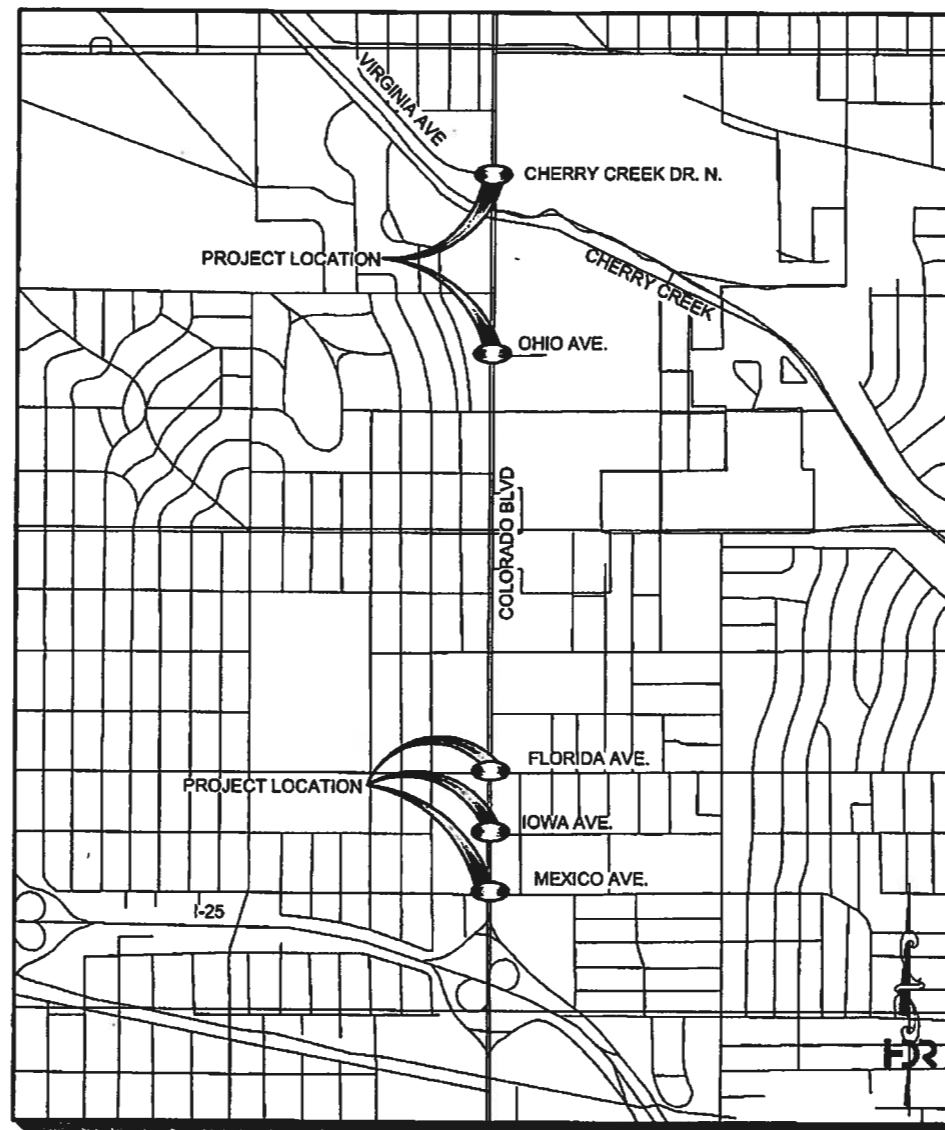
## CITY AND COUNTY OF DENVER

CITY MASTER PROJECT NO. 2015-PROJMSTR-0000511  
CCD PRO TRACKING NO. PWTES 2018-080

FINAL AD SUBMITTAL  
JUNE 18, 2018

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

APPROVED BY:		6/25/18
EXECUTIVE DIRECTOR OF PUBLIC WORKS		DATE
		6-25-18
CITY ENGINEER		DATE
		6/25/18
DIRECTOR OF ENGINEERING CAPITAL PROJECTS		DATE
		6/26/18
CITY TRAFFIC ENGINEER		DATE



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101	TRAFFIC CONTROL TABULATION AND NOTES



Print Date: June 18, 2018	 <b>DENVER</b> THE MILE HIGH CITY	<b>DEPARTMENT OF PUBLIC WORKS</b> 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544	As Constructed	COLORADO BOULEVARD 2015 SHE		Project Number
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**TRANSPORTATION ENGINEERING STANDARD DRAWINGS**

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**NOTE:**  
THE MOST CURRENT CITY AND COUNTY OF DENVER STANDARDS AND DETAILS TO BE USED FOR THE DESIGN AND CONSTRUCTION OF EACH PHASE OF THE PROJECT.

THE STANDARD DRAWINGS/DETAILS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

ALL OF THE STANDARD DRAWINGS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

**CITY AND COUNTY OF DENVER  
STANDARD DRAWINGS LIST**

**COLORADO  
DEPARTMENT OF TRANSPORTATION  
M&S STANDARDS PLANS LIST**

S-630-1 ■ TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION ..... 239-258 (20 SHEETS) (REVISED ON DECEMBER 08, 2014)

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□ 16.2.14	PARKING METER POST INSTALLATION
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**GENERAL**

1. PROPOSED FINISHED GROUND ELEVATIONS FOR ITEMS TO BE ADJUSTED, RESET, OR MODIFIED SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY INCLUDING, BUT NOT LIMITED TO EXCAVATION, TRENCHING, SHORING, TRAFFIC CONTROL, AND SECURITY.
3. THE CONTRACTOR SHOULD REMOVE MATERIALS AND EQUIPMENT FROM THE ROADWAY ROW AT THE CLOSE OF DAILY OPERATIONS. THE TRAFFIC CONTROL PLAN (TCP) MUST INCLUDE PROTECTIVE MEASURES WHERE MATERIALS AND EQUIPMENT MAY BE STORED IN THE ROW, BUT ENSURE FIVE FEET OF PEDESTRIAN CLEARANCE ON SIDEWALKS. THE CONTRACTOR SHALL NOT STOCKPILE MATERIAL IN THE CLEAR ZONE OF THE TRAVELED WAY.
4. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PROJECT PERMITS ASSOCIATED WITH CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR BEING AWARE OF, NOTIFYING, COORDINATING AND SCHEDULING ALL INSPECTIONS REQUIRED FOR FINAL APPROVALS AND PROJECT ACCEPTANCE. ALL WORK, INCLUDING CORRECTION WORK, IS SUBJECT TO NOTIFICATION AND INSPECTION REQUIREMENTS.
5. IF ANY OF THE CONTRACTOR'S OPERATIONS DESTROY OR DAMAGE ANY PROPERTY, PUBLIC OR PRIVATE, THE CONTRACTOR SHALL PROMPTLY REPAIR OR REPLACE SUCH PROPERTY, TO THE SATISFACTION OF THE PROJECT MANAGER, BEFORE THE CITY WILL ACCEPT OR PAY FOR THE WORK PERFORMED UNDER THE CONTRACT. IF THE CONTRACTOR FAILS TO REPAIR OR REPLACE SUCH PROPERTY, THE CITY, AT THE SOLE DISCRETION OF THE MANAGER, MAY UNDERTAKE SUCH REPAIR OR REPLACEMENT AND DEDUCT THE COST OF THE SAME FROM AMOUNTS PAYABLE TO THE CONTRACTOR UNDER THE CONTRACT.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING AS-BUILT INFORMATION ON A SET OF RECORD DRAWINGS KEPT ON THE CONSTRUCTION SITE, AND AVAILABLE TO THE CITY INSPECTOR AT ALL TIMES. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL SUBMIT RECORD DRAWINGS, IN AN AUTOCAD COMPATIBLE FORMAT, TO THE CITY. THE PRODUCTION OF THESE DOCUMENTS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
7. ALL WORK SHALL CONFORM TO CURRENT CITY AND COUNTY OF DENVER STANDARDS AND SPECIFICATIONS. THE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE LATEST EDITION OF THE CITY STANDARDS SPECIFICATIONS, OR HALT CONSTRUCTION UNTIL THE CONFLICT IS RESOLVED.
8. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL STORM DRAIN INLETS, LATERALS, MAINS AND OTHER STORM RUNOFF APPURTENANCES WITHIN THE PROJECT LIMITS SHALL BE CLEARED OF SEDIMENT AND DEBRIS IN ACCORDANCE WITH DENVER WASTEWATER MANAGEMENT DIVISION STANDARDS. AFTER CONSTRUCTION, THE CONTRACTOR SHALL REMOVE ANY SEDIMENT OR DEBRIS FROM THE STORM SEWER SYSTEM AT NO COST TO THE CITY.
9. PRIOR TO FINAL ACCEPTANCE, ALL DISTURBED PORTIONS OF ROADWAY ROW SHALL BE CLEANED UP AND RESTORED TO THEIR ORIGINAL CONDITION, SUBJECT TO CITY APPROVAL.
10. NO WORK SHALL BE PERMITTED ON WEEKENDS OR HOLIDAYS WITHOUT PRIOR AUTHORIZATION OR UNLESS OTHERWISE SPECIFIED. THE CITY MAY RESTRICT WORK IN THE ROW DURING ADVERSE WEATHER CONDITIONS OR DURING PERIODS OF HIGH TRAFFIC VOLUME.
11. NO CLEATED OR TRACKED EQUIPMENT MAY WORK IN OR MOVE OVER PAVED SURFACES WITHOUT MATS.
12. WHERE ROW FENCES MUST BE REMOVED OR CUT TO FACILITATE CONSTRUCTION, APPROVAL MUST FIRST BE GIVEN BY THE CITY. EXISTING ROW/FENCE LINE MUST BE ESTABLISHED BY GOOD SURVEY PRACTICES. FENCES WILL BE REPLACED IN KIND ACCORDING TO CITY FENCING STANDARDS.
13. PROTECTION AND REPLACEMENT OF STREET IMPROVEMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR UNTIL THESE IMPROVEMENTS ARE FULLY COMPLETED AND ACCEPTED BY THE CITY.
14. THE FOLLOWING ITEMS SHALL BE PAID FOR AS:

201-00000	CLEARING AND GRUBBING	LS	1
203-01597	POTHOLING	EA	88
210-04010	ADJUST MANHOLE	EA	3
210-04020	MODIFY INLET	EA	1
210-04050	ADJUST VALVE BOX	EA	1
212-00100	TREE RETENTION AND PROTECTION	EA	1
613-10000	WIRING	LS	1
625-00000	CONSTRUCTION SURVEYING	LS	1
626-00000	MOBILIZATION	LS	1

**PROJECT PLANS, SPECIFICATIONS, PERMITS**

1. ALL MATERIAL, EQUIPMENT, INSTALLATION AND CONSTRUCTION WITHIN THE ROW SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING STANDARD REFERENCES AS APPLICABLE:
  - a. CITY AND COUNTY OF DENVER, STANDARDS AND DETAILS FOR ENGINEERING DIVISION
  - b. STORM DRAINAGE AND SANITARY SEWER CONSTRUCTION DETAIL AND TECHNICAL SPECIFICATIONS
  - c. DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS FOR CONSTRUCTION GENERAL CONTRACT CONDITIONS
  - d. WASTEWATER MANAGEMENT DIVISION STANDARD DETAILS
  - e. TRAFFIC STANDARD DRAWINGS AND TRANSPORTATION AND MOBILITY PROJECT SPECIALS
  - f. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND STANDARD PLANS, (M&S STANDARDS)
  - g. FEDERAL HIGHWAY ADMINISTRATION (FHWA), MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS AND THE COLORADO SUPPLEMENT THERETO
  - h. AMERICAN ASSOCIATION OF STATE AND HIGHWAY TRANSPORTATION OFFICIALS (AASHTO) ROADSIDE DESIGN GUIDE
2. THE CONTRACTOR SHALL HAVE ONSITE AT ALL TIMES, ONE COPY OF THE APPROVED PLANS, ONE COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND COPIES OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB.
3. IF DURING THE CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED WHICH COULD INDICATE A SITUATION THAT IS NOT IDENTIFIED ON THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE PROJECT MANAGER IMMEDIATELY.

**EARTHWORK AND EXCAVATIONS**

1. THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AND TOES OF SLOPE AS SHOWN ON THE PLANS AND CROSS SECTION. ANY DISTURBANCE BEYOND THESE LIMITS SHALL BE RESTORED TO ORIGINAL CONDITIONS AT THE EXPENSE OF THE CONTRACTOR.
2. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. COST FOR DUST PALLIATIVE SHALL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE WORK.
3. THE DEPTH OF RECONDITIONING AND FOR THE BASES OF CUTS AND FILLS SHALL BE 6 INCHES. THE PROJECT SPECIFIED MOISTURE DENSITY CONTROL SHALL BE APPLIED FOR THE SPECIFIED DEPTH. THE EXCAVATION REQUIRED FOR COMPACTION OF BASES OF CUTS AND FILLS WILL BE CONSIDERED SUBSIDIARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.
4. MOISTURE DENSITY CONTROL SHALL BE APPLIED FULL DEPTH FOR ALL EMBANKMENTS.
5. DURING EACH PHASE OF CONSTRUCTION, THE CONTRACTOR SHALL SHAPE TO DRAIN AND COMPACT THE WORK AREA TO A UNIFORM CROSS-SECTION. ELIMINATE ALL RUTS AND LOW SPOTS THAT COULD HOLD WATER. AREAS AND FACILITIES SUBJECTED TO FLOODING, REGARDLESS OF THE SOURCE OF WATER, SHALL BE PROMPTLY DEWATERED AND RESTORED AT NO ADDITIONAL COST TO THE CITY.
6. ALL WORK SHALL BE PROPERLY BACKFILLED PRIOR TO THE END OF THE WORKDAY. NO OPEN HOLES ARE ALLOWED OVERNIGHT.
7. WHERE CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS, EXCAVATED MATERIAL IS TO BE PLACED ON THE UPHILL SIDE OF TRENCHES.
8. MATERIAL REMOVED FROM ANY PORTION OF THE ROADWAY PRISM MUST BE REPLACED IN LIKE KIND WITH EQUAL OR BETTER COMPACTION. NO SEGREGATION OF MATERIALS WILL BE PERMITTED.

**CONCRETE**

1. IF CONCRETE REPLACEMENT IS NECESSARY, THE ENTIRE AFFECTED SLAB OR PANEL MUST BE REPLACED.
2. THE CONTRACTOR SHALL SELECT AND USE A BOXOUT AT CATCH BASINS, MANHOLES, AND OTHER ROADWAY APPURTENANCES OF SIMILAR AND LARGER SIZE. SEE CCD STD DWG NO. 11.5.
3. SIDEWALK SHALL BE CLASS P CONCRETE. THE USE OF ¾ IN (#67) TOP SIZE AGGREGATE IS ALLOWED.
4. BENDER BOARDS (TWO INCH MINIMUM THICKNESS) SHALL BE USED ON ALL CURVES OF LESS THAN 75 FOOT RADIUS.
5. CURB AND GUTTER ANGLE BREAKS SHALL BE SMOOTHED WITH A 2 FT RADIUS UNLESS OTHERWISE SHOWN ON THE PLANS.
6. PROVIDE A 2 FT CURB AND GUTTER TRANSITION AT EACH END OF INLETS.
7. THE CONTRACTOR SHALL INSTALL ½ IN EXPANSION JOINT MATERIAL BETWEEN THE CURB, CURB AND GUTTER AND THE SIDEWALK AND AROUND INLET STRUCTURES OR BLOCKOUTS OR AS DIRECTED BY THE PROJECT MANAGER.
8. CURB RAMPS SHALL BE CONSTRUCTED USING TRUNCATED DOMES AS SHOWN IN THE CITY AND COUNTY OF DENVER STANDARD DETAILS. TRUNCATED DOMES SHALL NOT BE PAID SEPARATELY, BUT INCLUDED IN THE COST OF THE CONCRETE CURB RAMP.



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**PAVEMENT**

1. A TACK COAT IS REQUIRED PRIOR TO THE PLACEMENT OF SUBSEQUENT LIFTS OF HMA.
2. WHERE NEW CONSTRUCTION IS TO ABUT EXISTING PAVEMENT, THE EXISTING PAVEMENT SHALL BE REMOVED TO A NEAT VERTICAL LINE TO CREATE A CLEAN CONSTRUCTION JOINT.
3. PATCH ASPHALT PAVEMENT AS NECESSARY TO JOIN NEW GUTTERS WITH EXISTING PAVEMENT.
4. WHEN AN EXISTING ASPHALT STREET IS CUT, THE STREET MUST BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL CONDITION. THE EXISTING STREET CONDITION SHALL BE DOCUMENTED BEFORE ANY CUTS ARE MADE. PATCHING SHALL BE DONE IN CONFORMANCE WITH THE PROJECT STANDARDS. THE FINISHED PATCH SHALL BLEND SMOOTHLY INTO THE EXISTING SURFACE. ALL LARGE PATCHES SHALL BE PAVED WITH AN ASPHALT LAY-DOWN MACHINE.

**REMOVALS, EXISTING ITEMS, SAW CUTTING**

1. ALL ITEMS TO BE REMOVED AND NOT RESET SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.
2. SIGNS AND / OR SIGNAL EQUIPMENT DESIGNATED AS REMOVAL ITEMS SHALL BE CAREFULLY REMOVED AND DELIVERED BY THE CONTRACTOR TO THE CITY YARD AT 5440 ROSLYN STREET, BUILDING E. ANY MATERIAL DESIGNATED FOR SALVAGE THAT IS DAMAGED AFTER REMOVAL SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. NO SEPARATE PAYMENT SHALL BE MADE FOR LOADING, HAULING, UNLOADING, OR PLACING SALVAGED MATERIALS IN THE CITY YARD.
3. WHERE IT IS REQUIRED TO REMOVE EXISTING CONCRETE OR ASPHALT, CUTTING SHALL BE DONE TO A NEAT WORK LINE TO FULL DEPTH USING A SAW, CUTTING WHEEL, OR OTHER METHOD APPROVED BY THE PROJECT MANAGER. THIS WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
4. REMOVAL OF EXISTING CURB AND GUTTER, SIDEWALK, DRIVEWAYS, CURB CUTS, AND OTHER CONCRETE ITEMS THAT ARE ATTACHED OR ADJACENT TO OTHER CONCRETE ITEMS SHALL BE REMOVED TO THE NEAREST JOINT, AS NEEDED TO AVOID DAMAGING THE REMAINING CONCRETE ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ADJACENT SIDEWALK DURING CURB AND GUTTER REMOVAL AND SHALL REPLACE DAMAGED SECTIONS AT NO ADDITIONAL COST TO THE PROJECT.
5. THE CONTRACTOR IS REQUIRED TO RESET, ADJUST, OR REPLACE ANY UTILITIES, LANDSCAPING, SPRINKLER SYSTEMS, SIGNS, SIDEWALKS, ETC. THAT ARE IMPACTED BY CONSTRUCTION AND ARE NOT DESIGNATED TO BE REMOVED.
6. THE CONTRACTOR SHALL USE AGGREGATE BASE COURSE OR ASPHALT MILLINGS TO FILL AREA LEFT BY REMOVAL OF DRIVEWAY OR CURB RAMP PRIOR TO PLACEMENT OF NEW SIDEWALK, DRIVEWAY OR CURB RAMP.

**DRAINAGE**

1. ACCESS MUST BE MAINTAINED FOR ALL SEWER MANHOLES DURING CONSTRUCTION. MINIMUM ACCESS TO EACH MANHOLE IS A 20 FOOT WIDE LANE FROM THE NEAREST PUBLIC RIGHT OF WAY, CENTERED AT THE MANHOLE INCLUDING A 10 FOOT RADIUS AROUND THE MANHOLE AND 22.0 FEET OF VERTICAL CLEARANCE.
2. ALL CITY & COUNTY OF DENVER (CCD) STORM AND/OR SANITARY SEWERS HAVE BEEN IDENTIFIED AND LABELED AS SUCH ON THESE CONSTRUCTION PLANS.
3. ALL CITY & COUNTY OF DENVER (CCD) STORM AND/OR SANITARY SEWERS, INCLUDING MANHOLE ADJUSTMENTS, SHALL BE INSPECTED BY CCD MAINLINE INSPECTIONS. THE CONTRACTOR MUST CALL MAINLINE INSPECTIONS @ (303)446-3722, A MINIMUM OF 24 HOURS PRIOR TO THE PRECONSTRUCTION MEETING AND PRIOR 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.

**LANDSCAPING**

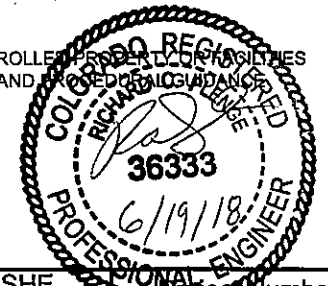
1. THE CONTRACTOR SHALL NOT SPRAY, CUT OR TRIM TREES OR OTHER LANDSCAPING WITHIN THE ROW UNLESS SUCH WORK IS OTHERWISE SPECIFIED IN THIS PERMIT OR CLEARLY INDICATED ON THE APPROVED PLANS.
2. SEEDING, SODDING AND PLANTING IN THE ROW SHALL BE AS SPECIFIED OR OTHERWISE APPROVED BY THE CITY. CONSTRUCTION, MAINTENANCE AND WATERING REQUIREMENTS SHALL CONFORM TO CITY STANDARD SPECIFICATIONS.
3. UNLESS STREETScape HAS BEEN APPROVED, THE CONTRACTOR SHALL LANDSCAPE ALL ROW WITH SOD AND TREES. ALL LANDSCAPING WITHIN THE ROW SHALL BE IN CONFORMANCE WITH THE LATEST STREETScape DESIGN MANUAL. NO LOOSE MATERIAL (I.E. ROCK, BARK, GRAVEL, ETC.) SHALL BE ALLOWED. DECORATIVE CONCRETE OR LOW GROWING PLANT MATERIAL MAY BE ALLOWED ONLY WITH THE SPECIFIC APPROVAL OF THE CITY. TREES SHALL BE PRE-APPROVED BY THE DEPARTMENT OF PARKS AND RECREATION, FORESTRY OFFICE, AND SHALL BE A MINIMUM OF 20-FEET FROM PROPERTY CORNERS AT INTERSECTIONS, 25-FEET FROM STREET LIGHTS AND 10-FEET FROM EDGE OF DRIVEWAYS.

**TRAFFIC**

1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE TRAFFIC CONTROL THROUGHOUT THE PROJECT, INCLUDING PROPER TRAFFIC CONTROL DEVICES AND PERSONNEL. A TRAFFIC CONTROL PLAN (TCP) IS SUBJECT TO CITY APPROVAL PRIOR TO COMMENCING WORK ON ROADWAY ROW. A COPY OF APPROVED TCPS MUST BE AVAILABLE ON SITE DURING WORK. TRAFFIC CONTROL IS TO BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND CDOT M&S STANDARDS.
2. ALL PAVEMENT MARKINGS MUST BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
3. COORDINATE ALL TRAFFIC SIGNAL EQUIPMENT RELOCATIONS WITH PUBLIC WORKS TRANSPORTATION AND MOBILITY.
4. EXISTING CCD FIBER LOCATED ON THE WEST SIDE OF COLORADO BLVD THAT RUNS BETWEEN THE I-25 NB ON-RAMP (NW QUADRANT OF I-25 INTERCHANGE) AND THE NORTHWEST CORNER OF MEXICO AVENUE SHALL BE REMOVED AND REPLACED WITH A CONTINUOUS 48 STRAND FIBER RUN THAT IS COMPRISED OF 6 SINGLE MODE FIBERS AND 42 MULTIMODES.
5. THE EXISTING FIBER PULLBOX LOCATED ON THE NORTHWEST CORNER OF MEXICO AVENUE SHALL BE REPLACED WITH A NEW PULLBOX (SPECIAL).
6. NEW FIBER CLOSURES WITH 30 FEET OF COILED FIBER SHALL BE PROVIDED WITHIN EACH PULLBOX LOCATED ON THE I-25 NB ON-RAMP (NW QUADRANT OF I-25 INTERCHANGE) AND THE NORTHWEST CORNER OF MEXICO AVENUE.
7. AN ADDITIONAL 3" CONDUIT WILL BE PROVIDED ALONG THE WEST SIDE OF COLORADO BOULEVARD RUNNING BETWEEN THE EXISTING FIBER PULLBOX LOCATED ON THE NORTHWEST CORNER OF MEXICO AVENUE AND THE PROPOSED TRAFFIC SIGNAL CABINET LOCATED ON THE SOUTHWEST CORNER OF THE INTERSECTION. A 6 STRAND FIBER SHALL BE PROVIDED WITHIN THE CONDUIT.
8. EXISTING PULLBOX LOCATED WITHIN THE CHANNELIZED RIGHT TURN SHALL BE REMOVED AND THE CONTRACTOR SHALL HAND DIG AROUND FIBER OPTIC CONDUITS IN ORDER TO SPLICE CONDUITS WITH SCHEDULE 80 CONDUIT. WORK SHALL BE PERFORMED DURING OFF-PEAK HOURS EITHER AT NIGHT OR ON WEEKENDS. WORK WILL NOT BE PAID FOR SEPARATELY BUT SHOULD BE INCLUDED IN THE COST OF THE CONDUIT WORK.

**ENVIRONMENTAL**

1. IF CONSTRUCTION DEBRIS IS ENCOUNTERED, THE CONTRACTOR MUST STOP WORK UNTIL A DETERMINATION IS MADE BY A CERTIFIED ASBESTOS INSPECTOR THAT NO ASBESTOS OR HAZARDOUS MATERIALS ARE PRESENT. IF ASBESTOS CONTAINING MATERIAL IS ENCOUNTERED IN BUILDING DEBRIS, THEY MUST BE MANAGED AS PER SOLID WASTE REGULATION 5.5, MANAGEMENT OF ASBESTOS CONTAMINATED SOIL.
2. GROUNDWATER WILL BE ENCOUNTERED WHEN EXCAVATING AT DEPTHS BELOW THE VADOSE ZONE. IF GROUNDWATER IS EXPECTED TO BE ENCOUNTERED, DENVER'S CONTRACTOR WILL ENSURE THAT ANY DEWATERING DISCHARGE IS PROPERLY HANDLED ACCORDING TO CDPHE REGULATIONS. THE CONTRACTOR WILL OBTAIN, AND ADHERE TO, A CONSTRUCTION DEWATERING PERMIT THAT AUTHORIZES THE REMOVAL AND DISCHARGE OF GROUNDWATER ENTERING AREAS OF EXCAVATION, OR ALTERNATIVELY, A HYDROVAC TRUCK CAN BE UTILIZED TO CAPTURE WATER PRIOR TO TESTING AND PROPER OFF-SITE DISPOSAL.
3. 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. CDOT SPEC. 250 MUST BE FOLLOWED AT ALL TIMES.
4. AN INITIAL SITE ASSESSMENT HAS BEEN PREPARED BY DENVER TO ASSESS POTENTIAL IMPACTS TO HAZARDOUS WASTE. THE CONTRACTOR SHALL REVIEW THIS DOCUMENT AND FOLLOW DIRECTIONS AND RECOMMENDATIONS INCLUDED WITHIN.
5. 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.
6. 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, CONTRACTOR SHALL IMMEDIATELY STOP WORK IN THE AREA OF THE DISCOVERY UNTIL DENVER ENVIRONMENTAL HEALTH (DEH) MAKES A DETERMINATION OF HOW TO PROCEED. CONTRACTOR SHALL IMMEDIATELY NOTIFY DEH OF THE DISCOVERY VIA THE PHONE NUMBER 720-460-1706.
7. ANY FILL MATERIAL OR SOILS TO BE MOVED TO AND PLACED ON CCD-OWNED PROPERTY OR PLACED ON REAL PROPERTY TO BE TRANSFERRED TO THE 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.
8. 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'S EXECUTIVE ORDER 115.



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Sheet Revisions		
Date:	Comments	Init.

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As Constructed	COLORADO BOULEVARD 2015 SHE	
No Revisions:	GENERAL NOTES	
Revised:	Designer: J. COLIP	Structure Numbers
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	Sheet Subset: ROADWAY	Subset Sheets: 2 of 4

Project Number	SHE M320-092
Sheet Number	20303
Sheet Number	4

**ENVIRONMENTAL (CONTINUED)**

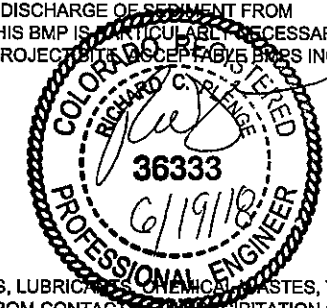
9. NOISE CONTROL. EXEMPTED HOURS FOR CONSTRUCTION IN THE CITY AND COUNTY OF DENVER ARE FROM 7 A.M. TO 9 P.M. MONDAY THROUGH FRIDAY AND 8 A.M. TO 5 P.M. ON SATURDAYS AND SUNDAYS PER SECTIONS 36-6.(B)(7) AND 36-7.(5)A., B. AND C. OF DENVER'S NOISE ORDINANCE, CHAPTER 36 NOISE CONTROL, DENVER REVISED MUNICIPAL 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 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, DEPARTMENT OF ENVIRONMENTAL HEALTH, DENVER COMMUNITY NOISE PROGRAM, (PHONE 720865-5410; FAX 720-865-5532) A MINIMUM OF THREE MONTHS PRIOR TO THE START OF THE PROJECT.
10. AN INITIAL SITE ASSESSMENT (ISA) FOR THE PROJECT HAS BEEN COMPLETED (SEE UPLOADED REDLINE\_DEH\_STUDENT (ISA RPT)). IT IS RECOMMENDED THAT THE ISA REPORT BE INCLUDED IN THE CONTRACT BID PACKAGE. AS DISCUSSED IN THE ISA REPORT THERE IS POTENTIAL TO ENCOUNTER HISTORICAL ASBESTOS TRANSITE PIPE, BUILDING DEBRIS CONTAINING ASBESTOS AND HISTORICAL FILL MATERIALS. ADDITIONALLY, THERE IS POTENTIAL TO ENCOUNTER SOILS WITH RESIDUAL PETROLEUM OR OTHER CONTAMINANTS THAT WOULD NEED APPROPRIATE MANAGEMENT AND DISPOSAL. GIVEN THIS SITUATION IT IS RECOMMENDED THAT A DRAFT MATERIAL MANAGEMENT PLAN (MMP) (OR A MATERIAL MANAGEMENT RECOMMENDATIONS REPORT), WHICH INCLUDES THE CCD ASBESTOS-CONTAMINATED SOIL MANAGEMENT STANDARD OPERATING PROCEDURE, BE PREPARED AND PROVIDED IN THE CONTRACT BID PACKAGE ALONG WITH A REQUIREMENT IN THE SPECIFICATIONS THAT THE CONTRACTOR IMPLEMENT THE MMP.


**EROSION CONTROL**

1. THE PERMITTEE MUST IMPLEMENT AND COMPLY WITH THE APPROVED CASDP AND ASSOCIATED DOCUMENTS FOR THIS PROJECT.
2. THE CONTRACTOR SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM DURING ALL DEMOLITION, EXCAVATION, TRENCHING, BORING, GRADING, OR OTHER CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO THE MUNICIPAL SEPARATE STORM SEWER SYSTEM, RECEIVING WATERS, WATERWAYS, WETLANDS, AND OR OTHER PUBLIC OR PRIVATE PROPERTIES, RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
3. THE PERMITTEE AND/OR CONTRACTOR SHALL REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO OR ACCUMULATE IN, THE FLOWLINES, STORM DRAINAGE APPURTENANCES, AND PUBLIC RIGHTS OF WAYS OF THE CITY AND COUNTY OF DENVER AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SAID REMOVAL SHALL BE CONDUCTED IN A TIMELY MANNER.
4. SOIL STABILIZATION MEASURES SHALL BE IMPLEMENTED WITHIN FOURTEEN (14) DAYS FOLLOWING COMPLETION OF GRADING ACTIVITIES. STABILIZATION OF DISTURBED AREAS ADJACENT TO RECEIVING WATERS OR WITH SLOPES 3 TO 1 OR GREATER SHALL BE COMPLETED WITHIN SEVEN (7) DAYS FOLLOWING COMPLETION OF GRADING ACTIVITIES. NOTE: FEDERAL AND STATE REGULATIONS MAY SOON REQUIRE STABILIZATION WITHIN SEVEN (7) DAYS OF COMPLETION OF GRADING ACTIVITIES. IN SUCH CASES, THE SHORTER TIMEFRAME SHALL APPLY TO PROJECTS WITHIN DENVER AS WELL.
5. THE DEVELOPER, GENERAL CONTRACTOR, GRADING CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL INSURE THAT ALL LOADS OF CUT AND FILL MATERIAL IMPORTED TO OR EXPORTED FROM THIS SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT ON PUBLIC RIGHTS OF WAY.
6. THE USE OF REBAR TO ANCHOR BEST MANAGEMENT PRACTICES IS PROHIBITED. STEEL FENCE POSTS MAY BE USED ON A CASE BY CASE BASIS AND REQUIRES APPROVAL FROM THE CITY AND COUNTY OF DENVER SWMP REVIEWER OR THE STORMWATER ENFORCEMENT INVESTIGATOR PRIOR TO INSTALLATION.
7. 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 SUCH SHALL BE REQUIRED.
8. APPROVED EROSION AND SEDIMENT CONTROL 'BEST MANAGEMENT PRACTICES' SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT. AT A MINIMUM, THE PERMITTEE OR CONTRACTOR SHALL PRODUCE AND RETAIN WEEKLY WRITTEN INSPECTION RECORDS FOR ALL BMPs AND AFTER SIGNIFICANT PRECIPITATION EVENTS. ALL NECESSARY MAINTENANCE AND REPAIR SHALL BE COMPLETED IMMEDIATELY. ADDITIONALLY, STREET SWEEPING IS TO BE COMPLETED BY THE CLOSE OF THE BUSINESS DAY OR (AND) ON AN AS NEEDED BASIS THROUGHOUT THE DAY.
9. WATER USED IN THE CLEANING OF CEMENT TRUCK DELIVERY CHUTES SHALL BE DISCHARGED INTO A PREDEFINED, CONCRETE WASHOUT AREA ON THE JOB SITE. BERMED CONTAINMENT OR COMMERCIALY AVAILABLE CONCRETE WASHOUT DEVICES THAT FULLY CONTAIN ALL WASH WATER ARE ACCEPTABLE. WASH WATER DISCHARGED INTO THE CONTAINMENT AREA OR DEVICE SHALL BE ALLOWED TO INFILTRATE, EVAPORATE, AND OR BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS. DRIED CEMENT WASTE IS TO BE REMOVED FROM THE CONTAINMENT AREA AND PROPERLY DISPOSED. SHOULD THE USE OF A PREDEFINED BERMED CONTAINMENT AREA OR APPROVED WASHOUT DEVICE BE TECHNICALLY INFEASIBLE DUE TO THE PROJECT SIZE, OR LACK OF AN AREA WITH A SUITABLE GROUND SURFACE FOR ESTABLISHING CONTAINMENT, PROPER DISPOSAL OF CONCRETE WASHOUT AND WASH WATER AT THE JOB SITE SHALL CONFORM TO THE APPROVED TECHNIQUES AND PRACTICES IDENTIFIED IN THE COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT'S TRAINING VIDEO ENTITLED 'BUILDING FOR A CLEANER ENVIRONMENT, READY MIX WASHOUT TRAINING' AND ITS ACCOMPANYING MANUAL ENTITLED, 'READY MIX WASHOUT GUIDEBOOK, VEHICLE AND EQUIPMENT WASHOUT AT CONSTRUCTION SITES.' THE DIRECT OR INDIRECT DISCHARGE OF WATER CONTAINING WASTE CEMENT TO THE STORM SEWER SYSTEM IS PROHIBITED. (SEC.56-102A, C; REVISED MUNICIPAL CODE, CITY AND COUNTY OF DENVER).

**EROSION CONTROL (CONTINUED)**

10. 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)
11. PAVED AND IMPERVIOUS SURFACES WHICH ARE ADJACENT TO CONSTRUCTION SITES MUST BE SWEEPED ON A DAILY BASIS AND AS NEEDED DURING THE DAY WHEN SEDIMENT AND OTHER MATERIALS ARE TRACKED OR DISCHARGED ONTO 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.
12. THE PERMITTEE SHALL ENSURE THAT ALL POTENTIAL POLLUTANTS GENERATED DURING DEMOLITION OR CONSTRUCTION WORK ASSOCIATED WITH THIS PERMIT, BE PREVENTED FROM DISCHARGE TO STORMWATER CONVEYANCE SYSTEMS IN THE VICINITY OF THIS PROJECT SITE.
13. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM DURING ALL DEMOLITION, EXCAVATION, TRENCHING, BORING, GRADING, OR OTHER CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO THE MUNICIPAL SEPARATE STORM SEWER SYSTEM, RECEIVING WATERS, WATERWAYS, WETLANDS, AND OR OTHER PUBLIC OR PRIVATE PROPERTIES, RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
14. THE OWNER, SITE DEVELOPER, 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 FLOWLINES, STORM DRAINAGE APPURTENANCES, AND PUBLIC RIGHTS OF WAYS OF THE CITY AND COUNTY OF DENVER AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PERMIT. ALL REMOVALS SHALL BE CONDUCTED IN A TIMELY MANNER.
15. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL INSURE THAT ALL LOADS OF CUT AND FILL MATERIAL IMPORTED TO OR EXPORTED FROM THIS SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT ON PUBLIC RIGHTS OF WAY. (SEC.49-552;REVISED MUNICIPAL CODE).
16. THE USE OF REBAR TO ANCHOR BEST MANAGEMENT PRACTICES IS PROHIBITED. STEEL FENCE POSTS MAY BE USED ON A CASE BY CASE BASIS AND REQUIRES APPROVAL FROM THE CITY AND COUNTY OF DENVER SWMP REVIEWER OR THE STORMWATER ENFORCEMENT INVESTIGATOR PRIOR TO INSTALLATION.
17. THE PERMITTEE SHALL IMPLEMENT THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPs) ON SITE DURING CONSTRUCTION:
  - A. VEHICLE TRACKING CONTROL: THIS BMP IS REQUIRED AT ALL ACCESS POINTS FOR INGRESS/EGRSS FROM OFF-SITE IMPERVIOUS SURFACES TO A CONSTRUCTION SITE THAT ARE USED BY VEHICULAR TRAFFIC OR CONSTRUCTION EQUIPMENT.
  - B. 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.
  - C. 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. 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)
  - D. 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.
  - E. 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.
  - F. 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 IS REMOVED FROM THE CONTAINMENT AREA AND PROPERLY DISPOSED OF.



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Sheet Revisions		
Date:	Comments	Init.



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As Constructed	COLORADO BOULEVARD 2015 SHE GENERAL NOTES		Project Number
No Revisions:	Designer: J. COLIP	Structure Numbers	SHE M320-092
Revised:	Detailer: J. COLIP		20303
Void:	Sheet Subset: ROADWAY	Subset Sheets: 3 of 4	Sheet Number 5

**EROSION CONTROL (CONTINUED)**

- G. SHOULD A PREDEFINED BERMED CONTAINMENT AREA NOT BE AVAILABLE DUE TO THE PROJECT SIZE, OR LACK OF AN AREA WITH A SUITABLE GROUND SURFACE FOR ESTABLISHING A CONTAINMENT AREA, PROPER DISPOSAL OF READY MIX WASHOUT AND RINSE OFF WATER AT THE JOB SITE SHALL CONFORM TO THE APPROVED TECHNIQUES AND PRACTICES IDENTIFIED IN THE COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT'S TRAINING VIDEO ENTITLED "BUILDING FOR A CLEANER ENVIRONMENT, READY MIX WASHOUT TRAINING", AND ITS ACCOMPANYING MANUAL ENTITLED, "READY MIX WASHOUT GUIDEBOOK, VEHICLE AND EQUIPMENT WASHOUT AT CONSTRUCTION SITES."
- H. THE DIRECT OR INDIRECT DISCHARGE OF WATER CONTAINING WASTE CEMENT TO THE STORM SEWER SYSTEM IS PROHIBITED (SEC.56-102A, C; REVISED MUNICIPAL CODE, CITY AND COUNTY OF DENVER).
- I. INFORMATION ABOUT, OR COPIES OF THE VIDEO AND TRAINING MANUAL ARE AVAILABLE FROM THE WATER QUALITY CONTROL DIVISION, COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT, 4300 CHERRY CREEK DRIVE SOUTH, DENVER, COLORADO 80222-1530, (303) 692-3555.
- J. STREET SWEEPING: THIS BMP REQUIRES THAT PAVED SURFACES WHICH ARE ADJACENT TO CONSTRUCTION SITES BE SWEEPED IN A TIMELY MANNER 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.
- K. 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.
- L. 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.
- M. 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)
- N. STRUCTURAL CONTROLS: DEVELOPMENT SITES THAT ARE REQUIRED TO PROVIDE DETENTION AND WATER QUALITY ENHANCEMENT FACILITIES FOR STORM RUNOFF NEED TO INSTALL THE DETENTION FACILITIES EARLY IN THE CONSTRUCTION BUILD-OUT OF THE SITE. PROJECTS THAT ARE USING UNDERGROUND DETENTION ARE REQUIRED TO INSTALL A PRETREATMENT STRUCTURE OR SEDIMENTATION BASINS AS A MEANS OF TREATING POTENTIALLY POLLUTED STORM WATER PRIOR TO ENTERING THE DETENTION STRUCTURE. USE OF THESE STRUCTURES IS REQUIRED FOR ENTRAPPING SEDIMENT AND CONSTRUCTION DEBRIS DURING THE ACTIVE CONSTRUCTION PHASE OF THE PROJECT. THE NARRATIVE SECTION OF THE MANAGEMENT PLAN IS ALSO REQUIRED TO ADDRESS OPERATION AND MAINTENANCE OF THE STRUCTURAL CONTROLS BEING USED AS AN ACTIVE CONSTRUCTION BMP

**UTILITIES (CONTINUED)**

- 6. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITIES AT LEAST TWO (2) BUSINESS DAYS, NOT INCLUDING THE ACTUAL DAY OF NOTICE, PRIOR TO COMMENCING SUCH OPERATIONS. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 811 TO HAVE LOCATIONS OF UNCC REGISTERED LINES MARKED BY MEMBERS COMPANIES. ALL OTHER UNDERGROUND FACILITIES SHALL BE LOCATED BY CONTACTING THE RESPECTIVE OWNER. UTILITY SERVICE LATERALS SHALL ALSO BE LOCATED TO BEGINNING EXCAVATION OR GRADING.
- 7. IT IS ESTIMATED THAT 88 POTHOLES WILL BE REQUIRED ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND COORDINATING WITH THE APPROPRIATE UTILITY REPRESENTATIVES TO BE ONSITE DURING POTHOLING AND SHALL LIKEWISE BE RESPONSIBLE FOR DETERMINING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAYBE BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL REFER TO THE UTILITY SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

**UTILITIES**

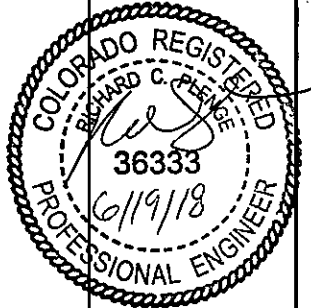
- 1. THE TYPE, SIZE, LOCATION AND NUMBER OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THE DRAWINGS, UNLESS OTHERWISE NOTED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF THE WORK BEFORE COMMENCING NEW CONSTRUCTION. RESPONSIBILITIES FOR THE RELOCATION OF UTILITY LINES ARE AS NOTED IN THE PROJECT SPECIAL PROVISIONS. THE CONTRACTOR SHALL COOPERATE WITH COMPANIES TRYING TO COORDINATE THE RELOCATION EFFORT. LINES NOT RELOCATED SHALL BE PROTECTED BY THE CONTRACTOR IN PLACE. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-800-922-1987, AT LEAST 2 WORKING DAYS PRIOR TO BEGINNING EXCAVATION OR GRADING.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITIES DURING CONSTRUCTION AND SHALL HOLD THE CITY AND ITS ENGINEERS HARMLESS FOR DAMAGES ARISING FROM THE CONTRACTOR'S FAILURE TO ADEQUATELY PROTECT EXISTING UTILITIES. DAMAGED UTILITIES SHALL BE REPAIRED BY AND AT THE EXPENSE OF THE CONTRACTOR.
- 3. THE CONTRACTOR IS REQUIRED TO RESET, ADJUST OR REPLACE ANY UTILITIES THAT ARE IMPACTED BY CONSTRUCTION AND ARE DESIGNED TO REMAIN WITHIN THE PROJECT LIMITS.
- 4. LOCATIONS FOR POTHOLING SHALL BE AS APPROVED BY THE PROJECT MANAGER.
- 5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SUBSECTION SECTION 105.11 OF THE STANDARD SPECIFICATIONS AND THE UTILITY PROJECT SPECIAL PROVISIONS CONCERNING UTILITIES. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE UTILITY OWNERS IN THEIR REMOVAL, ADJUSTMENT, AND OR RELOCATION OPERATIONS SO THAT UTILITY WORK CAN BE ACCOMPLISHED WITHOUT IMPACTING THE CONSTRUCTION SCHEDULE. THE CONTRACTOR SHALL COMPLY WITH ARTICLE 1.5 OF TITLE 9, CRS ("EXCAVATION REQUIREMENTS") WHEN EXCAVATING OR GRADING IS PLANNED IN THE AREA OF UNDERGROUNDING UTILITIES.



Print Date: July 7, 2017	Sheet Revisions			<p>DEPARTMENT OF PUBLIC WORKS 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544</p> <p><b>DENVER</b> THE MILE HIGH CITY</p>	As Constructed	COLORADO BOULEVARD 2015 SHE		Project Number
File Name: 20303 GN PL 01.DWG	Date:	Comments	Init.		No Revisions:	GENERAL NOTES		SHE M320-092
Horiz. Scale:					Revised:	Designer: J. COLIP	Structure Numbers	20303
City Project Manager: John Yu					Void:	Detailer: J. COLIP		Sheet Number
<p>1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139</p>					Sheet Subset: ROADWAY	Subset Sheets: 4 of 4	6	



ITEM NO.	ITEM DESCRIPTION	UNITS	MEXICO AVENUE		IOWA AVENUE		FLORIDA AVENUE		OHIO AVENUE		VIRGINIA AVENUE		PROJECT TOTALS	
			PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.
201-00000	CLEARING AND GRUBBING	LS												1
202-00195	REMOVAL OF MEDIAN COVER	SY	37								32			69
202-00200	REMOVAL OF SIDEWALK	SY	226		138		198		104		34			701
202-00203	REMOVAL OF CURB AND GUTTER	LF	518		250		305		177		204			1,454
202-00206	REMOVAL OF CONCRETE CURB RAMP	SY	62		50		35		24		34			205
202-00210	REMOVAL OF CONCRETE PAVEMENT	SY			87									87
202-00220	REMOVAL OF ASPHALT MAT	SY	285		32		249		15		113			694
202-00250	REMOVAL OF PAVEMENT MARKING	SF	1,912		1,480		1,518		1,556					6,466
202-00828	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS	0.2		0.2		0.2		0.2		0.2			1
202-04005	CLEAN VALVE BOX	EACH			1									1
203-00050	UNSUITABLE MATERIALS	CY					25							25
203-01597	POTHOLING	EACH	20		20		20		16		12			88
203-01620	SWEEPING	HOUR	20		20		20		20		12			92
208-00008	EROSION LOG (9 INCH)	LF	220		100		100		50		100			570
208-00035	AGGREGATE BAG	LF	100		100		100		70		30			400
208-00045	CONCRETE WASHOUT STRUCTURE	EACH	1		1		1		1		1			5
208-00050	STORM DRAIN INLET PROTECTION	EACH	6		4		3		2		1			16
208-00070	VEHICLE TRACKING PAD	EACH									1			1
208-00103	REMOVAL AND DISPOSAL OF SEDIMENT (LABOR)	HOUR	20		20		20		20		10			90
208-00105	REMOVAL AND DISPOSAL OF SEDIMENT (EQUIPMENT)	HOUR	20		20		20		20		10			90
208-00106	SWEEPING (SEDIMENT REMOVAL)	HOUR	20		20		20		20		10			90
208-00107	REMOVAL OF TRASH	HOUR	20		20		20		20		10			90
208-00206	EROSION CONTROL SUPERVISOR	DAY	5		5		5		5		5			25
210	RESET RADIO COMMUNICATION ANTENNA (YAGI AND OMNI)	EACH	1		1		1							3
210	RESET MICROWAVE VEHICLE RADAR DETECTOR (MVRD)	EACH					1							1
210-04010	ADJUST MANHOLE	EACH					3							3
210-04020	MODIFY INLET	EACH					1							1
210-04050	ADJUST VALVE BOX	EACH			1									1
211-03005	DEWATERING	EACH									2			2
212-00050	SOD	SF	646								46			692



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**DENVER**  
THE MILE HIGH CITY

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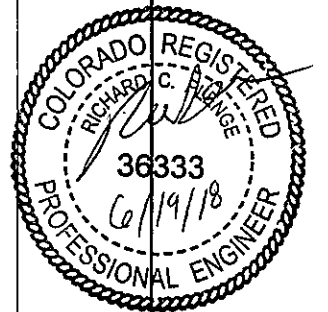
As Constructed  
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Revised:  
Void:

COLORADO BOULEVARD 2015 SHE  
SUMMARY OF APPROXIMATE  
QUANTITIES

Designer: J. COLIP  
Detailer: J. COLIP  
Structure Numbers  
Sheet Subset: ROADWAY  
Subset Sheets: 1 of 4

Project Number  
SHE M320-092  
20303  
Sheet Number  
7

ITEM NO.	ITEM DESCRIPTION	UNITS	MEXICO AVENUE		IOWA AVENUE		FLORIDA AVENUE		OHIO AVENUE		VIRGINIA AVENUE		PROJECT TOTALS	
			PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.
212-00100	TREE RETENTION AND PROTECTION	EACH	1						1		1		3	
213-00067	ROCK MULCH (WEED FREE)	SF	20		60		80		25				185	
304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	57		34		72		4		32		200	
403-00720	HOT MIX ASPHALT (PATCHING) (ASPHALT)	TON	15		16		56		7		6		100	
403-34851	HOT MIX ASPHALT (GRADING SX) (100) (PG 64-28)	TON	79				65				48		192	
412-00800	CONCRETE PAVEMENT (8 INCH)	SY			81		65						147	
503-00036	DRILLED CAISSON (36 INCH)	LF	6		5		5		11		6		34	
503	DRILLED CAISSON (36 INCH)(VACUUM)	LF	25		21		21		43		25		134	
503-00048	DRILLED CAISSON (48 INCH)	LF	7		7		7		3		7		31	
503	DRILLED CAISSON (48 INCH)(VACUUM)	LF	27		27		27		14		27		122	
607-11525	FENCE (PLASTIC)	LF	50		50		50		50		50		250	
608-00000	CONCRETE SIDEWALK	SY	269		112		130		60		44		615	
608-00010	CONCRETE CURB RAMP	SY	92		102		97		80		30		402	
609-20010	CURB TYPE 2 (SECTION B)	LF	32		93		37						162	
609-21010	CURB AND GUTTER TYPE 2 (SECTION I-B)	LF	83								100		183	
609-21020	CURB AND GUTTER TYPE 2 (SECTION II-B)	LF	386		203		315		164		82		1,150	
610-00030	MEDIAN COVER MATERIAL (CONCRETE)	SF	284		191		215		109		248		1,047	
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	LF	375		306		297		298		347		1,623	
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	LF	870		612		644		646		744		3,516	
613-07000	PULL BOX (SPECIAL)	EACH	2		1		1		1		1		6	
613-10000	WIRING	L S	0.2		0.2		0.2		0.2		0.2		1	
613-13040	LUMINAIRE LED 5300 LUMENS	EACH	4		4		4		4		4		20	
613	ELECTRIC METER PEDESTAL CABINET AND BASE	EACH	1		1		1		1		1		5	
614-00011	SIGN PANEL (CLASS I)	SF	88.75		71.00		71.00		78.50		88.50		397.75	
614-00035	SIGN PANEL (SPECIAL)	SF	70.67		61.67		48.89		61.67		72.36		315.25	
614-00216	STEEL SIGN POST (2X2 INCH TUBING)	LF	34.5		23		23		23		69		172.5	
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	8		8		8		8		8		40	
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	EACH	21		17		18		16		13		85	
614-70448	TRAFFIC SIGNAL FACE (12-12-12-12)	EACH	5		4		4		5		10		28	
614-72860	PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN	EACH	8		8		8		8		8		40	



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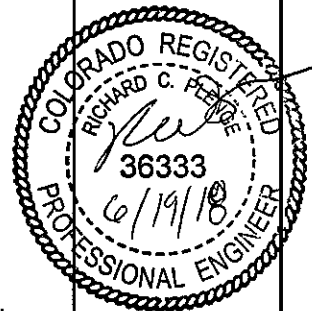
As Constructed  
No Revisions:  
Revised:  
Void:

**COLORADO BOULEVARD 2015 SHE**  
**SUMMARY OF APPROXIMATE**  
**QUANTITIES**

Designer: J. COLIP  
Detailer: J. COLIP  
Structure Numbers  
Sheet Subset: ROADWAY  
Subset Sheets: 2 of 4

Project Number  
SHE M320-092  
20303  
Sheet Number **8**

ITEM NO.	ITEM DESCRIPTION	UNITS	MEXICO AVENUE		IOWA AVENUE		FLORIDA AVENUE		OHIO AVENUE		VIRGINIA AVENUE		PROJECT TOTALS	
			PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.
614-72863	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EACH	4		5		5		2		2		18	
614	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM	EACH	1		1		1		1		1		5	
614	INTERSECTION DETECTION SYSTEM (FLIR)(CAMERA)	EACH	4		4		4		4		4		20	
614-75848	TRAFFIC SIGNAL CONTROLLER AND CABINET	EACH	1		1		1		1		1		5	
614-81120	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-20 FOOT MAST ARM)	EACH			1						1		2	
614-81135	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-35 FOOT MAST ARM)	EACH	1				2						3	
614-81140	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	EACH			1								1	
614-81145	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM)	EACH									1		1	
614-81150	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-50 FOOT MAST ARM)	EACH							2				2	
614-81155	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST ARM)	EACH	1						1				2	
614-81160	TRAFFIC SIGNAL LIGHT POLE STEEL (1-60 FOOT MAST ARM)	EACH			1				1				2	
614-81165	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-65 FOOT MAST ARM)	EACH					2				1		3	
614-81170	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-70 FOOT MAST ARM)	EACH	2		1						1		4	
614-86105	TELEMETRY (FIELD)	EACH	1		1		1		1		1		5	
614	FIBER OPTIC CABLE (SINGLE MODE) (6 STRAND)	LF	130										130	
614	FIBER OPTIC CABLE(MULTI MODE)(6 SINGLEMODE/42 MULTIMODE STRAND)	LF	840										840	
614	FIBER OPTIC CABLE TERMINATION PANEL (6 STRAND)	EACH	1										1	
614-87333	CLOSED CIRCUIT TELEVISION CAMERA (TRAFFIC SURVEILLANCE)	EACH	1		1		1		1		1		5	
625-00000	CONSTRUCTION SURVEYING	L S											1	
626-00000	MOBILIZATION	L S											1	
627-00005	EPOXY PAVEMENT MARKING	GAL	2.5		1.0		1.3		2.3		0.8		7.9	
627-30405	PREFORMED THERMOPLASTIC PAVEMENT MARKING (WORD-SYMBOL)	SF	38						192				230	
627-30410	PREFORMED THERMOPLASTIC PAVEMENT MARKING (XWALK-STOP LINE)	SF	1,752		1,348		1,376		1,098		60		5,634	
629-01001	SURVEY MONUMENT (TYPE 1)	EACH			11		21		22		2		56	
630-00000	FLAGGING	HOUR											950	
630-00003	UNIFORMED TRAFFIC CONTROL	HOUR											80	
630-00007	TRAFFIC CONTROL INSPECTION	DAY											40	
630-00012	TRAFFIC CONTROL MANAGEMENT	DAY											120	
630-80335	BARRICADE (TYPE 3 M-A) (TEMPORARY)	EACH											4	
630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EACH											20	



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Sheet Revisions		
Date:	Comments	Init.

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**DEPARTMENT OF PUBLIC WORKS**  
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As Constructed  
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Void:

**COLORADO BOULEVARD 2015 SHE**  
**SUMMARY OF APPROXIMATE**  
**QUANTITIES**

Designer: J. COLIP  
Detailer: J. COLIP  
Structure Numbers  
Sheet Subset: ROADWAY  
Subset Sheets: 3 of 4

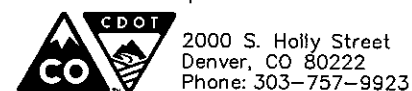
Project Number  
SHE M320-092  
20303  
Sheet Number **9**

ITEM NO.	ITEM DESCRIPTION	UNITS	MEXICO AVENUE		IOWA AVENUE		FLORIDA AVENUE		OHIO AVENUE		VIRGINIA AVENUE		PROJECT TOTALS	
			PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.	PLAN	AS. CONST.
630-80342	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EACH											24	
630-80344	CONSTRUCTION TRAFFIC SIGN (SPECIAL)	SF											72	
630-80350	VERTICAL PANEL	EACH											150	
630-80355	PORTABLE MESSAGE SIGN PANEL	EACH											2	
630-80358	ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL (C TYPE)	EACH											4	
630-80363	DRUM CHANNELIZING DEVICE (WITH LIGHT) (FLASHING)	EACH											20	
630-80380	TRAFFIC CONE	EACH											200	
700-70010	F/A MINOR CONTRACT REVISIONS	F A											1	
700-70021	F/A ON-THE-JOB TRAINEE	F A											1	
700-70034	F/A ENVIRONMENTAL	F A											1	
700-70082	F/A FURNISH & INSTALL ELECTRICAL SERVICE	F A											1	
700-70380	F/A EROSION CONTROL	F A											1	



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File Name: 20303 SQ PL.DWG		Date:	Comments	Init.			No Revisions:	SUMMARY OF APPROXIMATE QUANTITIES			SHE M320-092	
Horiz. Scale: ##### Vertical Exag:							Revised:	Designer: J. COLIP	Structure Numbers			20303
City Project Manager: John Yu							Void:	Detailer: J. COLIP	Sheet Subset: ROADWAY		Subset Sheets: 4 of 4	Sheet Number 10

1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
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Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



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Right of Way Plans

Title Sheet

Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code: 20303	Last Mod. Date: 04.13.17	Subset: 1.01 to 1.01	Sheet No.: 1.01

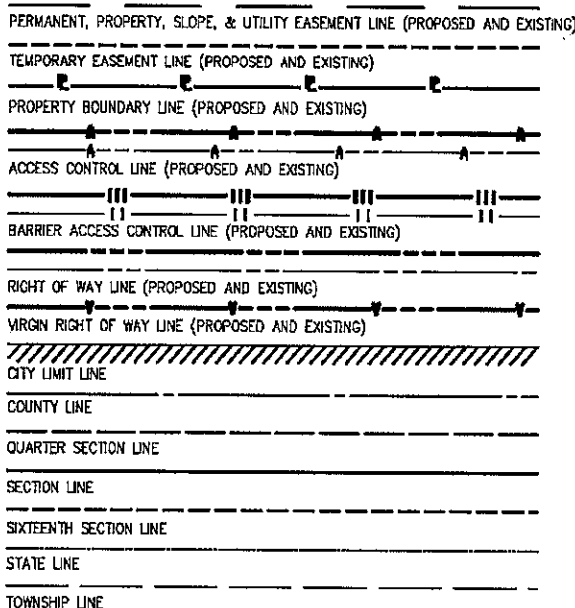
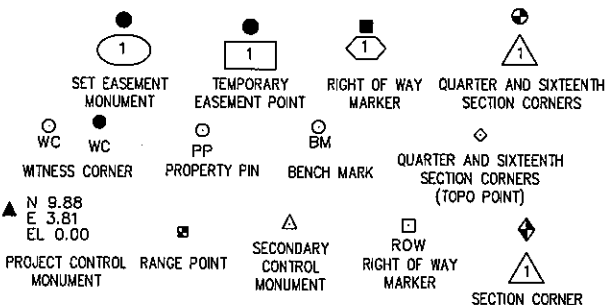
# DEPARTMENT OF TRANSPORTATION

## STATE OF COLORADO

### RIGHT OF WAY PLANS OF PROPOSED STATE HIGHWAY NO. 2

SHEET NO.	INDEX OF SHEETS
1.01	(1) Title Sheet
2.01	(1) Tabulation of Properties
3.01-3.0x	(NA) Project Control Diagram
4.01-4.13	(13) Land Survey Project Control Diagram
5.01-5.02	(2) Monumentation Sheets
6.01-6.0x	(NA) Tabulation of Road Approach Sheets
7.01-7.07	(7) Plan Sheets
8.01-8.05	(5) Ownership Map

(29) Total Sheets  
Scales of Original 11"x17" Drawings  
Control Sheets 1"=20' through 1"=300'  
Plan Sheets 1"=20' through 1"=30'  
Ownership Maps 1"=20' through 1"=30'

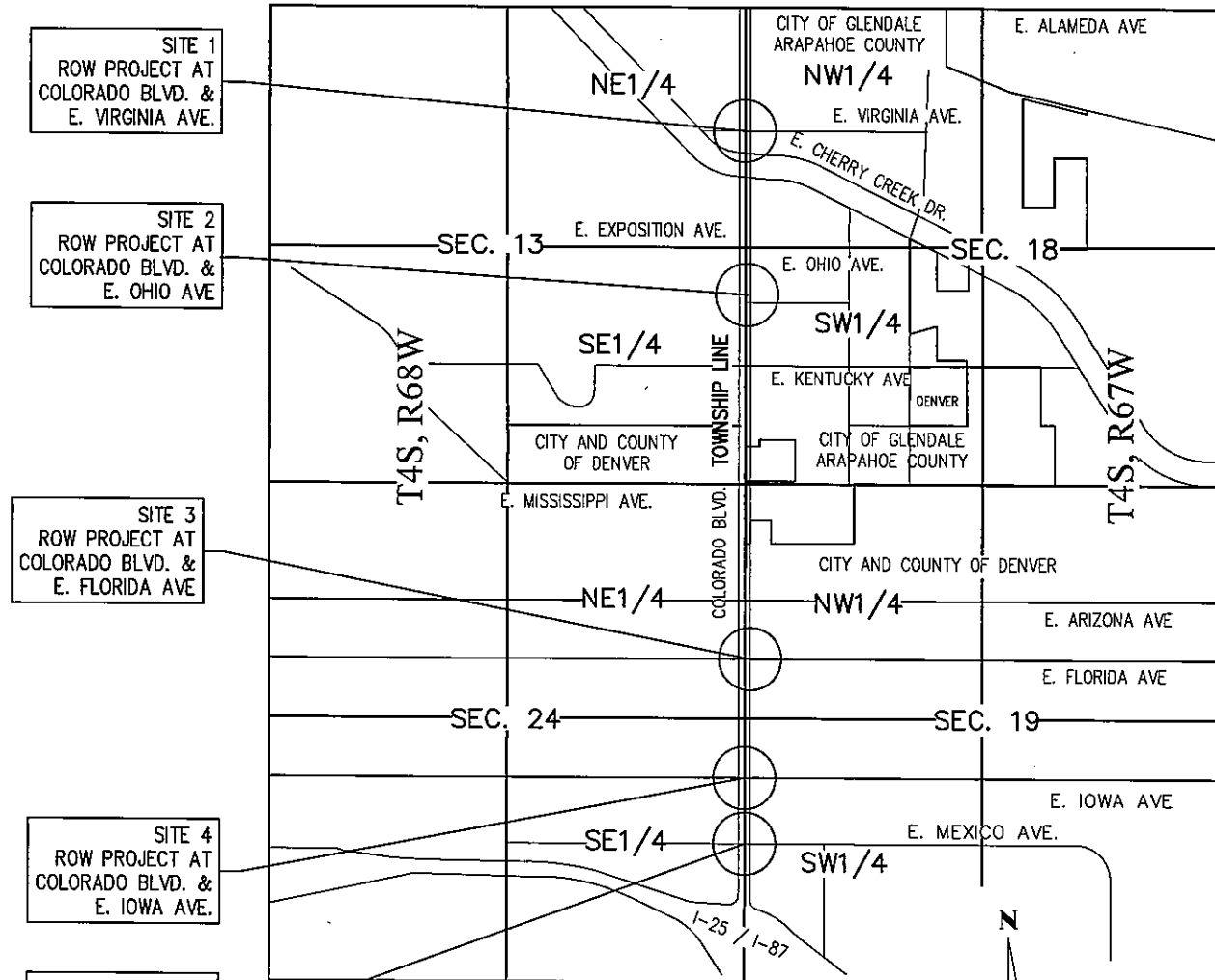


SURVEY/ROW

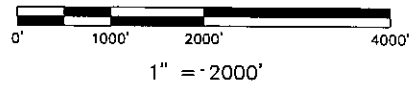
TOP OF CUT

TOE OF FILL

TERRAIN



PROJECT LOCATION MAP



**BASIS OF BEARINGS:**  
BEARINGS ARE BASED ON WEST LINE OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 19, TOWNSHIP 4 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, AS MONUMENTED AT THE NORTH END BY A 3-1/4" ALUMINUM CAP STAMPED "LS 35585" IN RANGE BOX, AND AT THE SOUTH END BY A 2-1/2" ALUMINUM CAP "LS 2352" IN RANGE BOX. SAID LINE BEARS N00°23'14"W AS OBTAINED FROM A GLOBAL POSITIONING SYSTEM (GPS) SURVEY BASED ON NAD 1983 (1992), COLORADO STATE PLANE (CENTRAL ZONE 502), AS MONUMENTED AND SHOWN HEREON.

**BASIS OF ELEVATIONS:**  
VERTICAL CONTROL FOR THIS PROJECT WAS ESTABLISHED BY DIFFERENTIAL LEVELING FROM CONTROL POINT 206C, A CITY AND COUNTY OF DENVER BENCHMARK. THE PUBLISHED NAVD88 ORTHOMETRIC HEIGHT (ELEVATION) IS 5397.97 FT.

**SITE COORDINATE DATUMS:**  
SITE COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE 502 NAD '83/(92) COORDINATES. ALL COORDINATES AND DISTANCES ARE US SURVEY FOOT. THE SITE COORDINATES HAVE BEEN SCALED TO LOCAL GROUND ELEVATION FROM THE SITE ORIGIN POINT. THE COMBINED ELEVATION/SCALE FACTOR, OR SITE SCALE FACTOR, USED TO MODIFY THE COORDINATES FROM STATE PLANE TO SITE COORDINATES IS SITE SPECIFIC. SEE SHEETS 4.01 - 4.13 FOR SITE COORDINATE DATUM EQUATIONS.

1. THIS RIGHT-OF-WAY PLAN IS NOT A BOUNDARY SURVEY OF THE ADJOINING PROPERTY AND IS PREPARED FOR THE COLORADO DEPARTMENT OF TRANSPORTATION PURPOSES ONLY.
2. THIS PLAN DOES NOT REPRESENT A TITLE SEARCH BY THE CITY OF AURORA OR HCL ENGINEERING & SURVEYING, LLC TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD.
3. THIS PLAN SET IS SUBJECT TO CHANGE AND MAY NOT BE THE MOST CURRENT SET. IT IS THE USER'S RESPONSIBILITY TO VERIFY WITH CDOT THAT THIS SET IS THE MOST CURRENT. THE INFORMATION CONTAINED ON THE ATTACHED DRAWING IS NOT VALID UNLESS THIS COPY BEARS AN ORIGINAL SIGNATURE OF THE PROFESSIONAL LAND SURVEYOR HEREON NAMED.

**NOTICE:** ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY 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.

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

AUTHORIZED: \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_\_  
CHIEF Engineer

SURVEYOR STATEMENT (ROW PLAN)

I, Paul W. Smith, a professional land surveyor licensed in the State of Colorado, do hereby state to the Colorado Department of Transportation that based upon my knowledge, information and belief, research calculations and evaluation of the survey evidence were performed and this Right-of-Way Plan was prepared under my responsible charge in accordance with applicable standards of practice defined by Colorado Department of Transportation publications. This statement is not a guaranty or warranty, either expressed or implied.

PLS No. 29430

4.13.2017 n:\2015 jobs\152004 colo blvd faster 2015 topo-row.dwg 152004 colo blvd faster 2015 topo-row.dwg - standard\CDOT ROW PLAN.dwg Updated By: shalley

Colorado Department of Transportation



2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

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THE MILE HIGH CITY



Engineering & Surveying, LLC  
5800 SOUTH QUEBEC ST. STE 2056  
GREENWOODVILLE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Right-of-Way Plans

Tabulation Of Properties

Project Number: SHE M320-092
Project Location: COLORADO BOULEVARD - FASTER 2015
CITY OF DENVER PROJECT NO. 2015-CIP-0000094
Project Code: Last Mod. Date Subset Sheet No.
20303 04.13.17 2.01 to 2.01 2.01

R.O.W. TABULATION OF PROPERTIES IN DENVER COUNTY - COLORADO BOULEVARD S.H. 2

PARCEL NO.	OWNERSHIP NAME AND MAILING ADDRESS	SITE ADDRESS	LOCATION	AREA IN SQUARE FEET (ACRES)					BOOK AND PAGE NO. AND/OR RECEPTION NO.	TITLE COMMITMENT NO.	REMARKS
				AREA OF PARCEL	EXISTING ROW	NET AREA	REMAINDER LEFT	REMAINDER RIGHT			
PE-1	CF & I, LLC 1499 BLAKE ST, ID DENVER, CO 80202-1356	1547 S COLORADO BLVD DENVER, CO 80222	SE 1/4 SEC. 24 T.4S., R.68W., 6TH P.M.	449 SQ. FT. (0.010 AC.)		155,797 SQ. FT. (3.577 AC.)			REC. NO. 201605577	677748	THE PURPOSE OF PE-1 IS TO PROVIDE A PERMANENT EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SIDEWALK, TRAFFIC SIGNAL, AND UTILITY IMPROVEMENTS ALONG COLORADO BOULEVARD.
PE-2	REGENCY CENTERS L P PO BOX 790830 SAN ANTONIO, TX 78279-0830	1629 S COLORADO BLVD DENVER, CO 80222	SE 1/4 SEC. 24 T.4S., R.68W., 6TH P.M.	160 SQ. FT. (0.004 AC.)		15,171 SQ. FT. (0.348 AC.)			REC. NO. 19990057275	677757	THE PURPOSE OF PE-2 IS TO PROVIDE A PERMANENT EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SIDEWALK, TRAFFIC SIGNAL, AND UTILITY IMPROVEMENTS ALONG COLORADO BOULEVARD.
PE-3	DILLON REAL ESTATE CO INC 1014 VINE ST CINCINNATI, OH 45202-1141	1495 S COLORADO BLVD DENVER, CO 80222	NE 1/4 SEC. 24 T.4S., R.68W., 6TH P.M.	228 SQ. FT. (0.005 AC.)		14,584 SQ. FT. (0.335 AC.)			REC. NO. 2009162022	677769	THE PURPOSE OF PE-3 IS TO PROVIDE A PERMANENT EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SIDEWALK, TRAFFIC SIGNAL, AND UTILITY IMPROVEMENTS ALONG COLORADO BOULEVARD.
TE-3	DILLON REAL ESTATE CO INC 1014 VINE ST CINCINNATI, OH 45202-1141	1495 S COLORADO BLVD DENVER, CO 80222	NE 1/4 SEC. 24 T.4S., R.68W., 6TH P.M.	378 SQ. FT. (0.009 AC.)		14,434 SQ. FT. (0.331 AC.)			REC. NO. 2009162022	677769	THE PURPOSE OF TE-3 IS TO PROVIDE A TEMPORARY EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SIDEWALK, TRAFFIC SIGNAL, AND UTILITY IMPROVEMENTS ALONG COLORADO BOULEVARD.
PE-4	DIKEOU, JOHN TRUST & DIKEOU, DEVON ANNE TRUST 1615 CALIFORNIA ST., SUITE 707 DENVER, CO 80202-3706	1502 S COLORADO BLVD DENVER, CO 80222	SW 1/4 SEC. 19 T.4S., R.67W., 6TH P.M.	56 SQ. FT. (0.001 AC.)		23,563 SQ. FT. (0.541 AC.)			REC. NO. 1989031015		THE PURPOSE OF PE-4 IS TO PROVIDE A PERMANENT EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SIDEWALK, TRAFFIC SIGNAL, AND UTILITY IMPROVEMENTS ALONG COLORADO BOULEVARD.
PE-5	KP PROPERTIES OF COLORADO LLC 11300 LONGWATER CHASE CT FORT MYERS, FL 33908-4923	1505 S COLORADO BLVD DENVER, CO 80222	SE 1/4 SEC. 24 T.4S., R.68W., 6TH P.M.	45 SQ. FT. (0.001 AC.)		172,164 SQ. FT. (3.952 AC.)			REC. NO. 2009038347	677770	THE PURPOSE OF PE-5 IS TO PROVIDE A PERMANENT EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SIDEWALK, TRAFFIC SIGNAL, AND UTILITY IMPROVEMENTS ALONG COLORADO BOULEVARD.
PE-6	SHAWNEE INVESTMENT PARTNERSHIP 1470 S COLORADO BLVD DENVER, CO 80202	1470 S COLORADO BLVD DENVER, CO 80202	SW 1/4 SEC. 18 T.4S., R.67W., 6TH P.M.	208 SQ. FT. (0.005 AC.)		68,824 SQ. FT. (1.581 AC.)			REC. NO. 19990057275	677772	THE PURPOSE OF PE-6 IS TO PROVIDE A PERMANENT EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SIDEWALK, TRAFFIC SIGNAL, AND UTILITY IMPROVEMENTS ALONG COLORADO BOULEVARD.
PE-7	KMC-O PROPERTY LLC 5711 S NEVADA ST LITTLETON, CO 80120-1916	760 S COLORADO BLVD DENVER, CO 80246	SW 1/4 SEC. 18 T.4S., R.67W., 6TH P.M.	41 SQ. FT. (0.001 AC.)		164,613 SQ. FT. (3.779 AC.)			REC. NO. B5034673	677781	THE PURPOSE OF PE-7 IS TO PROVIDE A PERMANENT EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SIDEWALK, TRAFFIC SIGNAL, AND UTILITY IMPROVEMENTS ALONG COLORADO BOULEVARD.
PE-7A	KMC-O PROPERTY LLC 5711 S NEVADA ST LITTLETON, CO 80120-1916	760 S COLORADO BLVD DENVER, CO 80246	SW 1/4 SEC. 18 T.4S., R.67W., 6TH P.M.	38 SQ. FT. (0.001 AC.)		164,616 SQ. FT. (3.779 AC.)			REC. NO. B5034673	677781	THE PURPOSE OF PE-7A IS TO PROVIDE A PERMANENT EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SIDEWALK, TRAFFIC SIGNAL, AND UTILITY IMPROVEMENTS ALONG COLORADO BOULEVARD.

h:\2015 jobs\152004 co to blvd faster 2015 topo-row.dwg\152004 co to blvd faster 2015\colorado blvd - standard\CDOT ROW PLAN.dwg Updated By: stolley



Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



Land Survey/Project Control Diagram

Title Sheet

Project Number:	SHE M320-092		
Project Location:	COLORADO BOULEVARD - FASTER 2015		
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.13.17	4.01 to 4.13	4.01

# DEPARTMENT OF TRANSPORTATION

## STATE OF COLORADO

### LAND SURVEY / PROJECT CONTROL DIAGRAM

STATE HIGHWAY NO. 12  
 FEDERAL AID PROJECT NO. SHE M320-092  
 EAST HALF OF SEC. 19 AND EAST HALF OF SEC. 7,  
 T4S, R67W, 6TH P.M.  
 R.O.W. PROJECT NO. 20303  
 CCD PRO TRACKING NO. PWTES 2015-032  
 DENVER & ARAPAHOE COUNTIES

SHEET NO.

4.01
4.02-4.07
4.08
4.09-4.13

INDEX OF SHEETS

- (1) Title Sheet
- (6) Monument Coordinate Table
- (1) Overall Plan
- (5) Plan Sheets
- (13) Total Sheets

**BASIS OF BEARINGS:**  
 BEARINGS ARE BASED ON WEST LINE OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 19, TOWNSHIP 4 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, AS MONUMENTED AT THE NORTH END BY A 3-1/4" ALUMINUM CAP STAMPED "LS 35585" IN RANGE BOX, AND AT THE SOUTH END BY A 2-1/2" ALUMINUM CAP "LS 2352" IN RANGE BOX. SAID LINE BEARS N00°23'14"W AS OBTAINED FROM A GLOBAL POSITIONING SYSTEM (GPS) SURVEY BASED ON NAD 1983 (1992), COLORADO STATE PLANE (CENTRAL ZONE 502), AS MONUMENTED AND SHOWN HEREON.

**BASIS OF ELEVATIONS:**  
 VERTICAL CONTROL FOR THIS PROJECT WAS ESTABLISHED BY DIFFERENTIAL LEVELING FROM CONTROL POINT 206C, A CITY AND COUNTY OF DENVER BENCHMARK. THE PUBLISHED NAVD88 ORTHOMETRIC HEIGHT (ELEVATION) IS 5397.97 FT.

**SITE COORDINATE DATUMS:**  
 SITE COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE 502 NAD '83/(92) COORDINATES. ALL COORDINATES AND DISTANCES ARE US SURVEY FOOT. THE SITE COORDINATES HAVE BEEN SCALED TO LOCAL GROUND ELEVATION FROM THE SITE ORIGIN POINT. THE COMBINED ELEVATION/SCALE FACTOR, OR SITE SCALE FACTOR, USED TO MODIFY THE COORDINATES FROM STATE PLANE TO SITE COORDINATES IS SITE SPECIFIC. SEE SHEETS 4.01 - 4.13 FOR SITE COORDINATE DATUM EQUATIONS.

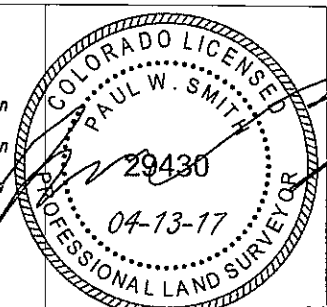
- SEE NOTE ON TABLE FOR SITE 1 ON SHEET 4.02
- SEE NOTE ON TABLE FOR SITE 2 ON SHEET 4.03
- SEE NOTE ON TABLE FOR SITE 3 ON SHEET 4.04-4.05
- SEE NOTE ON TABLE FOR SITE 4 ON SHEET 4.06
- SEE NOTE ON TABLE FOR SITE 5 ON SHEET 4.07

**NOTICE:** ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY 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.

SURVEYOR STATEMENT (LAND SURVEY CONTROL DIAGRAM)

I, Paul W. Smith, a professional land surveyor licensed in the State of Colorado, do hereby state to the Colorado Department of Transportation this Land Survey Control Diagram was prepared and the field survey it represents was performed under my responsible charge and, based upon my knowledge, information and belief is in accordance with applicable standards of practice defined by Colorado Department of Transportation publications. This statement is not a guaranty or warranty, either expressed or implied.

PLS No. 29430



4.13.2017 h:\2015 jobs\152004 celo bvd foster 2015 topo-row\dwg\152004 celo bvd foster 2015 standard\20151116 New TB SURVEY CONTROL\_4.01-4.08.dwg Updated By: scallity

NOTE: FOR A COMPLETE LISTING OF SYMBOLY USED WITHIN THIS SET OF PLANS, PLEASE REFER TO THE M-100-1 STANDARD SYMBOLS OF THE COLORADO DEPARTMENT OF TRANSPORTATION M&S STANDARDS PUBLICATION. EXISTING TOPO FEATURES ARE SHOWN AS SCREENED WEIGHT (GRAY SCALE). PROPOSED OR NEW FEATURES ARE SHOWN AS FULL WEIGHT WITHOUT SCREENING, EXCEPT AS NOTED WITH THE WORD (PROPOSED).

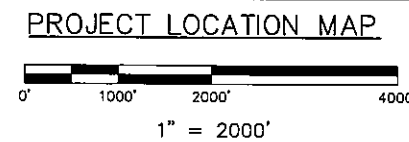
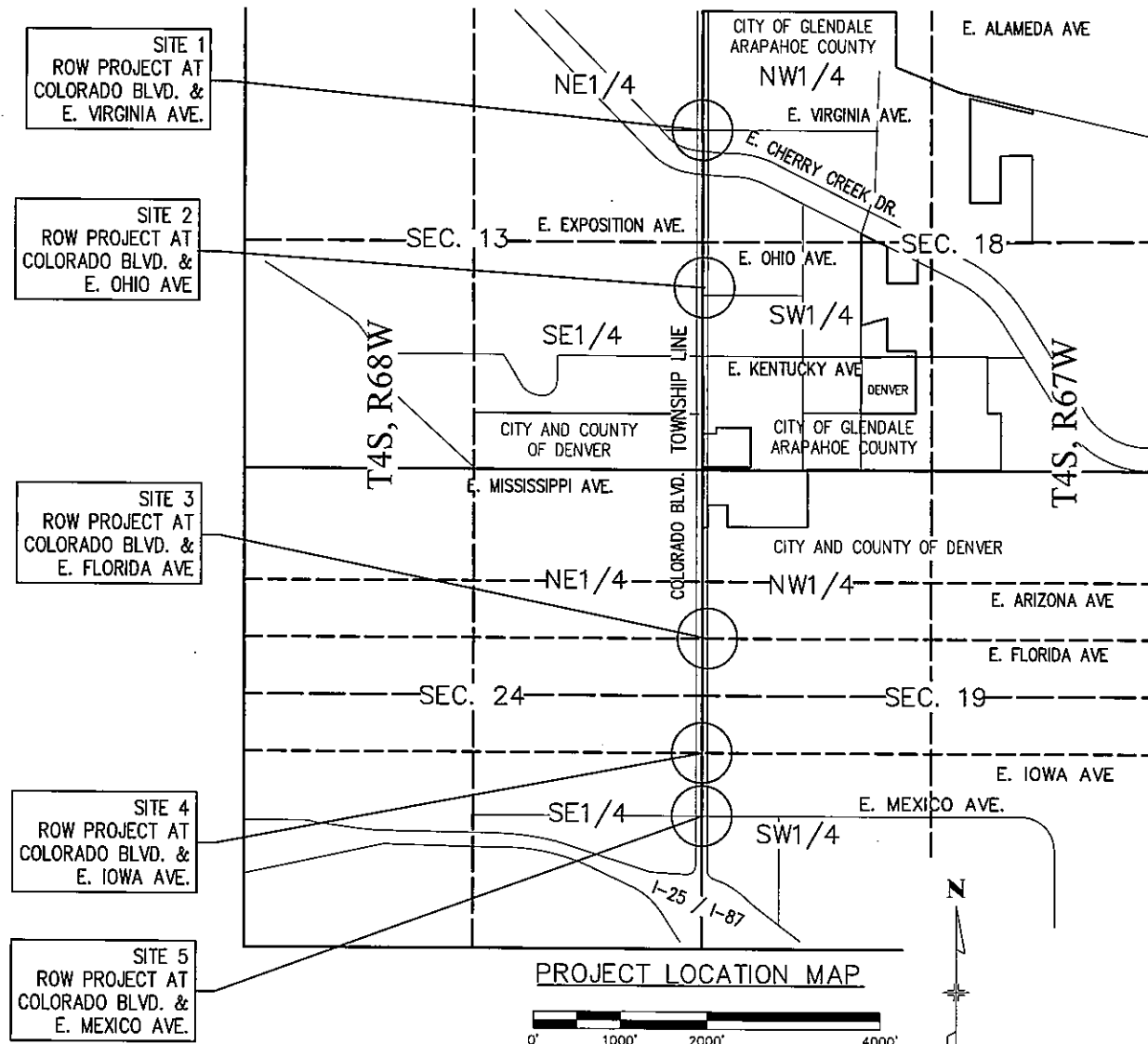
GENERAL NOTES:

1. THIS PROJECT / LAND SURVEY CONTROL DIAGRAM IS NOT A BOUNDARY SURVEY OF THE ADJOINING PROPERTY AND IS PREPARED FOR THE COLORADO DEPARTMENT OF TRANSPORTATION PURPOSES ONLY. NO DETERMINATION HAS BEEN MADE TO DETERMINE IF THE FOUND MONUMENTS AS SHOWN ARE IN THEIR PROPER POSITION OR IF THEY ARE AT THE CORNERS THEY ARE INTENDED TO MONUMENT.
2. TITLE POLICY, TITLE COMMITMENT, AND TITLE RESEARCH ARE NOT PART OF THIS SURVEY, THEREFORE EASEMENTS, RIGHTS, AND RESTRICTIONS OF RECORD WERE NOT RESEARCHED AND ARE NOT SHOWN ON THIS DIAGRAM. THE VERIFICATION OF THE PHYSICAL EVIDENCE WITH RELATION TO EASEMENTS, RIGHTS OF WAYS, PROPERTY BOUNDARIES, AND RESTRICTIONS, AS DESCRIBED IN THE INSTRUMENTS OF RECORD, WERE NOT INCLUDED IN THIS CONTROL SURVEY.
3. THIS PLAN SET IS SUBJECT TO CHANGE AND MAY NOT BE THE MOST CURRENT SET. IT IS THE USER'S RESPONSIBILITY TO VERIFY WITH CDOT THAT THIS SET IS THE MOST CURRENT. THE INFORMATION CONTAINED ON THE ATTACHED DRAWING IS NOT VALID UNLESS THIS COPY BEARS AN ORIGINAL SIGNATURE OF THE PROFESSIONAL LAND SURVEYOR HEREON NAMED.
4. REFER TO THE M-629-1 SURVEY MONUMENTS OF THE STANDARD PLANS DATED JULY, 2012 FOUND IN THE COLORADO DEPARTMENT OF TRANSPORTATION, M & S STANDARDS FOR TYPICAL SURVEY MONUMENT DESCRIPTIONS.

DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION

AUTHORIZED: \_\_\_\_\_ DATE: \_\_\_\_\_

CHIEF ADMINISTRATOR



Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



DENVER  
THE MILE HIGH CITY

**HCL**  
Engineering & Surveying, LLC  
5600 SOUTH QUEBEC ST. STE 2056  
GREENWOOD VILLAGE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Monument Coordinate Table SITE 1			
Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.13.17	4.01 to 4.13	4.02

# SITE 1

SITE (1) - COLORADO AND VIRGINIA - PROJECT CONTROL GEODETIC COORDINATE SUMMARY TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		Ortho. Height (Ft) NAVD	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
10101	N 39°42'27.37012"	W 104°56'27.41807"	5342.31	0°21'09"	0.999739701	0.999991888	1683107.506	3157289.017	1683107.506	3157289.017	PK NAIL - SITE ORIGIN POINT
10102	N 39°42'25.26539"	W 104°56'27.50854"	5343.42	0°21'09"	0.999739540	0.999991780	1682894.501	3157283.257	1682894.446	3157283.256	PK NAIL
10103	N 39°42'23.81903"	W 104°56'26.18203"	5345.50	0°21'10"	0.999739367	0.999991706	1682748.792	3157387.828	1682748.699	3157387.854	BM A-1
10104	N 39°42'24.03020"	W 104°56'26.08253"	5344.35	0°21'10"	0.999739433	0.999991716	1682770.207	3157395.473	1682770.119	3157395.501	PK-346V
10136	N 39°42'40.74965"	W 104°56'27.32760"	5338.81	0°21'09"	0.999740558	0.999992577	1684461.328	3157287.756	1684461.680	3157287.756	BM 213A

SITE (1) - COLORADO AND VIRGINIA - ALIQUOT MONUMENT TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		Ortho. Height NAVD 88	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
10133	N 39°42'39.94362"	W 104°56'26.53788"	5338.77	0°21'10"	0.999740519	0.999992535	1684380.152	3157349.973	1684380.483	3157349.989	FD-CDOT - MON - S12,S13,S7,S18
10105									1681734.1761'	3157365.0870'	FD-CDOT - MON - 1/4 S13,S18

SITE (1) - COLORADO AND VIRGINIA - RIGHT-OF-WAY MONUMENT TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		Ortho. Height NAVD 88	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
10134	N 39°42'39.41180"	W 104°56'25.93478"	5339.37	0°21'10"	0.999740463	0.999992508	1684326.631	3157397.435	1684326.948	3157397.463	FD-CDOT MON 29420
10135	N 39°42'40.20279"	W 104°56'26.00693"	5338.92	0°21'10"	0.999740525	0.999992549	1684406.631	3157391.304	1684406.969	3157391.331	FD-CDOT MON 29420
10137	N 39°42'39.55677"	W 104°56'27.33176"	5339.45	0°21'09"	0.999740466	0.999992516	1684340.627	3157288.174	1684340.948	3157288.174	FD CDOT TYP
10139	N 39°42'41.01422"	W 104°56'25.61034"	5339.23	0°21'10"	0.999740552	0.999992591	1684488.925	3157421.791	1684489.285	3157421.826	FD-MON 80092

SITE (1) - COLORADO AND VIRGINIA - PROPERTY EVIDENCE TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		Ortho. Height NAVD 88	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
15197	N 39°42'26.24820"	W 104°56'27.44008"	5342.96	0°21'09"	0.999739613	0.999991830	1682994.010	3157288.000	1682993.980	3157288.000	BM-212
10138	N 39°42'39.37305"	W 104°56'27.37096"	5339.63	0°21'09"	0.999740448	0.999992506	1684322.019	3157285.225	1684322.335	3157285.224	TAG 11434
13708	N 39°42'30.47439"	W 104°56'31.15256"	5340.77	0°21'07"	0.999739934	0.999992047	1683419.730	3156995.310	1683419.810	3156995.230	MF N&D RMC LS25645
12001	N 39°42'30.27733"	W 104°56'31.15609"	5340.43	0°21'07"	0.999739940	0.999992037	1683399.790	3156995.150	1683399.870	3156995.080	MF N&D NO LS
12002	N 39°42'28.38394"	W 104°56'31.15242"	5340.36	0°21'07"	0.999739846	0.999991940	1683208.270	3156996.620	1683208.290	3156996.540	MF N&D NO LS
12003	N 39°42'28.38198"	W 104°56'29.93112"	5341.72	0°21'08"	0.999739781	0.999991940	1683208.660	3157092.040	1683208.680	3157091.990	MF N&D LS25645
12004	N 39°42'28.13530"	W 104°56'29.93312"	5340.93	0°21'08"	0.999739806	0.999991927	1683183.700	3157092.040	1683183.720	3157091.990	MF N&D NO LS
13707	N 39°42'29.01798"	W 104°56'34.24675"	5335.42	0°21'05"	0.999740114	0.999991972	1683270.920	3156754.460	1683270.960	3156754.320	CHSLD X ON CURB
15105	N 39°42'27.51991"	W 104°56'26.16094"	5342.16	0°21'10"	0.999739717	0.999991896	1683123.260	3157387.150	1683123.270	3157387.170	Y-CAP 16109
15106	N 39°42'27.85764"	W 104°56'27.42843"	5342.19	0°21'09"	0.999739732	0.999991913	1683156.820	3157287.900	1683156.830	3157287.900	SHINNER-ILL

SITE (1) - COLORADO AND VIRGINIA PROJECT SCALE FACTOR =					0.999739701
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STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.###) LESS (-) THE SITE ORIGIN POINT NORTHING (1683107.506') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999739701) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1683107.506')  
 $SPN = ((SITE\ NORTHING - 1683107.506) * 0.999739701) + 1683107.506$

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####.###) LESS (-) THE SITE ORIGIN POINT EASTING (3157289.017') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999739701) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157289.017')  
 $SPE = ((SITE\ EASTING - 3157289.017) * 0.999739701) + 3157289.017$

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Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



# SITE 3

SEE SHEET 4.05 FOR  
PROPERTY  
EVIDENCE TABLE

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EM  
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SITE (3) - COLORADO AND FLORIDA PROJECT CONTROL GEODETIC COORDINATE SUMMARY TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		EL= Ortho. Height (FT) NAVD 88	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
30108	N 39°41'20.96011"	W 104°56'27.13985"	5418.85	0°21'09"	0.999732690	0.999988530	1676388.116	3157352.117	1676388.116	3157352.117	PK NAIL - SITE ORIGIN POINT
30130	N 39°41'21.40753"	W 104°56'13.62308"	-	0°21'18"	0.999732714	0.999988552	1676439.912	3158408.475	1676439.926	3158408.757	CP SPK IN ASPHALT
35006	N 39°41'21.86629"	W 104°56'29.19442"	5415.87	0°21'08"	0.999732877	0.999988575	1676478.817	3157190.943	1676478.841	3157190.900	CP SNAIL
35112	N 39°41'21.19672"	W 104°56'25.63090"	-	0°21'10"	0.999732702	0.999988542	1676412.783	3157469.928	1676412.790	3157469.960	BM-207 MON BROKEN IN HALF 2IN BD
36039	N 39°41'21.41379"	W 104°56'35.18824"	-	0°21'04"	0.999732711	0.999988553	1676430.156	3156722.674	1676430.167	3156722.506	CP SPK IN ASPHALT
36043	N 39°41'21.89686"	W 104°56'21.99159"	5425.52	0°21'13"	0.999732419	0.999988577	1676485.378	3157753.984	1676485.404	3157754.091	CP SPK

SITE (3) - COLORADO AND FLORIDA - FOUND ALIQUOT MONUMENT TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		EL= Ortho. Height NAVD 88	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
30118	-	-	-	-	-	-	-	-	1675133.605	1675133.604	FD-MON-S1/16 S24-S19 SCALED-SITE3
35091	N 39°41'21.67923"	W 104°55'54.18121"	0.00	0°21'30"	0.999732730	0.999988566	1676476.865	3159928.118	1676476.889	3159928.807	FD - MON-CENTER SEC 19-PLS 16398
37004	-	-	-	-	-	-	-	-	1676454.685	3157397.280	1/4 CORNER CALCULATED FROM TIES
37006	-	-	-	-	-	-	-	-	1677775.421	3157388.930	CALCULATED N1/16 COR SEC 24,S19

SITE (3) - COLORADO AND FLORIDA - RIGHT-OF-WAY MONUMENT TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		EL= Ortho. Height NAVD 88	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
-	-	-	-	-	-	-	-	-	-	-	-

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2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Table with columns: Date, Description, Initials. Multiple empty rows.

Sheet Revisions

Table with columns: Date, Description, Initials. Multiple empty rows.



DENVER  
THE MILE HIGH CITY



Land Survey/Project Control Diagram

Table with project details: Monument Coordinate Table SITE 3, Project Number: SHE M320-092, Project Location: COLORADO BOULEVARD - FASTER 2015, CITY OF DENVER PROJECT NO. 2015-CIP-000094, Project Code: 20303, Last Mod. Date: 04.13.17, Subset: 4.01 to 4.13, Sheet No.: 4.05

SITE (3) - COLORADO AND FLORIDA - PROPERTY EVIDENCE TABLE

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Main table with columns: Point No., Geodetic Coordinates NAD-83(92) (Latitude, Longitude), EL= Ortho. Height NAVD 88, Mapping Angle, Combined Scale Factor, Projection Scale Factor, SPCS CO CENTRAL ZONE 502 (Grid Northing, Grid Easting), SITE COORDINATES (Ground Northing, Ground Easting), Description. Contains 45 rows of data points.

SITE (3) - COLORADO AND FLORIDA PROJECT SCALE FACTOR = 0.999732689  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.###) LESS (-) THE SITE ORIGIN POINT NORTHING (1676388.116) THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999732689) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1676388.116) SPN=((SITE NORTHING-1676388.116)\*0.999732689)+1676388.116  
STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####.###) LESS (-) THE SITE ORIGIN POINT EASTING (3157352.117) THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999732689) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157352.117) SPE=((SITE EASTING-3157352.117)\*0.999732689)+3157352.117

SITE 3

SEE SHEET 4.04 FOR CONTROL, ALIQUOT & RIGHT-OF-WAY MONUMENT TABLES

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Sheet Revisions

Table with columns: Date, Description, Initials

Sheet Revisions

Table with columns: Date, Description, Initials



Table with project details: Project Number: SHE M320-092, Project Location: COLORADO BOULEVARD - FASTER 2015, CITY OF DENVER PROJECT NO. 2015-CIP-000094

SITE (4) - COLORADO AND IOWA - PROJECT CONTROL GEODETIC COORDINATE SUMMARY TABLE. Table with columns: Point No., Geodetic Coordinates NAD-83(92), EL= Ortho. Height, Mapping Angle, Combined Scale Factor, Projection Scale Factor, SPCS CO CENTRAL ZONE 502, SITE COORDINATES, Description

SITE (4) - COLORADO AND IOWA - ALIQUOT MONUMENT TABLE. Table with columns: Point No., Geodetic Coordinates NAD-83(92), EL= Ortho. Height, Mapping Angle, Combined Scale Factor, Projection Scale Factor, SPCS CO CENTRAL ZONE 502, SITE COORDINATES, Description

SITE (4) - COLORADO AND IOWA - RIGHT-OF-WAY MONUMENT TABLE. Table with columns: Point No., Geodetic Coordinates NAD-83(92), EL= Ortho. Height, Mapping Angle, Combined Scale Factor, Projection Scale Factor, SPCS CO CENTRAL ZONE 502, SITE COORDINATES, Description

SITE (4) - COLORADO AND IOWA - PROPERTY EVIDENCE TABLE. Table with columns: Point No., Geodetic Coordinates NAD-83(92), EL= Ortho. Height, Mapping Angle, Combined Scale Factor, Projection Scale Factor, SPCS CO CENTRAL ZONE 502, SITE COORDINATES, Description

STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.###) LESS (-) THE SITE ORIGIN POINT NORTHING (1675676.799) THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1675676.799) SPN=[(SITE NORTHING -1675676.799)\*0.999733007]+1675676.799'

SITE 4

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Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



# SITE 5

SITE (5) - COLORADO AND MEXICO - PROJECT CONTROL GEODETTIC COORDINATE SUMMARY TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		EL= Ortho. Height NAVD 88 (Ft)	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
50119	N 39°41'07.20304"	W 104°56'25.55150"	5397.87	0°21'10"	0.999733007	0.999987847	1674996.912	3157484.856	1674996.912	3157484.856	PK NAIL
50121	N 39°41'07.50533"	W 104°56'25.53577"	5397.95	0°21'11"	0.999733018	0.999987862	1675027.506	3157485.898	1675027.514	3157485.898	BM 206C
50122	N 39°41'08.84050"	W 104°56'25.04050"	5398.08	0°21'11"	0.999733078	0.999987928	1675162.840	3157523.784	1675162.884	3157523.794	PK NAIL

SITE (5) - COLORADO AND MEXICO - ALIQUOT MONUMENT TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		EL= Ortho. Height NAVD 88 (Ft)	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
50118	N 39°41'08.56180"	W 104°56'26.54808"	5396.80	0°21'10"	0.999733125	0.999987915	1675133.915	3157406.101	1675133.952	3157406.08	FD MON S1/16 S24,S19 35585
50123	N 39°40'55.50724"	W 104°56'26.53788"	5406.56	0°21'10"	0.999732015	0.999987271	1673813.034	3157415.030	1673812.718	3157415.011	FD MON S24,S25,S19,S30 2352?
57005	-	-	-	-	-	-	-	-	1676455.033	3157397.28	1/4 CORNER CALCULATED FROM TIES

SITE (5) - COLORADO AND MEXICO - RIGHT-OF-WAY MONUMENT TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		EL= Ortho. Height NAVD 88 (Ft)	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
51004	N 39°41'07.93495"	W 104°56'25.26892"	5398.40	0°21'11"	0.999733018	0.999987884	1675071.105	3157506.491	1675071.125	3157506.497	CDOT MON 3.25 AL CAP 22088
51005	N 39°41'08.08637"	W 104°56'24.89658"	5398.12	0°21'11"	0.999733039	0.999987891	1675086.605	3157535.505	1675086.629	3157535.519	CDOT MON 3.25 AL CAP 22088
51009	N 39°41'11.46241"	W 104°56'27.40630"	5407.12	0°21'09"	0.999732777	0.999988058	1675426.991	3157337.202	1675427.106	3157337.163	CDOT ROW MONUMENT
51132	N 39°41'08.86258"	W 104°56'25.35585"	5397.46	0°21'11"	0.999733109	0.999987930	1675164.922	3157499.117	1675164.967	3157499.121	CDOT MON 3.25 AL CAP 22088
51601	N 39°41'09.13721"	W 104°56'25.70326"	5397.39	0°21'10"	0.999733126	0.999987943	1675192.542	3157471.787	1675192.594	3157471.784	CDOT MON 3.25 AL CAP 22088
51602	N 39°41'10.30120"	W 104°56'25.73507"	5399.83	0°21'10"	0.999733067	0.999988001	1675310.302	3157468.575	1675310.386	3157468.571	CDOT MON 3.25 AL CAP 22088

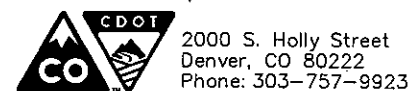
SITE (5) - COLORADO AND MEXICO - PROPERTY EVIDENCE TABLE											
Point No.	Geodetic Coordinates NAD-83(92)		EL= Ortho. Height NAVD 88 (Ft)	Mapping Angle	Combined Scale Factor	Projection Scale Factor	SPCS CO CENTRAL ZONE 502		SITE COORDINATES		Description
	Latitude	Longitude					Grid Northing(Ft)	Grid Easting(Ft)	Ground Northing(Ft)	Ground Easting(Ft)	
50120	N 39°41'07.29857"	W 104°56'25.55073"	5397.85	0°21'10"	0.999733013	0.999987852	1675006.579	3157484.857	1675006.582	3157484.857	PROPERTY PIN RBR#5
50124	N 39°40'55.47269"	W 104°56'26.20703"	5407.86	0°21'10"	0.999731951	0.999987269	1673809.698	3157440.918	1673809.381	3157440.906	PK-WITNESS CORNER
50125	N 39°40'55.67105"	W 104°56'26.18371"	5408.65	0°21'10"	0.999731923	0.999987279	1673829.780	3157442.617	1673829.468	3157442.606	PK-WITNESS CORNER
50126	N 39°40'55.31656"	W 104°56'26.72460"	5406.13	0°21'10"	0.999732026	0.999987261	1673793.651	3157400.551	1673793.33	3157400.528	PK-WITNESS CORNER
50127	N 39°40'55.72349"	W 104°56'26.67426"	5407.82	0°21'10"	0.999731966	0.999987281	1673834.849	3157404.233	1673834.539	3157404.211	PK-WITNESS CORNER
51002	N 39°41'05.73075"	W 104°56'25.27163"	5397.52	0°21'11"	0.999732951	0.999987775	1674848.078	3157507.653	1674848.038	3157507.659	YELLOW PLASTIC CAP
51006	N 39°41'08.08834"	W 104°56'23.74257"	5398.53	0°21'12"	0.999733020	0.999987891	1675087.360	3157625.720	1675087.384	3157625.758	ORANGE PLASTIC CAP 22088
51470	N 39°41'08.14389"	W 104°56'28.19253"	5394.48	0°21'09"	0.999733215	0.999987894	1675090.839	3157277.804	1675090.864	3157277.749	YELLOW PLASTIC CAP 24968
51475	N 39°41'09.31643"	W 104°56'27.43514"	5396.37	0°21'09"	0.999733183	0.999987952	1675209.843	3157336.284	1675209.9	3157336.244	YELLOW PLASTIC CAP LS 24988
51476	N 39°41'09.07649"	W 104°56'27.45221"	5396.15	0°21'09"	0.999733182	0.999987940	1675185.557	3157335.099	1675185.607	3157335.059	YELLOW PLASTIC CAP LS 24988
51478	N 39°41'09.08818"	W 104°56'27.41988"	5396.11	0°21'09"	0.999733184	0.999987941	1675186.755	3157337.619	1675186.806	3157337.58	SHINNER ILLEGIBLE
51532	N 39°41'08.86055"	W 104°56'27.70852"	5395.65	0°21'09"	0.999733195	0.999987929	1675163.584	3157315.196	1675163.629	3157315.151	YELLOW PLASTIC CAP LS 24988
57002	-	-	-	-	-	-	-	-	1675133.9520'	3157436.0807'	CALCULATED RANGE POINT

SITE (5) - COLORADO AND MEXICO PROJECT SCALE FACTOR = 0.999733007											
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.####) LESS (-) THE SITE ORIGIN POINT NORTHING (1674996.912') THEN MULTIPLIED (*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1674996.912') $SPN = [(SITE\ NORTHING - 1674996.912') * 0.999733007] + 1674996.912'$											
STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####.####) LESS (-) THE SITE ORIGIN POINT EASTING (3157484.856') THEN MULTIPLIED (*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157484.856') $SPE = [(SITE\ EASTING - 3157484.856') * 0.999733007] + 3157484.856'$											

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Date	Description	Initials

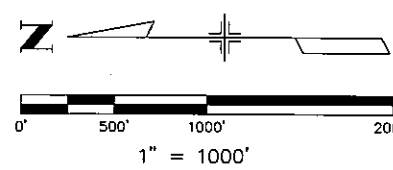
Sheet Revisions

Date	Description	Initials

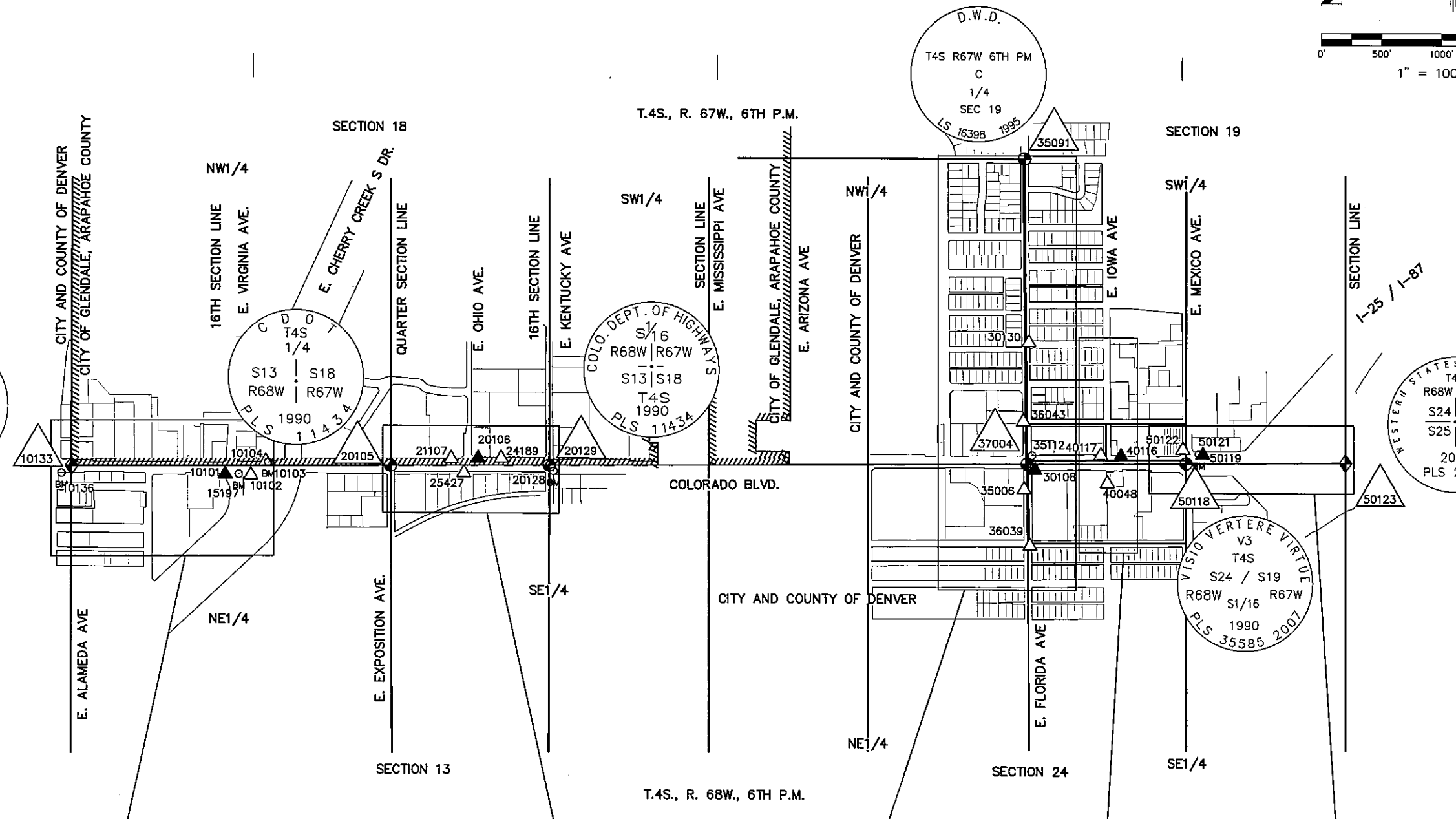


Land Survey/Project Control Diagram

Overall Plan			
Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code: 20303	Last Mod. Date: 04.13.17	Subset: 4.01 to 4.13	Sheet No.: 4.08



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**SITE (1)**  
 COLORADO AND VIRGINIA  
 SEE SHEET 4.05 FOR SITE CALIBRATION AND CONTROL

**SITE (2)**  
 COLORADO AND OHIO  
 SEE SHEET 4.06 FOR SITE CALIBRATION AND CONTROL

**SITE (3)**  
 COLORADO AND FLORIDA  
 SEE SHEET 4.07 FOR SITE CALIBRATION AND CONTROL

**SITE (4)**  
 COLORADO AND IOWA  
 SEE SHEET 4.08 FOR SITE CALIBRATION AND CONTROL

**SITE (5)**  
 COLORADO AND MEXICO  
 SEE SHEET 4.09 FOR SITE CALIBRATION AND CONTROL



2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

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Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



DENVER  
THE MILE HIGH CITY



Engineering & Surveying, LLC  
5600 SOUTH QUEBEC ST. STE 205B  
GREENWOOD VILLAGE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Land Survey/Project Control Diagram

Plan Sheet - Virginia Avenue - Site 1

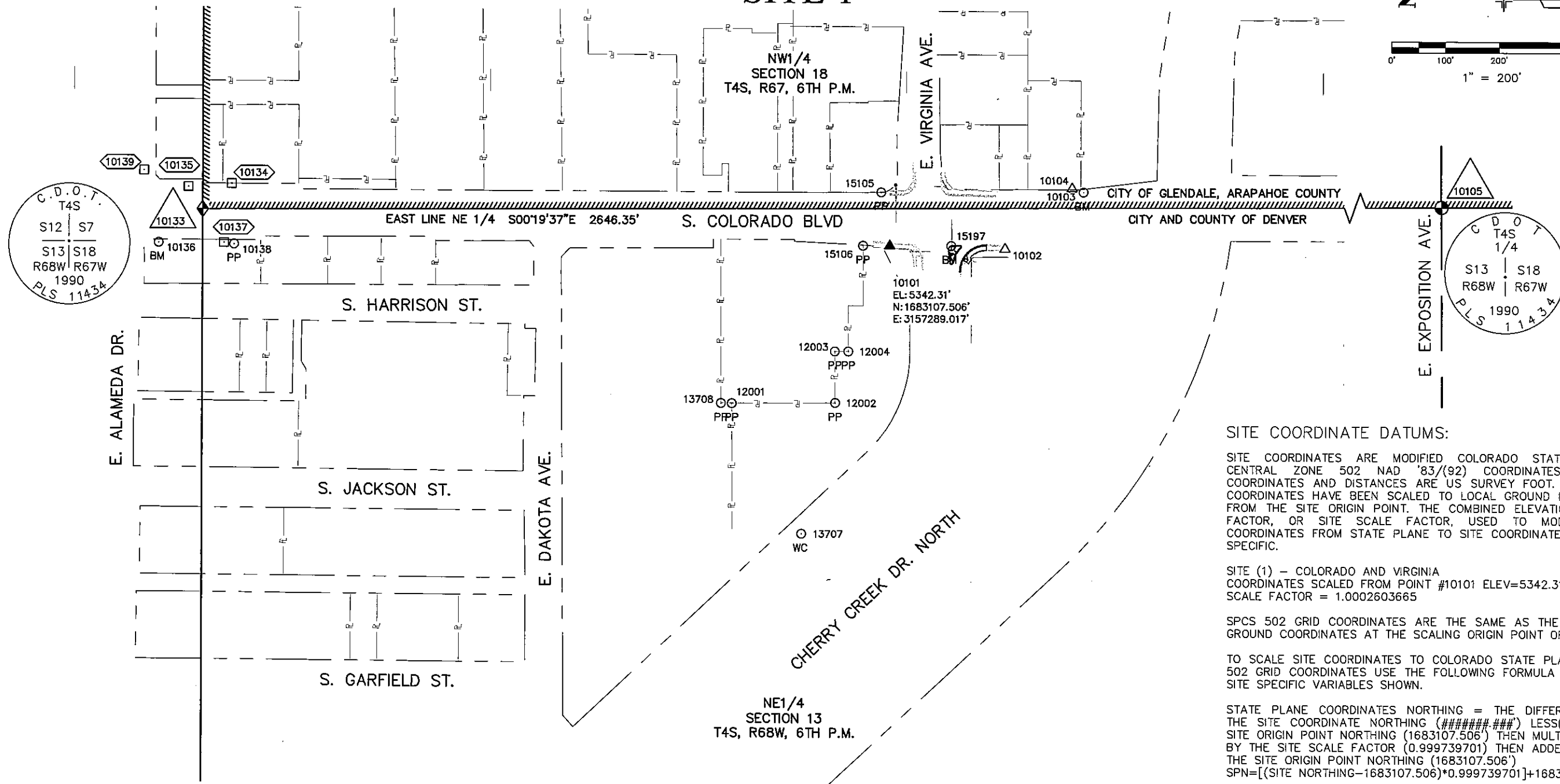
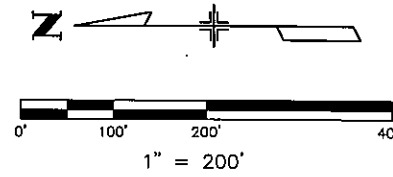
Project Number: SHE M320-092

Project Location: COLORADO BOULEVARD - FASTER 2015

CITY OF DENVER PROJECT NO. 2015-CIP-000094

Project Code	Last Mod. Date	Subset	Sheet No.
20303	03.24.17	4.01 to 4.13	4.09

SITE 1



SITE COORDINATE DATUMS:

SITE COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE 502 NAD '83/(92) COORDINATES. ALL COORDINATES AND DISTANCES ARE US SURVEY FOOT. THE SITE COORDINATES HAVE BEEN SCALED TO LOCAL GROUND ELEVATION FROM THE SITE ORIGIN POINT. THE COMBINED ELEVATION/SCALE FACTOR, OR SITE SCALE FACTOR, USED TO MODIFY THE COORDINATES FROM STATE PLANE TO SITE COORDINATES IS SITE SPECIFIC.

SITE (1) - COLORADO AND VIRGINIA COORDINATES SCALED FROM POINT #10101 ELEV=5342.31 SCALE FACTOR = 1.0002603665

SPCS 502 GRID COORDINATES ARE THE SAME AS THE MODIFIED GROUND COORDINATES AT THE SCALING ORIGIN POINT OF #10101

TO SCALE SITE COORDINATES TO COLORADO STATE PLANE ZONE 502 GRID COORDINATES USE THE FOLLOWING FORMULA WITH THE SITE SPECIFIC VARIABLES SHOWN.

STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####) LESS (-) THE SITE ORIGIN POINT NORTHING (1683107.506) THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999739701) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1683107.506)  
 $SPN = [(SITE\ NORTHING - 1683107.506) * 0.999739701] + 1683107.506$

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####) LESS (-) THE SITE ORIGIN POINT EASTING (3157289.017) THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999739701) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157289.017)  
 $SPE = [(SITE\ EASTING - 3157289.017) * 0.999739701] + 3157289.017$

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Sheet Revisions

Date	Description	Initials

Sheet Revisions

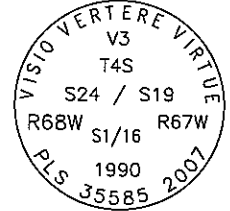
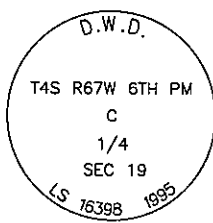
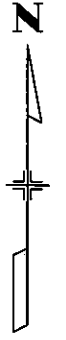
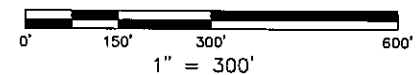
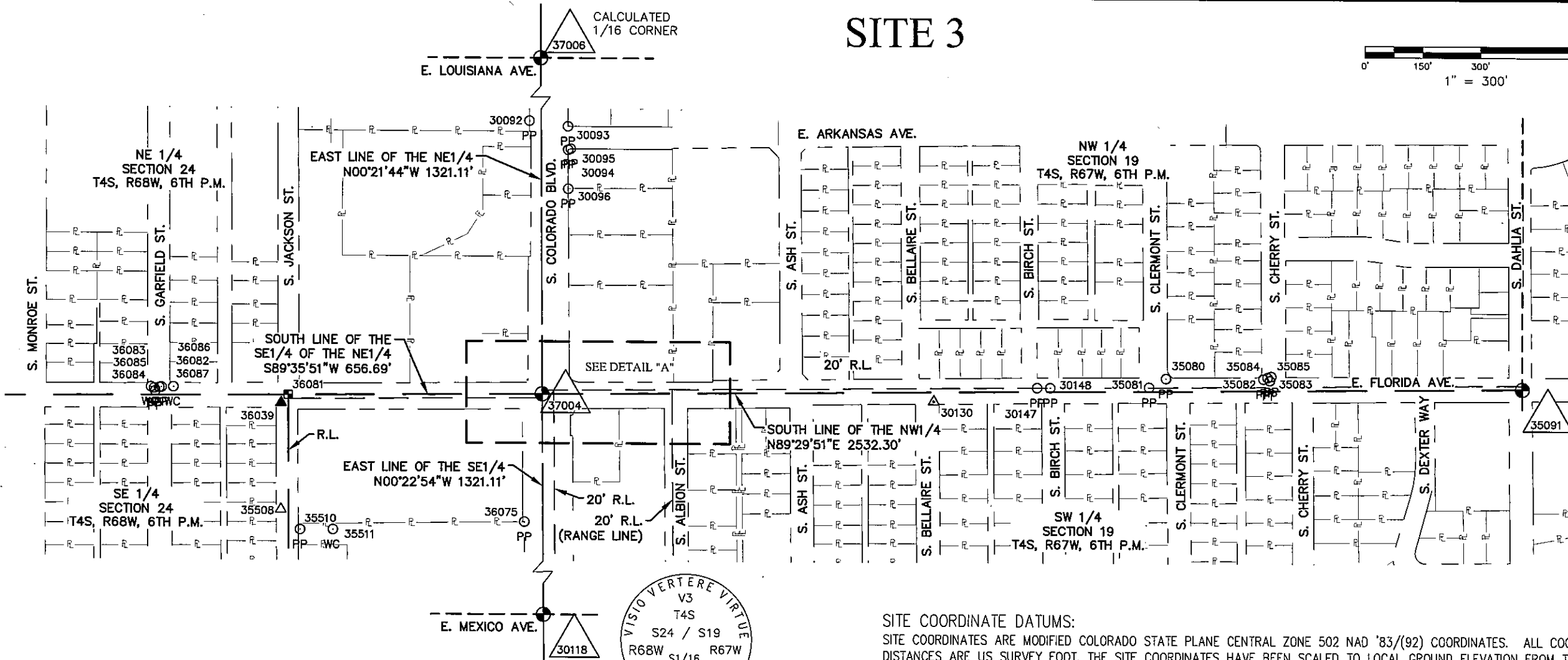
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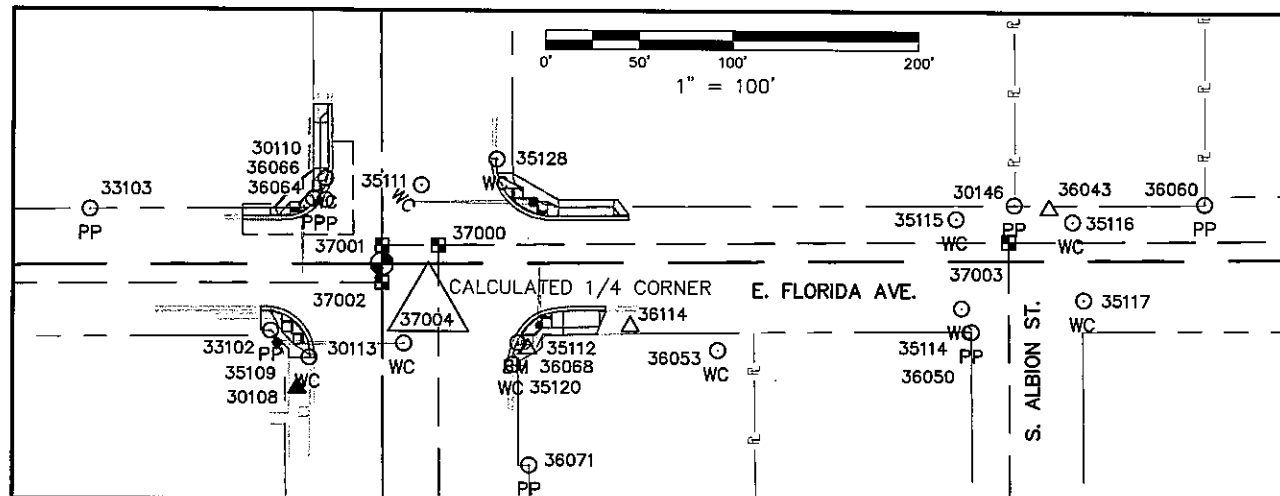
Land Survey/Project Control Diagram

Plan Sheet - Florida Avenue - Site 3			
Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	03.24.17	4.01 to 4.13	4.11

SITE 3



DETAIL "A"



SITE COORDINATE DATUMS:  
SITE COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE 502 NAD '83/(92) COORDINATES. ALL COORDINATES AND DISTANCES ARE US SURVEY FOOT. THE SITE COORDINATES HAVE BEEN SCALED TO LOCAL GROUND ELEVATION FROM THE SITE ORIGIN POINT. THE COMBINED ELEVATION/SCALE FACTOR, OR SITE SCALE FACTOR, USED TO MODIFY THE COORDINATES FROM STATE PLANE TO SITE COORDINATES IS SITE SPECIFIC.

SITE (3) - COLORADO AND FLORIDA  
COORDINATES SCALED FROM POINT #30108 ELEV=5418.85  
SCALE FACTOR = 1.0002673821

SPCS 502 GRID COORDINATES ARE THE SAME AS THE MODIFIED GROUND COORDINATES AT THE SCALING ORIGIN POINT OF #30108

TO SCALE SITE COORDINATES TO COLORADO STATE PLANE ZONE 502 GRID COORDINATES USE THE FOLLOWING FORMULA WITH THE SITE SPECIFIC VARIABLES SHOWN.

STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####) LESS (-) THE SITE ORIGIN POINT NORTHING (1676388.116') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999732689) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1676388.116')

$$SPN = [(SITE\ NORTHING - 1676388.116') * 0.999732689] + 1676388.116'$$

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####) LESS (-) THE SITE ORIGIN POINT EASTING (3157352.117') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999732689) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157352.117')

$$SPE = [(SITE\ EASTING - 3157352.117') * 0.999732689] + 3157352.117'$$

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Colorado Department of Transportation



2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



DENVER  
THE MILE HIGH CITY



Engineering & Surveying, LLC  
5600 SOUTH QUEBEC ST. STE 205E  
GREENWOOD VILLAGE, CO. 80111  
P: (303) 773-1805  
HCL Project No: 152004

Land Survey/Project Control Diagram

Plan Sheet - Iowa Avenue - Site 4

Project Number: SHE M320-092

Project Location: COLORADO BOULEVARD - FASTER 2015

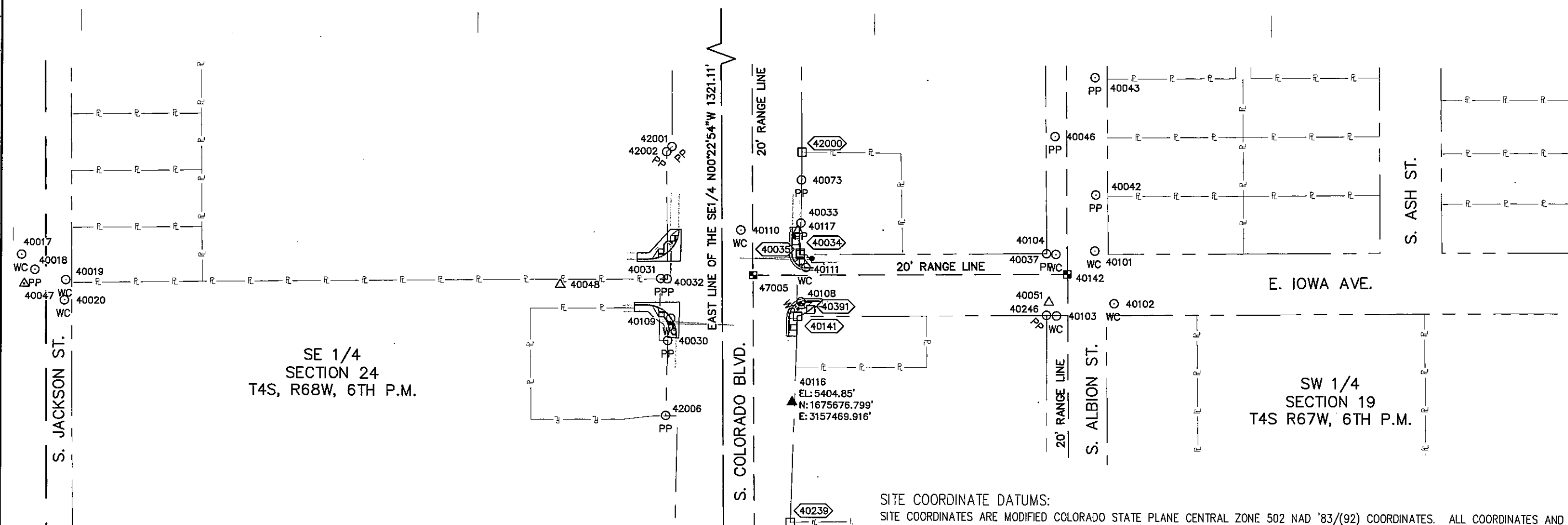
CITY OF DENVER PROJECT NO. 2015-CIP-0000094

Project Code	Last Mod. Date	Subset	Sheet No.
20303	03.24.17	4.01 to 4.13	4.12

SITE 4

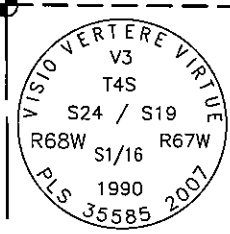
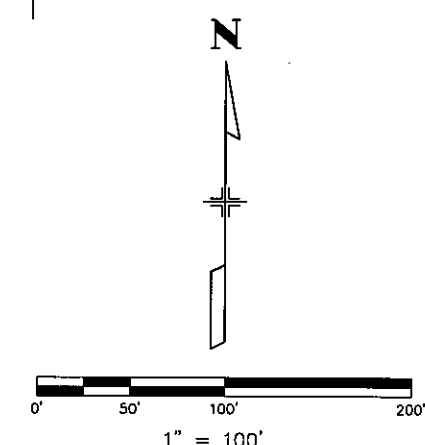
E. ARKANSAS AVE.

1/4 CORNER  
CALCULATED FROM TIES



SE 1/4 SECTION 24  
T4S, R68W, 6TH P.M.

SW 1/4 SECTION 19  
T4S R67W, 6TH P.M.



SITE COORDINATE DATUMS:  
SITE COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE 502 NAD '83/(92) COORDINATES. ALL COORDINATES AND DISTANCES ARE US SURVEY FOOT. THE SITE COORDINATES HAVE BEEN SCALED TO LOCAL GROUND ELEVATION FROM THE SITE ORIGIN POINT. THE COMBINED ELEVATION/SCALE FACTOR, OR SITE SCALE FACTOR, USED TO MODIFY THE COORDINATES FROM STATE PLANE TO SITE COORDINATES IS SITE SPECIFIC.

SITE (4) - COLORADO AND IOWA  
COORDINATES SCALED FROM POINT #40116 ELEV=5404.85  
SCALE FACTOR = 1.0002670639

SPCS 502 GRID COORDINATES ARE THE SAME AS THE MODIFIED GROUND COORDINATES AT THE SCALING ORIGIN POINT OF #40116

TO SCALE SITE COORDINATES TO COLORADO STATE PLANE ZONE 502 GRID COORDINATES USE THE FOLLOWING FORMULA WITH THE SITE SPECIFIC VARIABLES SHOWN.

STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.###) LESS(-) THE SITE ORIGIN POINT NORTHING (1675676.799') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1675676.799')  
SPN=[(SITE NORTHING-1675676.799)\*0.999733007]+1675676.799'

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####.###) LESS (-) THE SITE ORIGIN POINT EASTING (3157469.916') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157469.916')  
SPE=[(SITE EASTING-3157469.916)\*0.999733007]+3157469.916'

h:\2015 jobs\152004 colo blvd faster 2015 topo-row\dwg\152004 colo blvd faster 2015\coloblv - standard\20161116 New TB SURVEY CONTROL 4.09-4.13.dwg Updated By: stolley 4.13.2017



2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



DENVER  
THE MILE HIGH CITY



Engineering & Surveying, LLC  
5600 SOUTH QUEBEC ST., STE 205B  
GREENWOOD VILLAGE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Land Survey/Project Control Diagram

Plan Sheet - Mexico Avenue - Site 5

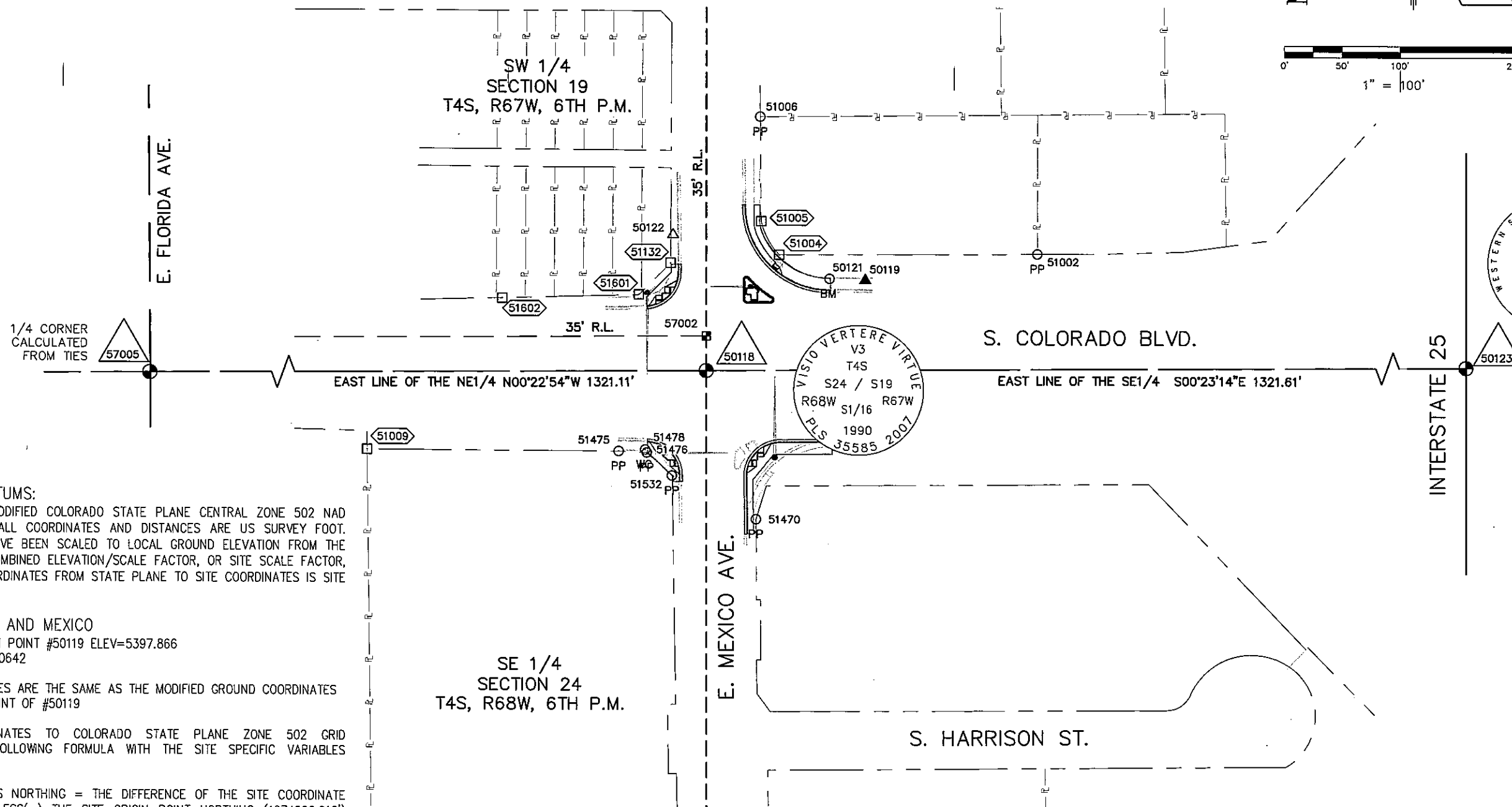
Project Number: SHE M320-092

Project Location: COLORADO BOULEVARD - FASTER 2015

CITY OF DENVER PROJECT NO. 2015-CIP-000094

Project Code	Last Mod. Date	Subset	Sheet No.
20303	03.24.17	4.01 to 4.13	4.13

SITE 5



SITE COORDINATE DATUMS:

SITE COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE 502 NAD '83/(92) COORDINATES. ALL COORDINATES AND DISTANCES ARE US SURVEY FOOT. THE SITE COORDINATES HAVE BEEN SCALED TO LOCAL GROUND ELEVATION FROM THE SITE ORIGIN POINT. THE COMBINED ELEVATION/SCALE FACTOR, OR SITE SCALE FACTOR, USED TO MODIFY THE COORDINATES FROM STATE PLANE TO SITE COORDINATES IS SITE SPECIFIC.

SITE (5) - COLORADO AND MEXICO  
COORDINATES SCALED FROM POINT #50119 ELEV=5397.866  
SCALE FACTOR = 1.0002670642

SPCS 502 GRID COORDINATES ARE THE SAME AS THE MODIFIED GROUND COORDINATES AT THE SCALING ORIGIN POINT OF #50119

TO SCALE SITE COORDINATES TO COLORADO STATE PLANE ZONE 502 GRID COORDINATES USE THE FOLLOWING FORMULA WITH THE SITE SPECIFIC VARIABLES SHOWN.

STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####) LESS (-) THE SITE ORIGIN POINT NORTHING (1674996.912') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1674996.912')

$$SPN = [(SITE\ NORTHING - 1674996.912') * 0.999733007] + 1674996.912'$$

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####) LESS (-) THE SITE ORIGIN POINT EASTING (3157484.856') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157484.856')

$$SPE = [(SITE\ EASTING - 3157484.856') * 0.999733007] + 3157484.856'$$

4.13.2017 h:\2015\pba\152004\_colo\_bldv\_faster\_2015\topo-row\dwg\152004\_colo\_bldv\_faster\_2015\standard\20161116 New TB\SURVEY CONTROL\_4.09-4.13.dwg Updated By: sballey



2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



Right of Way Plans

Monumentation Sheet

Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code: 20303	Lost Mod. Date: 04.13.17	Subset: 5.01 to 5.02	Sheet No.: 5.01

TABULATION FOR THE PERPETUATION OF RIGHT-OF-WAY / PROPERTY /				
COLORADO AT VIRGINIA - SITE 1	WITNESS / TIE MONUMENTS TO BE PROTECTED OR SET			
	NUMBER	Northing (ft)	Easting (ft)	Description
	15105	1683123.2670'	3157387.1710'	Y-CAP 16109

TABULATION FOR THE PERPETUATION OF RIGHT-OF-WAY / PROPERTY /				
COLORADO AT IOWA - SITE 4	WITNESS / TIE MONUMENTS TO BE PROTECTED OR SET			
	NUMBER	Northing (ft)	Easting (ft)	Description
	40030	1675735.322	3157348.789	MON NAIL AND BRASS DISK
	40033	1675850.347	3157478.411	MON ROW 3IN ALUM DISK PLS22088
	40109	1675757.081	3157351.848	RANGE POINT TIE - CUT X
	40111	1675807.137	3157483.303	RANGE POINT TIE - CUT X
	40141	1675759.670	3157475.123	MON ROW 3IN ALUM DISK PLS22088
	40391	1675766.349	3157487.822	MON ROW 3IN ALUM DISK PLS22088

TABULATION FOR THE PERPETUATION OF RIGHT-OF-WAY / PROPERTY /				
COLORADO AT OHIO - SITE 2	WITNESS / TIE MONUMENTS TO BE PROTECTED OR SET			
	NUMBER	Northing (ft)	Easting (ft)	Description
	24162	1681092.116	3157311.333	SHINER ILL
	25424	1681092.036	3157313.466	Axle Found In concpan
	25434	1681141.933	3157439.236	Property Pin 42498
	25435	1681128.907	3157439.396	Chisled Cross/PFound

TABULATION FOR THE PERPETUATION OF RIGHT-OF-WAY / PROPERTY /				
COLORADO AT MEXICO - SITE 5	WITNESS / TIE MONUMENTS TO BE PROTECTED OR SET			
	NUMBER	Northing (ft)	Easting (ft)	Description
	51004	1675071.125	3157506.497	3.25 AL CAP 22088
	51005	1675086.629	3157535.519	3.25 AL CAP 22088
	51132	1675164.967	3157499.121	CDOT-MON 22088
	51470	1675090.864	3157277.749	Y-CAP 24968
	51476	1675185.607	3157335.059	YELLOW PLASTIC CAP LS 24988
	51532	1675163.629	3157315.151	YELLOW PLASTIC CAP LS 24988
	51601	1675192.594	3157471.784	CDOT MON 22088

TABULATION FOR THE PERPETUATION OF RIGHT-OF-WAY / PROPERTY /				
COLORADO AT FLORIDA - SITE 3	WITNESS / TIE MONUMENTS TO BE PROTECTED OR SET			
	NUMBER	Northing (ft)	Easting (ft)	Description
	30110	1676500.276	3157367.183	MON ALUM CAP PLS36580
	33102	1676418.557	3157337.962	CROWS FOOT
	35109	1676404.372	3157358.467	MON WITNESS 1/4 2IN ALUM PLS36580
	35120	1676401.290	3157467.208	RANGE POINT TIE - CUT X
	35128	1676511.064	3157458.621	RANGE POINT TIE - CUT X
	36064	1676489.412	3157360.578	MON NAIL AND BRASS DISK LS36580
	36066	1676488.668	3157367.143	MON NAIL AND STEEL DISK

SITE ORIGIN VARIABLES						
SITE	POINT NO.	SPCS 502 GRID COORDINATES		NAVD 88 ELEVATION FEET	PROJECT SCALE FACTOR	INVERSE OF COMBINED SCALE FACTOR
		NORTHING(ft)	EASTING(ft)			
COLORADO AND VIRGINIA SITE (1)	101	1,683,107.506	3,157,289.017	5,342.31	0.999739701	1.000260367
COLORADO AND OHIO SITE (2)	106	1,681,007.908	3,157,430.855	5,365.21	0.999737547	1.000262522
COLORADO AND FLORIDA SITE (3)	108	1,676,388.116	3,157,352.117	5,418.85	0.999732689	1.000267382
COLORADO AND IOWA SITE (4)	116	1,675,676.799	3,157,469.916	5,404.85	0.999733007	1.000267064
COLORADO AND MEXICO SITE (5)	119	1,674,996.912	3,157,484.856	5,397.87	0.999733007	1.000267064

SITE COORDINATE DATUMS:  
SITE COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE 502 NAD '83/(92) COORDINATES. ALL COORDINATES AND DISTANCES ARE US SURVEY FOOT. THE SITE COORDINATES HAVE BEEN SCALED TO LOCAL GROUND ELEVATION FROM THE SITE ORIGIN POINT. THE COMBINED ELEVATION/SCALE FACTOR, OR SITE SCALE FACTOR, USED TO MODIFY THE COORDINATES FROM STATE PLANE TO SITE COORDINATES IS SITE SPECIFIC.

TO SCALE SITE COORDINATES TO COLORADO STATE PLANE ZONE 502 GRID COORDINATES USE THE FOLLOWING FORMULA WITH THE SITE SPECIFIC VARIABLES SHOWN.

SITE 1  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####) LESS(-) THE SITE ORIGIN POINT NORTHING (1683107.506') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999739701) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1683107.506')  
SPN=[(SITE NORTHING-1683107.506)\*0.999739701]+1683107.506

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####) LESS (-) THE SITE ORIGIN POINT EASTING (3157289.017') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999739701) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157289.017')  
SPE=[(SITE EASTING-3157289.017)\*0.999739701]+3157289.017

SITE 2  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####) LESS(-) THE SITE ORIGIN POINT NORTHING (1681007.908') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999737547) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1681007.908')  
SPN=[(SITE NORTHING-1681007.908)\*0.999737547]+1681007.908

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####) LESS (-) THE SITE ORIGIN POINT EASTING (3157430.855') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999737547) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157430.855')  
SPE=[(SITE EASTING-+125)\*0.999737547]+3157430.855

SITE 3  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####) LESS(-) THE SITE ORIGIN POINT NORTHING (1676388.116') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999732689) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1676388.116')  
SPN=[(SITE NORTHING-1676388.116)\*0.999732689]+1676388.116'

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####) LESS (-) THE SITE ORIGIN POINT EASTING (3157352.117') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999732689) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157352.117')  
SPE=[(SITE EASTING-+3157352.117)\*0.999732689]+3157352.117'

SITE 4  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####) LESS(-) THE SITE ORIGIN POINT NORTHING (1675676.799') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1675676.799')  
SPN=[(SITE NORTHING-1675676.799)\*0.999733007]+1675676.799'

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####) LESS (-) THE SITE ORIGIN POINT EASTING (3157469.916') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157469.916')  
SPE=[(SITE EASTING-+3157469.916)\*0.999733007]+3157469.916'

SITE 5  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####) LESS(-) THE SITE ORIGIN POINT NORTHING (1674996.912') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1674996.912')  
SPN=[(SITE NORTHING-1674996.912)\*0.999733007]+1674996.912'

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####) LESS (-) THE SITE ORIGIN POINT EASTING (3157484.856') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157484.856')  
SPE=[(SITE EASTING-+3157484.856)\*0.999733007]+3157484.856'

GENERAL NOTES:

- ALL CENTERLINE AND OFFSET STATIONING MAY NOT REPRESENT THE CENTERLINE AS CONSTRUCTED IN THE FIELD.
- REFER TO THE M-629-1 SURVEY MONUMENTS OF THE STANDARD PLANS DATED JULY, 2012 FOUND IN THE COLORADO DEPARTMENT OF TRANSPORTATION, M & S STANDARDS FOR SURVEY MONUMENT DESCRIPTIONS.
- THIS PLAN SET IS SUBJECT TO CHANGE AND MAY NOT BE THE MOST CURRENT SET. IT IS THE USER'S RESPONSIBILITY TO VERIFY WITH CDOT THAT THIS SET IS THE MOST CURRENT. THE INFORMATION CONTAINED ON THE ATTACHED DRAWING IS NOT VALID UNLESS THIS COPY BEARS AN ORIGINAL SIGNATURE OF THE PROFESSIONAL LAND SURVEYOR HEREON NAMED.

QUANTITY OF MONUMENTS STAKED

CAP TYPE	MONUMENT TYPE									
	1	1A	2	2A	3	3A	4	5	5(S)	6
REFERENCE										
ROW										
CONTROL										
ALIQUOT CORNER										
PERMANENT EASEMENT										
PROJECT POINTS									25	
WITNESS POST (REQUIRED)										

NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY 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.

BASIS OF BEARINGS:  
BEARINGS ARE BASED ON WEST LINE OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 19, TOWNSHIP 4 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, AS MONUMENTED AT THE NORTH END BY A 3-1/4" ALUMINUM CAP STAMPED "LS 35585" IN RANGE BOX, AND AT THE SOUTH END BY A 2-1/2" ALUMINUM CAP "LS 2352" IN RANGE BOX. SAID LINE BEARS N00°23'14"W AS OBTAINED FROM A GLOBAL POSITIONING SYSTEM (GPS) SURVEY BASED ON NAD 1983 (1992), COLORADO STATE PLANE (CENTRAL ZONE 502), AS MONUMENTED AND SHOWN HEREON.

BASIS OF ELEVATIONS:  
VERTICAL CONTROL FOR THIS PROJECT WAS ESTABLISHED BY DIFFERENTIAL LEVELING FROM CONTROL POINT 206C, A CITY AND COUNTY OF DENVER BENCHMARK. THE PUBLISHED NAVD88 ORTHOMETRIC HEIGHT (ELEVATION) IS 5397.97 FT.

4.13.2017 h:\2015\pds\152004\cdo\blvd\feater\2015\topo-row\cdot\cdo\blvd\feater\2015\standard\CDOT ROW PLAN.dwg Updated By: staley



Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



**HCL**  
Engineering & Surveying, LLC  
5600 SOUTH QUEBEC ST. STE 2056  
GREENWOOD VILLAGE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Right of Way Plans

Monumentation Sheet

Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.13.17	5.01 to 5.02	5.02

**TABULATION OF PERMANENT EASEMENT POINTS TO BE STAKED**

Point No.	Northing (ft)	Easting (ft)	Description
27001	1681141.817	3157426.236	PERMANENT EASEMENT POINT
27002	1681154.172	3157426.176	PERMANENT EASEMENT POINT
27003	1681154.191	3157429.867	PERMANENT EASEMENT POINT
27004	1681148.971	3157430.000	PERMANENT EASEMENT POINT
27005	1681148.449	3157429.976	PERMANENT EASEMENT POINT
27006	1681148.415	3157428.956	PERMANENT EASEMENT POINT
27007	1681145.657	3157428.937	PERMANENT EASEMENT POINT
27008	1681145.671	3157429.383	PERMANENT EASEMENT POINT
27009	1681141.844	3157429.195	PERMANENT EASEMENT POINT
27020	1681128.907	3157439.396	PERMANENT EASEMENT POINT
27021	1681132.635	3157439.319	PERMANENT EASEMENT POINT
27022	1681132.811	3157442.324	PERMANENT EASEMENT POINT
27023	1681132.346	3157442.308	PERMANENT EASEMENT POINT
27024	1681132.202	3157444.799	PERMANENT EASEMENT POINT
27025	1681132.581	3157444.812	PERMANENT EASEMENT POINT
27026	1681132.620	3157449.881	PERMANENT EASEMENT POINT
27027	1681129.028	3157449.916	PERMANENT EASEMENT POINT

**TABULATION OF PERMANENT EASEMENT POINTS TO BE STAKED**

Point No.	Northing (ft)	Easting (ft)	Description
45000	1675840.498	3157348.076	PERMANENT EASEMENT POINT
45001	1675811.876	3157348.364	PERMANENT EASEMENT POINT
45002	1675811.288	3157318.860	PERMANENT EASEMENT POINT
45003	1675820.844	3157318.748	PERMANENT EASEMENT POINT
45004	1675820.992	3157328.710	PERMANENT EASEMENT POINT
45005	1675822.494	3157332.000	PERMANENT EASEMENT POINT
45010	1675766.647	3157341.214	PERMANENT EASEMENT POINT
45011	1675753.244	3157340.913	PERMANENT EASEMENT POINT
45012	1675756.159	3157336.360	PERMANENT EASEMENT POINT
45013	1675763.010	3157329.320	PERMANENT EASEMENT POINT
45014	1675762.901	3157316.449	PERMANENT EASEMENT POINT
45015	1675766.846	3157316.388	PERMANENT EASEMENT POINT
45016	1675766.995	3157340.521	PERMANENT EASEMENT POINT

**TABULATION OF PERMANENT EASEMENT POINTS TO BE STAKED**

Point No.	Northing (ft)	Easting (ft)	Description
38001	1676484.425	3157360.581	PERMANENT EASEMENT POINT
38002	1676484.265	3157337.967	PERMANENT EASEMENT POINT
38003	1676484.936	3157337.962	PERMANENT EASEMENT POINT
38004	1676484.949	3157339.310	PERMANENT EASEMENT POINT
38005	1676493.255	3157346.426	PERMANENT EASEMENT POINT
38006	1676493.294	3157351.916	PERMANENT EASEMENT POINT
38007	1676495.098	3157353.806	PERMANENT EASEMENT POINT
38008	1676500.723	3157353.769	PERMANENT EASEMENT POINT
38009	1676504.939	3157359.551	PERMANENT EASEMENT POINT
38010	1676504.945	3157360.444	PERMANENT EASEMENT POINT
38020	1676485.527	3157489.151	PERMANENT EASEMENT POINT
38021	1676486.527	3157489.144	PERMANENT EASEMENT POINT
38022	1676500.917	3157466.981	PERMANENT EASEMENT POINT
38023	1676504.039	3157466.959	PERMANENT EASEMENT POINT
38024	1676489.919	3157491.505	PERMANENT EASEMENT POINT
38025	1676490.122	3157523.017	PERMANENT EASEMENT POINT
38026	1676485.791	3157526.264	PERMANENT EASEMENT POINT
38030	1676417.535	3157483.312	PERMANENT EASEMENT POINT
38031	1676417.817	3157512.676	PERMANENT EASEMENT POINT
38032	1676416.521	3157512.160	PERMANENT EASEMENT POINT
38033	1676416.230	3157484.583	PERMANENT EASEMENT POINT
38034	1676414.855	3157483.242	PERMANENT EASEMENT POINT
38035	1676410.190	3157483.097	PERMANENT EASEMENT POINT
38036	1676407.994	3157480.187	PERMANENT EASEMENT POINT
38037	1676407.058	3157478.461	PERMANENT EASEMENT POINT
38040	1676415.777	3157339.885	PERMANENT EASEMENT POINT
38041	1676403.326	3157345.437	PERMANENT EASEMENT POINT
38042	1676415.736	3157334.140	PERMANENT EASEMENT POINT

**TABULATION OF TEMPORARY EASEMENT POINTS TO BE STAKED**

Point No.	Northing (ft)	Easting (ft)	Description
39001	1676489.122	3157317.864	TEMPORARY EASEMENT POINT
39002	1676489.263	3157337.772	TEMPORARY EASEMENT POINT
39003	1676505.258	3157355.442	TEMPORARY EASEMENT POINT
39004	1676539.758	3157355.212	TEMPORARY EASEMENT POINT
39005	1676539.791	3157360.212	TEMPORARY EASEMENT POINT
39006	1676484.122	3157317.900	TEMPORARY EASEMENT POINT

SITE COORDINATE DATUMS:  
SITE COORDINATES ARE MODIFIED COLORADO STATE PLANE CENTRAL ZONE 502 NAD '83/(92) COORDINATES. ALL COORDINATES AND DISTANCES ARE US SURVEY FOOT. THE SITE COORDINATES HAVE BEEN SCALED TO LOCAL GROUND ELEVATION FROM THE SITE ORIGIN POINT. THE COMBINED ELEVATION/SCALE FACTOR, OR SITE SCALE FACTOR, USED TO MODIFY THE COORDINATES FROM STATE PLANE TO SITE COORDINATES IS SITE SPECIFIC.

TO SCALE SITE COORDINATES TO COLORADO STATE PLANE ZONE 502 GRID COORDINATES USE THE FOLLOWING FORMULA WITH THE SITE SPECIFIC VARIABLES SHOWN.

SITE 1  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.###) LESS (-) THE SITE ORIGIN POINT NORTHING (1683107.506') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999739701) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1683107.506')  
SPN=[(SITE NORTHING-1683107.506)\*0.999739701]+1683107.506

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####.###) LESS (-) THE SITE ORIGIN POINT EASTING (3157289.017') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999739701) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157289.017')  
SPE=[(SITE EASTING-3157289.017)\*0.999739701]+3157289.017

SITE 2  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.###) LESS (-) THE SITE ORIGIN POINT NORTHING (1681007.908') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999737547) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1681007.908')  
SPN=[(SITE NORTHING-1681007.908)\*0.999737547]+1681007.908

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####.###) LESS (-) THE SITE ORIGIN POINT EASTING (3157430.855') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999737547) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157430.855')  
SPE=[(SITE EASTING-3157430.855)\*0.999737547]+3157430.855

SITE 3  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.###) LESS (-) THE SITE ORIGIN POINT NORTHING (1676388.116') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999732689) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1676388.116')  
SPN=[(SITE NORTHING-1676388.116)\*0.999732689]+1676388.116

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####.###) LESS (-) THE SITE ORIGIN POINT EASTING (3157352.117') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999732689) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157352.117')  
SPE=[(SITE EASTING-3157352.117)\*0.999732689]+3157352.117

SITE 4  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.###) LESS (-) THE SITE ORIGIN POINT NORTHING (1675676.799') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1675676.799')  
SPN=[(SITE NORTHING-1675676.799)\*0.999733007]+1675676.799

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####.###) LESS (-) THE SITE ORIGIN POINT EASTING (3157469.916') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157469.916')  
SPE=[(SITE EASTING-3157469.916)\*0.999733007]+3157469.916

SITE 5  
STATE PLANE COORDINATES NORTHING = THE DIFFERENCE OF THE SITE COORDINATE NORTHING (#####.###) LESS (-) THE SITE ORIGIN POINT NORTHING (1674996.912') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT NORTHING (1674996.912')  
SPN=[(SITE NORTHING-1674996.912)\*0.999733007]+1674996.912

STATE PLANE COORDINATES EASTING = THE DIFFERENCE OF THE SITE COORDINATE EASTING (#####.###) LESS (-) THE SITE ORIGIN POINT EASTING (3157484.856') THEN MULTIPLIED (\*) BY THE SITE SCALE FACTOR (0.999733007) THEN ADDED TO (+) THE SITE ORIGIN POINT EASTING (3157484.856')  
SPE=[(SITE EASTING-3157484.856)\*0.999733007]+3157484.856

n:\2015 jobs\152004 celo bld faster 2015 topo-row.dwg\152004 celo bld faster 2015 celo bld - standard\CDOT ROW PLAN.dwg Updated By: sholley 4.13.2017

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



DENVER  
THE MILE HIGH CITY



5600 SOUTH QUEBEC ST., STE 205B  
GREENWOODVILLE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Right of Way Plans

Plan Sheet - Virginia Avenue - Site 1

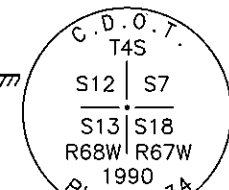
Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.13.17	7.01 to 7.07	7.01

4.13.2017 H:\2015 jobs\152004 colo bvd foster 2015 topo-row.dwg 152004 colo bvd foster 2015 colo bvd - standard\20161118 New TB\VRGINIA 7.07.dwg Updated By: scalley

NE1/4  
SECTION 13  
T4S, R68W, 6TH P.M.

TRUSTEE CITIZENS BANK,  
NATIONAL ASSOC.  
PARCEL A  
RECEPTION NO. 2016059034  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

E. ALAMEDA AVENUE

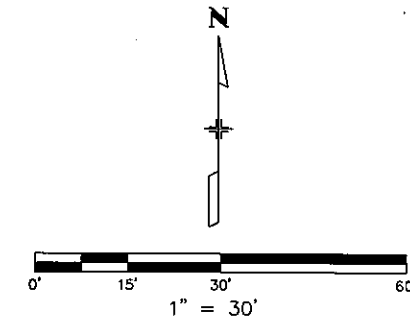


NW 1/4  
SECTION 18  
T4S, R67, 6TH P.M.

SHOT GUN WILLIES  
490 S COLORADO BLVD.

ANTHONY MARINO TRUST  
RECEPTION NO. R2881811  
DB 5247, PG. 366 (08-27-1987)  
ARAPAHOE COUNTY  
CLERK AND RECORDER'S OFFICE

10101  
N 1683107.506  
E 3157289.017  
EL 5342.31



SITE 1

CHERRY CREEK DRIVE NORTH  
(ROW VARIES)

S. COLORADO BLVD.  
(ROW VARIES)

CITY AND COUNTY OF DENVER

CITY OF GLENDALE, ARAPAHOE COUNTY

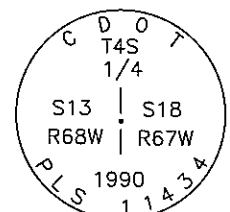
E. VIRGINIA AVENUE  
(ROW VARIES)

CITY OF GLENDALE  
500 S. COLORADO BLVD.  
DB 4366, PG. 557 (02-08-1985)  
ARAPAHOE COUNTY CLERK  
AND RECORDER'S OFFICE

TAKAYAMA PARK  
CITY AND COUNTY OF DENVER

10102

E. EXPOSITION AVENUE





2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

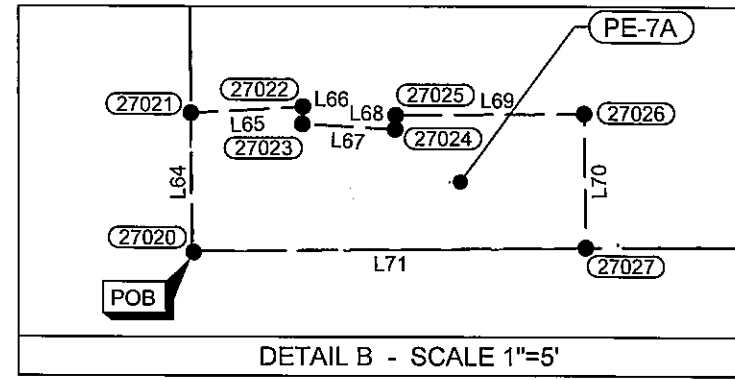
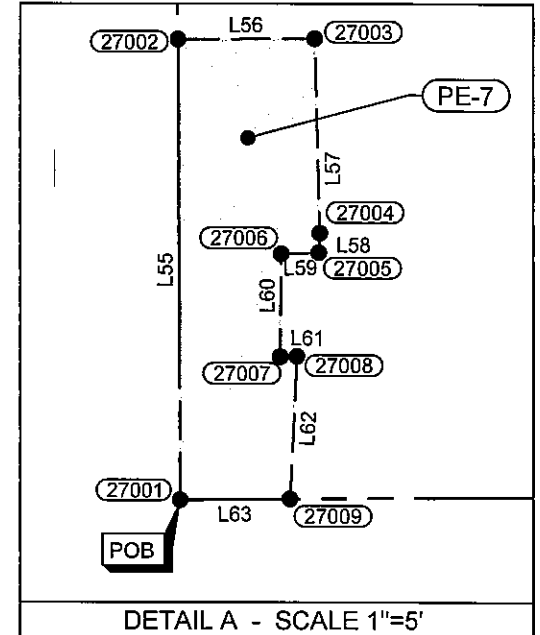
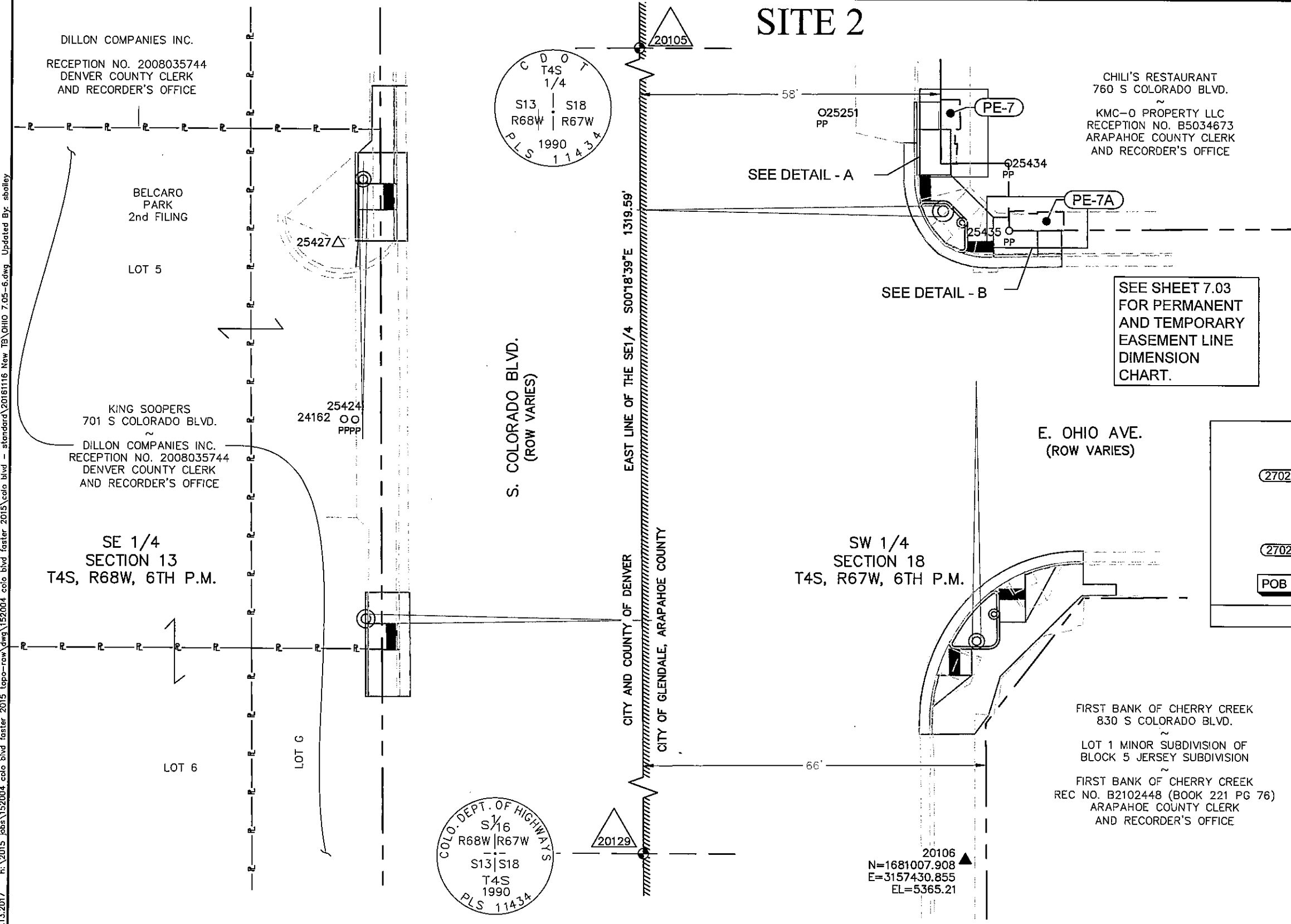
Sheet Revisions

Date	Description	Initials

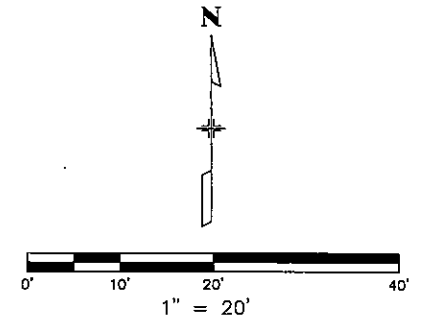


Right of Way Plans			
Plan Sheet - Ohio Avenue - Site 2			
Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.10.17	7.01 to 7.07	7.02

SITE 2



- PE-7 KMC-O PROPERTY LLC
- PE-7A KMC-O PROPERTY LLC



4.13.2017 h:\2015\_fba\152004\_colo\_bvd\_faster\_2015\_topo-row\dwg\152004\_colo\_bvd\_faster\_2015\std\152004\_colo\_bvd\_faster\_2015.dwg Updated By: sbilly

Colorado Department of Transportation



2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



DENVER  
THE MILE HIGH CITY



Engineering &  
Surveying, LLC  
5600 SOUTH QUEBEC ST., STE 205E  
GREENWOOD VILLAGE, CO. 80111  
P: (303) 773-1805  
HCL Project No: 152004

Right of Way Plans

<b>Plan Sheet – Ohio Avenue – Site 2</b>			
Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD – FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.10.17	7.01 to 7.07	7.03

PE-7 Line Table		
Line No.	Bearing	Distance
L55	N00°16'56"W	12.36'
L56	N89°42'52"E	3.69'
L57	S01°27'22"E	5.22'
L58	S02°35'48"W	0.52'
L59	S88°07'04"W	1.02'
L60	S00°23'43"W	2.76'
L61	N88°07'04"E	0.45'
L62	S02°49'29"W	3.83'
L63	S89°29'24"W	2.96'

PE-7A Line Table		
Line No.	Bearing	Distance
L64	N00°30'36"W	3.70'
L65	N86°38'10"E	3.01'
L66	S01°59'24"W	0.47'
L67	S86°40'49"E	2.49'
L68	N01°59'24"E	0.38'
L69	N89°33'09"E	5.07'
L70	S00°33'45"E	3.59'
L71	S89°29'24"W	10.56'

SITE 2

h:\2015 jobs\152004 colo blvd faster 2015 topo-row.dwg\152004 colo blvd faster 2015\coloblv\coloblv.dwg - standard\20161116 New TB\OHIO 7.05-8.dwg Updated By: sballoy 4.13.2017





Region 1

KJL

Sheet Revisions

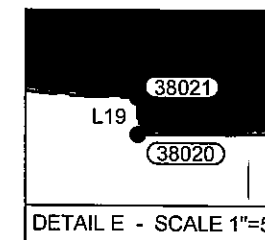
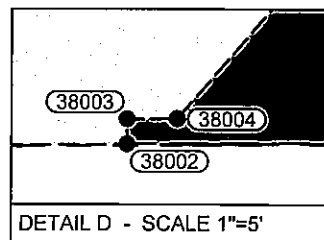
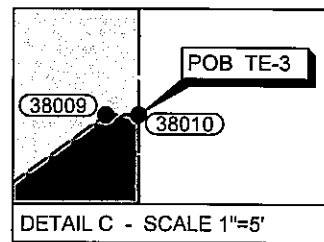
Date	Description	Initials

Sheet Revisions

Date	Description	Initials



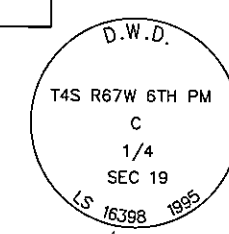
Right of Way Plans			
Plan Sheet - Florida Avenue - Site 3			
Project Number:	SHE M320-092		
Project Location:	COLORADO BOULEVARD - FASTER 2015		
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Lost Mod. Date	Subset	Sheet No.
20303	04.13.17	7.01 to 7.07	7.04



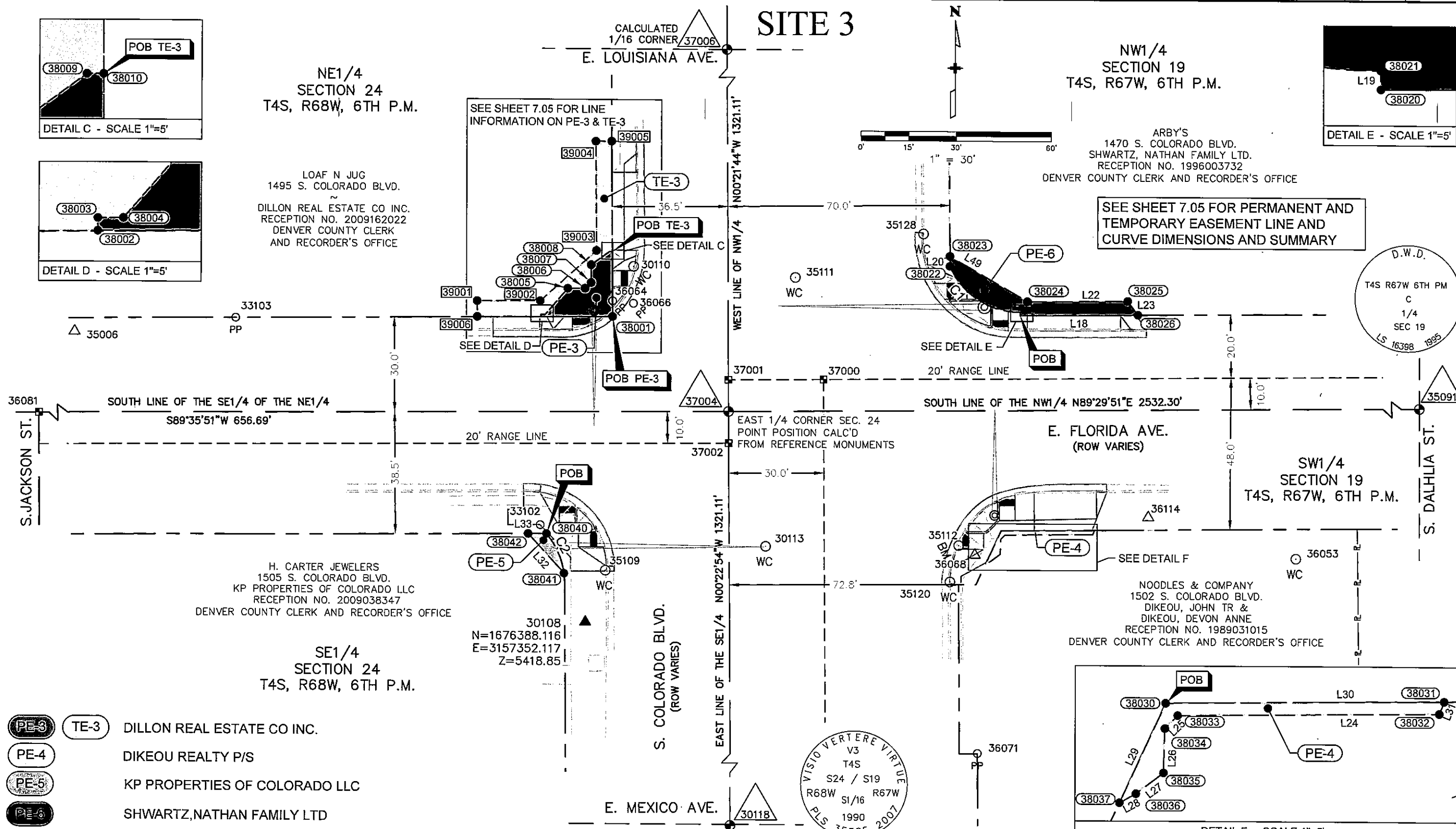
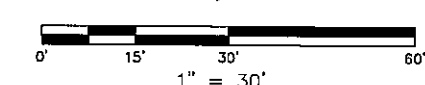
NW1/4 SECTION 19 T4S, R67W, 6TH P.M.

ARBY'S  
1470 S. COLORADO BLVD.  
SHWARTZ, NATHAN FAMILY LTD.  
RECEPTION NO. 1996003732  
DENVER COUNTY CLERK AND RECORDER'S OFFICE

SEE SHEET 7.05 FOR PERMANENT AND TEMPORARY EASEMENT LINE AND CURVE DIMENSIONS AND SUMMARY



SITE 3



NE1/4 SECTION 24 T4S, R68W, 6TH P.M.

LOAF N JUG  
1495 S. COLORADO BLVD.  
DILLON REAL ESTATE CO INC.  
RECEPTION NO. 2009162022  
DENVER COUNTY CLERK AND RECORDER'S OFFICE

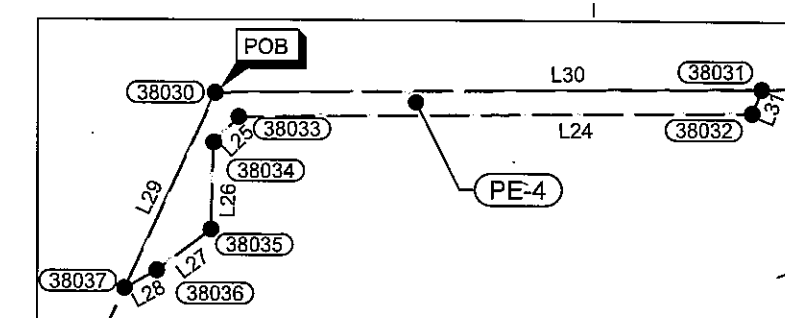
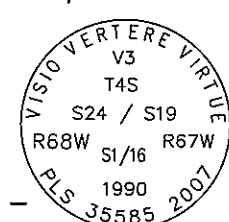
H. CARTER JEWELERS  
1505 S. COLORADO BLVD.  
KP PROPERTIES OF COLORADO LLC  
RECEPTION NO. 2009038347  
DENVER COUNTY CLERK AND RECORDER'S OFFICE

SE1/4 SECTION 24 T4S, R68W, 6TH P.M.

E. FLORIDA AVE. (ROW VARIES)

NOODLES & COMPANY  
1502 S. COLORADO BLVD.  
DIKEOU, JOHN TR & DIKEOU, DEVON ANNE  
RECEPTION NO. 1989031015  
DENVER COUNTY CLERK AND RECORDER'S OFFICE

- PE-3 DILLON REAL ESTATE CO INC.
- PE-4 DIKEOU REALTY P/S
- PE-5 KP PROPERTIES OF COLORADO LLC
- PE-6 SHWARTZ, NATHAN FAMILY LTD



4.13.2017 n:\2015 jobs\152004 colo blvd faster 2015 topo-row.dwg\152004 colo blvd faster 2015\colorado blvd - standard\20151116 New TB\FLORIDA 7.03-4.cwg Updated By: stobley



Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials

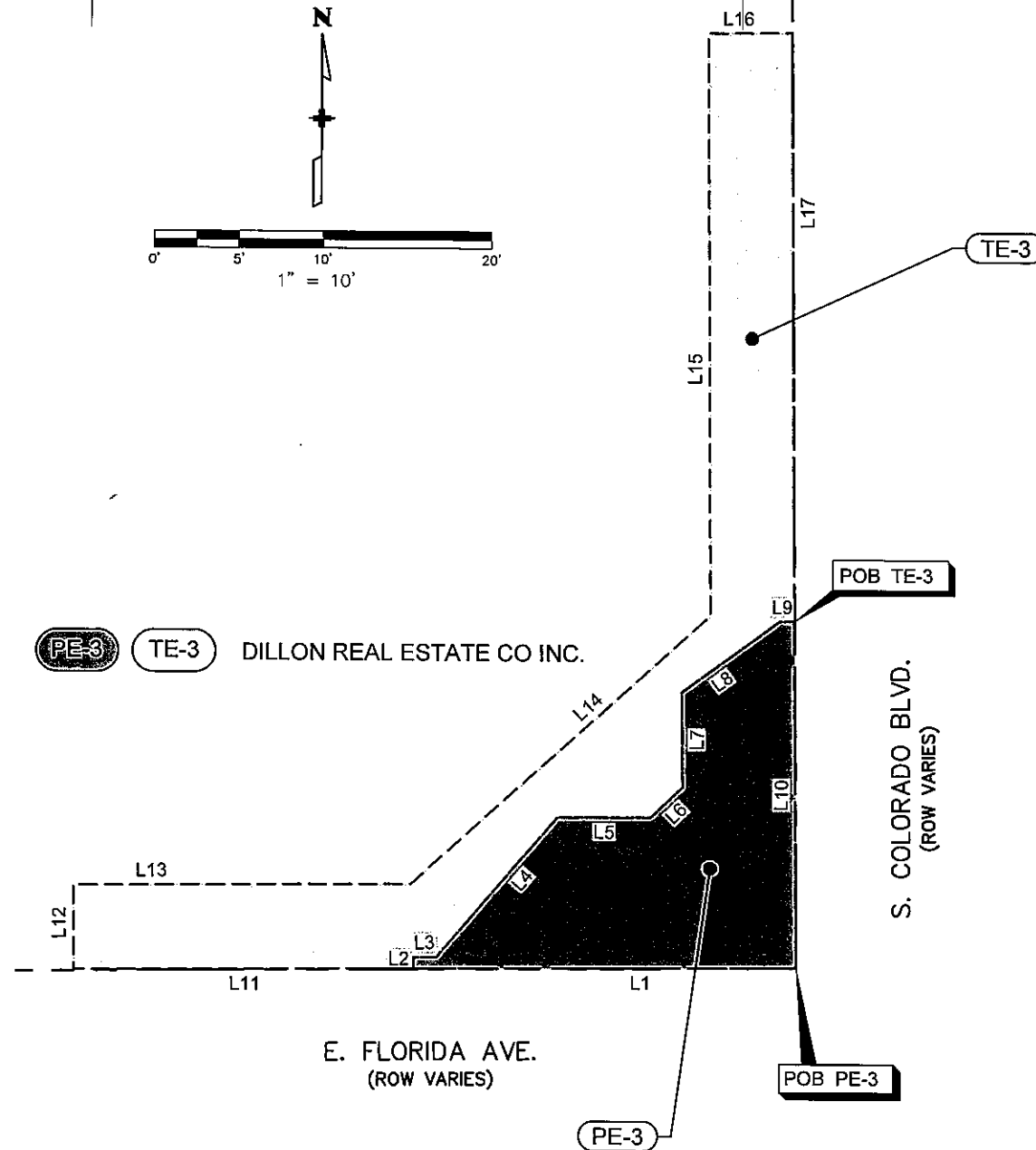


Right of Way Plans

Plan Sheet - Florida Avenue - Site 3

Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.10.17	7.01 to 7.07	7.05

SITE 3



PE-3 Line Table

Line No.	Bearing	Length (ft)
L1	S89°35'35"W	22.61
L2	N0°24'25"W	0.67
L3	N89°28'42"E	1.35
L4	N40°35'09"E	10.94
L5	N89°35'35"E	5.49
L6	N46°20'36"E	2.61
L7	N0°22'54"W	5.63
L8	N53°54'11"E	7.16
L9	N89°37'06"E	0.89
L10	S0°22'54"E	20.52

TE-3 Line Table

Line No.	Bearing	Length (ft)
L9	S89°37'06"W	0.89
L8	S53°54'11"W	7.16
L7	S0°22'54"E	5.63
L6	S46°20'36"W	2.61
L5	S89°35'35"W	5.49
L4	S40°35'09"W	10.94
L3	S89°28'42"W	1.35
L2	S0°24'25"E	0.67
L11	S89°35'35"W	20.07
L12	N0°24'25"W	5.00
L13	N89°35'35"E	19.91
L14	N47°50'58"E	23.83
L15	N0°22'54"W	34.50
L16	N89°37'06"E	5.00
L17	S0°22'54"E	34.85

PE-6 Line and Curve Table

Line/Curve No.	Chord/Bearing	Chord Dist/ Length (ft)	Radius (ft)	Delta	Arc Length (ft)
L19	N0°24'25"W	1.00			
C1	N57°00'17"W	26.42	23.99	66°49'53"	27.98
L20	N0°24'25"W	3.12			
L49	S60°05'23"E	28.32			
L22	N89°37'46"E	31.51			
L23	S36°51'35"E	5.41			
L18	S89°35'35"W	37.11			

PE-5 Line and Curve Table

Line/Curve No.	Chord/Bearing	Chord Dist/ Length (ft)	Radius (ft)	Delta	Arc Length (ft)
C2	S24°01'48"E	13.63	24.37	32°29'21"	13.82
L32	N42°18'36"W	16.78			
L33	N89°35'35"E	5.75			

PE-4 Line Table

Line No.	Bearing	Length (ft)
L30	N89°27'03"E	29.37
L31	S21°44'25"W	1.39
L24	S89°23'43"W	27.58
L25	S45°14'56"W	1.95
L26	S1°14'11"W	4.67
L27	S52°56'50"W	3.65
L28	S61°33'29"W	1.96
L29	N24°50'39"E	11.55



2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



DENVER  
THE MILE HIGH CITY



5600 SOUTH QUEBEC ST. STE 205E  
GREENWOOD VILLAGE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Right of Way Plans

Plan Sheet - Iowa Avenue - Site 4			
Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.10.17	7.01 to 7.07	7.06

PE-1 Line and Curve Table

Line Curve No.	Chord/Bearing	Chord Dist./Length (ft)	Radius	Delta	Arc Length (ft)
L45	S00°34'35"E	28.62			
L46	S88°51'34"W	29.51			
L55	N00°40'14"W	9.56			
L47	N89°08'55"E	9.96			
C4	N65°27'21"E	3.72	4.50	47°23'08"	3.62
L48	N41°45'47"E	24.14			

PE-2 Line and Curve Table

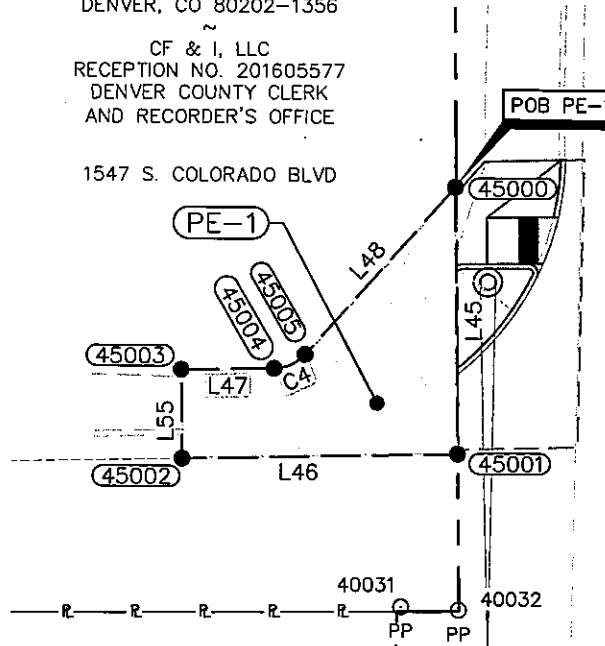
Line/Curve No.	Chord/Bearing	Chord Dist./Length (ft)	Radius	Delta	Arc Length (ft)
L49	S01°17'20"W	13.41			
L50	N57°21'56"W	5.41			
L51	N45°47'00"W	9.82			
L52	S89°30'42"W	12.87			
L53	N00°53'37"W	3.95			
L54	N89°38'46"E	24.13			
C5	S63°23'42"E	0.78	30.00	1°28'53"	0.78

SE 1/4 SECTION 24  
T4S, R68W, 6TH P.M.

CF & I, LLC  
1499 BLAKE ST, ID  
DENVER, CO 80202-1356

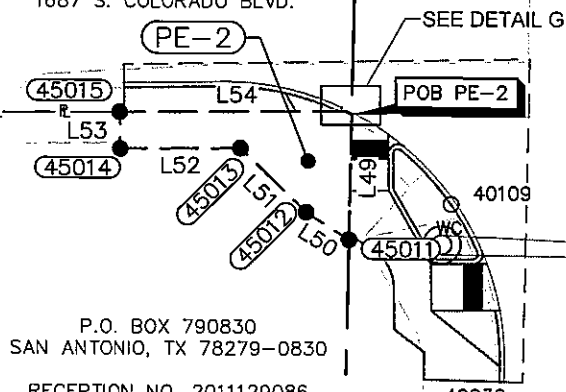
CF & I, LLC  
RECEPTION NO. 201605577  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

1547 S. COLORADO BLVD



SAFeway STORES 45 INC.  
RECEPTION NO. 1986056032  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

1687 S. COLORADO BLVD.



P.O. BOX 790830  
SAN ANTONIO, TX 78279-0830

RECEPTION NO. 2011129086  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

1629 S. COLORADO BLVD.

1/4 CORNER  
CALCULATED  
FROM TIES

SITE 4

SW 1/4 SECTION 19  
T4S, R67W, 6TH P.M.

DARDANOS COLORADO  
PROPERTIES  
RECEPTION NO. 1998037258  
DENVER COUNTY CLERK AND  
RECORDER'S OFFICE

1598 S COLORADO BLVD.

40110  
WC

40033

47005

20' RANGE LINE

E. IOWA AVE.  
(ROW VARIES)

20.00'

45.00'

40108

40391

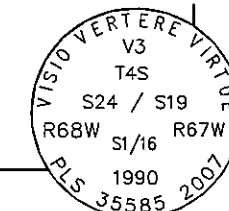
40141

CIRCLE K STORES INC.  
1600 S. COLORADO BLVD.

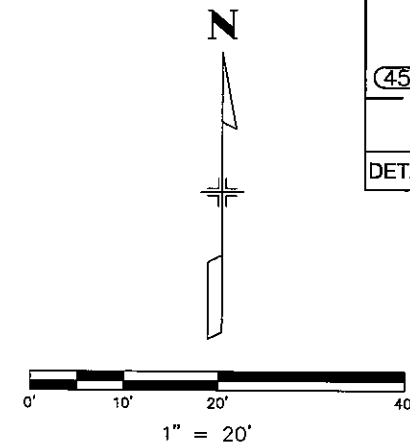
RECEPTION NO. 2006192398  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

40116

EL: 5404.85'  
N: 1675676.799'  
E: 3157469.916'



40118



- PE-1 CF & I, LLC
- PE-2 REGENCY CENTERS LP

4.13.2017 h:\2015 jobs\152004 celo blvd faster 2015 topo-row.dwg\152004 celo blvd faster 2015 standard\20161116 New TB\IOWA 7.02.dwg Updated By: shobley

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



Right of Way Plans			
Plan Sheet - Mexico Avenue - Site 5			
Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.10.17	7.01 of 7.07	7.07

4.13.2017 h:\2015\pba\152004\cslo blvd faster 2015\topp-row\dwg\152004 cslo blvd faster 2015\cslo blvd - standard\2015\116 New TB\7.07 Plan Sheet - Mexico Avenue - Site 5.dwg Updated By: sballely

NE1/4, SE1/4  
SECTION 24  
T4S, R68W, 6TH P.M.

LA PEEP RESTAURANT  
1685 S. COLORADO BLVD. UNIT 1699

REGENCY CENTERS LP  
CORONADO BLOCK 3 & 4  
RECEPTION NO. 1999057275  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

NORTH LINE OF THE SE1/4, SE1/4

CENTER POINT ONE LLC  
3900 E. MEXICO AVE.  
RECEPTION NO 2013000862  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

SE1/4, SE1/4  
SECTION 24  
T4S, R68W, 6TH P.M.

1/4 CORNER  
CALCULATED  
FROM TIES

57005 E. FLORIDA AV

SITE 5

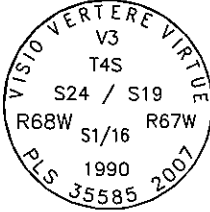
NW 1/4, SW 1/4  
SECTION 19  
T4S, R67W, 6TH P.M.

CONOCO STATION  
1695 S. COLORADO BLVD.

CF UNITED PROPCO LLC  
RECEPTION NO. 2015087711  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

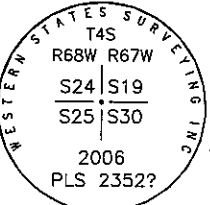
35' RANGE LINE  
NORTH LINE OF THE SW1/4, SW1/4

E. MEXICO AVE.  
(ROW VARIES)

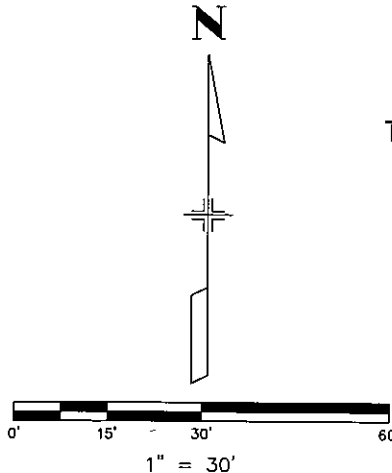


EAST LINE OF THE SE1/4, SE1/4 500'23'14"E 1321.61'

S. COLORADO BLVD.  
(ROW VARIES)



INTERSTATE 25



Colorado Department of Transportation



2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



DENVER  
THE MILE HIGH CITY



5600 SOUTH QUEBEC ST., STE. 2050  
GREENWOODVILLE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Right of Way Plans

Ownership Map - Virginia Avenue

Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.10.17	8.01 to 8.05	8.01

4.13.2017 h:\2015\pba\152004\colo blvd foster 2015\topo-row.dwg 2015\topo-row.dwg 152004\colo blvd foster 2015\colo blvd - standard\20161116 New TB\VRCHIA 7.07.dwg Updated By: sballey

NE1/4  
SECTION 13  
T4S, R68W, 6TH P.M.

TRUSTEE CITIZENS BANK,  
NATIONAL ASSOC.  
PARCEL A  
RECEPTION NO. 2016059034  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

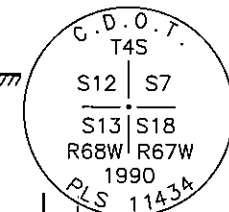
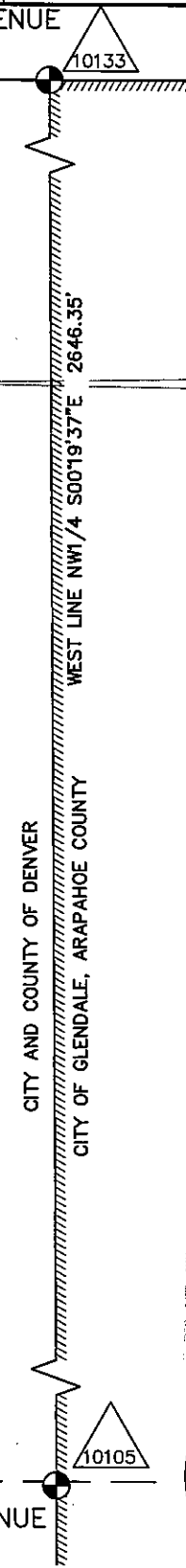
CHERRY CREEK DRIVE NORTH  
(ROW VARIES)

TAKAYAMA PARK  
CITY AND COUNTY OF DENVER

E. ALAMEDA AVENUE

S. COLORADO BLVD.  
(ROW VARIES)

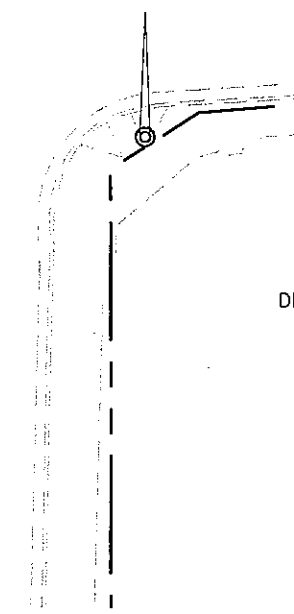
E. EXPOSITION AVENUE



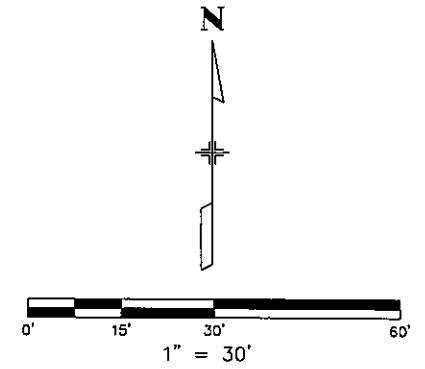
NW 1/4  
SECTION 18  
T4S, R67, 6TH P.M.

SHOT GUN WILLIES  
490 S COLORADO BLVD.  
ANTHONY MARINO TRUST  
RECEPTION NO. R2881811  
DB 5247, PG. 366 (08-27-1987)  
ARAPAHOE COUNTY  
CLERK AND RECORDER'S OFFICE

E. VIRGINIA AVENUE  
(ROW VARIES)



CITY OF GLENDALE  
500 S. COLORADO BLVD.  
DB 4366, PG. 557 (02-08-1985)  
ARAPAHOE COUNTY CLERK  
AND RECORDER'S OFFICE



SITE 1



Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



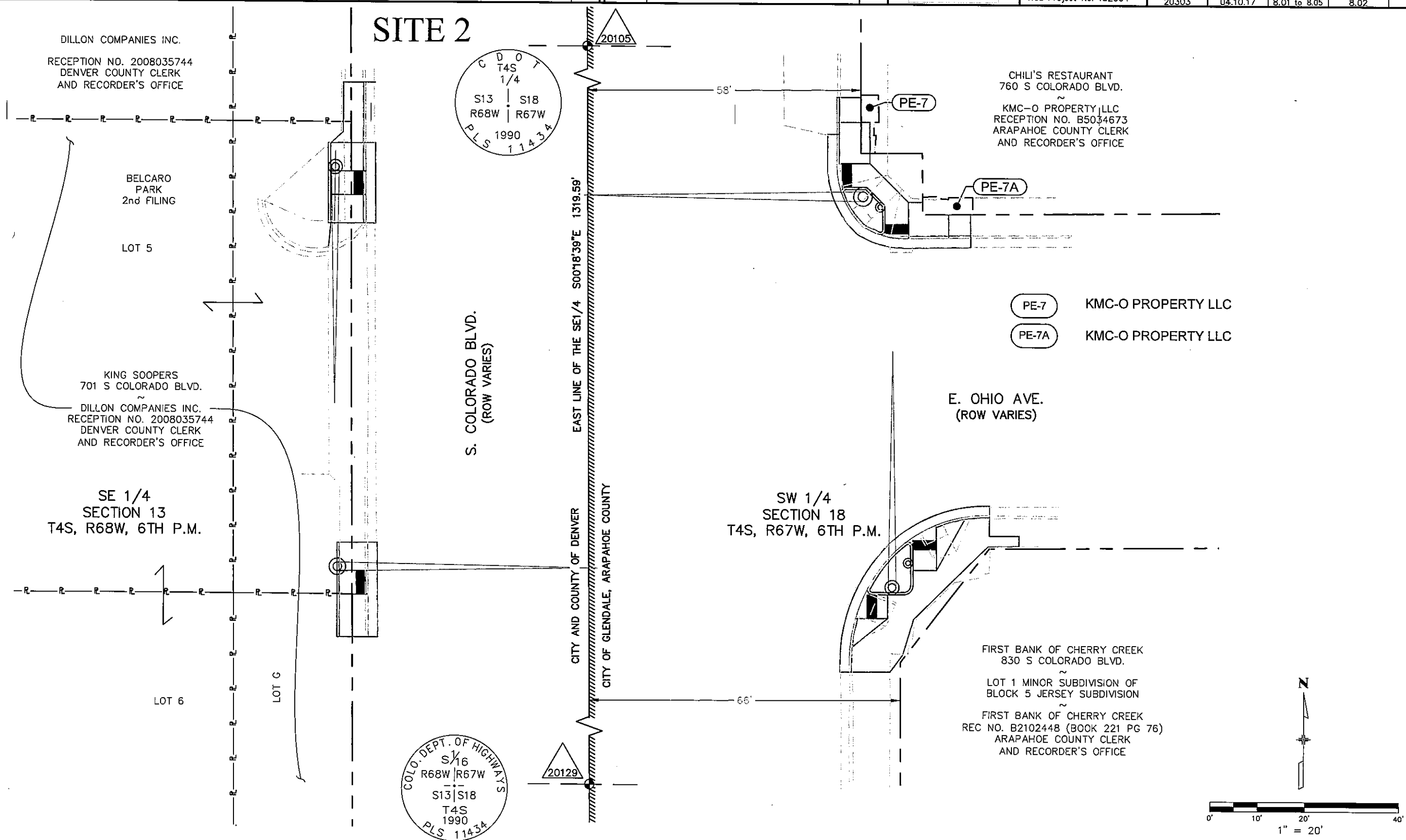
Right of Way Plans

Ownership Map - Ohio Avenue

Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code	Last Mod. Date	Subset	Sheet No.
20303	04.10.17	8.01 to 8.05	8.02

4.13.2017 h:\2015 jobs\152004 colo blvd foster 2015 tepp-row.dwg 2015 tepp-row.dwg\152004 colo blvd foster 2015\colo blvd - standard\20161116 New TB\OHIO 7.05-6.dwg Updated By: shalley

SITE 2





2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



DENVER  
THE MILE HIGH CITY



Engineering &  
Surveying, LLC  
5600 SOUTH QUEBEC ST., STE 205E  
GREENWOOD VILLAGE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Right of Way Plans

Ownership Map - Florida Avenue

Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code: 20303	Last Mod. Date: 04.13.17	Subset: 8.01 to 8.05	Sheet No.: 8.03

SITE 3

NE1/4  
SECTION 24  
T4S, R68W, 6TH P.M.

NW1/4  
SECTION 19  
T4S, R67W, 6TH P.M.

LOAF N JUG  
1495 S. COLORADO BLVD.  
DILLON REAL ESTATE CO INC.  
RECEPTION NO. 2009162022  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

ARBY'S  
1470 S. COLORADO BLVD.  
SHWARTZ, NATHAN FAMILY LTD.  
RECEPTION NO. 1996003732  
DENVER COUNTY CLERK AND RECORDER'S OFFICE

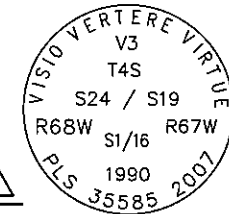
H. CARTER JEWELERS  
1505 S. COLORADO BLVD.  
KP PROPERTIES OF COLORADO LLC  
RECEPTION NO. 2009038347  
DENVER COUNTY CLERK AND RECORDER'S OFFICE

NOODLES & COMPANY  
1502 S. COLORADO BLVD.  
DIKEOU, JOHN TR &  
DIKEOU, DEVON ANNE  
RECEPTION NO. 1989031015  
DENVER COUNTY CLERK AND RECORDER'S OFFICE

SE1/4  
SECTION 24  
T4S, R68W, 6TH P.M.

SW 1/4  
SECTION 19  
T4S, R67W, 6TH P.M.

- PE-3 DILLON REAL ESTATE CO INC.
- PE-4 DIKEOU REALTY P/S
- PE-5 KP PROPERTIES OF COLORADO LLC
- PE-6 SHWARTZ, NATHAN FAMILY LTD



4.13.2017 h:\2015 jobs\152004 celo blvd faster 2015 logo-row\dwg\152004 celo blvd faster 2015\celo blvd - standard\20151116 New TAB\FLORIDA 7.03-4.dwg. Updated By: shalley



2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



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Engineering &  
Surveying, LLC  
5600 SOUTH QUEBEC ST. STE 205E  
GREENWOOD VILLAGE, CO. 80111  
P. (303) 773-1605  
HCL Project No: 152004

Right of Way Plans

Ownership Map - Iowa Avenue

Project Number: SHE M320-092
Project Location: COLORADO BOULEVARD - FASTER 2015
CITY OF DENVER PROJECT NO. 2015-CIP-0000094
Project Code: Last Mod. Date Subset Sheet No.
20303 04.10.17 8.01 to 8.05 8.04

SE 1/4  
SECTION 24  
T4S, R68W, 6TH P.M.

CF & I, LLC  
1499 BLAKE ST, ID  
DENVER, CO 80202-1356

CF & I, LLC  
RECEPTION NO. 201605577  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

1547 S. COLORADO BLVD

PE-1

SAFEWAY STORES 45 INC.  
RECEPTION NO. 1986056032  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

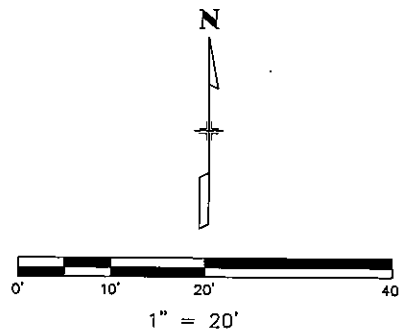
1687 S. COLORADO BLVD.

PE-2

P.O. BOX 790830  
SAN ANTONIO, TX 78279-0830

RECEPTION NO. 2011129086  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

1629 S. COLORADO BLVD.



PE-1 CF & I, LLC

PE-2 REGENCY CENTERS LP

1/4 CORNER  
CALCULATED  
FROM TIES

47004

SITE 4

SW 1/4  
SECTION 19  
T4S, R67W, 6TH P.M.

DARDANOS COLORADO  
PROPERTIES  
RECEPTION NO. 1998037258  
DENVER COUNTY CLERK AND  
RECORDER'S OFFICE

1598 S COLORADO BLVD.

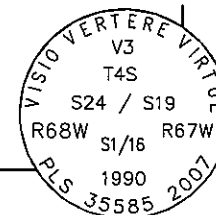
20' RANGE LINE

CIRCLE K STORES INC.  
1600 S. COLORADO BLVD.

RECEPTION NO. 2006192398  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

EAST LINE OF THE SE1/4 N00°22'54"W 1321.11'

20' RANGE LINE



40118

4.13.2017 h:\2015 jobs\152004 colo blvd faster 2015 topo-raw\dwg\152004 colo blvd faster 2015\colo blvd - standard\20161116 New TB\OWA 7.02.dwg Updated By: aboiley



Colorado Department of Transportation

 2000 S. Holly Street  
Denver, CO 80222  
Phone: 303-757-9923

Region 1

KJL

Sheet Revisions

Date	Description	Initials

Sheet Revisions

Date	Description	Initials



**HCL**  
Engineering &  
Surveying, LLC  
5600 SOUTH QUEBEC ST. STE 205E  
GREENWOOD VILLAGE, CO. 80111  
P: (303) 773-1605  
HCL Project No: 152004

Right of Way Plans

Ownership Map - Mexico Avenue

Project Number: SHE M320-092			
Project Location: COLORADO BOULEVARD - FASTER 2015			
CITY OF DENVER PROJECT NO. 2015-CIP-0000094			
Project Code:	Last Mod. Date:	Subset:	Sheet No.:
20303	04.10.17	8.01 of 8.05	8.05

4.13.2017 h:\2015\_jobs\152004\_colo\_bldv\_faster\_2015\_topo-row\dwg\152004\_colo\_bldv\_faster\_2015\_colo\_bldv - standard\20161116 New TB\7.07 Plan Sheet - Mexico Avenue - Site 5.dwg Updated By: sbolity

1/4 CORNER CALCULATED FROM TIES  
57005 E. FLORIDA AVE.

SITE 5

NE1/4, SE1/4  
SECTION 24  
T4S, R68W, 6TH P.M.

LA PEEP RESTAURANT  
1685 S. COLORADO BLVD. UNIT 1699  
~  
REGENCY CENTERS LP  
CORONADO BLOCK 3 & 4  
RECEPTION NO. 1999057275  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

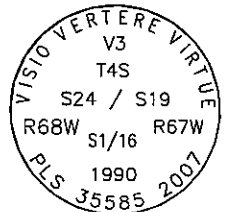
NW 1/4, SW 1/4  
SECTION 19  
T4S, R67W, 6TH P.M.

CONOCO STATION  
1696 S. COLORADO BLVD.  
~  
CF UNITED PROPCO LLC  
RECEPTION NO. 2015087711  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

NORTH LINE OF THE SE1/4, SE1/4

35' RANGE LINE  
NORTH LINE OF THE SW1/4, SW1/4

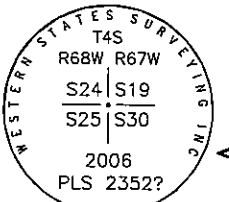
E. MEXICO AVE.  
(ROW VARIES)



CENTER POINT ONE LLC  
3900 E. MEXICO AVE.  
~  
RECEPTION NO 2013000862  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

SE1/4, SE1/4  
SECTION 24  
T4S, R68W, 6TH P.M.

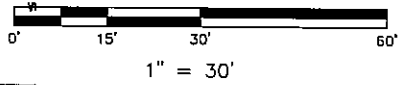
EAST LINE OF THE SE1/4, SE1/4 S00°23'14"E 1321.61'  
S. COLORADO BLVD.  
(ROW VARIES)



HACIENDA COLORADO  
4100 E. MEXICO AVE. UNIT G  
~  
STRADIVARIUS MEXICO LLC  
RECEPTION NO. 2007102193  
DENVER COUNTY CLERK  
AND RECORDER'S OFFICE

SW 1/4, SW 1/4  
SECTION 19  
T4S, R67W, 6TH P.M.

INTERSTATE 25 50123

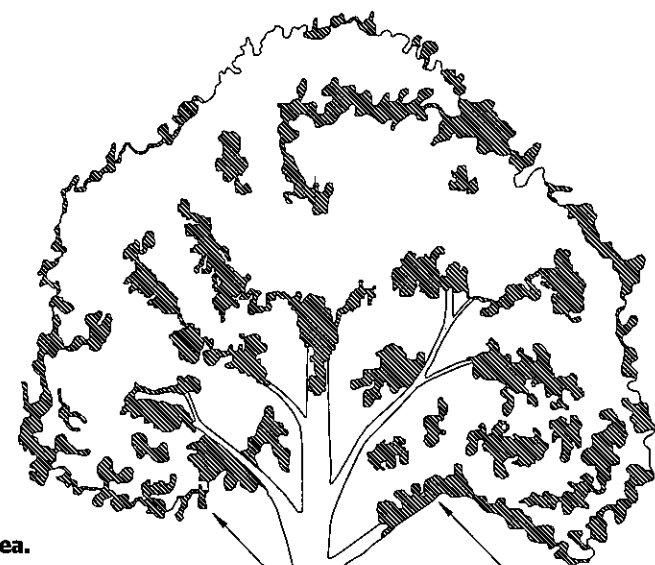




Know what's below.  
Call before you dig.

### TREE PROTECTION AREA

The area inside a perimeter established at the Critical Root Zone (CRZ). The CRZ is equal to the dripline, furthest extent of tree canopy, or is equal to one foot radially from the tree for every one inch of trunk diameter at breast height (DBH = 4.5' above soil line), or whichever is greater.



#### ZONE 1

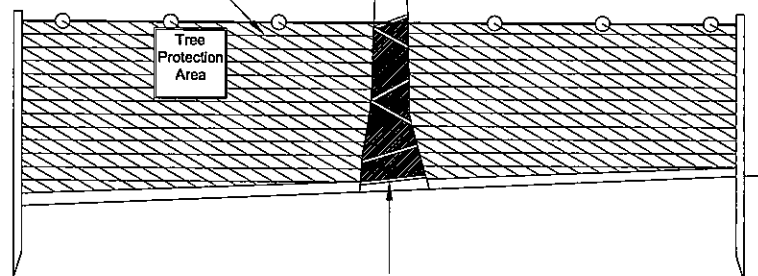
Denotes perimeter of tree protection area.

The following must be authorized by the City Forester prior to work commencement: Any digging, excavating, trenching, changing of grade, or other actions that may potentially impact the rooting environment. Work within the CRZ must take place in accordance with the conditions established by the City Forester.

#### ZONE 2

Lower Canopy Protection

Contact City Forester if any pruning is needed prior to work if potential for damage exists.

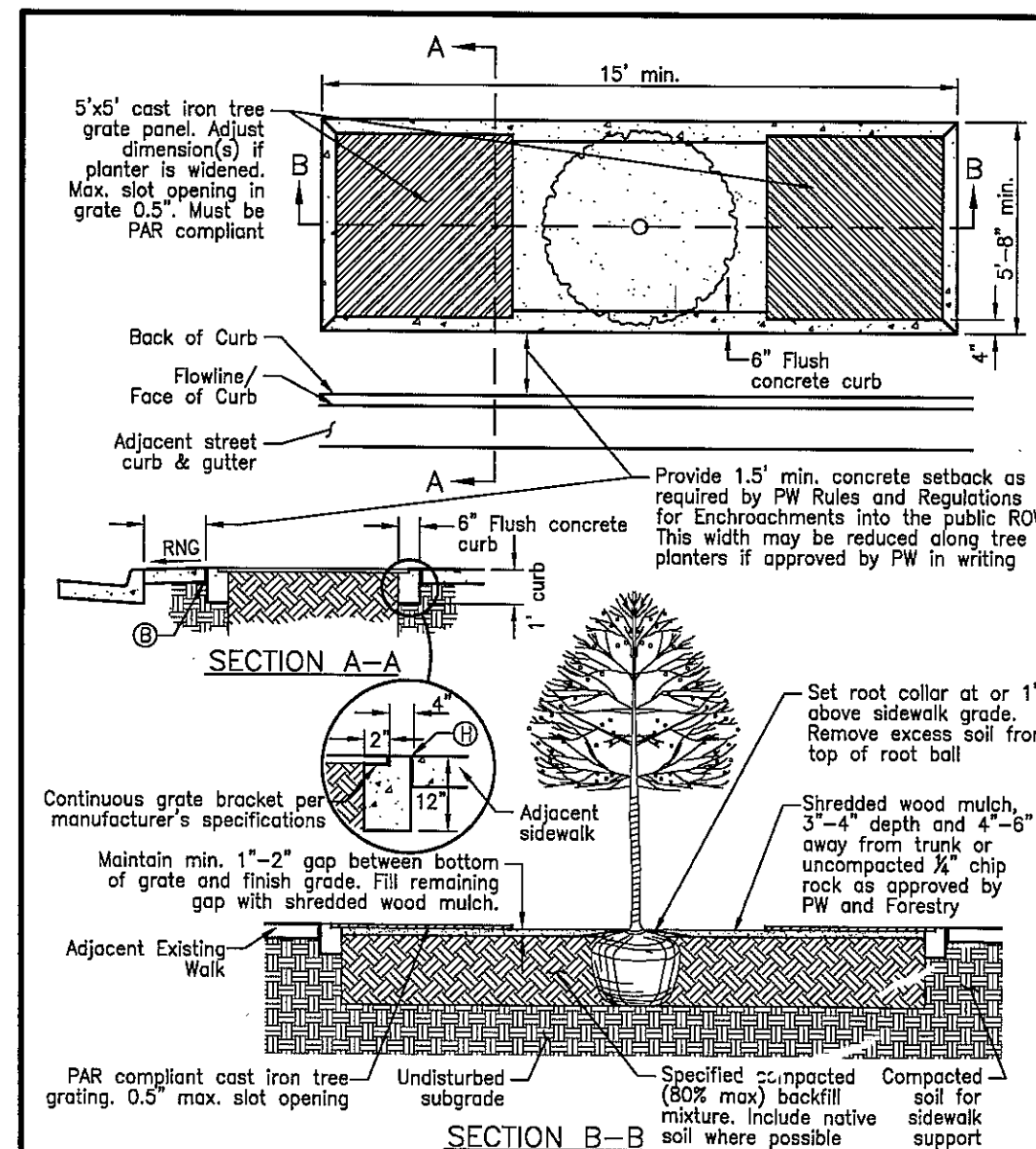
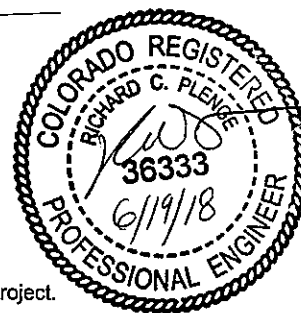


#### ZONE 3

Required if construction occurs within ten feet or less (permitted inside the CRZ only if equipment is operated exclusively on existing hardscape and no soil compaction takes place).

#### 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.



#### Notes:

- Tree planting per Office of the City Forester standards and specifications.
- For all new installations, automatic irrigation system shall be provided in open planting area.
- Concrete jointing and scoring outside open planting area shall be coordinated with PW field staff.

	City and County of Denver Transportation Standards & Details	Date: 04/17
	Tree Planter (Grates)	Std. Dwg. 13.1

Print Date:	June 14, 2017
File Name:	20303 ENV PL.DWG
Horiz. Scale:	##### Vertical Exag:
City Project Manager:	John Yu
	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.



#### DEPARTMENT OF PUBLIC WORKS

201 WEST COLFAX AVENUE  
DENVER, CO 80202  
PHONE: (720) 913-4501  
FAX: (720) 913-4544

#### As Constructed

No Revisions:

Revised:

Void:

#### COLORADO BOULEVARD 2015 SHE TREE PROTECTION DETAIL

Designer:	J. COLIP	Structure Numbers	
Detailer:	J. COLIP		
Sheet Subset:	ROADWAY	Subset Sheets:	1 of 1

#### Project Number

SHE M320-092

20303

#### Sheet Number

40

**MEXICO AVENUE REMOVAL TABULATIONS**

202-00195		202-00200		202-00203		202-00206		202-00210		202-00220	
REMOVAL OF MEDIAN COVER		REMOVAL OF SIDEWALK		REMOVAL OF CURB AND GUTTER		REMOVAL OF CONCRETE CURB RAMP		REMOVAL OF CONCRETE PAVEMENT		REMOVAL OF ASPHALT MAT	
SY		SY		LF		SY		SY		SY	
PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
<b>MEXICO SW RETURN</b>											
15		80		186		13		0		195	
<b>MEXICO NW RETURN</b>											
0		23		50		8		0		3	
<b>MEXICO NE RETURN</b>											
0		35		50		9		0		37	
<b>MEXICO SE RETURN</b>											
0		72		116		18		0		0	
<b>MEXICO SE ISLAND</b>											
19		0		77		9		0		29	
<b>IRREGULARITIES @ 8%</b>											
3		17		38		5		0		21	
<b>MEXICO AVENUE TOTALS</b>											
37		226		518		62		0		285	


**IOWA AVENUE REMOVAL TABULATIONS**

202-00195		202-00200		202-00203		202-00206		202-00210		202-00220	
REMOVAL OF MEDIAN COVER		REMOVAL OF SIDEWALK		REMOVAL OF CURB AND GUTTER		REMOVAL OF CONCRETE CURB RAMP		REMOVAL OF CONCRETE PAVEMENT		REMOVAL OF ASPHALT MAT	
SY		SY		LF		SY		SY		SY	
PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
<b>IOWA SW RETURN</b>											
0		35		60		11		41		0	
<b>IOWA NW RETURN</b>											
0		33		56		8		39		0	
<b>IOWA NE RETURN</b>											
0		28		59		16		0		15	
<b>IOWA SE RETURN</b>											
0		33		57		11		0		15	
<b>IRREGULARITIES @ 8%</b>											
0		10		18		4		6		2	
<b>IOWA AVENUE TOTALS</b>											
0		138		250		50		87		32	

**FLORIDA AVENUE REMOVAL TABULATIONS**

202-00195		202-00200		202-00203		202-00206		202-00210		202-00220	
REMOVAL OF MEDIAN COVER		REMOVAL OF SIDEWALK		REMOVAL OF CURB AND GUTTER		REMOVAL OF CONCRETE CURB RAMP		REMOVAL OF CONCRETE PAVEMENT		REMOVAL OF ASPHALT MAT	
SY		SY		LF		SY		SY		SY	
PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
<b>FLORIDA SW RETURN</b>											
0		26		41		8		0		24	
<b>FLORIDA NW RETURN</b>											
0		53		92		5		0		131	
<b>FLORIDA NE RETURN</b>											
0		51		86		8		0		40	
<b>FLORIDA SE RETURN</b>											
0		54		64		11		0		36	
<b>IRREGULARITIES @ 8%</b>											
0		15		23		3		0		18	
<b>FLORIDA AVENUE TOTALS</b>											
0		198		305		35		0		249	



Print Date: July 2, 2017  
 File Name: 20303 RM TB (01-02).DWG  
 Horiz. Scale:  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.



**DEPARTMENT OF PUBLIC WORKS**  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

As Constructed  
 No Revisions:  
 Revised:  
 Void:

**COLORADO BOULEVARD 2015 SHE**  
**REMOVAL TABULATIONS**  
**MEXICO AVE / IOWA AVE. / FLORIDA AVE.**  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROAD-TABS

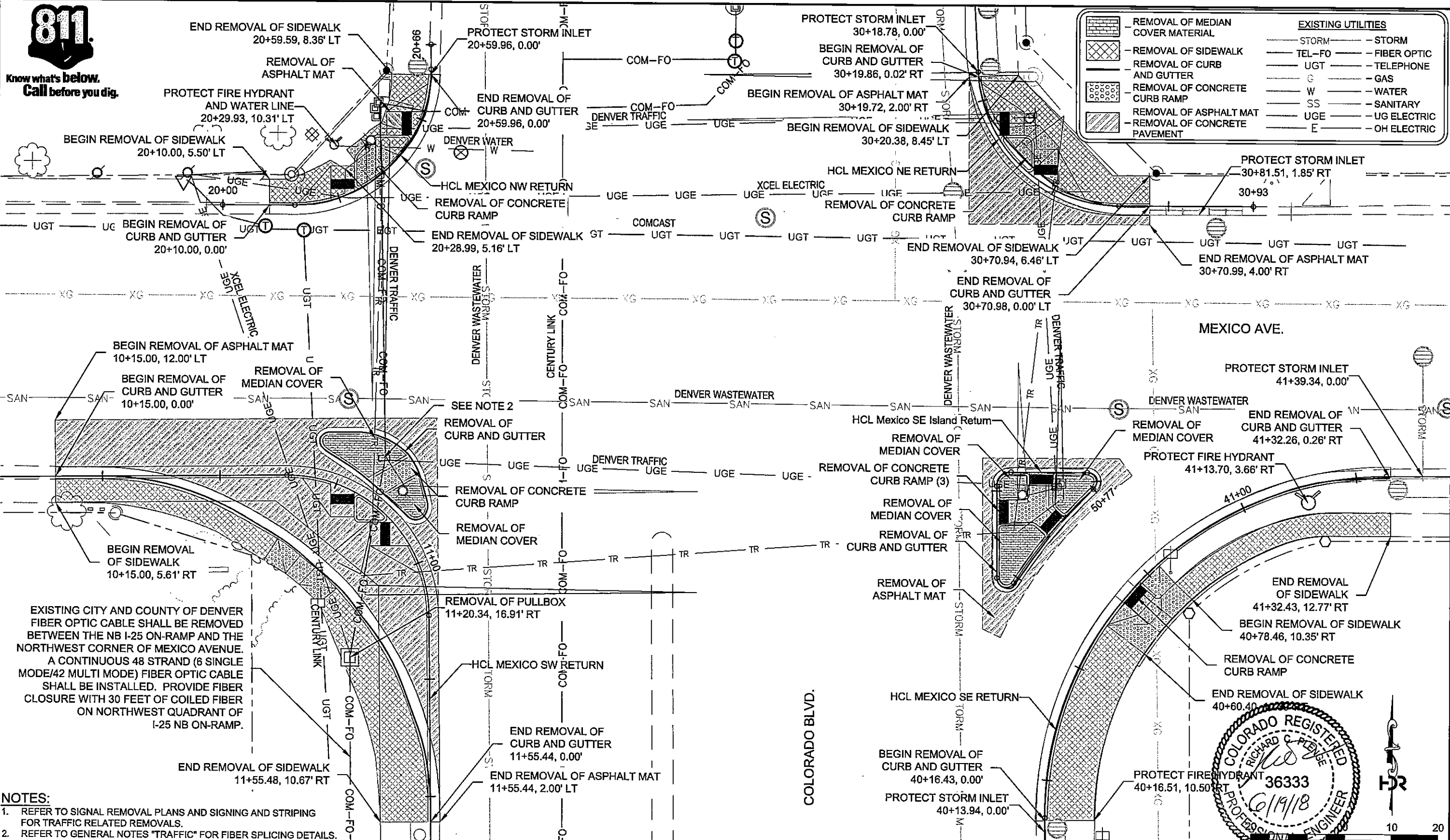
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 SHE M320-092  
 20303  
 Sheet Number **41**

Structure Numbers  
 Subset Sheets: 1 of 2



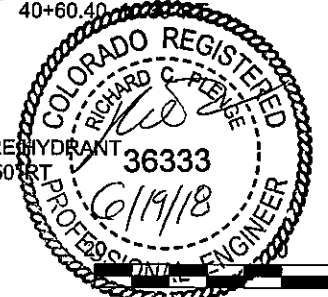


Know what's below.  
Call before you dig.



**NOTES:**

- REFER TO SIGNAL REMOVAL PLANS AND SIGNING AND STRIPING FOR TRAFFIC RELATED REMOVALS.
- REFER TO GENERAL NOTES "TRAFFIC" FOR FIBER SPLICING DETAILS.



Print Date: July 2, 2017  
 File Name: 20303 REM (01-05).DWG  
 Horiz. Scale: 1" = 20'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date	Comments	Init.

**DENVER**  
THE MILE HIGH CITY

**DEPARTMENT OF PUBLIC WORKS**  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

As Constructed	COLORADO BOULEVARD 2015 SHE	
No Revisions:	REMOVAL & UTILITY PLAN	
Revised:	MEXICO AVENUE	
Void:	Designer: J. COLIP	Structure Numbers
	Detailer: J. COLIP	
	Sheet Subset: REM - UTILITIES	Subset Sheets: 1 of 5

Project Number  
SHE M320-092

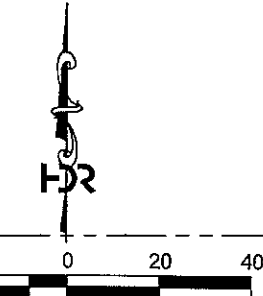
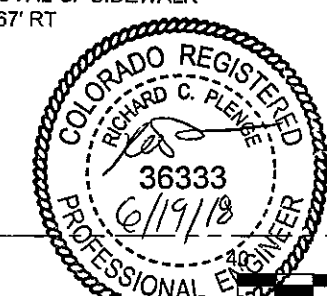
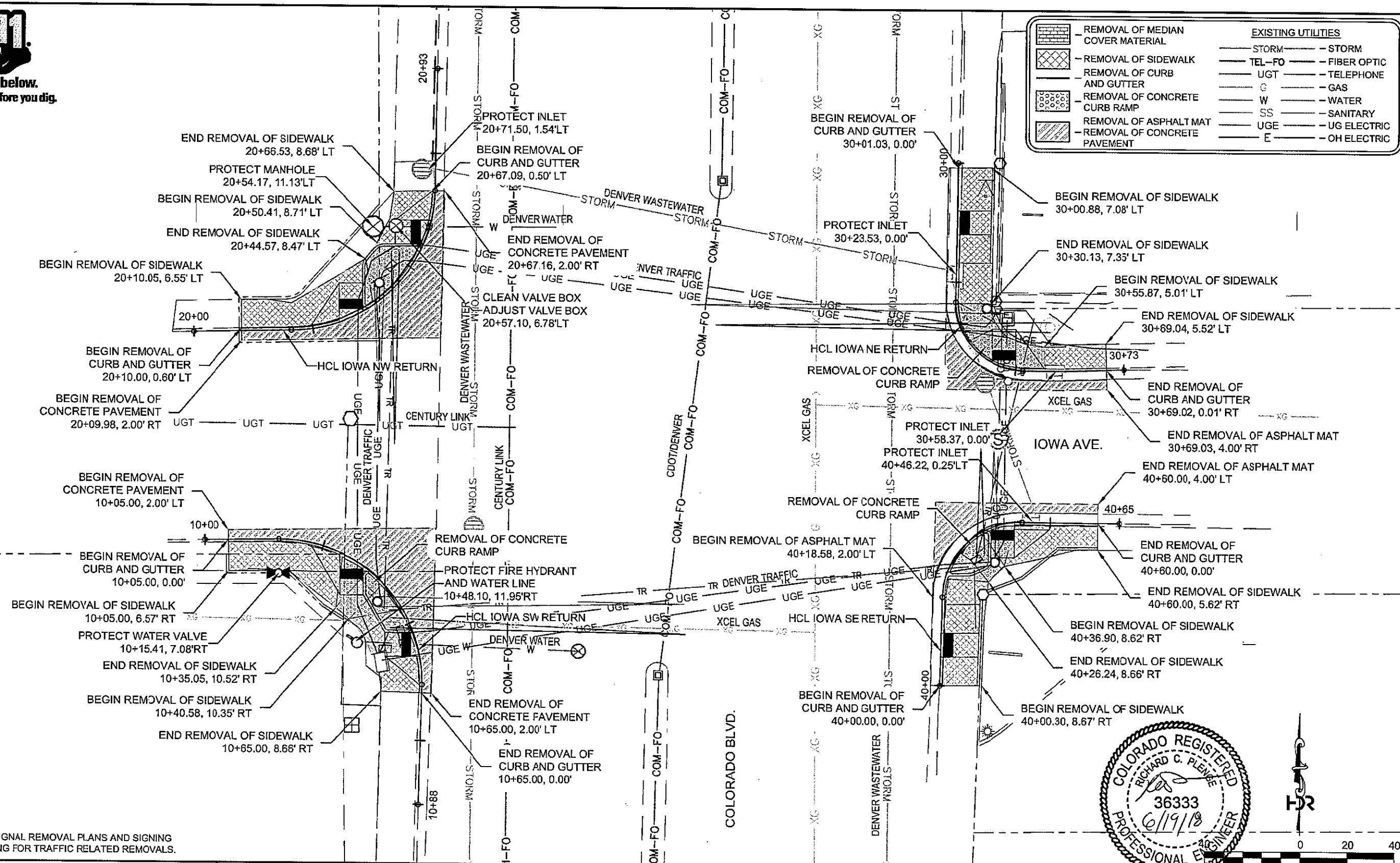
20303

Sheet Number **43**



Know what's below.  
Call before you dig.

	REMOVAL OF MEDIAN COVER MATERIAL		EXISTING UTILITIES
	REMOVAL OF SIDEWALK		STORM - STORM
	REMOVAL OF CURB AND GUTTER		TEL-FO - FIBER OPTIC
	REMOVAL OF CONCRETE CURB RAMP		UGT - TELEPHONE
	REMOVAL OF ASPHALT MAT		G - GAS
	REMOVAL OF CONCRETE PAVEMENT		W - WATER
			SS - SANITARY
			UGE - UG ELECTRIC
			E - OH ELECTRIC



NOTE:  
REFER TO SIGNAL REMOVAL PLANS AND SIGNING  
AND STRIPING FOR TRAFFIC RELATED REMOVALS.

Print Date:	July 2, 2017
File Name:	20303 REM (01-05).DWG
Horz. Scale:	1" = 20'
City Project Manager:	John Yu
	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	init.

**DENVER**  
THE MILE HIGH CITY

**DEPARTMENT OF PUBLIC WORKS**

201 WEST COLFAX AVENUE  
DENVER, CO 80202  
PHONE: (720) 913-4501  
FAX: (720) 913-4544

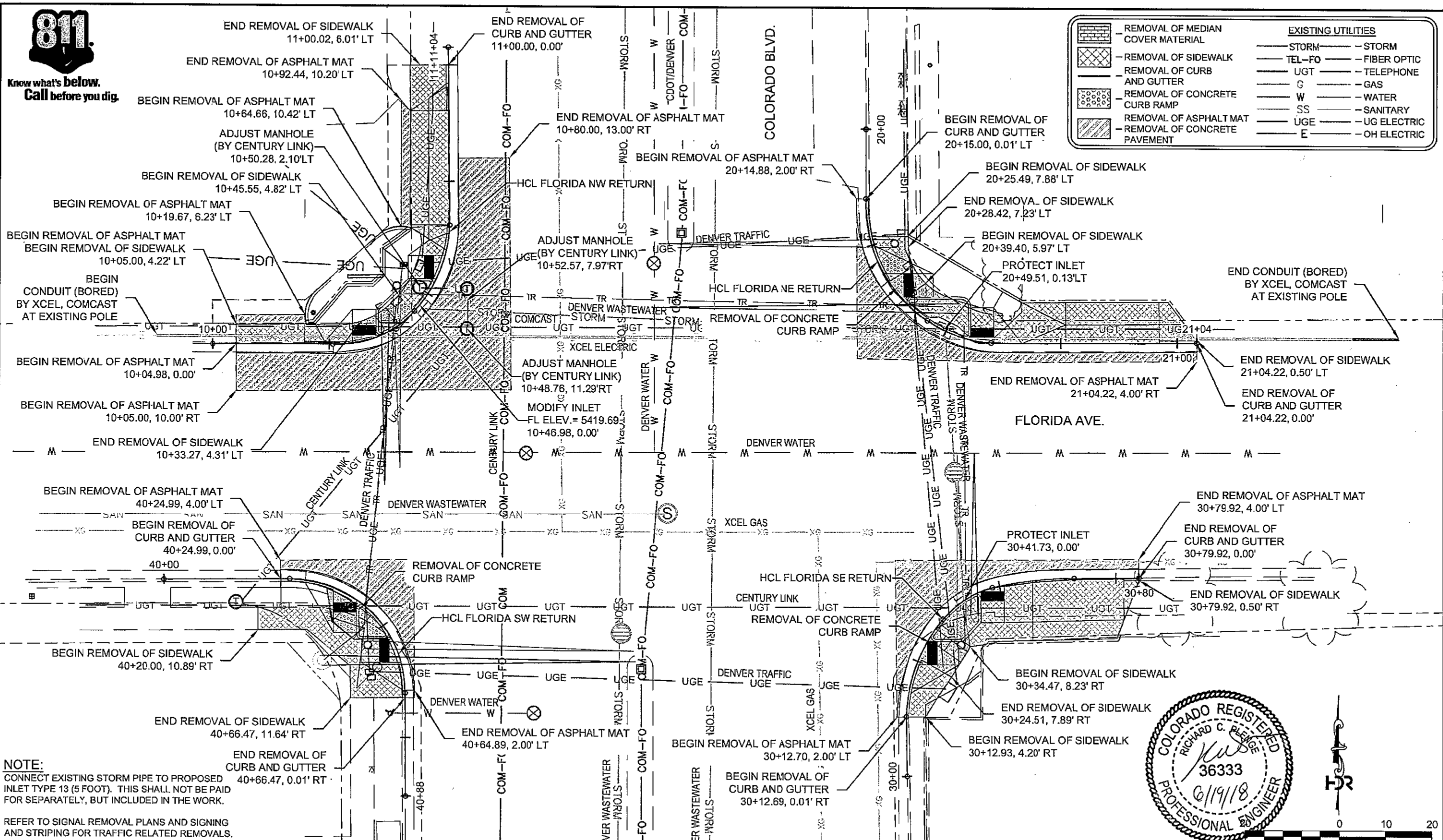
As Constructed
No Revisions:
Revised:
Void:

COLORADO BOULEVARD 2015 SHE REMOVAL & UTILITY PLAN IOWA AVENUE		
Designer:	J. COLIP	Structure Numbers
Detailer:	J. COLIP	
Sheet Subset:	REM - UTILITIES	Subset Sheets: 2 of 5

Project Number	SHE M320-092
	20303
Sheet Number	44



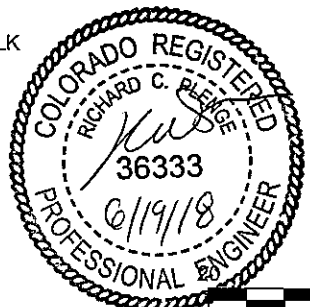
Know what's below.  
Call before you dig.



	REMOVAL OF MEDIAN COVER MATERIAL		STORM		STORM
	REMOVAL OF SIDEWALK AND GUTTER		TEL-FO		FIBER OPTIC
	REMOVAL OF CONCRETE CURB RAMP		UGT		TELEPHONE
	REMOVAL OF ASPHALT MAT		G		GAS
	REMOVAL OF CONCRETE PAVEMENT		W		WATER
			SS		SANITARY
			UGE		UG ELECTRIC
			E		OH ELECTRIC

**NOTE:**  
CONNECT EXISTING STORM PIPE TO PROPOSED INLET TYPE 13 (5 FOOT). THIS SHALL NOT BE PAID FOR SEPARATELY, BUT INCLUDED IN THE WORK.

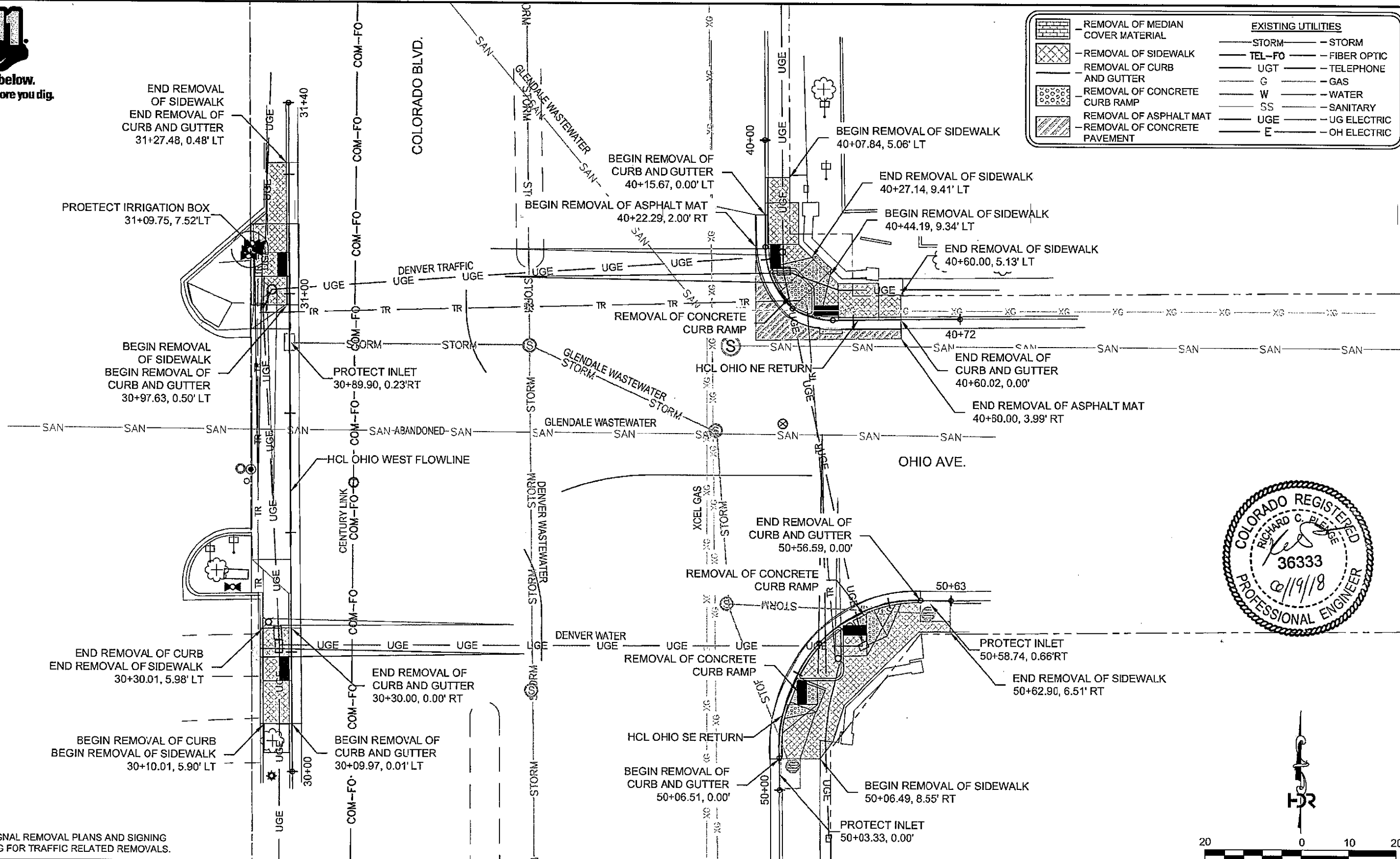
REFER TO SIGNAL REMOVAL PLANS AND SIGNING AND STRIPING FOR TRAFFIC RELATED REMOVALS.



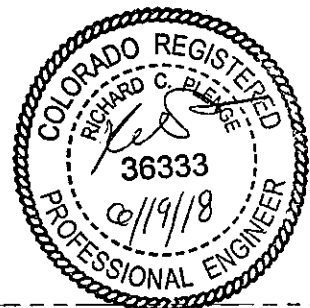
Print Date: July 2, 2017	Sheet Revisions			 DEPARTMENT OF PUBLIC WORKS 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544	As Constructed No Revisions: Revised: Void:	COLORADO BOULEVARD 2015 SHE REMOVAL & UTILITY PLAN FLORIDA AVENUE		Project Number
File Name: 20303 REM (01-05).DWG	Date:	Comments:	Init.:			Designer: J. COLIP	Structure Numbers	20303
Horz. Scale: 1" = 20'						Detailer: J. COLIP		20303
City Project Manager: John Yu						Sheet Subset: REM - UTILITIES	Subset Sheets: 3 of 5	Sheet Number
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139				 DENVER THE MILE HIGH CITY				45



Know what's below.  
Call before you dig.



	REMOVAL OF MEDIAN COVER MATERIAL		STORM		STORM
	REMOVAL OF SIDEWALK		TEL-FO		FIBER OPTIC
	REMOVAL OF CURB AND GUTTER		UGT		TELEPHONE
	REMOVAL OF CONCRETE CURB RAMP		G		GAS
	REMOVAL OF ASPHALT MAT		W		WATER
	REMOVAL OF CONCRETE PAVEMENT		SS		SANITARY
			UGE		UG ELECTRIC
			E		OH ELECTRIC



NOTE:  
REFER TO SIGNAL REMOVAL PLANS AND SIGNING AND STRIPING FOR TRAFFIC RELATED REMOVALS.

Print Date: July 2, 2017  
 File Name: 20303 REM (01-05).DWG  
 Horiz. Scale: 1" = 20'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-680-7139

Sheet Revisions		
Date:	Comments	Init.



DEPARTMENT OF PUBLIC WORKS  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

As Constructed  
 No Revisions:  
 Revised:  
 Void:

COLORADO BOULEVARD 2015 SHE  
 REMOVAL & UTILITY PLAN  
 OHIO AVENUE  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: REM - UTILITIES  
 Subset Sheets: 4 of 5

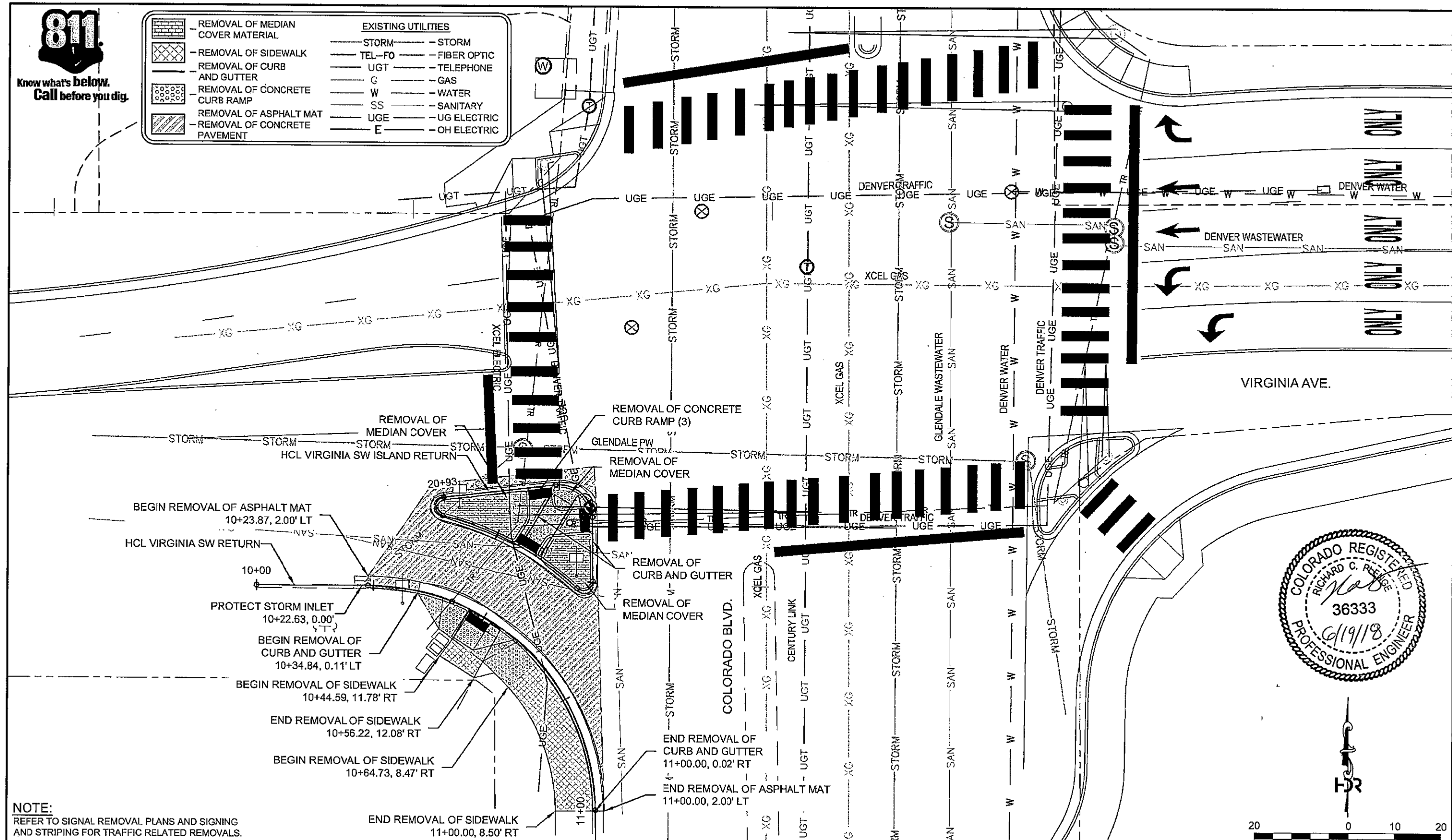
Project Number  
 SHE M320-092  
 20303  
 Sheet Number  
**46**





Know what's below.  
Call before you dig.

	REMOVAL OF MEDIAN COVER MATERIAL		STORM	STORM
	REMOVAL OF SIDEWALK AND GUTTER		TEL-FO	FIBER OPTIC
	REMOVAL OF CONCRETE CURB RAMP		UGT	TELEPHONE
	REMOVAL OF ASPHALT MAT		G	GAS
	REMOVAL OF CONCRETE PAVEMENT		W	WATER
			SS	SANITARY
			UGE	UG ELECTRIC
			E	OH ELECTRIC



REMOVAL OF MEDIAN COVER  
HCL VIRGINIA SW ISLAND RETURN

BEGIN REMOVAL OF ASPHALT MAT  
10+23.87, 2.00' LT

HCL VIRGINIA SW RETURN

10+00

PROTECT STORM INLET  
10+22.63, 0.00'

BEGIN REMOVAL OF CURB AND GUTTER  
10+34.84, 0.11' LT

BEGIN REMOVAL OF SIDEWALK  
10+44.59, 11.78' RT

END REMOVAL OF SIDEWALK  
10+56.22, 12.08' RT

BEGIN REMOVAL OF SIDEWALK  
10+64.73, 8.47' RT

END REMOVAL OF SIDEWALK  
11+00.00, 8.50' RT

REMOVAL OF CONCRETE CURB RAMP (3)

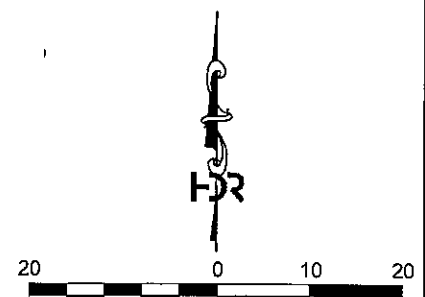
REMOVAL OF MEDIAN COVER

REMOVAL OF CURB AND GUTTER

REMOVAL OF MEDIAN COVER

END REMOVAL OF CURB AND GUTTER  
11+00.00, 0.02' RT

END REMOVAL OF ASPHALT MAT  
11+00.00, 2.00' LT



**NOTE:**  
REFER TO SIGNAL REMOVAL PLANS AND SIGNING AND STRIPING FOR TRAFFIC RELATED REMOVALS.

Print Date:	July 2, 2017
File Name:	20303 REM (01-05).DWG
Horz. Scale:	1" = 20'
City Project Manager:	John Yu
	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-690-7139

Sheet Revisions		
Date:	Comments	Init.

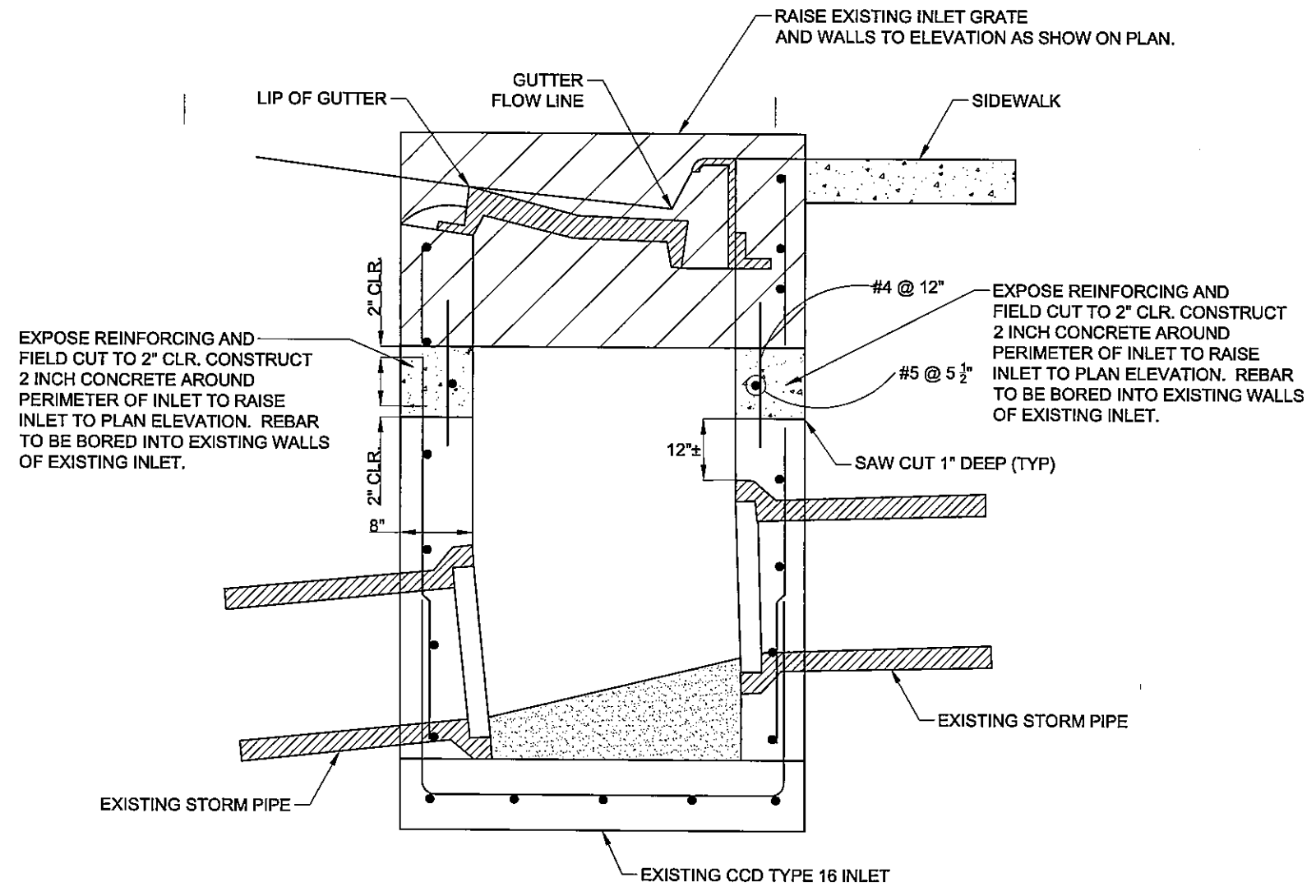
**DEPARTMENT OF PUBLIC WORKS**

201 WEST COLFAX AVENUE  
DENVER, CO 80202  
PHONE: (720) 913-4501  
FAX: (720) 913-4544

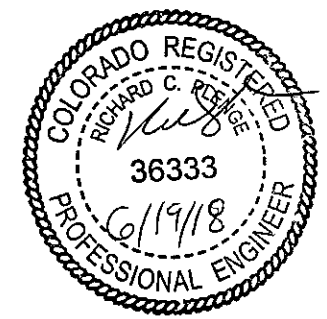
As Constructed	No Revisions:
Revised:	
Void:	

COLORADO BOULEVARD 2015 SHE REMOVAL & UTILITY PLAN VIRGINIA AVENUE		
Designer:	J. COLIP	Structure Numbers
Detailer:	J. COLIP	
Sheet Subset:	REM - UTILITIES	Subset Sheets: 5 of 5

Project Number	SHE M320-092
	20303
Sheet Number	<b>47</b>



INLET MODIFICATION DETAIL



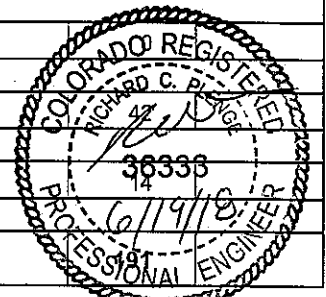
Print Date: July 2, 2017		Sheet Revisions			DEPARTMENT OF PUBLIC WORKS 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544	As Constructed		COLORADO BOULEVARD 2015 SHE		Project Number	
File Name: 20303 DR DT.DWG		Date:	Comments:	Init.:		No Revisions:	INLET MODIFICATION DETAIL		SHE M320-092		
Horiz. Scale: 1" = 30'						Revised:	Designer: J. COLIP	Structure Numbers	20303		
City Project Manager: John Yu						Void:	Detailer: J. COLIP	Subset Sheets: 1 of 1	Sheet Number 48		
1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139					Sheet Subset: GENERAL						


**MEXICO AVENUE ROADWAY TABULATIONS**

212-00050		304-06000		403-00720		403-34851		412-00800		608-00000		608-00010		609-20010		609-21010		609-21020		610-00030	
SODDING		AGGREGATE BASE COURSE (CLASS 6)		HOT MIX ASPHALT (PATCHING) (ASPHALT)		HOT MIX ASPHALT (GRADING SX) (100) (PG 64-28)		CONCRETE PAVEMENT (8 INCH)		CONCRETE SIDEWALK		CONCRETE CURB RAMP		CURB TYPE 2 (SECTION B)		CURB AND GUTTER TYPE 2 (SECTION I-B)		CURB AND GUTTER TYPE 2 (SECTION II-B)		MEDIAN COVER MATERIAL (CONCRETE)	
SF		TON		TON		TON		SY		SY		SY		LF		LF		LF		SF	
PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
<b>MEXICO SW RETURN</b>																					
646		34		0		57		0		108	20		0		0		140		18		
<b>MEXICO NW RETURN</b>																					
0		0		0		0		0		27	21		0		0		50		64		
<b>MEXICO NE RETURN</b>																					
0		10		0		16		0		31	21		0		0		51		26		
<b>MEXICO SE RETURN</b>																					
0		0		0		0		0		83	7		30		0		116		0		
<b>MEXICO SE ISLAND</b>																					
0		9		14		0		0		0	16		0		77		0		155		
<b>IRREGULARITIES @ 8%</b>																					
0		4		1		6		0		20	7		2		6		29		21		
<b>MEXICO AVENUE TOTALS</b>																					
646		57		15		79		0		269	92		32		83		386		284		


**IOWA AVENUE ROADWAY TABULATIONS**

212-00050		304-06000		403-00720		403-34851		412-00800		608-00000		608-00010		609-20010		609-21010		609-21020		610-00030	
SODDING		AGGREGATE BASE COURSE (CLASS 6)		HOT MIX ASPHALT (PATCHING) (ASPHALT)		HOT MIX ASPHALT (GRADING SX) (100) (PG 64-28)		CONCRETE PAVEMENT (8 INCH)		CONCRETE SIDEWALK		CONCRETE CURB RAMP		CURB TYPE 2 (SECTION B)		CURB AND GUTTER TYPE 2 (SECTION I-B)		CURB AND GUTTER TYPE 2 (SECTION II-B)		MEDIAN COVER MATERIAL (CONCRETE)	
SF		TON		TON		TON		SY		SY		SY		LF		LF		LF		SF	
PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
<b>IOWA SW RETURN</b>																					
0		12		0		0		40		31	15		0		0		60		51		
<b>IOWA NW RETURN</b>																					
0		11		0		0		35		29	15		57		0		0		83		
<b>IOWA NE RETURN</b>																					
0		4		7		0		0		25	35		0		0		68				
<b>IOWA SE RETURN</b>																					
0		4		7		0		0		19	31		29		0		60				
<b>IRREGULARITIES @ 8%</b>																					
0		3		2		0		6		8	8		7		0		15				
<b>IOWA AVENUE TOTALS</b>																					
0		34		16		0		81		112	102		93		0		203				



Print Date: July 2, 2017  
 File Name: 20303 RD TB (01-03).DWG  
 Horiz. Scale:  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

  
**DENVER**  
 THE MILE HIGH CITY  
 DEPARTMENT OF PUBLIC WORKS  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

As Constructed  
 No Revisions:  
 Revised:  
 Void:  
 COLORADO BOULEVARD 2015 SHE  
 ROADWAY TABULATION  
 MEXICO AVE. AND IOWA AVE.  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROAD-TABS  
 Structure Numbers  
 Subset Sheets: 1 of 3

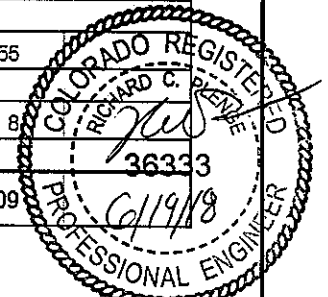
Project Number  
 SHE M320-092  
 20303  
 Sheet Number **49**

**FLORIDA AVENUE ROADWAY TABULATIONS**

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SODDING		AGGREGATE BASE COURSE (CLASS 6)		HOT MIX ASPHALT (PATCHING) (ASPHALT)		HOT MIX ASPHALT (GRADING SX) (100) (PG 64-28)		CONCRETE PAVEMENT (8 INCH)		CONCRETE SIDEWALK		CONCRETE CURB RAMP		CURB TYPE 2 (SECTION B)		CURB AND GUTTER TYPE 2 (SECTION I-B)		CURB AND GUTTER TYPE 2 (SECTION II-B)		MEDIAN COVER MATERIAL (CONCRETE)	
SF		TON		TON		TON		SY		SY		SY		LF		LF		LF		SF	
PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
<b>FLORIDA SW RETURN</b>																					
0		7		11		0		0		25		23		0		0		41		23	
<b>FLORIDA NW RETURN</b>																					
0		39		4		60		23		34		19		34		0		95		60	
<b>FLORIDA NE RETURN</b>																					
0		11		19		0		16		36		24		0		0		89		65	
<b>FLORIDA SE RETURN</b>																					
0		10		17		0		21		25		24		0		0		67		51	
<b>IRREGULARITIES @ 8%</b>																					
0		5		4		5		5		10		7		3		0		22		16	
<b>FLORIDA AVENUE TOTALS</b>																					
0		72		56		65		65		130		97		37		0		315		215	

**OHIO AVENUE ROADWAY TABULATIONS**

212-00050		304-06000		403-00720		403-34851		412-00800		608-00000		608-00010		609-20010		609-21010		609-21020		610-00030	
SODDING		AGGREGATE BASE COURSE (CLASS 6)		HOT MIX ASPHALT (PATCHING) (ASPHALT)		HOT MIX ASPHALT (GRADING SX) (100) (PG 64-28)		CONCRETE PAVEMENT (8 INCH)		CONCRETE SIDEWALK		CONCRETE CURB RAMP		CURB TYPE 2 (SECTION B)		CURB AND GUTTER TYPE 2 (SECTION I-B)		CURB AND GUTTER TYPE 2 (SECTION II-B)		MEDIAN COVER MATERIAL (CONCRETE)	
SF		TON		TON		TON		SY		SY		SY		LF		LF		LF		SF	
PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
<b>OHIO WEST RETURN</b>																					
0		0		0		0		0		6		38		0		0		50		0	
<b>OHIO NE RETURN</b>																					
0		4		6		0		0		18		15		0		0		52		46	
<b>OHIO SE RETURN</b>																					
0		0		0		0		0		31		21		0		0		50		55	
<b>IRREGULARITIES @ 8%</b>																					
0		0		1		0		0		5		6		0		0		11		8	
<b>OHIO AVENUE TOTALS</b>																					
0		4		7		0		0		60		80		0		0		164		109	

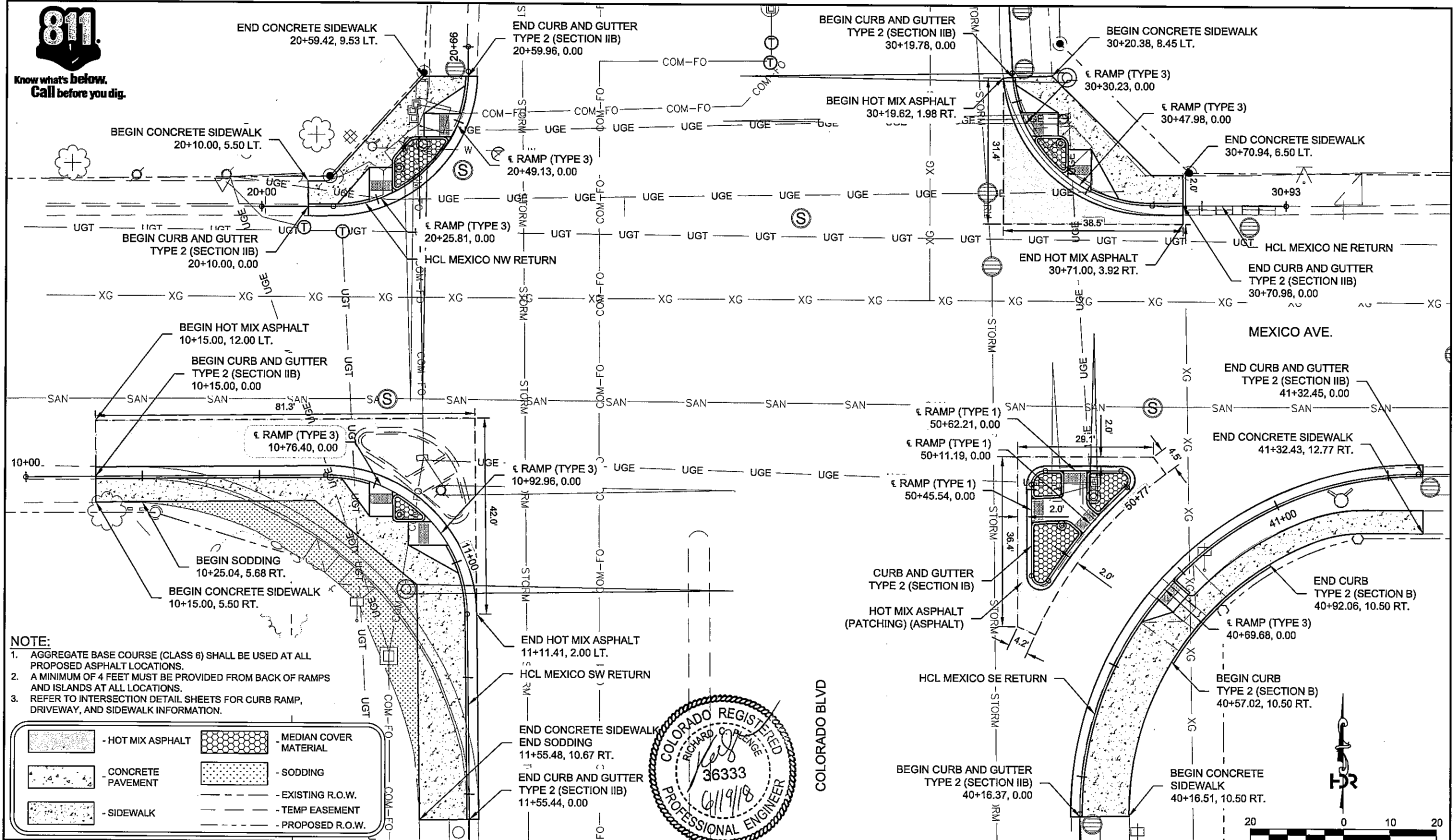


Print Date: July 2, 2017		Sheet Revisions				DEPARTMENT OF PUBLIC WORKS		As Constructed		COLORADO BOULEVARD 2015 SHE ROADWAY TABULATION FLORIDA AVE. AND OHIO AVE.				Project Number	
File Name: 20303 RD TB (01-03).DWG		Date:	Comments:	Init.		201 WEST COLFAX AVENUE DENVER, CO 80202		No Revisions:		Designer: J. COLIP				SHE M320-092	
Horiz. Scale:						PHONE: (720) 913-4501		Revised:		Detailer: J. COLIP				20303	
City Project Manager: John Yu						FAX: (720) 913-4544		Void:		Structure Numbers				Sheet Number	
	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202								Sheet Subset: ROAD-TABS				2 of 3		
Phone: 303-764-1520	Fax: 303-860-7139				THE MILE HIGH CITY								50		



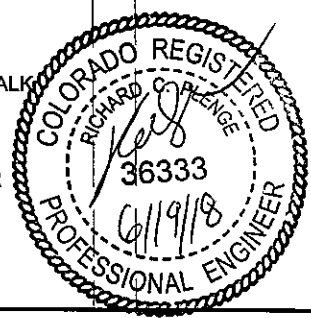


Know what's below.  
Call before you dig.



- NOTE:**
- AGGREGATE BASE COURSE (CLASS 6) SHALL BE USED AT ALL PROPOSED ASPHALT LOCATIONS.
  - A MINIMUM OF 4 FEET MUST BE PROVIDED FROM BACK OF RAMPS AND ISLANDS AT ALL LOCATIONS.
  - REFER TO INTERSECTION DETAIL SHEETS FOR CURB RAMP, DRIVEWAY, AND SIDEWALK INFORMATION.

	- HOT MIX ASPHALT		- MEDIAN COVER MATERIAL
	- CONCRETE PAVEMENT		- SODDING
	- SIDEWALK		- EXISTING R.O.W.
			- TEMP EASEMENT
			- PROPOSED R.O.W.



Print Date: June 15, 2017  
 File Name: 20303 RD PL 01.DWG  
 Horiz. Scale: 1" = 20'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

DEPARTMENT OF PUBLIC WORKS  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

As Constructed
No Revisions:
Revised:
Void:

COLORADO BOULEVARD 2015 SHE  
 INTERSECTION ROADWAY PLAN  
 MEXICO AVENUE  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Subset Sheets: 1 of 5

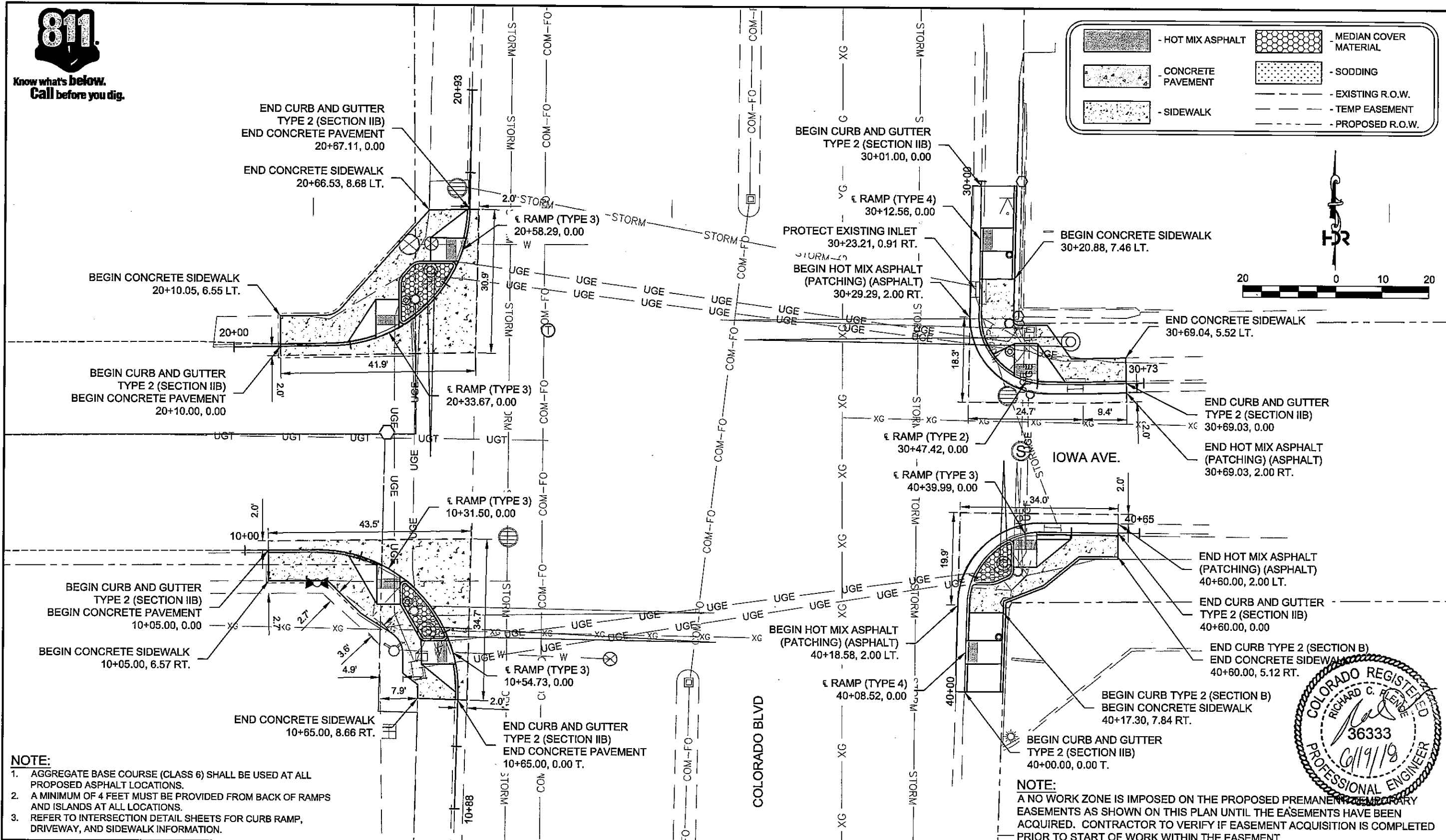
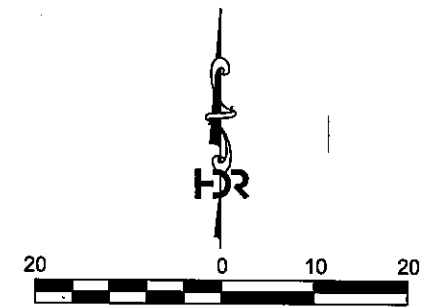
Project Number  
 SHE M320-092  
 20303  
 Sheet Number **52**





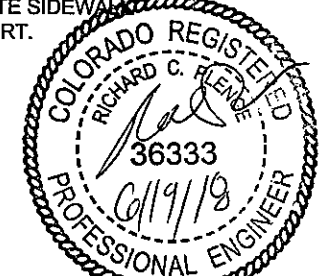
Know what's below.  
Call before you dig.

	- HOT MIX ASPHALT		- MEDIAN COVER MATERIAL
	- CONCRETE PAVEMENT		- SODDING
	- SIDEWALK		- EXISTING R.O.W.
			- TEMP EASEMENT
			- PROPOSED R.O.W.



- NOTE:**
1. AGGREGATE BASE COURSE (CLASS 6) SHALL BE USED AT ALL PROPOSED ASPHALT LOCATIONS.
  2. A MINIMUM OF 4 FEET MUST BE PROVIDED FROM BACK OF RAMPS AND ISLANDS AT ALL LOCATIONS.
  3. REFER TO INTERSECTION DETAIL SHEETS FOR CURB RAMP, DRIVEWAY, AND SIDEWALK INFORMATION.

**NOTE:**  
A NO WORK ZONE IS IMPOSED ON THE PROPOSED PERMANENT TEMPORARY EASEMENTS AS SHOWN ON THIS PLAN UNTIL THE EASEMENTS HAVE BEEN ACQUIRED. CONTRACTOR TO VERIFY IF EASEMENT ACQUISITION IS COMPLETED PRIOR TO START OF WORK WITHIN THE EASEMENT.



Print Date: December 1, 2017  
 File Name: 20303 RD PL 02.DWG  
 Horiz. Scale: 1" = 20'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

**DENVER**  
THE MILE HIGH CITY

**DEPARTMENT OF PUBLIC WORKS**  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**COLORADO BOULEVARD 2015 SHE INTERSECTION ROADWAY PLAN IOWA AVENUE**

Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY

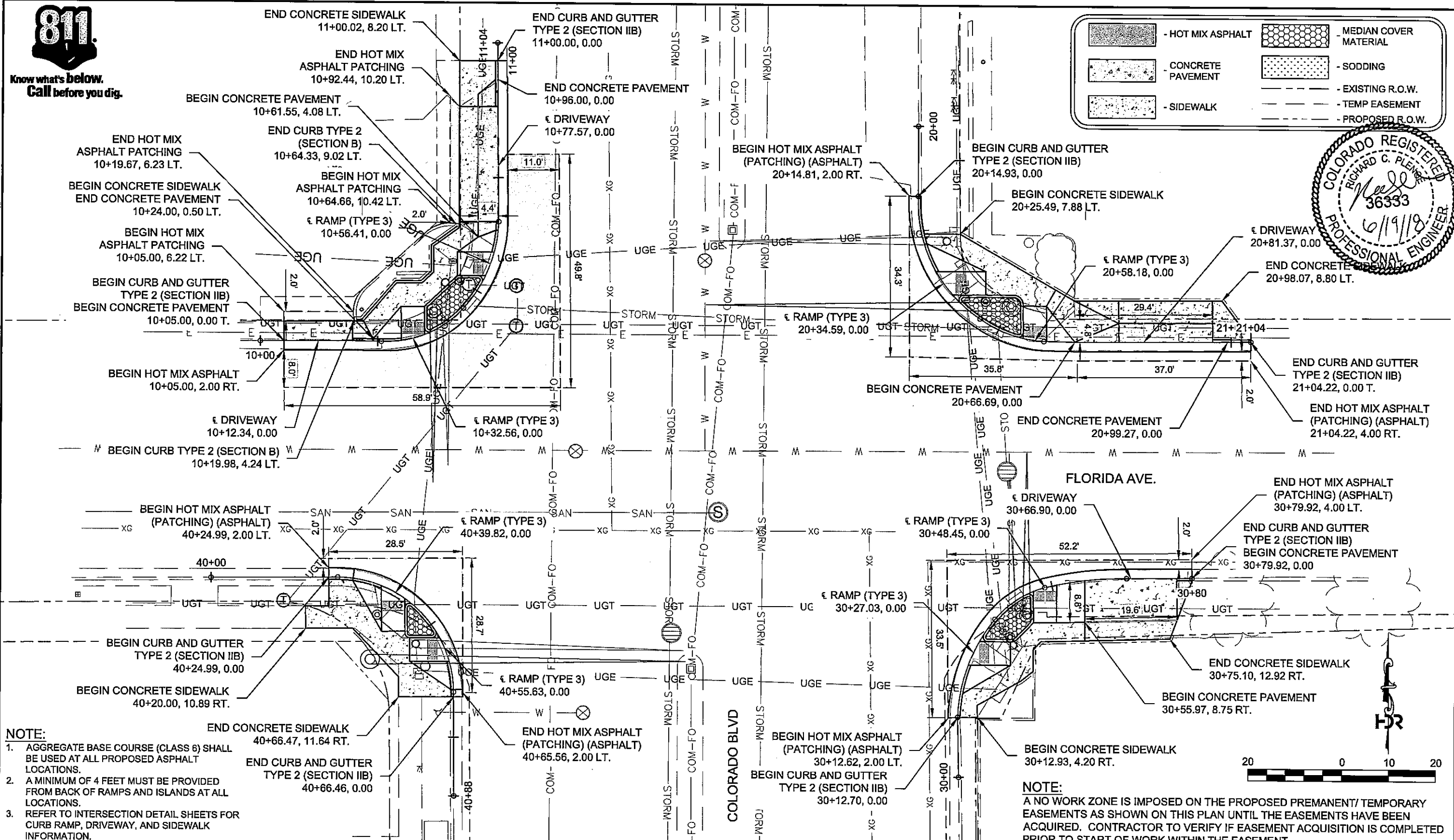
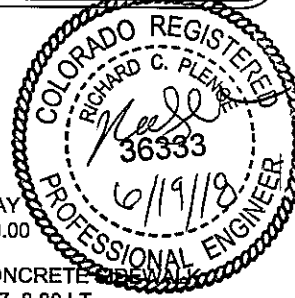
Structure Numbers  
 Subset Sheets: 2 of 5

**Project Number**  
 SHE M320-092  
 20303  
**Sheet Number**  
 53



Know what's below.  
Call before you dig.

	- HOT MIX ASPHALT		- MEDIAN COVER MATERIAL
	- CONCRETE PAVEMENT		- SODDING
	- SIDEWALK		- EXISTING R.O.W.
			- TEMP EASEMENT
			- PROPOSED R.O.W.



- NOTE:**
1. AGGREGATE BASE COURSE (CLASS 6) SHALL BE USED AT ALL PROPOSED ASPHALT LOCATIONS.
  2. A MINIMUM OF 4 FEET MUST BE PROVIDED FROM BACK OF RAMPS AND ISLANDS AT ALL LOCATIONS.
  3. REFER TO INTERSECTION DETAIL SHEETS FOR CURB RAMP, DRIVEWAY, AND SIDEWALK INFORMATION.

**NOTE:**  
A NO WORK ZONE IS IMPOSED ON THE PROPOSED PERMANENT/ TEMPORARY EASEMENTS AS SHOWN ON THIS PLAN UNTIL THE EASEMENTS HAVE BEEN ACQUIRED. CONTRACTOR TO VERIFY IF EASEMENT ACQUISITION IS COMPLETED PRIOR TO START OF WORK WITHIN THE EASEMENT.



Print Date: June 15, 2017	<b>Sheet Revisions</b>				<b>DEPARTMENT OF PUBLIC WORKS</b>	As Constructed	<b>COLORADO BOULEVARD 2015 SHE INTERSECTION ROADWAY PLAN FLORIDA AVENUE</b>		Project Number	
File Name: 20303 RD PL 03.DWG	Date:	Comments:	Init.				No Revisions:	Designer: J. COLIP	Structure Numbers	SHE M320-092
Horiz. Scale: 1" = 20'	Vertical Exag:						Revised:	Detailer: J. COLIP		20303
City Project Manager: John Yu							Void:	Sheet Subset: ROADWAY	Subset Sheets: 3 of 5	Sheet Number
	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139	<b>DENVER</b> THE MILE HIGH CITY			201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544				<b>54</b>	





Know what's below.  
Call before you dig.



END CONCRETE SIDEWALK  
31+27.49, 4.66 LT.

BEGIN CONCRETE SIDEWALK  
31+14.64, 7.45 LT.

END CURB AND GUTTER  
TYPE 2 (SECTION IIB)  
31+27.48, 0.00

ε RAMP (TYPE 4)  
31+06.13, 0.00

BEGIN CURB AND GUTTER  
TYPE 2 (SECTION IIB)  
30+97.64, 0.00

ε DRIVEWAY  
30+70.77, 0.00

END CURB AND GUTTER  
TYPE 2 (SECTION IIB)  
30+30.00, 0.00 T.

ε RAMP (TYPE 4)  
30+18.50, 0.00

BEGIN CURB AND GUTTER  
TYPE 2 (SECTION IIB)  
30+10.00, 0.00

BEGIN CURB AND GUTTER  
TYPE 2 (SECTION IIB)  
40+15.67, 0.00

BEGIN HOT MIX ASPHALT  
(PATCHING) (ASPHALT)  
40+22.37, 2.00 RT.

ε RAMP (TYPE 3)  
40+24.37, 0.00

ε RAMP (TYPE 3)  
40+44.41, 0.00

ε RAMP (TYPE 3)  
50+20.64, 0.00

ε RAMP (TYPE 3)  
50+42.33, 0.00

BEGIN CONCRETE SIDEWALK  
40+07.84, 5.06 LT.

END CONCRETE SIDEWALK  
40+21.85, 7.00 LT.

BEGIN CONCRETE SIDEWALK  
40+46.96, 7.69 LT.

END CONCRETE SIDEWALK  
40+60.00, 5.13 LT.

END CURB AND GUTTER  
TYPE 2 (SECTION IIB)  
40+60.00, 0.00

END HOT MIX ASPHALT  
(PATCHING) (ASPHALT)  
40+60.00, 3.99 RT.

OHIO AVE.

END CURB AND GUTTER  
TYPE 2 (SECTION IIB)  
50+56.59, 0.00

END CONCRETE SIDEWALK  
50+62.90, 6.51 RT.

BEGIN CONCRETE SIDEWALK  
50+06.49, 8.55 RT.

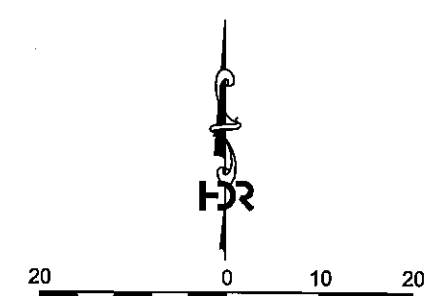
BEGIN CURB AND GUTTER  
TYPE 2 (SECTION IIB)  
50+06.51, 0.00

COLORADO BLVD

**NOTE:**

1. AGGREGATE BASE COURSE (CLASS 6) SHALL BE USED AT ALL PROPOSED ASPHALT LOCATIONS.
2. A MINIMUM OF 4 FEET MUST BE PROVIDED FROM BACK OF RAMPS AND ISLANDS AT ALL LOCATIONS.
3. REFER TO INTERSECTION DETAIL SHEETS FOR CURB RAMP, DRIVEWAY, AND SIDEWALK INFORMATION.

	- HOT MIX ASPHALT		- MEDIAN COVER MATERIAL
	- CONCRETE PAVEMENT		- SODDING
	- SIDEWALK		- EXISTING R.O.W.
			- TEMP EASEMENT
			- PROPOSED R.O.W.



Print Date: June 15, 2017  
 File Name: 20303 RD PL 04.DWG  
 Horiz. Scale: 1" = 20' Vertical Exag:  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.



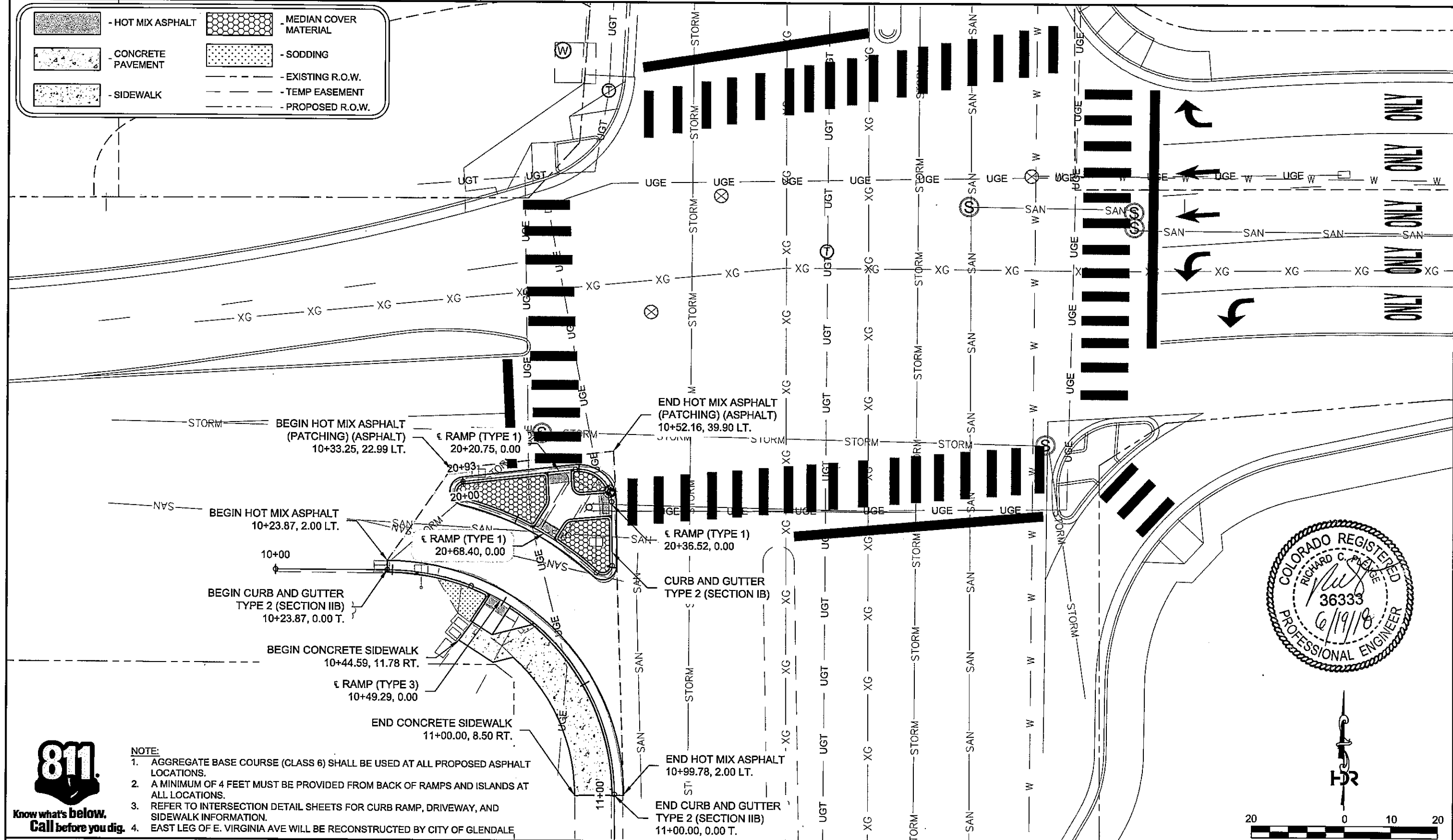
DEPARTMENT OF PUBLIC WORKS  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

As Constructed  
 No Revisions:  
 Revised:  
 Void:

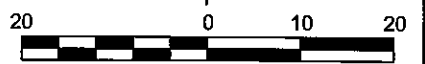
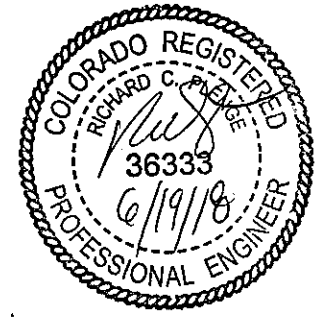
COLORADO BOULEVARD 2015 SHE  
 INTERSECTION ROADWAY PLAN  
 OHIO AVENUE  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers:  
 Subset Sheets: 4 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **55**

	- HOT MIX ASPHALT		- MEDIAN COVER MATERIAL
	- CONCRETE PAVEMENT		- SODDING
	- SIDEWALK		- EXISTING R.O.W.
			- TEMP EASEMENT
			- PROPOSED R.O.W.



- NOTE:**
1. AGGREGATE BASE COURSE (CLASS 6) SHALL BE USED AT ALL PROPOSED ASPHALT LOCATIONS.
  2. A MINIMUM OF 4 FEET MUST BE PROVIDED FROM BACK OF RAMPS AND ISLANDS AT ALL LOCATIONS.
  3. REFER TO INTERSECTION DETAIL SHEETS FOR CURB RAMP, DRIVEWAY, AND SIDEWALK INFORMATION.
  4. EAST LEG OF E. VIRGINIA AVE WILL BE RECONSTRUCTED BY CITY OF GLENDALE



**811**  
Know what's below.  
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Print Date: June 15, 2017  
 File Name: 20303 RD PL 05.DWG  
 Horiz. Scale: 1" = 20'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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 No Revisions:  
 Revised:  
 Void:

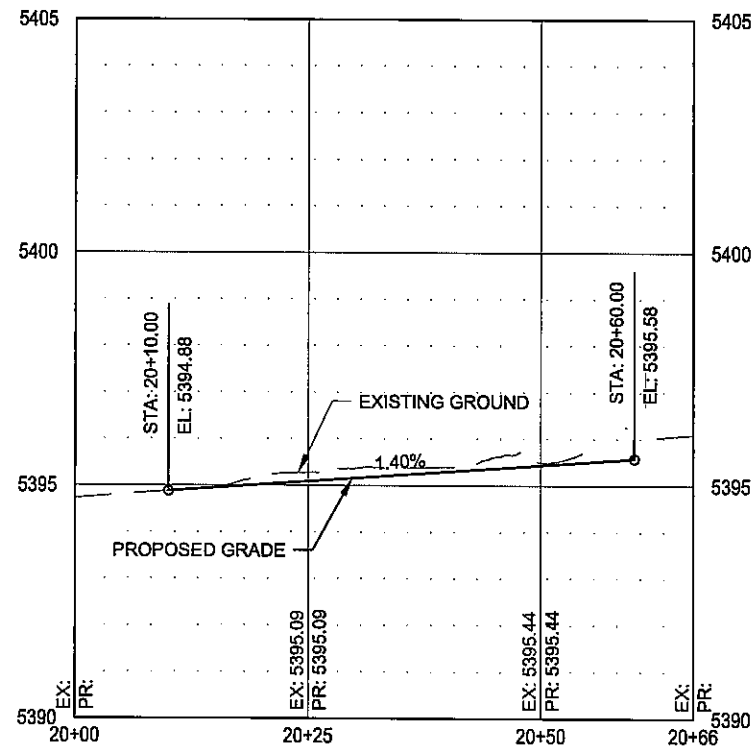
**COLORADO BOULEVARD 2015 SHE INTERSECTION ROADWAY PLAN VIRGINIA AVENUE**

Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers:  
 Subset Sheets: 5 of 5

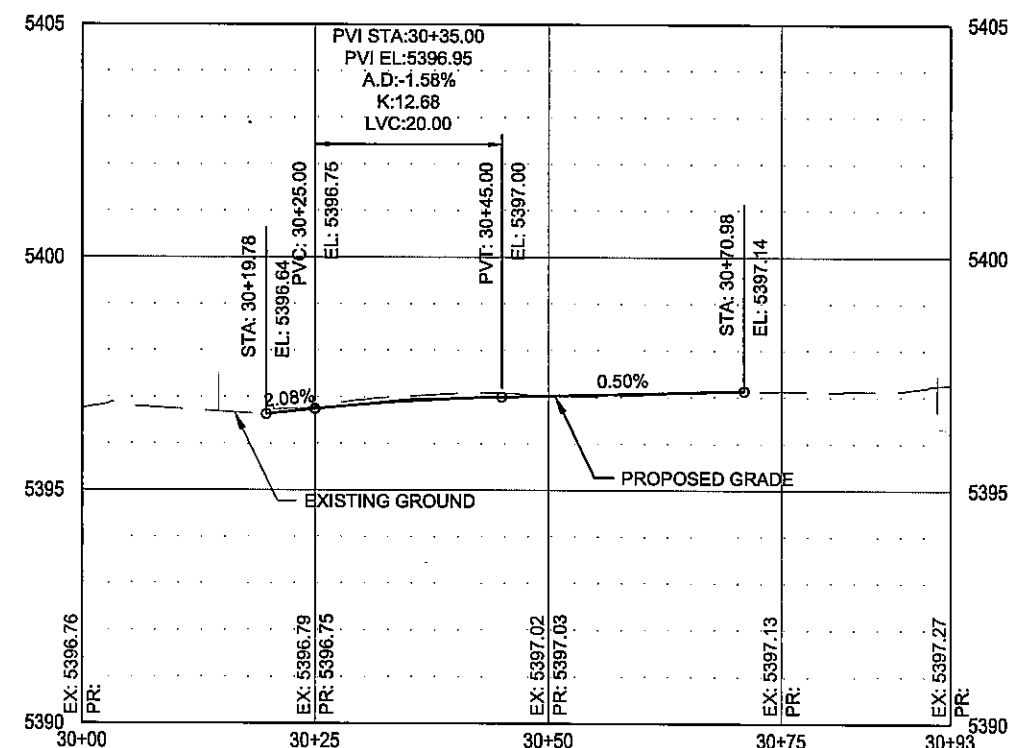
Project Number: SHE M320-092  
 20303  
 Sheet Number: **56**



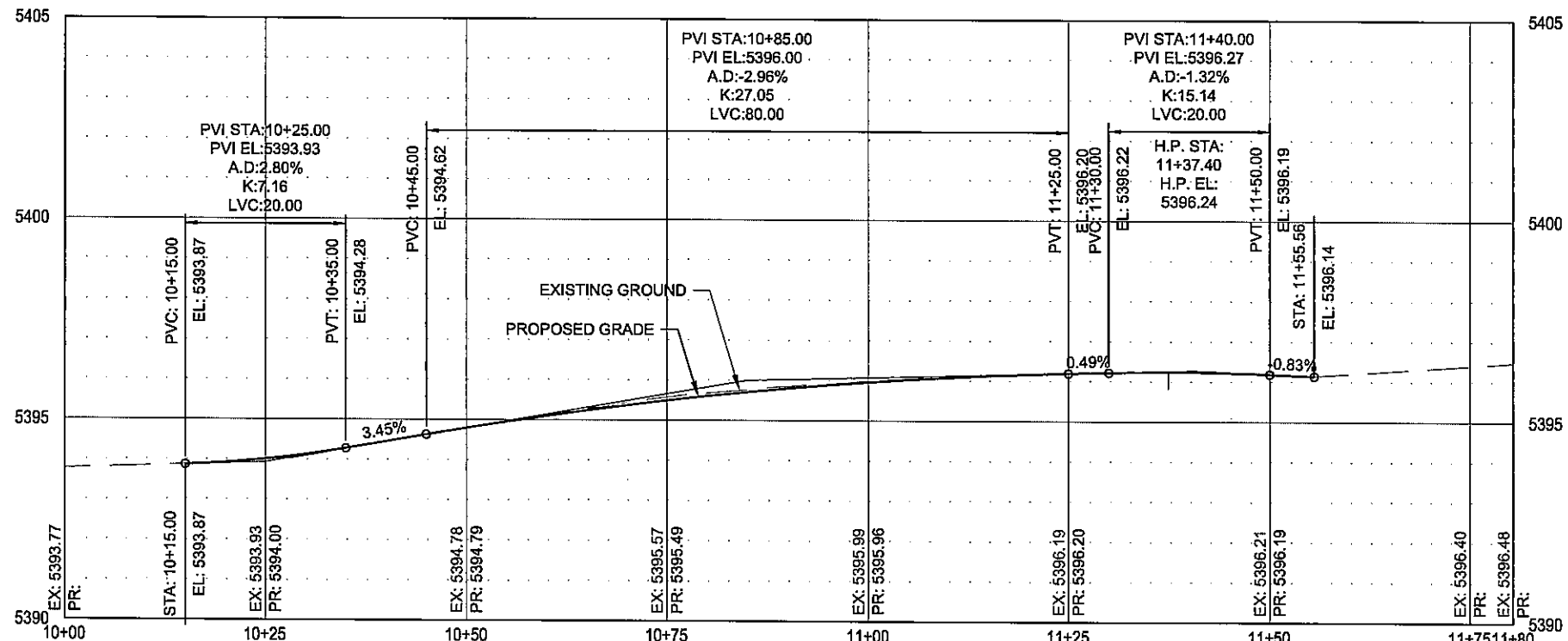
Know what's below.  
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HCL MEXICO NW RETURN



HCL MEXICO NE RETURN



HCL MEXICO SW RETURN



Print Date: June 15, 2017  
 File Name: 20303 RD PR.DWG  
 Horiz. Scale: 1" = 20' Vertical Exag: 1" = 5'  
 City Project Manager: John Yu  
**HR** 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.



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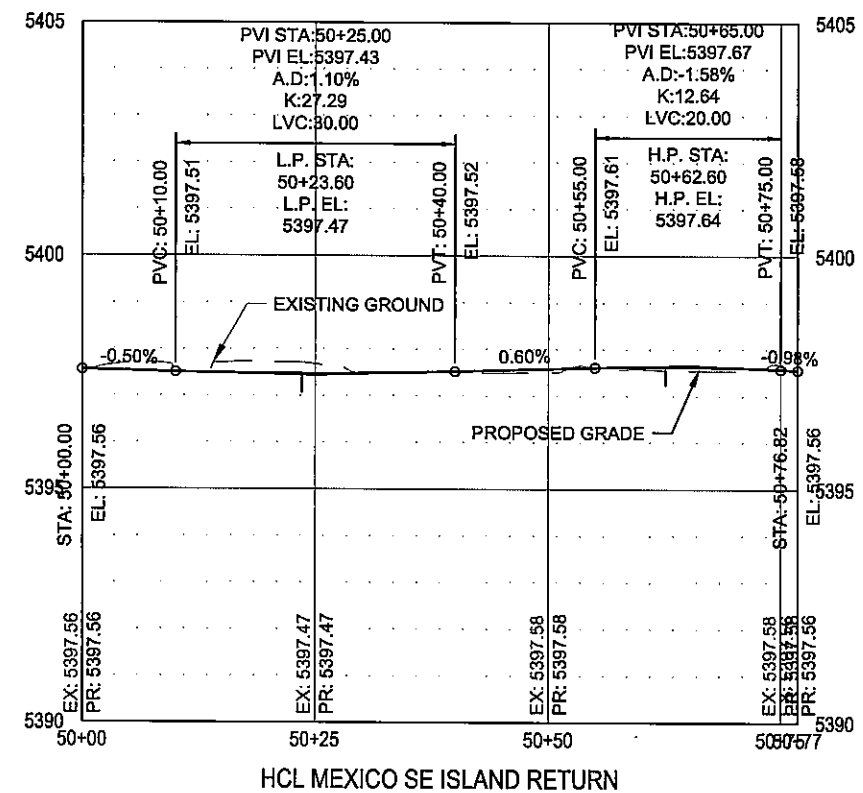
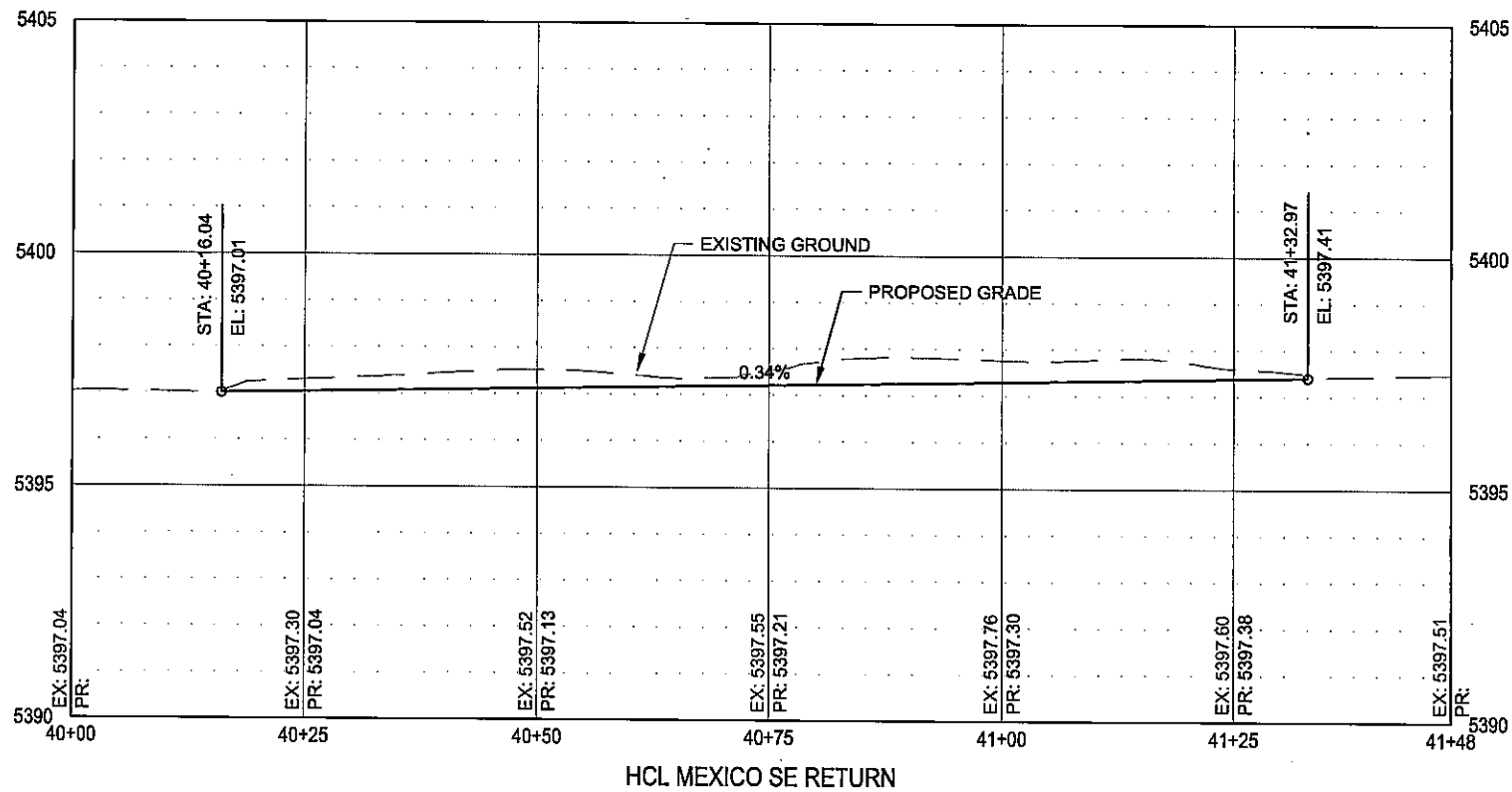
As Constructed  
 No Revisions:  
 Revised:  
 Void:

COLORADO BOULEVARD 2015 SHE INTERSECTION CURB RETURN PROFILES MEXICO AVENUE  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 1 of 6

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **57**



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Print Date: June 15, 2017  
 File Name: 20303 RD PR.DWG  
 Horiz. Scale: 1" = 20' Vertical Exag: 1" = 5'  
 City Project Manager: John Yu  
**HDR** 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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 No Revisions:  
 Revised:  
 Void:

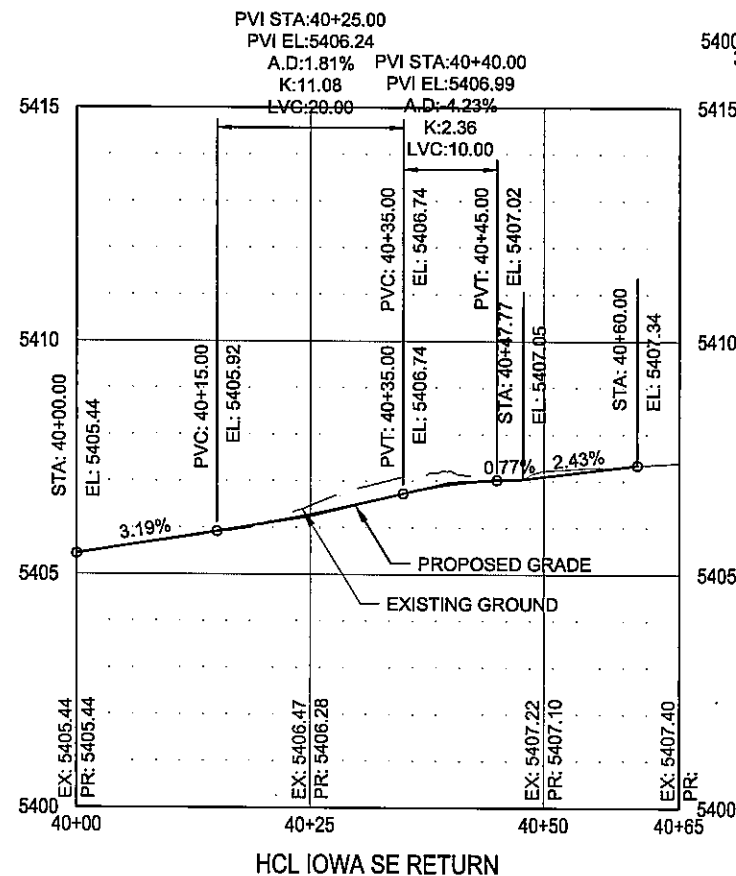
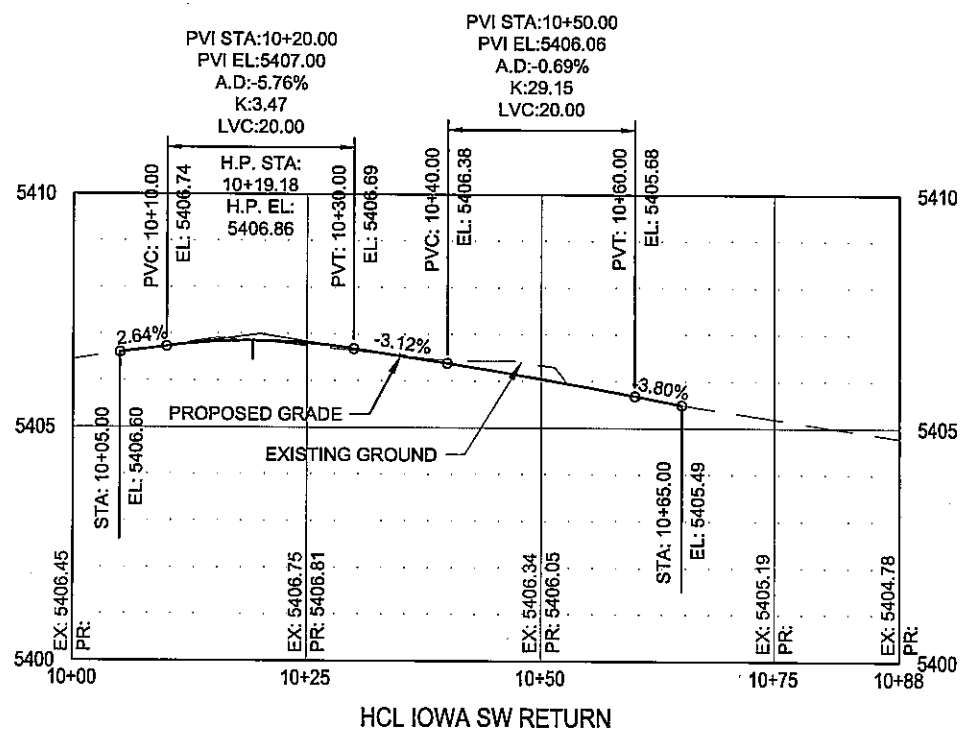
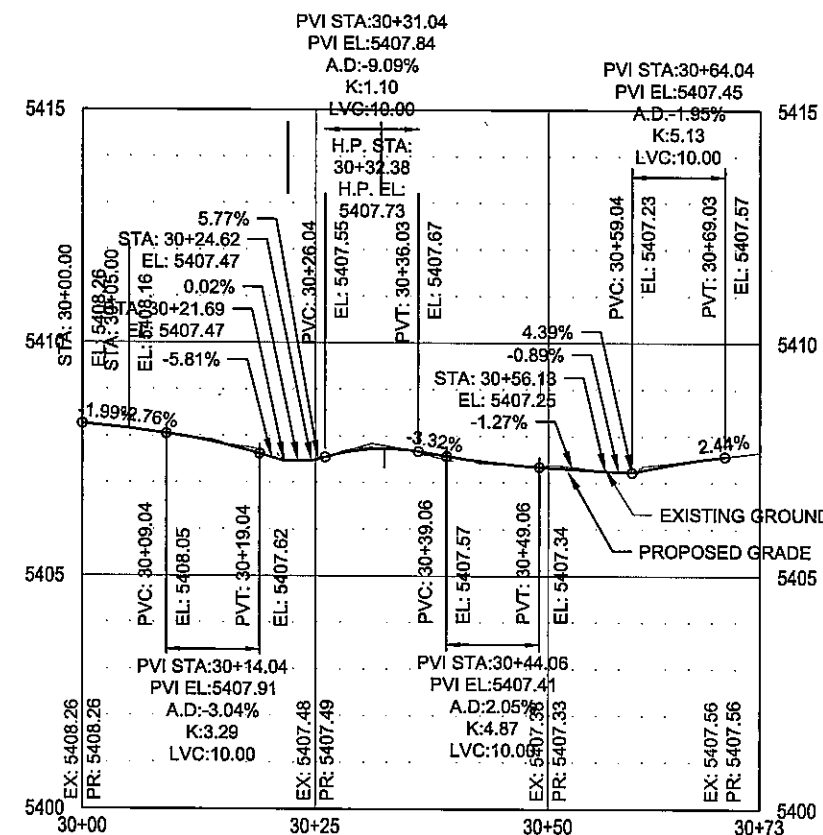
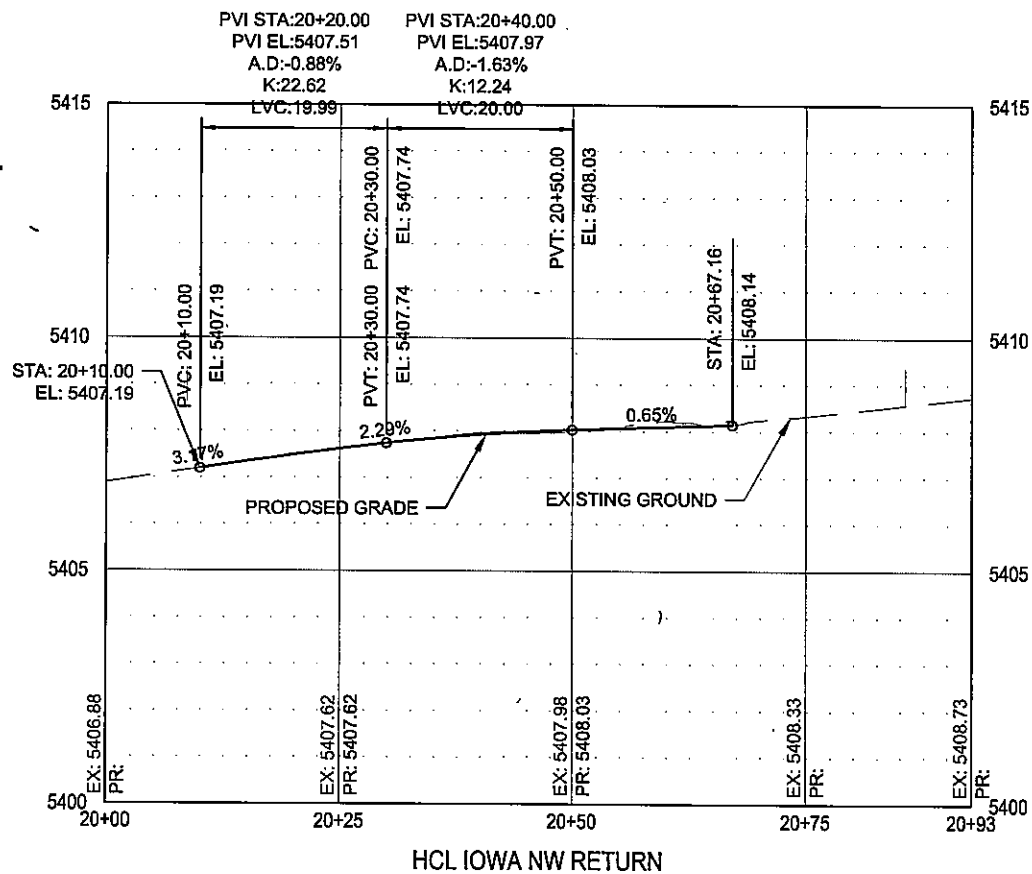
**COLORADO BOULEVARD 2015 SHE INTERSECTION CURB RETURN PROFILES MEXICO AVENUE**

Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY

Project Number: SHE M320-092  
 20303  
 Sheet Number: **58**



Know what's below.  
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Print Date: June 15, 2017  
 File Name: 20303 RD PR.DWG  
 Horiz. Scale: 1" = 20' Vertical Exag: 1" = 5'  
 City Project Manager: John Yu  
**HDR** 1679 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date	Comments	Init.



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**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

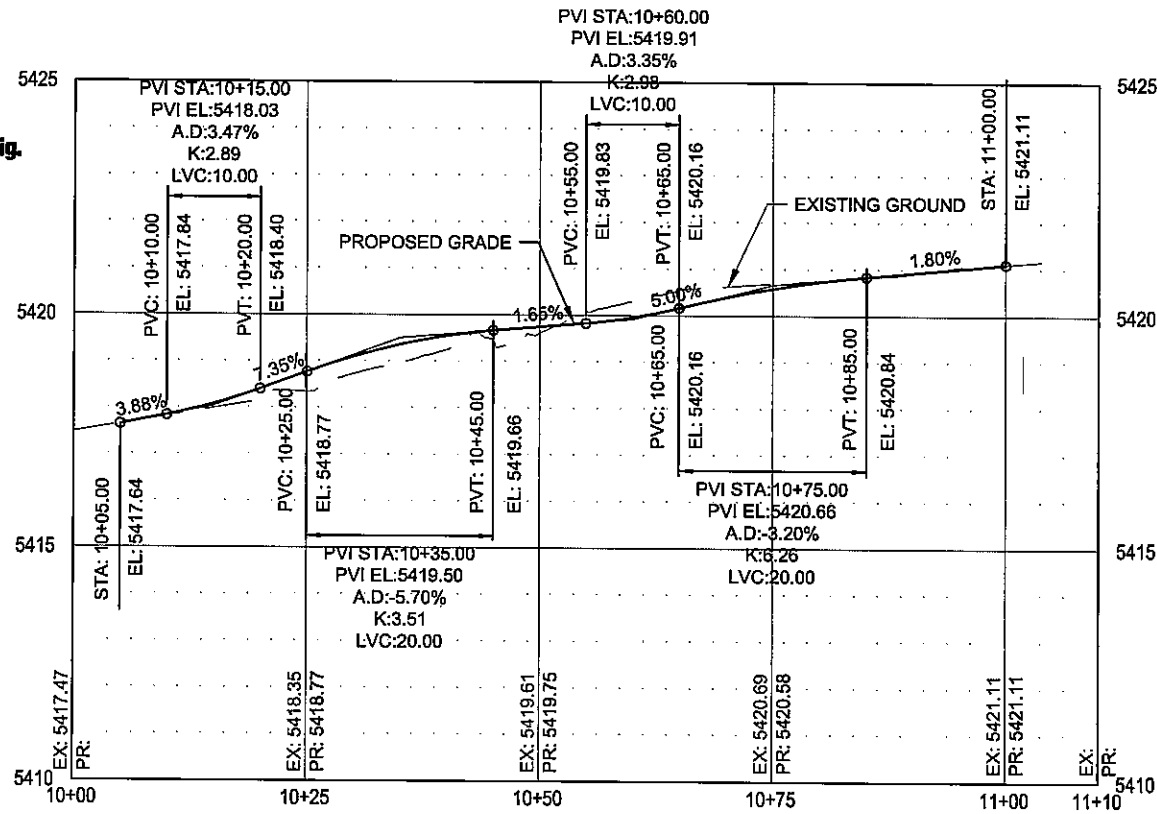
**COLORADO BOULEVARD 2015 SHE INTERSECTION CURB RETURN PROFILES IOWA AVENUE**

Designer: J. COLIP	Structure Numbers
Detailer: J. COLIP	
Sheet Subset: ROADWAY	Subset Sheets: 3 of 6

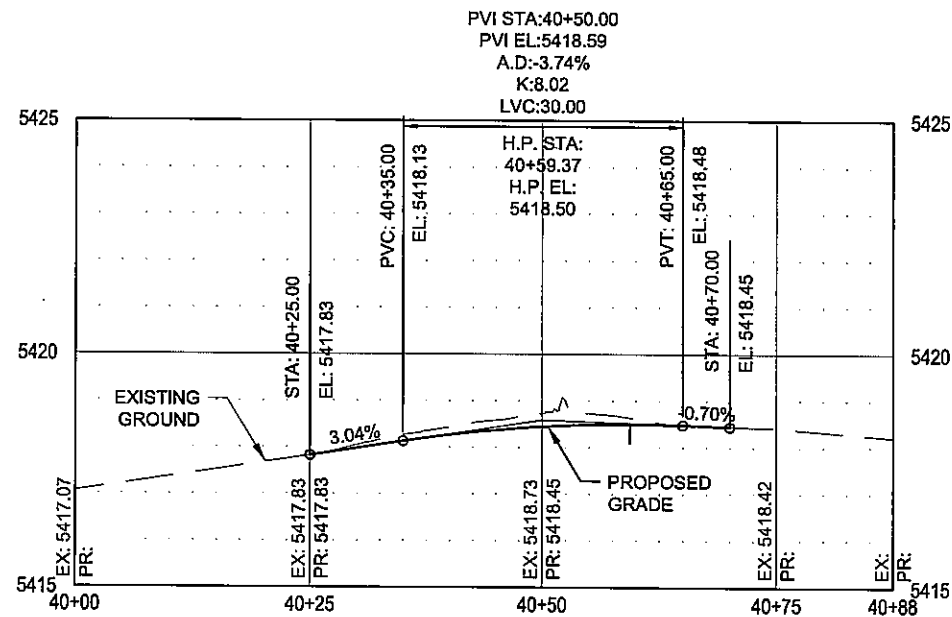
**Project Number**  
 SHE M320-092  
 20303  
**Sheet Number**  
 59



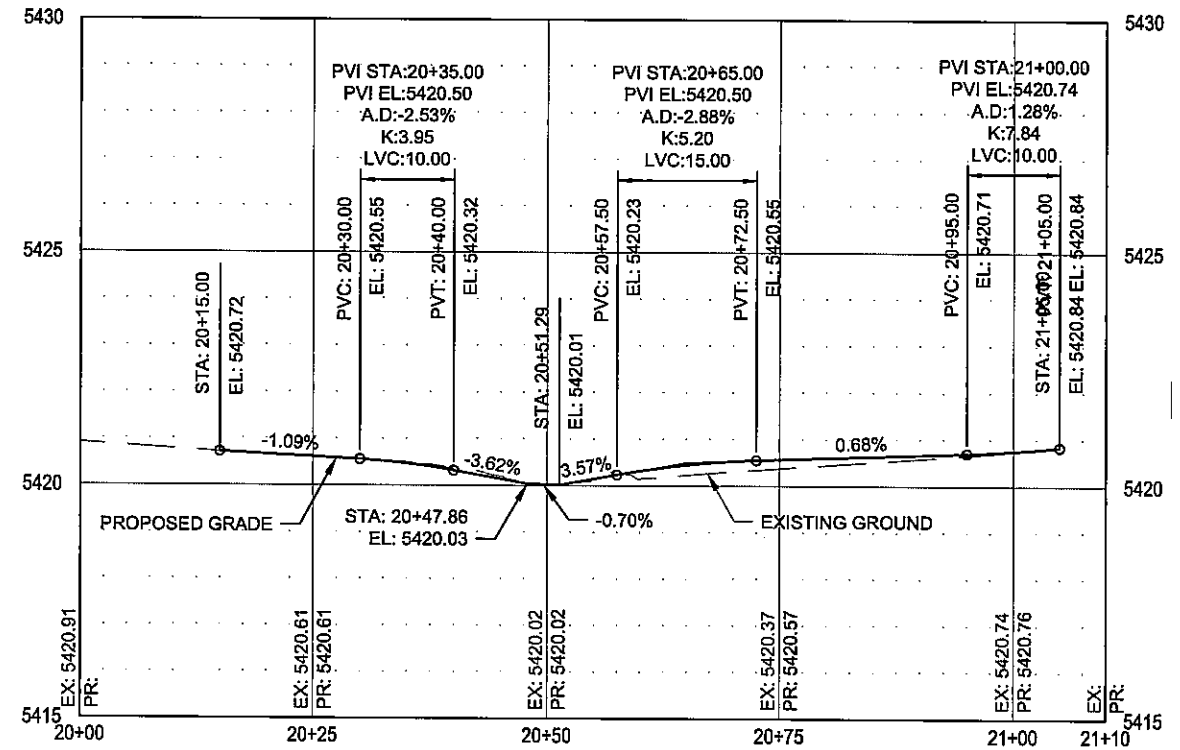
Know what's below.  
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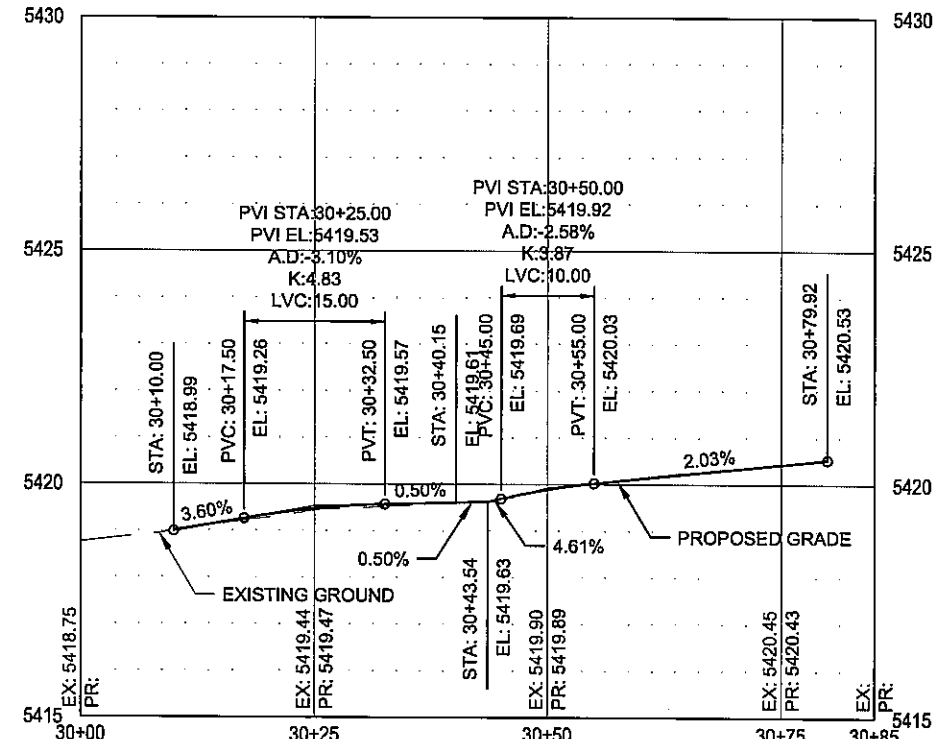
HCL FLORIDA NW RETURN



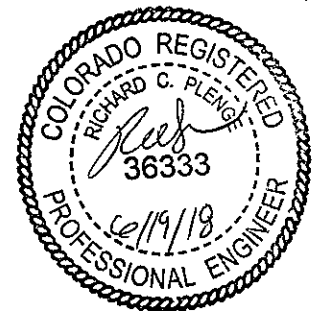
HCL FLORIDA SW RETURN



HCL FLORIDA NE RETURN



HCL FLORIDA SE RETURN



Print Date: June 15, 2017  
 File Name: 20303 RD PR.DWG  
 Horiz. Scale: 1" = 20' Vertical Exag: 1" = 5'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.



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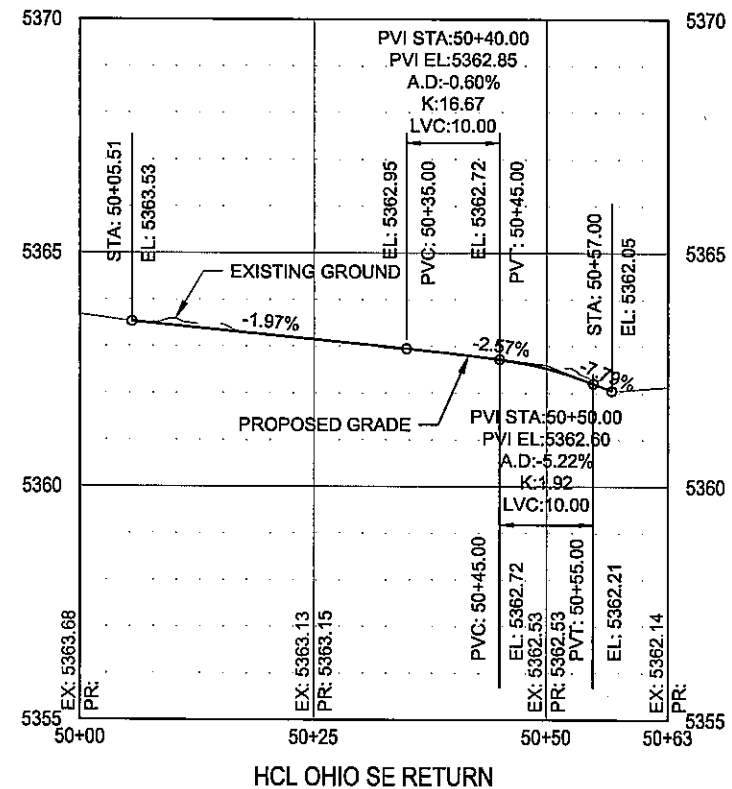
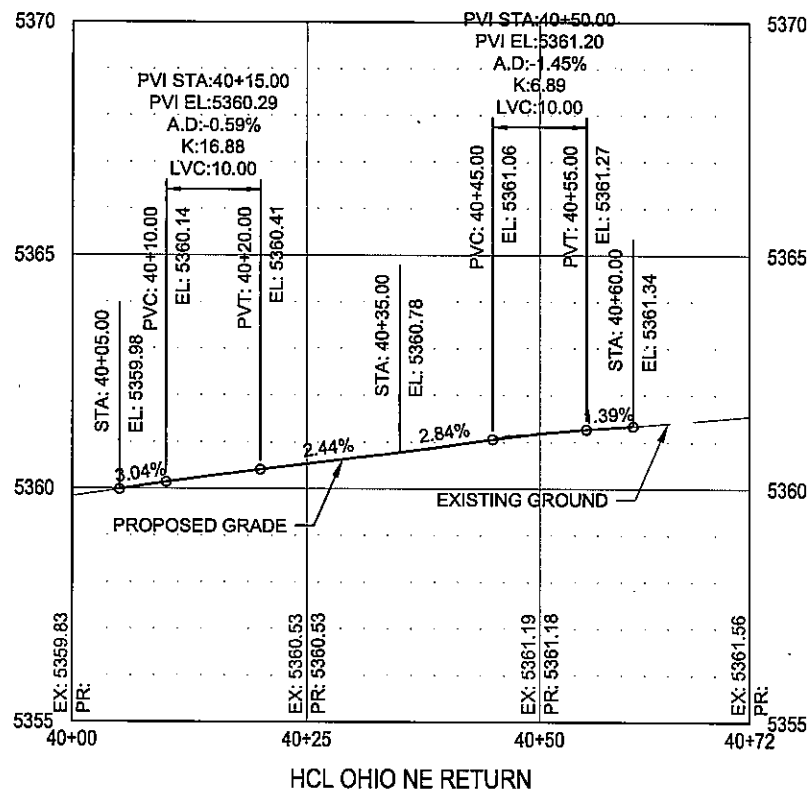
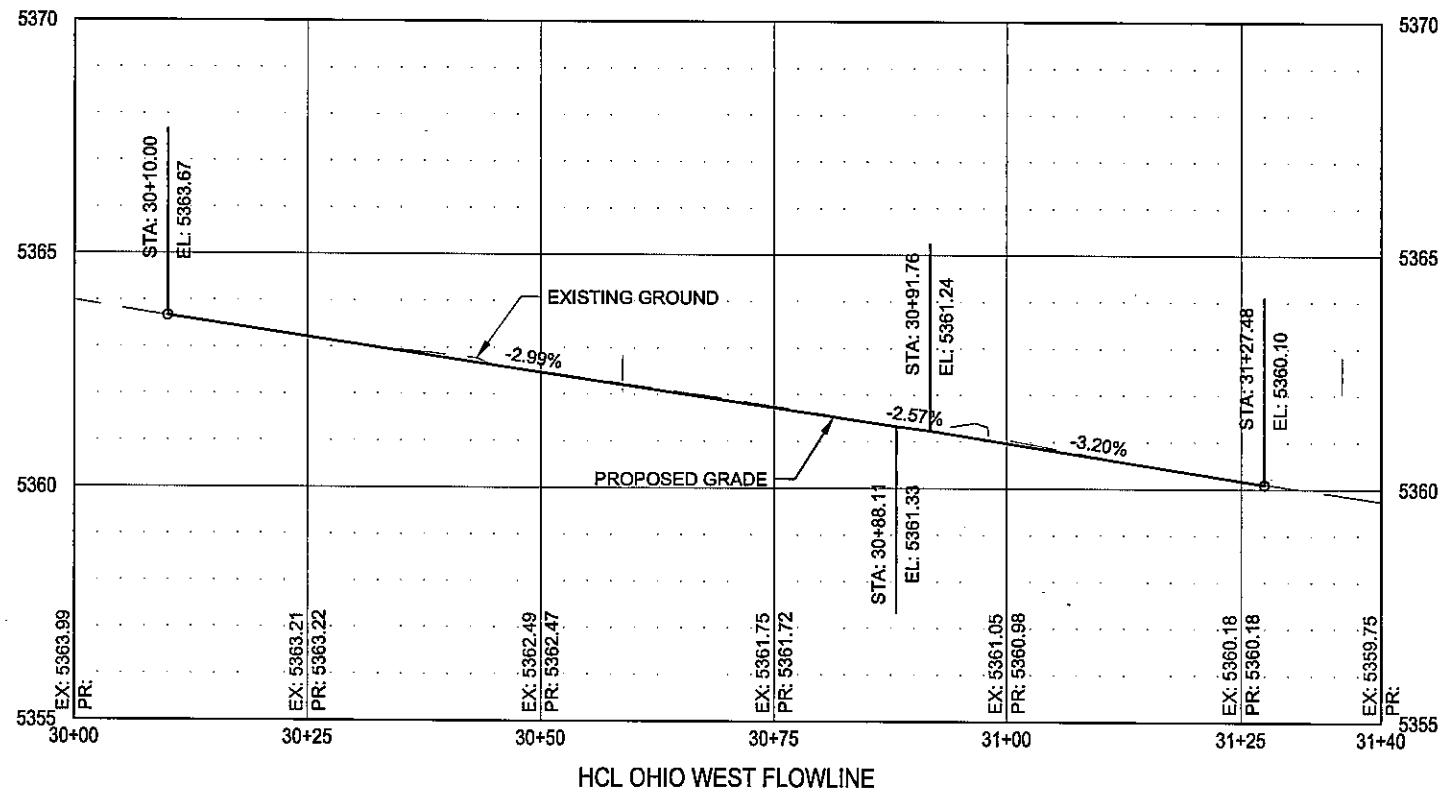
As Constructed  
 No Revisions:  
 Revised:  
 Void:

COLORADO BOULEVARD 2015 SHE  
 INTERSECTION CURB RETURN PROFILES  
 FLORIDA AVENUE  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Structure Numbers  
 Sheet Subset: ROADWAY  
 Subset Sheets: 4 of 6

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **60**



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Print Date: June 15, 2017  
 File Name: 20303 RD PR.DWG  
 Horiz. Scale: 1" = 20' Vertical Exag: 1" = 5'  
 City Project Manager: John Yu  
 HDR 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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As Constructed  
 No Revisions:  
 Revised:  
 Void:

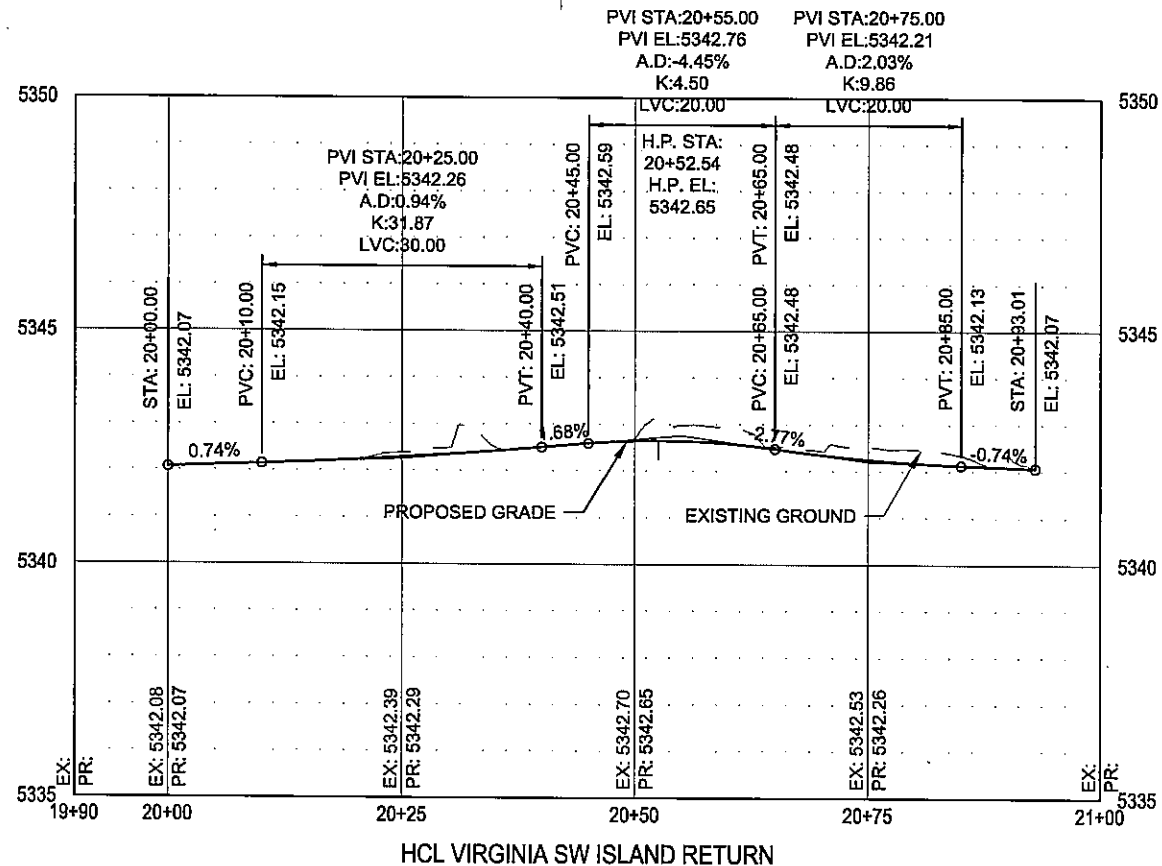
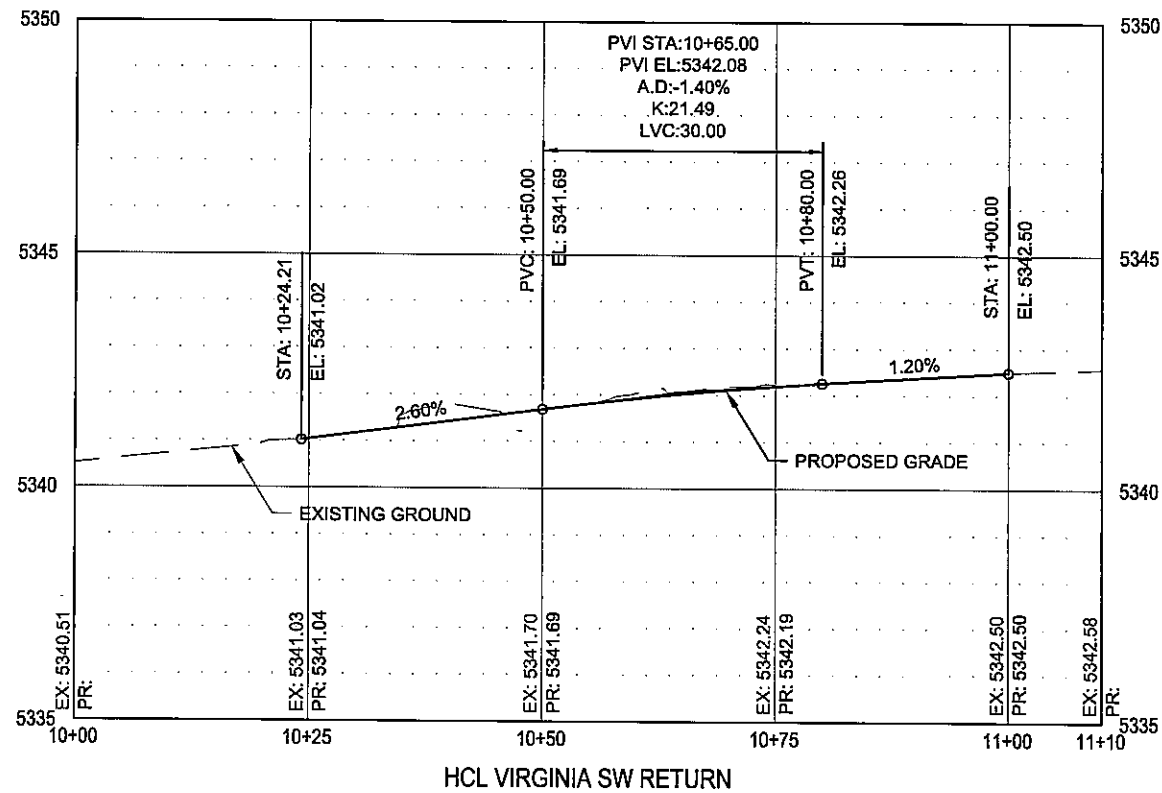
**COLORADO BOULEVARD 2015 SHE INTERSECTION CURB RETURN PROFILES OHIO AVENUE**

Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers:  
 Subset Sheets: 5 of 6

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **61**



Know what's below.  
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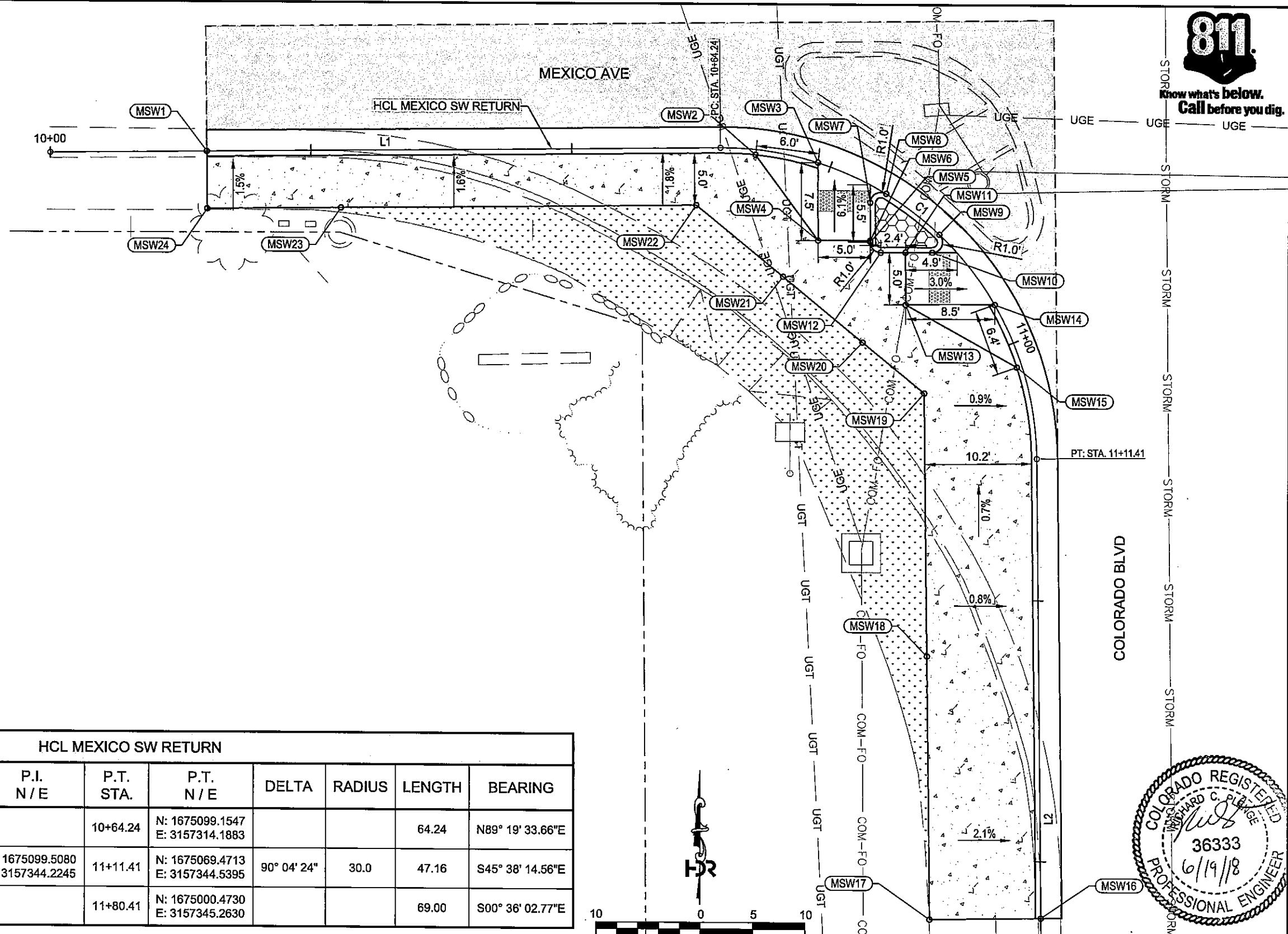
Print Date: June 15, 2017		Sheet Revisions				As Constructed		COLORADO BOULEVARD 2015 SHE INTERSECTION CURB RETURN PROFILES VIRGINIA AVENUE		Project Number		
File Name: 20303 RD PR.DWG		Date:	Comments:	Init.		No Revisions:	Designer: J. COLIP		Structure Numbers		SHE M320-092	
Horiz. Scale: 1" = 20' Vertical Exag: 1" = 5'						Revised:	Detailer: J. COLIP				20303	
City Project Manager: John Yu						Void:	Sheet Subset: ROADWAY		Subset Sheets: 6 of 6		Sheet Number 62	
1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139	DEPARTMENT OF PUBLIC WORKS 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544											



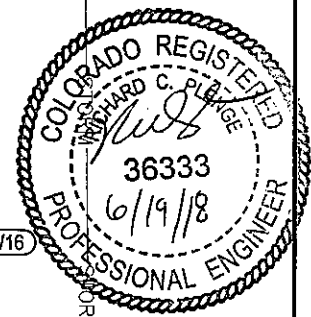


Know what's below. Call before you dig.

POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
MSW1	5393.87	1675098.5754	3157264.9470
MSW2	5395.81	1675098.5031	3157317.5331
MSW3	5395.46	1675097.7767	3157323.5358
MSW4	5396.02	1675090.3138	3157323.5623
MSW5	5395.99	1675090.1838	3157328.5628
MSW6	5395.99	1675090.3316	3157328.5623
MSW7	5395.71	1675093.9676	3157328.5493
MSW8	5395.89	1675094.8269	3157330.0669
MSW9	5395.81	1675090.9307	3157335.1785
MSW10	5395.93	1675089.2049	3157334.4941
MSW11	5396.09	1675089.1957	3157331.9254
MSW12	5396.05	1675089.1873	3157329.5663
MSW13	5396.16	1675084.1958	3157331.9431
MSW14	5395.90	1675084.2261	3157340.4818
MSW15	5396.49	1675078.2336	3157342.6099
MSW16	5396.14	1675025.4380	3157345.0012
MSW17	5396.99	1675025.2935	3157334.3286
MSW18	5396.81	1675050.4997	3157334.0354
MSW19	5396.64	1675075.7059	3157333.7422
MSW20	5396.26	1675080.5490	3157327.8396
MSW21	5396.07	1675086.8221	3157320.1943
MSW22	5395.75	1675093.6274	3157311.9003
MSW23	5394.66	1675093.2269	3157277.8535
MSW24	5394.41	1675093.0758	3157265.0117



HCL MEXICO SW RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L1	10+00.00	N: 1675098.3990 E: 3157249.9480			10+64.24	N: 1675099.1547 E: 3157314.1883			64.24	N89° 19' 33.66"E
C1	10+64.24	N: 1675099.1547 E: 3157314.1883	10+94.28	N: 1675099.5080 E: 3157344.2245	11+11.41	N: 1675069.4713 E: 3157344.5395	90° 04' 24"	30.0	47.16	S45° 38' 14.56"E
L2	11+11.41	N: 1675069.4713 E: 3157344.5395			11+80.41	N: 1675000.4730 E: 3157345.2630			69.00	S00° 36' 02.77"E



Print Date: June 15, 2017  
 File Name: 20303 INT DT (01-05) PL.DWG  
 Horiz. Scale: 1" = 10'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date	Comments	Init.

**DENVER**  
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 Void:

**COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS MEXICO AVE (SW CORNER)**

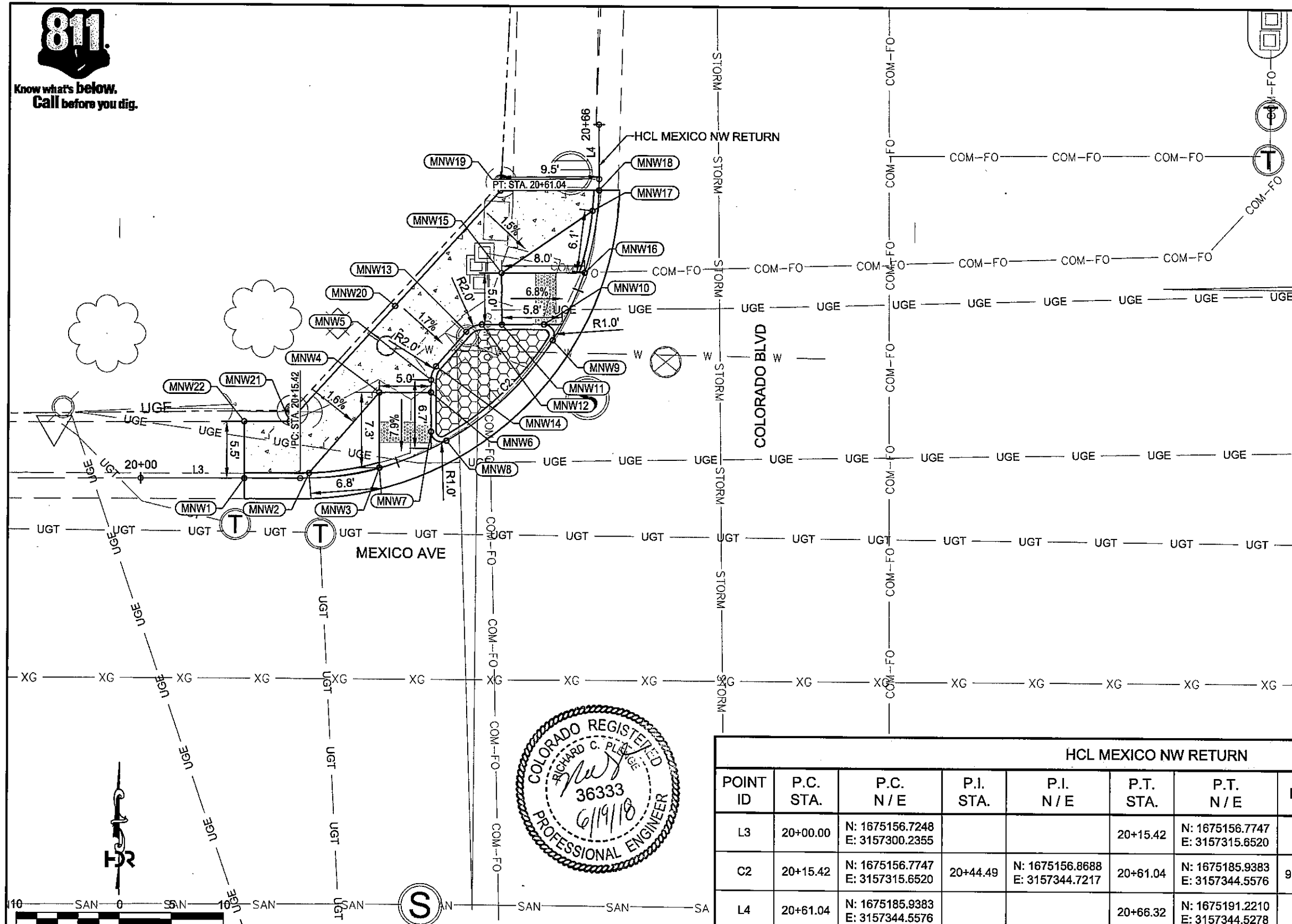
Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY

Structure Numbers  
 Subset Sheets: 1 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **63**



Know what's below.  
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POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
MNW1	5395.36	1675156.7571	3157310.2354
MNW2	5395.47	1675157.2986	3157316.5057
MNW3	5395.07	1675157.8505	3157323.3222
MNW4	5395.66	1675165.1506	3157323.2963
MNW5	5395.63	1675166.3984	3157328.2919
MNW6	5395.58	1675165.1683	3157328.2963
MNW7	5395.27	1675161.3806	3157328.3097
MNW8	5395.16	1675160.5131	3157329.8009
MNW9	5395.37	1675170.2928	3157340.0798
MNW10	5395.53	1675171.8267	3157339.2274
MNW11	5395.86	1675171.7989	3157335.1473
MNW12	5395.87	1675171.7856	3157333.2015
MNW13	5395.78	1675171.0939	3157331.7024
MNW14	5395.68	1675167.7138	3157328.7791
MNW15	5395.92	1675176.7987	3157335.1133
MNW16	5395.47	1675176.8535	3157343.1518
MNW17	5396.05	1675182.8588	3157343.9073
MNW18	5395.58	1675184.8632	3157344.5437
MNW19	5396.10	1675184.7982	3157335.0012
MNW20	5395.85	1675173.5348	3157324.8031
MNW21	5395.60	1675162.2713	3157314.6051
MNW22	5395.54	1675162.2571	3157310.2176



HCL MEXICO NW RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L3	20+00.00	N: 1675156.7248 E: 3157300.2355			20+15.42	N: 1675156.7747 E: 3157315.6520			15.42	N89° 48' 51.93"E
C2	20+15.42	N: 1675156.7747 E: 3157315.6520	20+44.49	N: 1675156.8688 E: 3157344.7217	20+61.04	N: 1675185.9383 E: 3157344.5576	90° 08' 17"	29.0	45.62	N44° 44' 43.65"E
L4	20+61.04	N: 1675185.9383 E: 3157344.5576			20+66.32	N: 1675191.2210 E: 3157344.5278			5.28	N00° 19' 24.63"W

Print Date: June 15, 2017  
 File Name: 20303 INT DT (01-05) PL.DWG  
 Horiz. Scale: 1" = 10'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-960-7139

Sheet Revisions		
Date:	Comments	Init.

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THE MILE HIGH CITY

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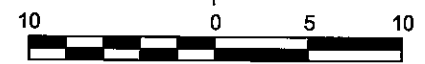
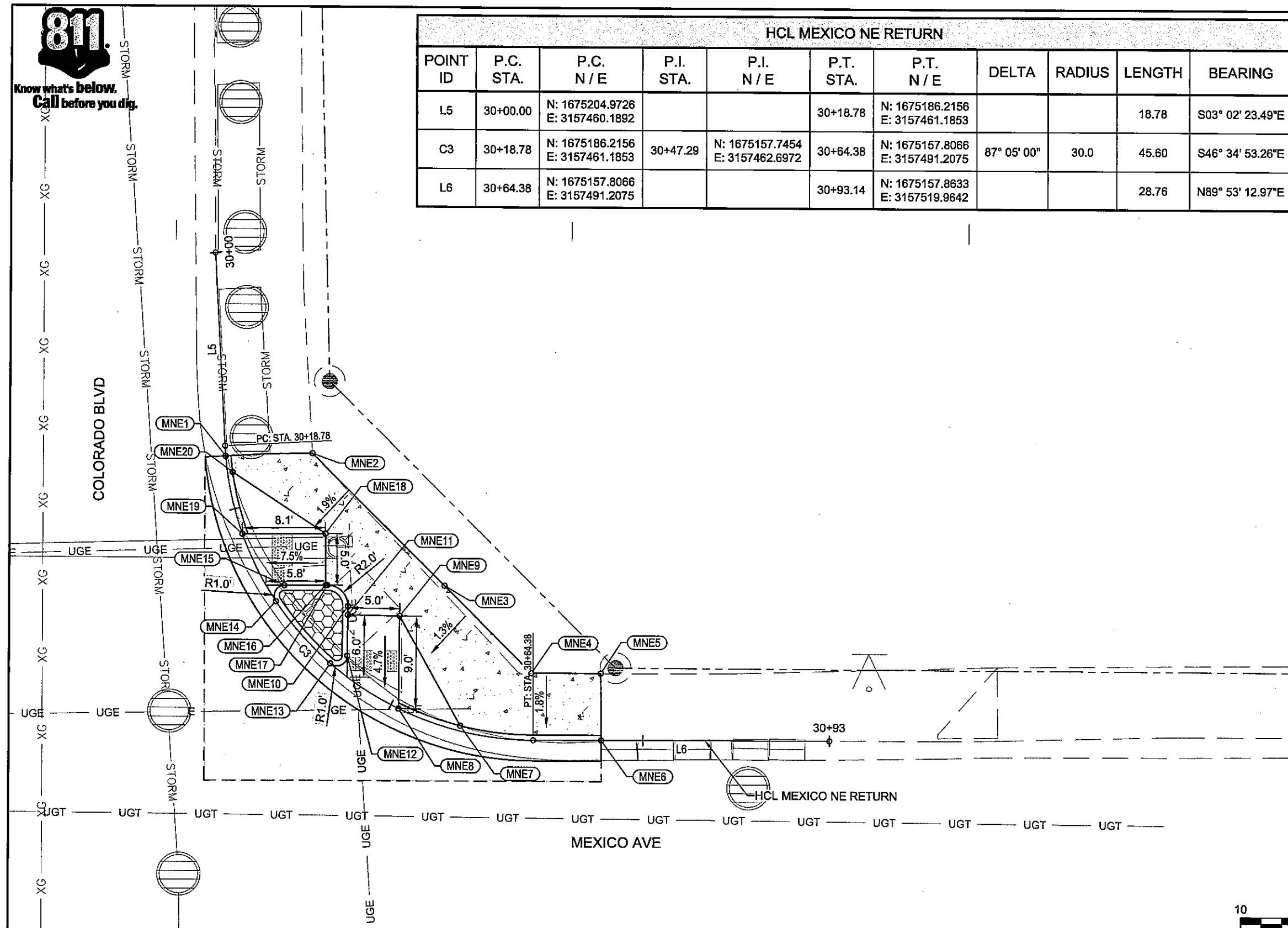
As Constructed		COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS MEXICO AVE (NW CORNER)		Project Number	
No Revisions:		Designer: J. COLIP	Structure Numbers	SHE M320-092	
Revised:		Detailer: J. COLIP		20303	
Void:		Sheet Subset: ROADWAY	Subset Sheets: 2 of 5	Sheet Number <b>64</b>	



Know what's below.  
Call before you dig.

HCL MEXICO NE RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L5	30+00.00	N: 1675204.9726 E: 3157460.1892			30+18.78	N: 1675186.2156 E: 3157461.1853			18.78	S03° 02' 23.49"E
C3	30+18.78	N: 1675186.2156 E: 3157461.1853	30+47.29	N: 1675157.7454 E: 3157462.6972	30+64.38	N: 1675157.8066 E: 3157491.2075	87° 05' 00"	30.0	45.60	S46° 34' 53.26"E
L6	30+64.38	N: 1675157.8066 E: 3157491.2075			30+93.14	N: 1675157.8633 E: 3157519.9642			28.76	N89° 53' 12.97"E

POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
MNE1	5396.64	1675185.2213	3157461.2547
MNE2	5397.41	1675185.5231	3157469.7168
MNE3	5397.56	1675172.7522	3157482.5440
MNE4	5397.70	1675164.3062	3157491.0273
MNE5	5397.79	1675164.3195	3157497.7564
MNE6	5397.15	1675157.8208	3157497.8025
MNE7	5397.57	1675159.1835	3157484.0713
MNE8	5397.03	1675160.7952	3157478.0898
MNE9	5397.47	1675169.7867	3157478.1959
MNE10	5397.42	1675170.7020	3157473.2063
MNE11	5397.44	1675169.8456	3157473.1962
MNE12	5397.15	1675165.8802	3157473.1495
MNE13	5396.99	1675165.1364	3157471.4946
MNE14	5396.91	1675171.1417	3157466.1975
MNE15	5397.04	1675172.6971	3157467.0222
MNE16	5397.37	1675172.7245	3157471.0356
MNE17	5397.36	1675172.7255	3157471.1928
MNE18	5397.33	1675177.7244	3157471.0016
MNE19	5396.80	1675177.6692	3157462.9077
MNE20	5397.17	1675183.6628	3157461.9492



Print Date: June 15, 2017  
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 Horiz. Scale: 1" = 10'  
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Sheet Revisions		
Date:	Comments	Init.

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As Constructed  
 No Revisions:  
 Revised:  
 Void:

COLORADO BOULEVARD 2015 SHE  
 INTERSECTION DETAILS  
 MEXICO AVE (NE CORNER)

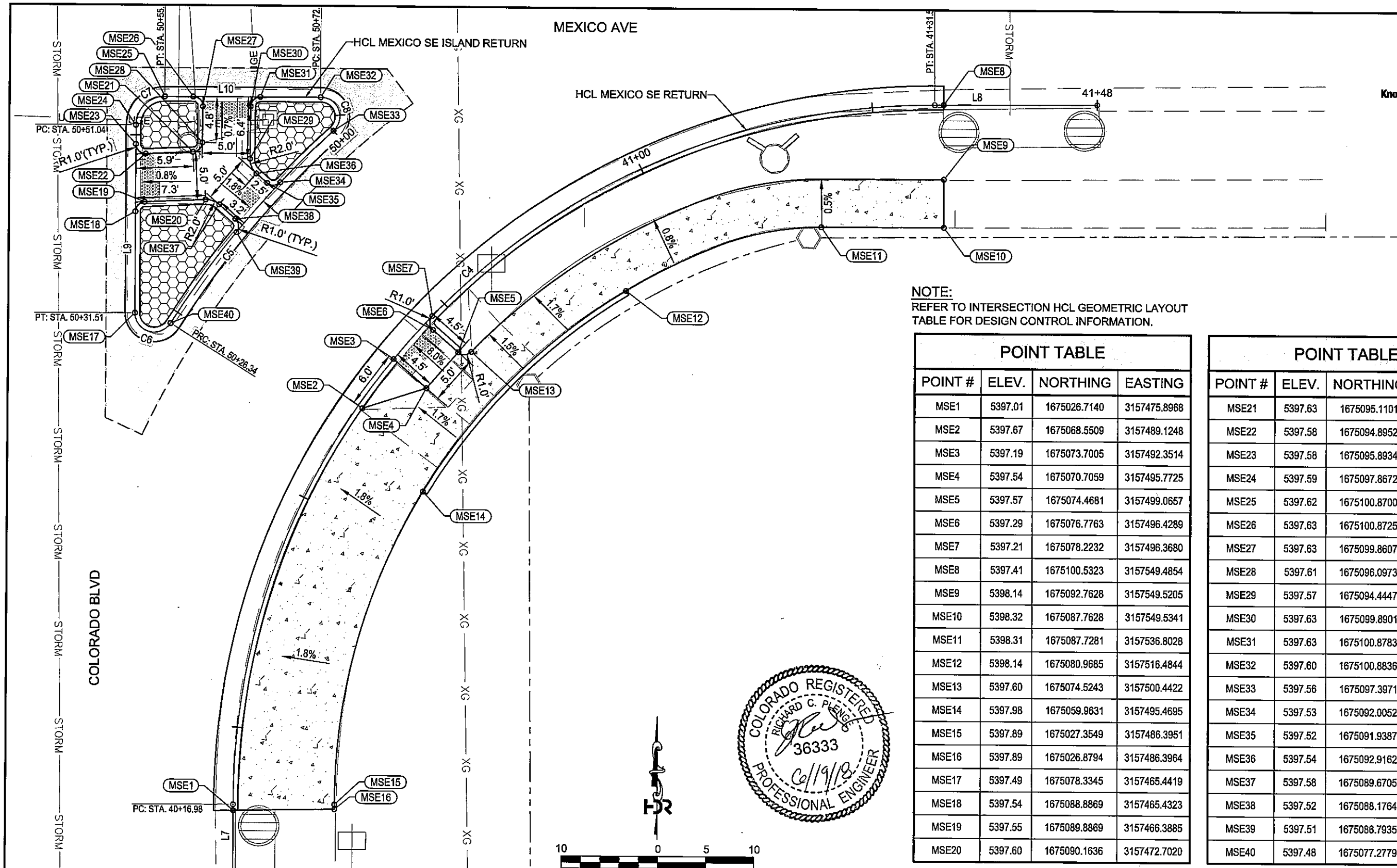
Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY

Structure Numbers  
 Subset Sheets: 3 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **65**



Know what's below.  
Call before you dig.




NOTE:  
REFER TO INTERSECTION HCL GEOMETRIC LAYOUT  
TABLE FOR DESIGN CONTROL INFORMATION.


POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
MSE1	5397.01	1675026.7140	3157475.8968
MSE2	5397.67	1675068.5509	3157489.1248
MSE3	5397.19	1675073.7005	3157492.3514
MSE4	5397.54	1675070.7059	3157495.7725
MSE5	5397.57	1675074.4681	3157499.0657
MSE6	5397.29	1675076.7763	3157496.4289
MSE7	5397.21	1675078.2232	3157496.3680
MSE8	5397.41	1675100.5323	3157549.4854
MSE9	5398.14	1675092.7628	3157549.5205
MSE10	5398.32	1675087.7628	3157549.5341
MSE11	5398.31	1675087.7281	3157536.8028
MSE12	5398.14	1675080.9685	3157516.4844
MSE13	5397.60	1675074.5243	3157500.4422
MSE14	5397.98	1675059.9631	3157495.4695
MSE15	5397.89	1675027.3549	3157486.3951
MSE16	5397.89	1675026.8794	3157486.3964
MSE17	5397.49	1675078.3345	3157465.4419
MSE18	5397.54	1675088.8869	3157465.4323
MSE19	5397.55	1675089.8869	3157466.3885
MSE20	5397.60	1675090.1636	3157472.7020

POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
MSE21	5397.63	1675095.1101	3157471.3706
MSE22	5397.58	1675094.8952	3157466.4697
MSE23	5397.58	1675095.8934	3157465.4259
MSE24	5397.59	1675097.8672	3157465.4241
MSE25	5397.62	1675100.8700	3157468.4215
MSE26	5397.63	1675100.8725	3157471.3703
MSE27	5397.63	1675099.8607	3157472.3711
MSE28	5397.61	1675096.0973	3157472.3267
MSE29	5397.57	1675094.4447	3157477.3076
MSE30	5397.63	1675099.8901	3157477.3718
MSE31	5397.63	1675100.8783	3157478.3709
MSE32	5397.60	1675100.8836	3157484.6711
MSE33	5397.56	1675097.3971	3157486.0107
MSE34	5397.53	1675092.0052	3157480.4932
MSE35	5397.52	1675091.9387	3157479.1069
MSE36	5397.54	1675092.9162	3157477.9902
MSE37	5397.58	1675089.6705	3157474.1069
MSE38	5397.52	1675088.1764	3157475.8137
MSE39	5397.51	1675086.7935	3157475.9312
MSE40	5397.48	1675077.2779	3157469.1388



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 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

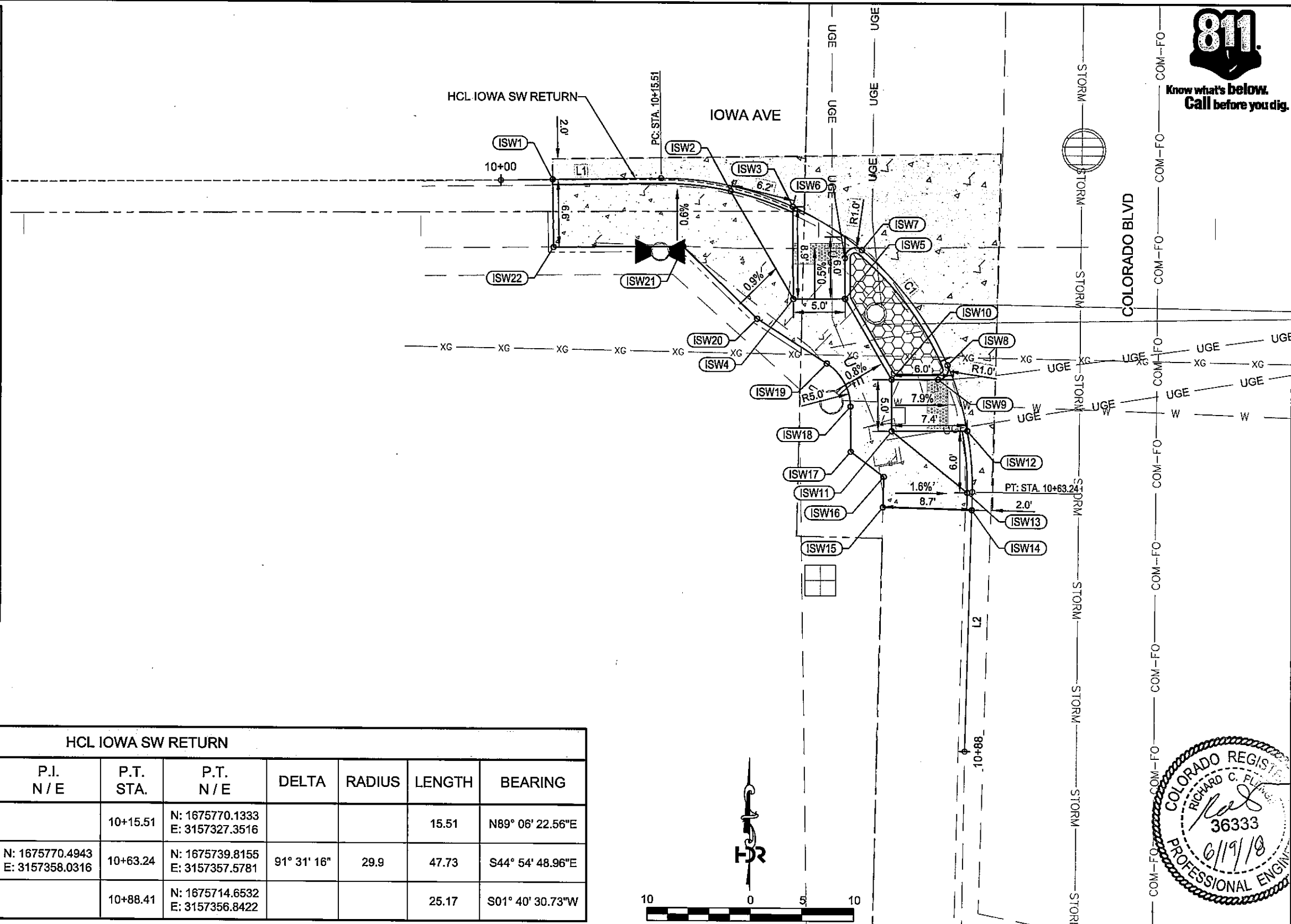
  
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 COLORADO BOULEVARD 2015 SHE  
 INTERSECTION DETAILS  
 MEXICO AVE (SE CORNER)  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 4 of 5

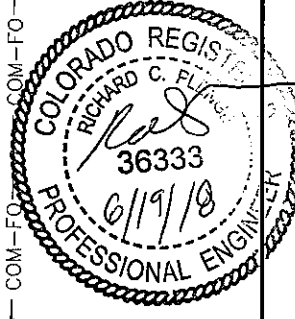
Project Number  
 SHE M320-092  
 20303  
 Sheet Number **66**



POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
ISW1	5406.60	1675769.9693	3157316.8389
ISW2	5407.34	1675768.9189	3157334.1013
ISW3	5406.73	1675767.4370	3157340.1112
ISW4	5406.71	1675758.4931	3157340.1707
ISW5	5406.62	1675758.5264	3157345.1706
ISW6	5406.57	1675762.4738	3157345.1443
ISW7	5406.48	1675763.2500	3157346.7829
ISW8	5406.03	1675752.1089	3157355.1302
ISW9	5406.09	1675750.7123	3157354.2189
ISW10	5406.46	1675750.6821	3157349.6889
ISW11	5406.38	1675745.6822	3157349.7222
ISW12	5405.79	1675745.7312	3157357.0756
ISW13	5406.06	1675739.7311	3157357.0755
ISW14	5405.49	1675738.0560	3157357.5266
ISW15	5406.17	1675738.3092	3157348.8695
ISW16	5406.22	1675741.2522	3157348.9462
ISW17	5406.41	1675743.6839	3157345.7354
ISW18	5406.49	1675748.0660	3157345.7062
ISW19	5406.58	1675752.2433	3157343.4027
ISW20	5406.80	1675756.5531	3157336.6726
ISW21	5407.39	1675763.5120	3157329.5208
ISW22	5407.07	1675763.4048	3157316.9413



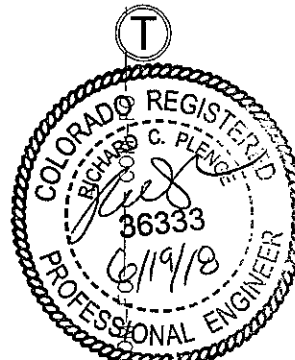
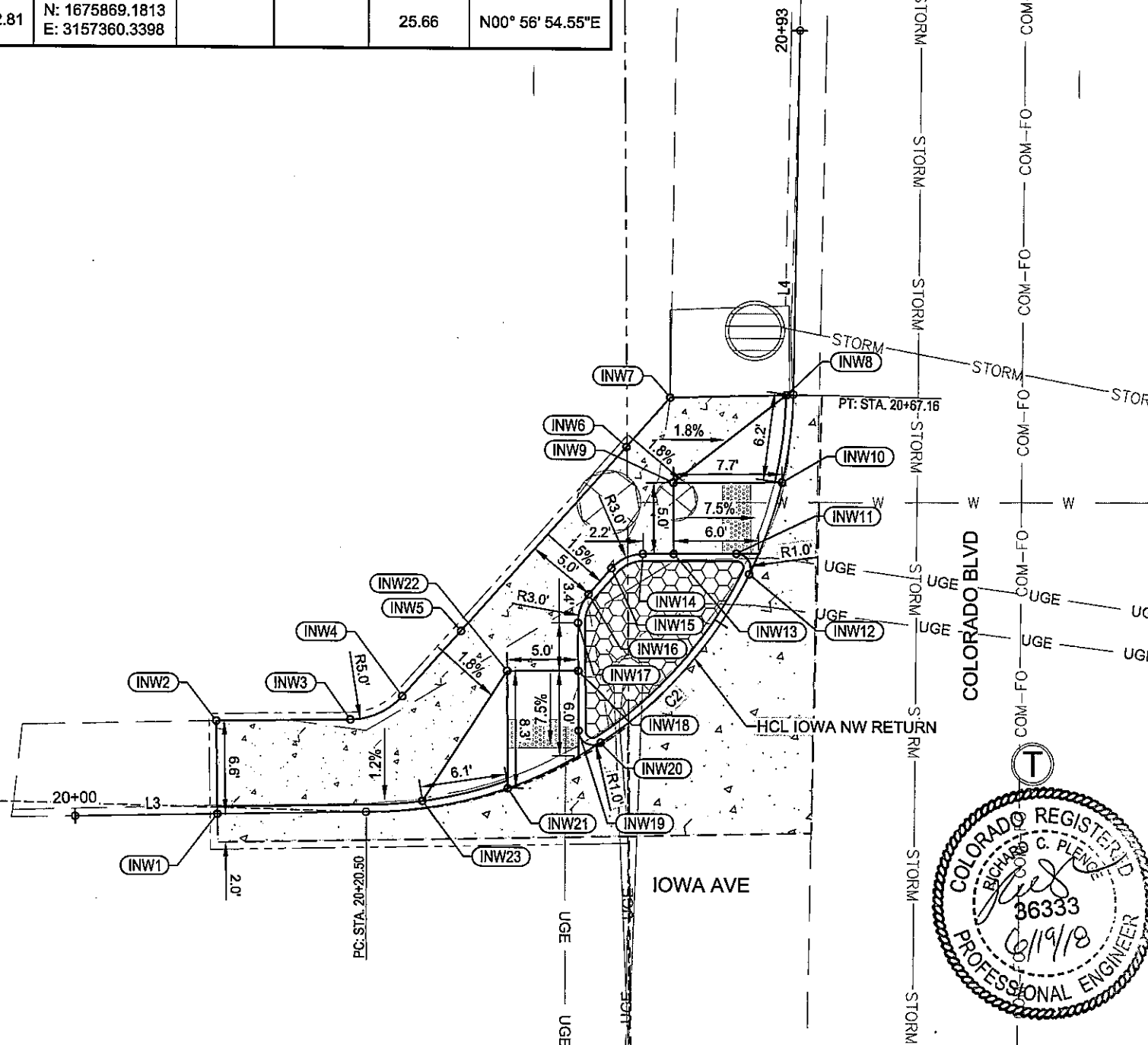
HCL IOWA SW RETURN										
POINT ID	P.C. STA.	P.C. N / E	P.I. STA.	P.I. N / E	P.T. STA.	P.T. N / E	DELTA	RADIUS	LENGTH	BEARING
L1	10+00.00	N: 1675769.8913 E: 3157311.8395			10+15.51	N: 1675770.1333 E: 3157327.3516			15.51	N89° 08' 22.56"E
C1	10+15.51	N: 1675770.1333 E: 3157327.3516	10+46.20	N: 1675770.4943 E: 3157358.0316	10+63.24	N: 1675739.8155 E: 3157357.5781	91° 31' 16"	29.9	47.73	S44° 54' 48.96"E
L2	10+63.24	N: 1675739.8155 E: 3157357.5781			10+88.41	N: 1675714.6532 E: 3157356.8422			25.17	S01° 40' 30.73"W



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File Name: 20303 INT DT (06-09) PL.DWG		Designer: J. COLIP	Structure Numbers					
Horiz. Scale: 1" = 10'		Detailer: J. COLIP						
City Project Manager: John Yu		Sheet Subset: ROADWAY	Subset Sheets: 1 of 4					
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POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
INW1	5407.19	1675813.7981	3157319.3358
INW2	5407.91	1675820.3514	3157319.2542
INW3	5408.08	1675820.4921	3157328.7177
INW4	5408.14	1675822.1613	3157332.3730
INW5	5408.37	1675826.7795	3157336.4968
INW6	5408.71	1675839.7859	3157348.1108
INW7	5409.04	1675843.2738	3157351.2253
INW8	5408.81	1675843.4742	3157359.4137
INW9	5408.65	1675837.2752	3157351.4561
INW10	5408.10	1675837.3264	3157359.1322
INW11	5408.20	1675832.3049	3157355.9182
INW12	5408.06	1675830.8634	3157356.8221
INW13	5408.56	1675832.2754	3157351.4894
INW14	5408.60	1675832.2608	3157349.3041
INW15	5408.64	1675831.2393	3157347.0689
INW16	5408.45	1675829.4026	3157345.4577
INW17	5408.41	1675827.4043	3157344.7129
INW18	5408.35	1675824.0172	3157344.7354
INW19	5408.00	1675819.7918	3157344.7635
INW20	5407.89	1675818.9626	3157346.3125
INW21	5407.75	1675815.7286	3157339.7904
INW22	5408.28	1675823.9840	3157339.7355
INW23	5408.11	1675814.7980	3157333.7964

HCL IOWA NW RETURN										
POINT ID	P.C. STA.	P.C. N / E	P.I. STA.	P.I. N / E	P.T. STA.	P.T. N / E	DELTA	RADIUS	LENGTH	BEARING
L3	20+00.00	N: 1675813.5980 E: 3157309.3370			20+20.50	N: 1675814.0068 E: 3157329.8305			20.50	N88° 51' 26.02"E
C2	20+20.50	N: 1675814.0068 E: 3157329.8305	20+49.94	N: 1675814.0932 E: 3157359.2727	20+67.16	N: 1675843.5285 E: 3157359.9151	88° 34' 54"	30.2	46.66	N45° 32' 27.83"E
L4	20+67.16	N: 1675843.5285 E: 3157359.9151			20+92.81	N: 1675869.1813 E: 3157360.3398			25.66	N00° 56' 54.55"E



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 City Project Manager: John Yu  
**HDR** 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
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Sheet Revisions		
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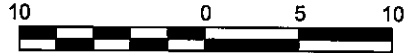
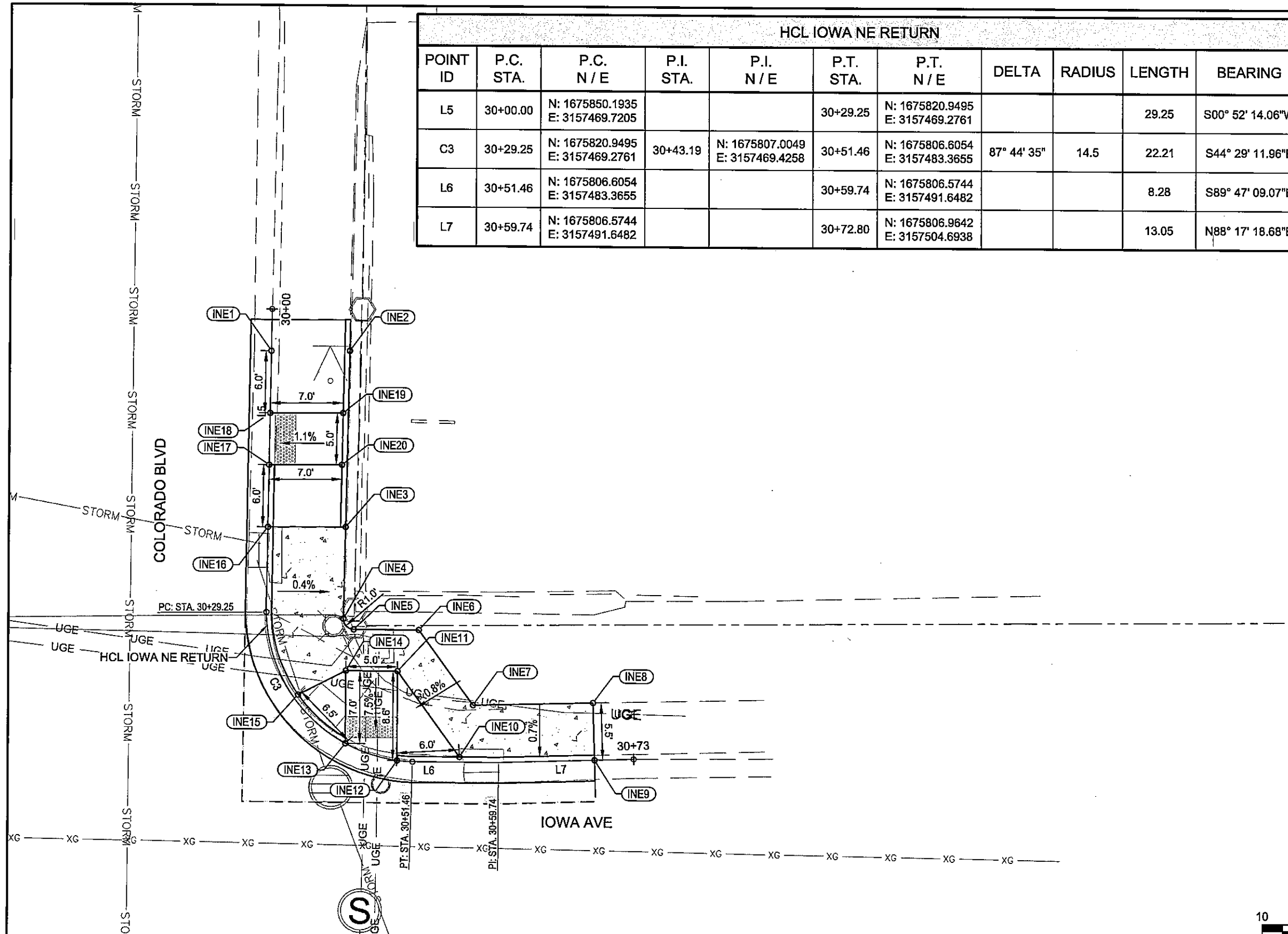
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 No Revisions:  
 Revised:  
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COLORADO BOULEVARD 2015 SHE  
 INTERSECTION DETAILS  
 IOWA AVE (NW CORNER)  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Subset Sheets: 2 of 4

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **69**

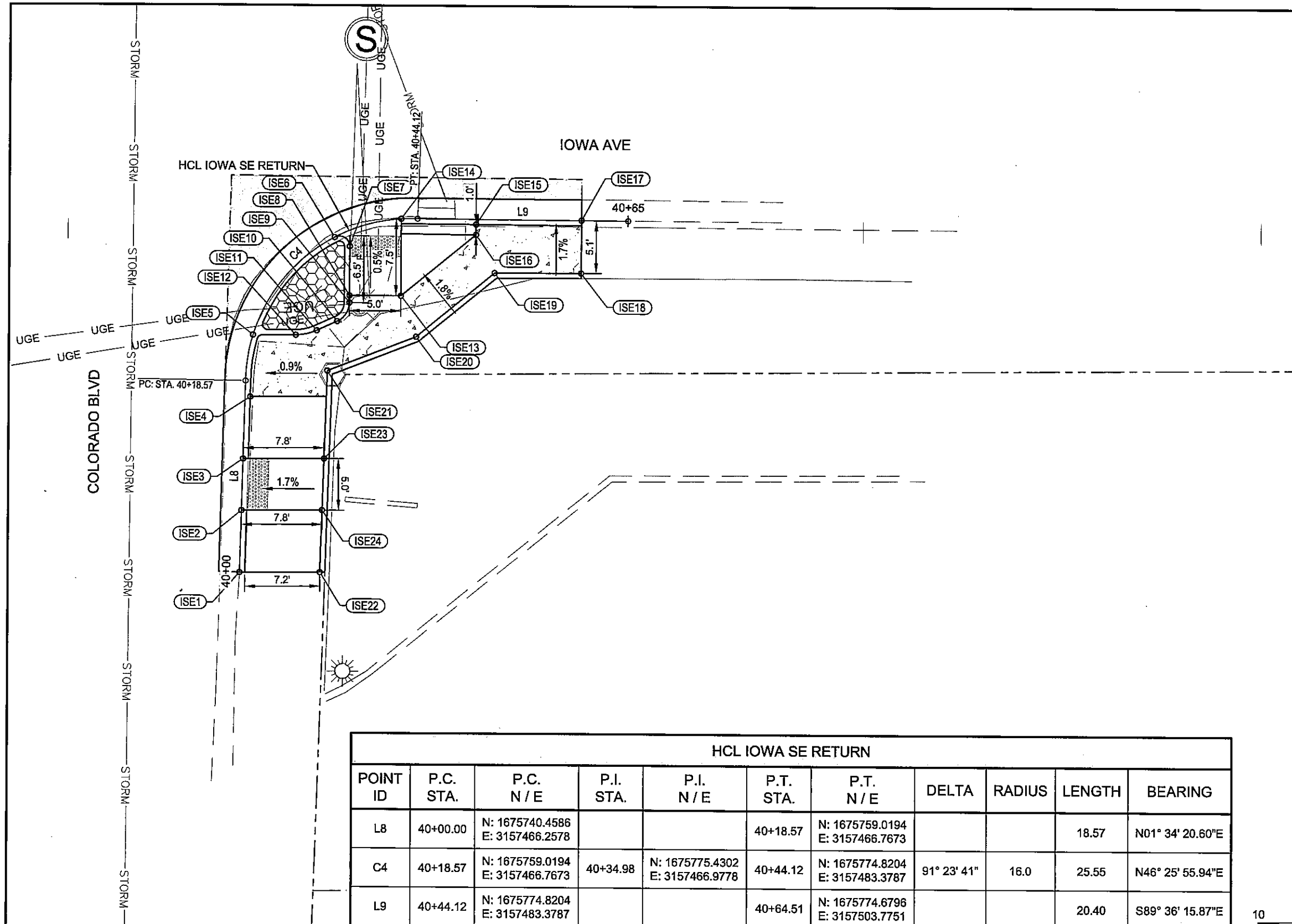
HCL IOWA NE RETURN										
POINT ID	P.C. STA.	P.C. N / E	P.I. STA.	P.I. N / E	P.T. STA.	P.T. N / E	DELTA	RADIUS	LENGTH	BEARING
L5	30+00.00	N: 1675850.1935 E: 3157469.7205			30+29.25	N: 1675820.9495 E: 3157469.2761			29.25	S00° 52' 14.06"W
C3	30+29.25	N: 1675820.9495 E: 3157469.2761	30+43.19	N: 1675807.0049 E: 3157469.4258	30+51.46	N: 1675806.6054 E: 3157483.3655	87° 44' 35"	14.5	22.21	S44° 29' 11.96"E
L6	30+51.46	N: 1675806.6054 E: 3157483.3655			30+59.74	N: 1675806.5744 E: 3157491.6482			8.28	S89° 47' 09.07"E
L7	30+59.74	N: 1675806.5744 E: 3157491.6482			30+72.80	N: 1675806.9642 E: 3157504.6938			13.05	N88° 17' 18.68"E

POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
INE1	5408.18	1675846.1588	3157469.6592
INE2	5408.76	1675846.2092	3157477.2197
INE3	5408.33	1675829.2064	3157476.8643
INE4	5408.10	1675820.3573	3157476.6793
INE5	5408.06	1675819.3364	3157477.6762
INE6	5407.94	1675819.3180	3157483.9584
INE7	5407.84	1675812.1006	3157489.1954
INE8	5408.21	1675812.3673	3157500.7700
INE9	5407.57	1675806.8519	3157500.9342
INE10	5407.75	1675807.0884	3157487.8902
INE11	5407.91	1675815.3240	3157481.9144
INE12	5407.33	1675806.7233	3157481.8891
INE13	5407.42	1675808.3387	3157476.8938
INE14	5408.00	1675815.3387	3157476.9144
INE15	5408.11	1675813.0068	3157472.3540
INE16	5407.51	1675829.1567	3157469.4008
INE17	5407.83	1675835.1574	3157469.4920
INE18	5408.02	1675840.1580	3157469.5680
INE19	5408.06	1675840.2049	3157476.5941
INE20	5407.96	1675835.2041	3157476.4896



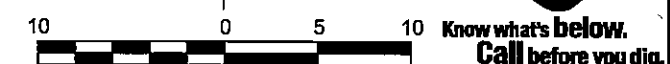
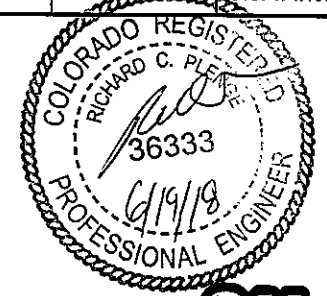
Print Date: June 15, 2017		DEPARTMENT OF PUBLIC WORKS		As Constructed	COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS IOWA AVE (NE CORNER)		Project Number													
File Name: 20303 INT DT (08-09) PL.DWG		201 WEST COLFAX AVENUE DENVER, CO 80202		No Revisions:	Designer: J. COLIP		SHE M320-092													
Horiz. Scale: 1" = 10'		PHONE: (720) 913-4501		Revised:	Detailer: J. COLIP		20303													
City Project Manager: John Yu		FAX: (720) 913-4544		Void:	Sheet Subset: ROADWAY		20303													
1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139		<b>0000</b>		Sheet Revisions <table border="1"> <thead> <tr> <th>Date</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>		Date	Comments	Init.										Structure Numbers 3 of 4		Sheet Number <b>70</b>
Date	Comments	Init.																		





POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
ISE1	5405.44	1675740.4586	3157466.2578
ISE2	5405.63	1675746.4598	3157466.4225
ISE3	5405.79	1675751.4609	3157466.5598
ISE4	5406.48	1675757.4667	3157467.2216
ISE5	5406.21	1675763.4671	3157467.4568
ISE6	5406.77	1675772.9871	3157475.3213
ISE7	5406.85	1675772.0993	3157476.7872
ISE8	5406.88	1675767.3460	3157476.7732
ISE9	5406.87	1675766.8485	3157476.7711
ISE10	5406.82	1675764.8317	3157475.5944
ISE11	5406.71	1675763.9378	3157473.6155
ISE12	5406.70	1675763.4946	3157471.5906
ISE13	5407.03	1675767.3313	3157481.7732
ISE14	5406.99	1675774.8009	3157481.7952
ISE15	5407.61	1675774.2812	3157489.0567
ISE16	5407.63	1675773.2812	3157489.0498
ISE17	5407.34	1675774.7108	3157499.2552
ISE18	5407.99	1675769.5958	3157499.2214
ISE19	5407.55	1675769.5916	3157490.8566
ISE20	5407.03	1675763.3774	3157483.2567
ISE21	5406.65	1675760.0366	3157474.6544
ISE22	5406.36	1675740.5091	3157473.9971
ISE23	5405.88	1675751.5129	3157474.3671
ISE24	5405.79	1675740.5116	3157474.1985

HCL IOWA SE RETURN										
POINT ID	P.C. STA.	P.C. N / E	P.I. STA.	P.I. N / E	P.T. STA.	P.T. N / E	DELTA	RADIUS	LENGTH	BEARING
L8	40+00.00	N: 1675740.4586 E: 3157466.2578			40+18.57	N: 1675759.0194 E: 3157466.7673			18.57	N01° 34' 20.60"E
C4	40+18.57	N: 1675759.0194 E: 3157466.7673	40+34.98	N: 1675775.4302 E: 3157466.9778	40+44.12	N: 1675774.8204 E: 3157483.3787	91° 23' 41"	16.0	25.55	N46° 25' 55.94"E
L9	40+44.12	N: 1675774.8204 E: 3157483.3787			40+64.51	N: 1675774.6796 E: 3157503.7751			20.40	S89° 36' 15.87"E



Print Date: June 15, 2017  
 File Name: 20303 INT DT (08-09) PL.DWG  
 Horiz. Scale: 1" = 10'  
 City Project Manager: John Yu  
**HDR** 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

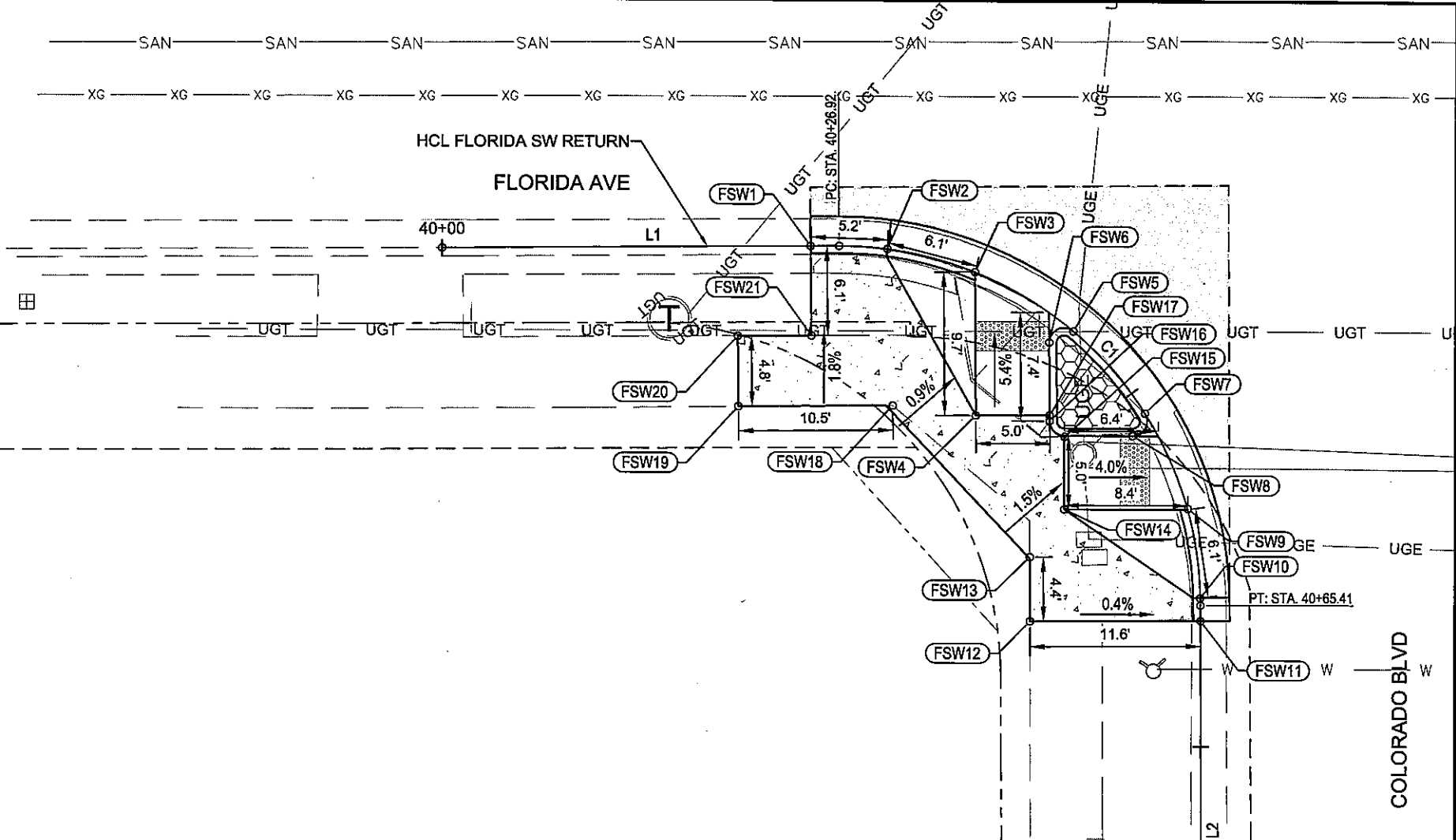
Sheet Revisions		
Date:	Comments	Init.

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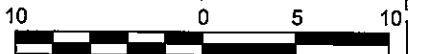
DEPARTMENT OF PUBLIC WORKS  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

As Constructed	COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS IOWA AVE (SE CORNER)		Project Number
No Revisions:	Designer: J. COLIP	Structure Numbers	SHE M320-092
Revised:	Detailer: J. COLIP	Sheet Subset: ROADWAY	20303
Void:	Sheet Subset: ROADWAY	Subset Sheets: 4 of 4	Sheet Number 71

POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
FSW1	5418.15	1676429.4377	3157332.6850
FSW2	5417.99	1676429.2601	3157337.9138
FSW3	5418.17	1676427.7262	3157343.8576
FSW4	5418.70	1676417.9769	3157343.9269
FSW5	5418.36	1676423.7376	3157350.5345
FSW6	5418.46	1676422.9646	3157348.8916
FSW7	5418.47	1676418.1715	3157355.4184
FSW8	5418.57	1676416.6335	3157354.5760
FSW9	5418.50	1676411.6821	3157358.3634
FSW10	5418.60	1676405.6196	3157359.2172
FSW11	5418.48	1676404.0653	3157359.2484
FSW12	5419.02	1676404.0194	3157347.6125
FSW13	5418.88	1676408.3846	3157347.5935
FSW14	5418.80	1676411.6312	3157349.9325
FSW15	5418.80	1676416.5610	3157349.9426
FSW16	5418.79	1676417.6241	3157348.9295
FSW17	5418.79	1676418.0125	3157348.9267
FSW18	5418.71	1676418.6105	3157338.2853
FSW19	5418.55	1676418.5065	3157327.7905
FSW20	5418.40	1676423.3017	3157327.7491
FSW21	5418.30	1676423.3449	3157332.7489



HCL FLORIDA SW RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L1	40+00.00	N: 1676429.2220 E: 3157307.6973			40+26.92	N: 1676429.4544 E: 3157334.6206			26.92	N89° 30' 18.89"E
C1	40+26.92	N: 1676429.4544 E: 3157334.6206	40+51.47	N: 1676429.6664 E: 3157359.1639	40+65.41	N: 1676405.1223 E: 3157359.2534	90° 17' 09"	24.4	38.48	S45° 21' 06.59"E
L2	40+65.41	N: 1676405.1223 E: 3157359.2534			40+87.55	N: 1676382.9844 E: 3157359.3341			22.14	S00° 12' 32.07"E



Print Date: January 23, 2018  
 File Name: 20303 INT DT (10-13) PL.DWG  
 Horiz. Scale: 1" = 10'  
 City Project Manager: John Yu  
**HDR** 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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 DENVER, CO 80202  
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 FAX: (720) 913-4544

As Constructed	COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS FLORIDA AVE (SW CORNER)	
No Revisions:	Designer: J. COLIP	Structure Numbers
Revised:	Detailer: J. COLIP	
Void:	Sheet Subset: ROADWAY	Subset Sheets: 1 of 4

Project Number: SHE M320-092  
 20303  
 Sheet Number: 72

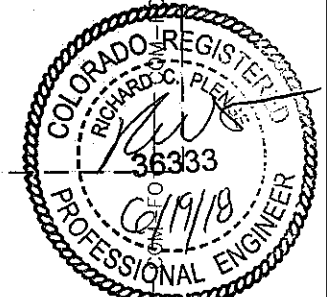
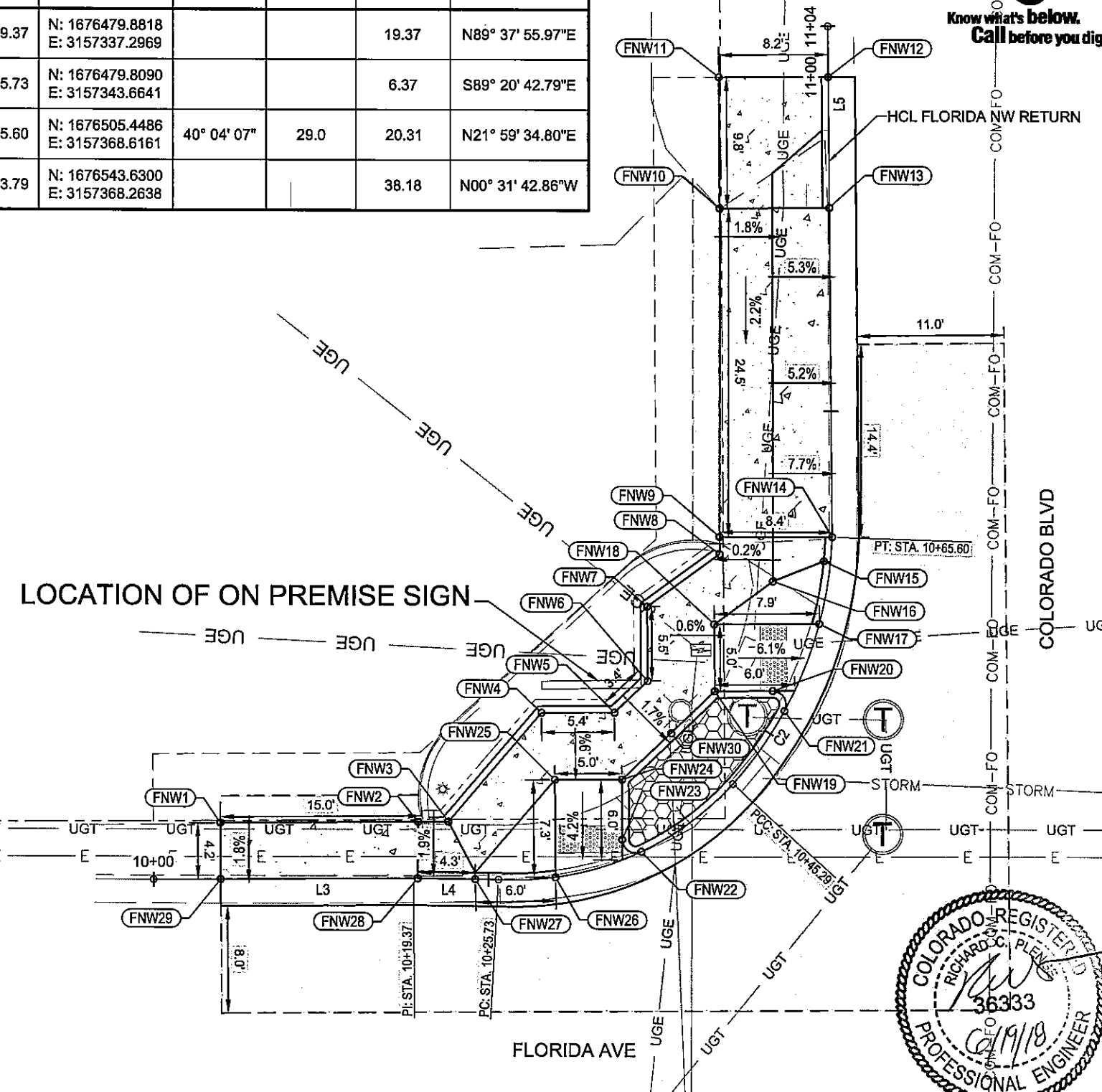
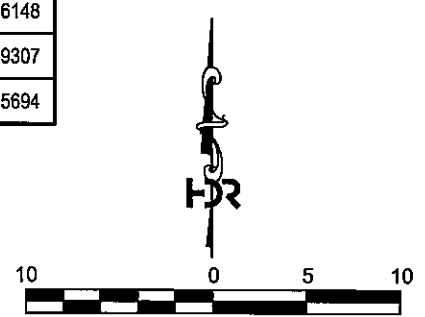


Know what's below. Call before you dig.

POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
FNW1	5418.06	1676484.0054	3157322.9008
FNW2	5418.71	1676484.1088	3157337.6442
FNW3	5418.78	1676484.1255	3157339.9212
FNW4	5419.61	1676492.2585	3157346.8886
FNW5	5419.65	1676492.2971	3157352.3199
FNW6	5420.10	1676494.6722	3157354.8091
FNW7	5420.39	1676500.2175	3157354.7722
FNW8	5420.80	1676504.1570	3157360.1752
FNW9	5420.83	1676505.4545	3157360.1752
FNW10	5421.35	1676529.9814	3157360.1728
FNW11	5421.93	1676539.7901	3157360.0959
FNW12	5421.11	1676539.8448	3157368.2987
FNW13	5420.94	1676530.0572	3157368.3890
FNW14	5420.19	1676505.4549	3157368.6160
FNW15	5420.19	1676503.6423	3157367.9955
FNW16	5420.78	1676502.1264	3157364.1798
FNW17	5419.92	1676498.9716	3157367.6561
FNW18	5420.34	1676498.9191	3157359.7810
FNW19	5420.25	1676493.9192	3157359.8143
FNW20	5419.93	1676493.9483	3157364.1671
FNW21	5419.78	1676492.4672	3157365.0504
FNW22	5419.43	1676481.9181	3157354.3406
FNW23	5419.42	1676482.8135	3157352.9100
FNW24	5419.56	1676487.3009	3157352.8781
FNW25	5419.46	1676487.2654	3157347.8782
FNW26	5419.12	1676479.9890	3157347.9299
FNW27	5418.69	1676479.8289	3157341.9301
FNW28	5418.38	1676479.8782	3157337.6148
FNW29	5417.64	1676479.7896	3157322.9307
FNW30	5419.93	1676490.7716	3157356.5694

HCL FLORIDA NW RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L3	10+00.00	N: 1676479.7575 E: 3157317.9308			10+19.37	N: 1676479.8818 E: 3157337.2969			19.37	N89° 37' 55.97"E
L4	10+19.37	N: 1676479.8818 E: 3157337.2969			10+25.73	N: 1676479.8090 E: 3157343.6641			6.37	S89° 20' 42.79"E
C2	10+45.29	N: 1676486.9962 E: 3157361.1634	10+55.88	N: 1676494.8636 E: 3157368.2541	10+65.60	N: 1676505.4486 E: 3157368.6161	40° 04' 07"	29.0	20.31	N21° 59' 34.80"E
L5	10+65.60	N: 1676505.4486 E: 3157368.6161			11+03.79	N: 1676543.6300 E: 3157368.2638			38.18	N00° 31' 42.86"W

### LOCATION OF ON PREMISE SIGN



Print Date: January 23, 2018  
 File Name: 20303 INT DT (10-13) PL.DWG  
 Horiz. Scale: 1" = 10'  
 City Project Manager: John Yu  
**HDR** 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date	Comments	Init.

**DENVER**  
THE MILE HIGH CITY

DEPARTMENT OF PUBLIC WORKS  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

As Constructed  
 No Revisions:  
 Revised:  
 Void:

COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS  
 FLORIDA AVE (NW CORNER)

Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY

Structure Numbers  
 Subset Sheets: 2 of 4

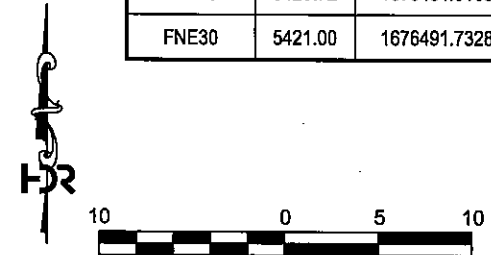
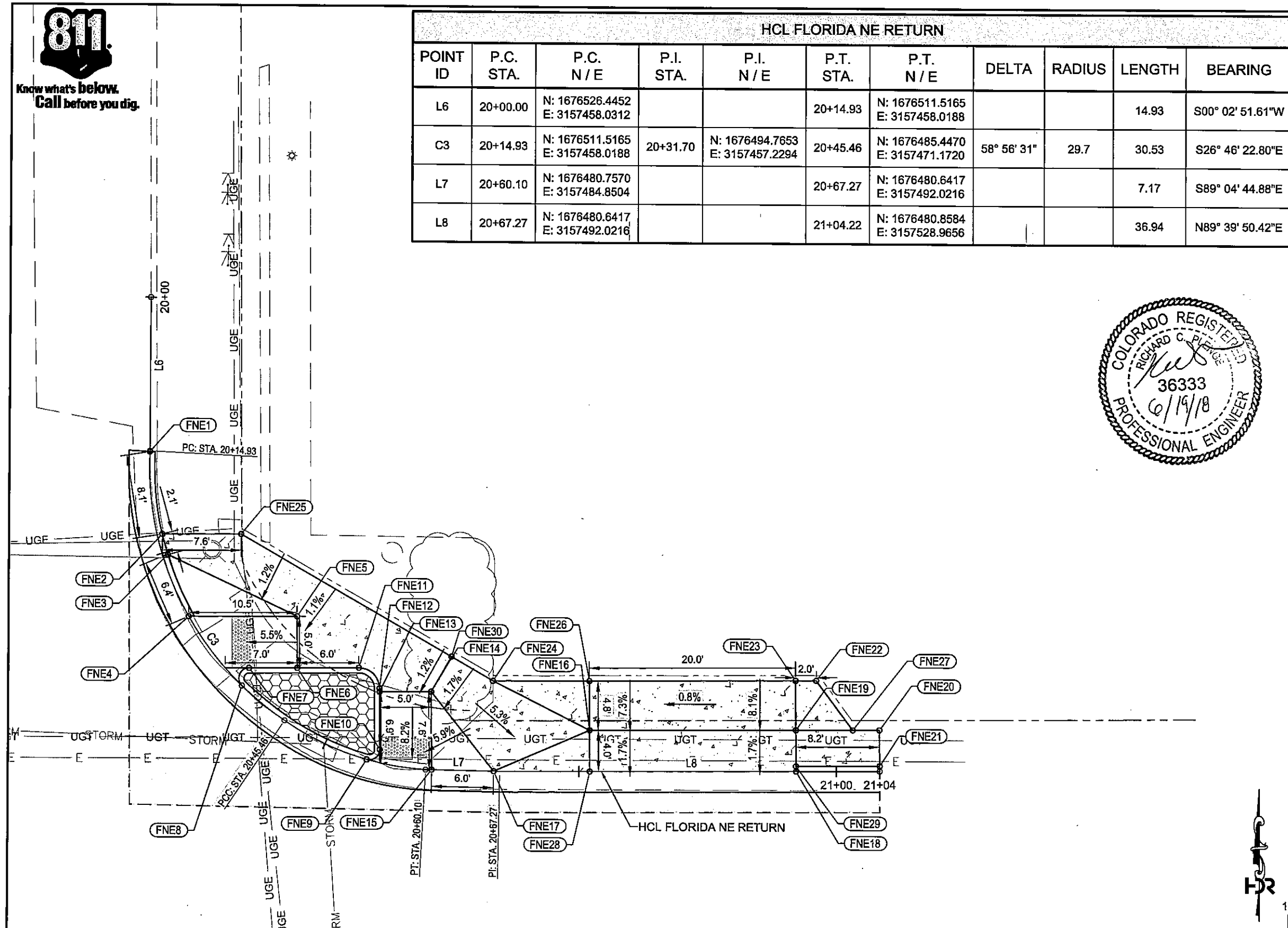
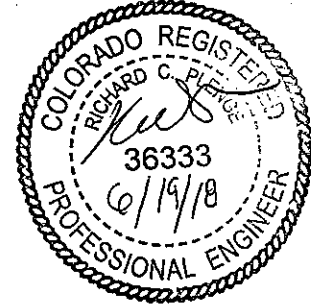
Project Number  
 SHE M320-092  
 20303  
 Sheet Number **73**



Know what's below.  
Call before you dig.

HCL FLORIDA NE RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L6	20+00.00	N: 1676526.4452 E: 3157458.0312			20+14.93	N: 1676511.5165 E: 3157458.0188			14.93	S00° 02' 51.61"W
C3	20+14.93	N: 1676511.5165 E: 3157458.0188	20+31.70	N: 1676494.7653 E: 3157457.2294	20+45.46	N: 1676485.4470 E: 3157471.1720	58° 56' 31"	29.7	30.53	S26° 46' 22.80"E
L7	20+60.10	N: 1676480.7570 E: 3157484.8504			20+67.27	N: 1676480.6417 E: 3157492.0216			7.17	S89° 04' 44.88"E
L8	20+67.27	N: 1676480.6417 E: 3157492.0216			21+04.22	N: 1676480.8584 E: 3157528.9656			36.94	N89° 39' 50.42"E

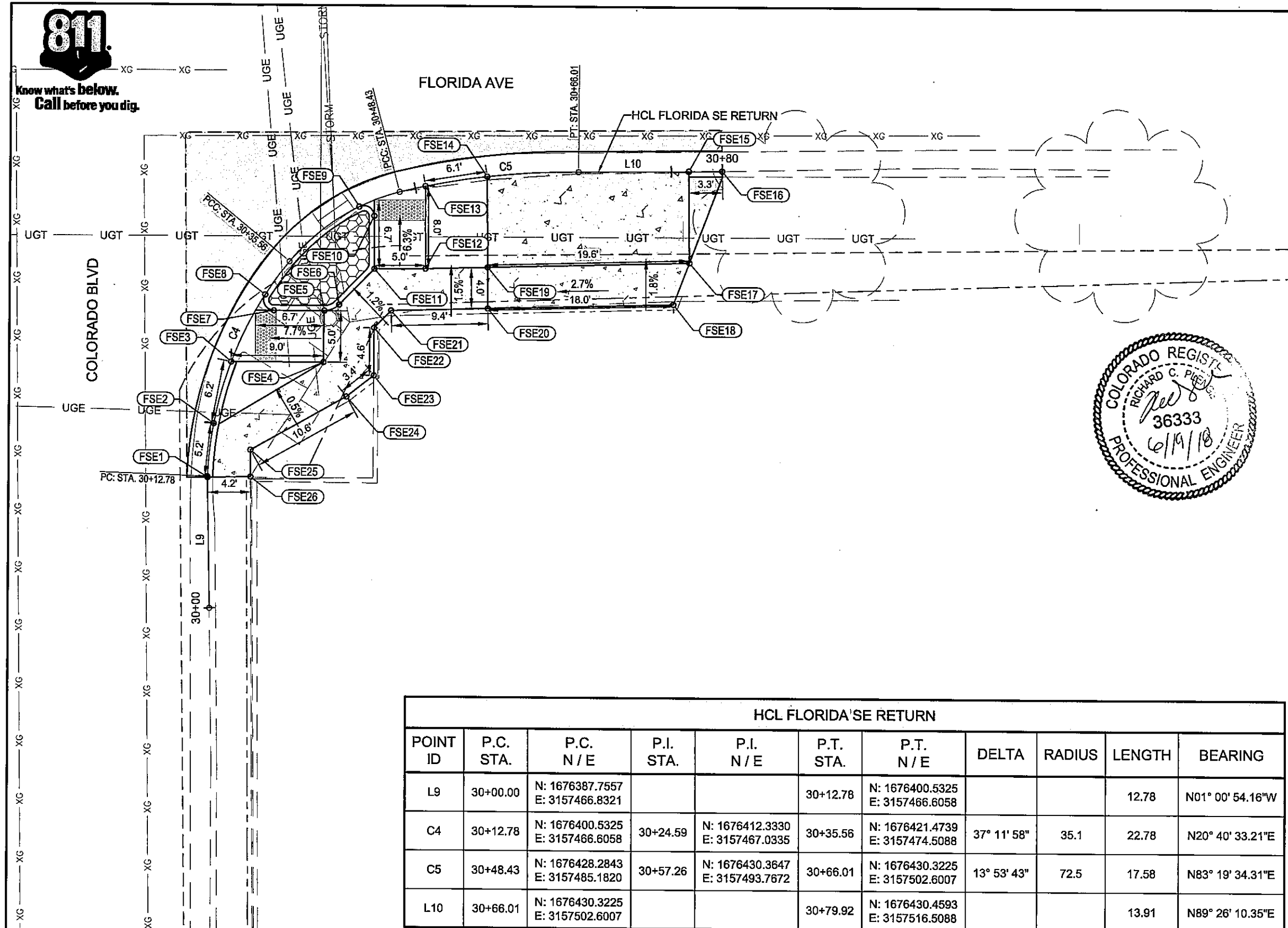
POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
FNE1	5420.72	1676511.4453	3157458.0155
FNE2	5421.13	1676503.4465	3157459.2757
FNE3	5421.11	1676501.4661	3157459.8148
FNE4	5420.53	1676495.4795	3157461.8485
FNE5	5421.03	1676495.5496	3157472.3607
FNE6	5420.95	1676490.5497	3157472.3941
FNE7	5420.58	1676490.5185	3157467.7078
FNE8	5420.32	1676488.8001	3157467.0189
FNE9	5420.12	1676481.6996	3157479.1512
FNE10	5420.23	1676482.6698	3157480.4205
FNE11	5420.85	1676490.5895	3157478.3650
FNE12	5420.70	1676488.6037	3157480.3783
FNE13	5420.69	1676488.2761	3157480.3806
FNE14	5420.78	1676488.3116	3157485.3805
FNE15	5420.24	1676480.7476	3157485.4342
FNE16	5420.66	1676484.6932	3157500.7825
FNE17	5420.48	1676480.6512	3157491.4353
FNE18	5420.71	1676480.8105	3157520.8056
FNE19	5420.79	1676484.8105	3157520.7822
FNE20	5421.39	1676484.8583	3157528.9436
FNE21	5421.32	1676481.3584	3157528.9627
FNE22	5421.33	1676489.6208	3157522.7681
FNE23	5421.17	1676489.6078	3157520.7540
FNE24	5420.90	1676489.4142	3157491.3728
FNE25	5421.18	1676503.4973	3157466.8978
FNE26	5420.99	1676489.4692	3157500.7545
FNE27	5421.20	1676484.8431	3157526.3500
FNE28	5420.58	1676480.6933	3157500.8060
FNE29	5420.72	1676481.3105	3157520.8027
FNE30	5421.00	1676491.7328	3157487.3485



Print Date: January 23, 2018	 <b>DENVER</b> THE MILE HIGH CITY	<b>DEPARTMENT OF PUBLIC WORKS</b> 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544		As Constructed	<b>COLORADO BOULEVARD 2015 SHE</b> <b>INTERSECTION DETAILS</b> <b>FLORIDA AVE (NE CORNER)</b>		Project Number												
File Name: 20303 INT DT (10-13) PL.DWG		<table border="1"> <thead> <tr> <th>Date:</th> <th>Comments:</th> <th>Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>		Date:	Comments:	Init.										No Revisions:	Designer: J. COLIP	Structure Numbers	SHE M320-092
Date:		Comments:	Init.																
Horiz. Scale: 1" = 10'			Revised:	Detailer: J. COLIP		20303													
City Project Manager: John Yu			Void:	Sheet Subset: ROADWAY	Subset Sheets: 3 of 4	Sheet Number <b>74</b>													



Know what's below.  
Call before you dig.



POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
FSE1	5419.09	1676400.4530	3157466.6072
FSE2	5419.28	1676405.6907	3157467.1768
FSE3	5419.41	1676411.6915	3157468.8583
FSE4	5420.02	1676411.6961	3157477.8393
FSE5	5420.11	1676416.6961	3157477.9091
FSE6	5420.19	1676417.2993	3157479.3394
FSE7	5419.70	1676416.6936	3157472.9965
FSE8	5419.56	1676418.2344	3157472.1548
FSE9	5419.66	1676426.8235	3157481.2785
FSE10	5419.86	1676425.9341	3157482.7215
FSE11	5420.28	1676420.8022	3157482.7579
FSE12	5420.37	1676420.8374	3157487.7178
FSE13	5419.93	1676428.8585	3157487.7008
FSE14	5420.07	1676429.8161	3157493.6942
FSE15	5420.48	1676430.4276	3157513.2842
FSE16	5420.53	1676430.4593	3157516.5088
FSE17	5421.07	1676421.5323	3157513.3595
FSE18	5421.10	1676417.4892	3157511.8242
FSE19	5420.54	1676421.0011	3157493.7568
FSE20	5420.60	1676417.0004	3157493.7852
FSE21	5420.37	1676416.7457	3157484.3883
FSE22	5420.20	1676415.0598	3157482.7431
FSE23	5420.18	1676410.4325	3157482.7197
FSE24	5420.07	1676408.3603	3157480.0675
FSE25	5419.74	1676403.1345	3157470.7892
FSE26	5419.67	1676400.5164	3157470.8067

HCL FLORIDA SE RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L9	30+00.00	N: 1676387.7557 E: 3157466.8321			30+12.78	N: 1676400.5325 E: 3157466.6058			12.78	N01° 00' 54.16"W
C4	30+12.78	N: 1676400.5325 E: 3157466.6058	30+24.59	N: 1676412.3330 E: 3157467.0335	30+35.56	N: 1676421.4739 E: 3157474.5088	37° 11' 58"	35.1	22.78	N20° 40' 33.21"E
C5	30+48.43	N: 1676428.2843 E: 3157485.1820	30+57.26	N: 1676430.3647 E: 3157493.7672	30+66.01	N: 1676430.3225 E: 3157502.6007	13° 53' 43"	72.5	17.58	N83° 19' 34.31"E
L10	30+66.01	N: 1676430.3225 E: 3157502.6007			30+79.92	N: 1676430.4593 E: 3157516.5088			13.91	N89° 26' 10.35"E



Print Date: January 23, 2018  
 File Name: 20303 INT DT (10-13) PL.DWG  
 Horiz. Scale: 1" = 10'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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 No Revisions:  
 Revised:  
 Void:

**COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS FLORIDA AVE (SE CORNER)**  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers:  
 Subset Sheets: 4 of 4

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **75**

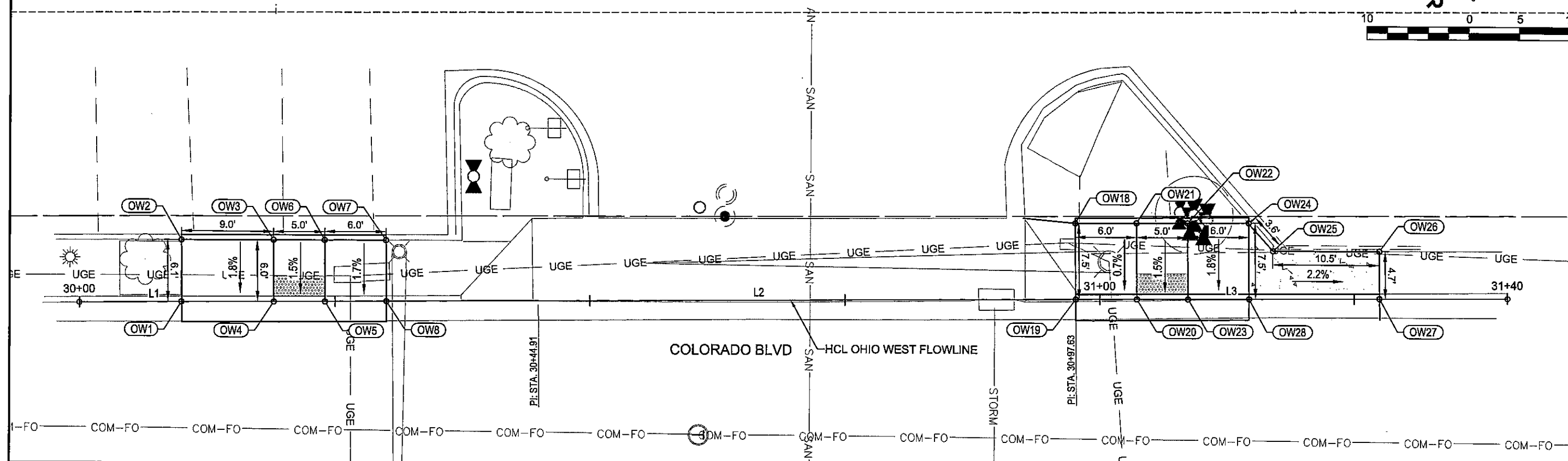
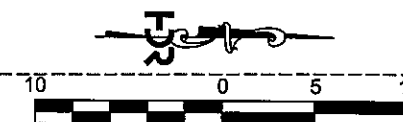


Know what's below.  
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POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
OW1	5111.64	1681038.8200	3157322.1282
OW2	5364.27	1681038.8148	3157316.0536
OW3	5363.52	1681047.8148	3157316.0308
OW4	5363.41	1681047.8476	3157322.0779
OW5	5363.36	1681052.8475	3157322.0425
OW6	5363.43	1681052.8148	3157316.0180
OW7	5363.87	1681058.8148	3157316.0028
OW8	5363.07	1681058.8474	3157322.0000
OW18	5361.40	1681126.4375	3157313.9669
OW19	5361.05	1681126.4780	3157321.4295

POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
OW20	5360.86	1681132.4779	3157321.3970
OW21	5360.91	1681132.4374	3157313.9344
OW22	5360.82	1681137.4373	3157313.9072
OW23	5360.70	1681137.4778	3157321.3698
OW24	5361.13	1681143.4372	3157313.8747
OW25	5360.97	1681145.8246	3157316.6034
OW26	5360.74	1681156.3057	3157316.5925
OW27	5360.14	1681156.3230	3157321.2394
OW28	5360.51	1681143.4777	3157321.3373

HCL OHIO WEST FLOWLINE											
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING	
L1	30+00.00	N: 1681028.8506 E: 3157322.2209			30+44.91	N: 1681073.7542 E: 3157321.8617			44.91	N00° 27' 30.18"W	
L2	30+44.91	N: 1681073.7542 E: 3157321.8617			30+97.63	N: 1681126.4780 E: 3157321.4295			52.73	N00° 28' 10.79"W	
L3	30+97.63	N: 1681126.4780 E: 3157321.4295			31+40.03	N: 1681168.8761 E: 3157321.1737			42.40	N00° 20' 44.22"W	



Print Date: July 7, 2017  
 File Name: 20303 INT DT (14-16) PL.DWG  
 Horiz. Scale: 1" = 10'  
 City Project Manager: John Yu  
**HDR** 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date	Comments	Init.

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 FAX: (720) 913-4544

As Constructed  
 No Revisions:  
 Revised:  
 Void:

COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS OHIO ST (WEST SIDE)

Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 1 of 3

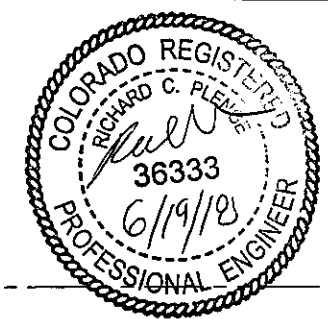
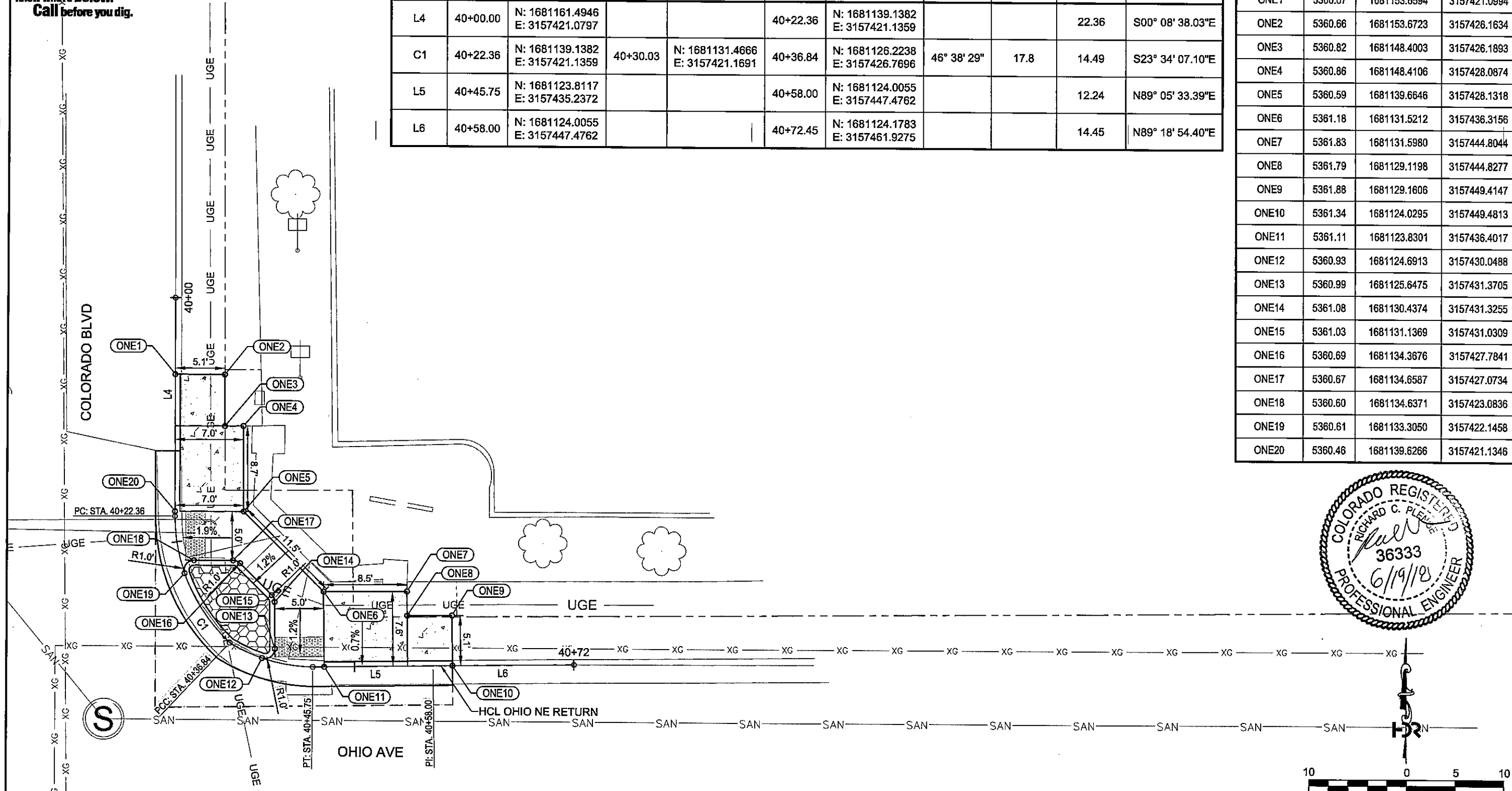
Project Number  
 SHE M320-092  
 20303  
 Sheet Number **76**



Know what's below.  
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HCL OHIO NE RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L4	40+00.00	N: 1681161.4946 E: 3157421.0797			40+22.36	N: 1681139.1382 E: 3157421.1359			22.36	S00° 08' 38.03"E
C1	40+22.36	N: 1681139.1382 E: 3157421.1359	40+30.03	N: 1681131.4666 E: 3157421.1691	40+36.84	N: 1681126.2238 E: 3157426.7696	46° 38' 29"	17.8	14.49	S23° 34' 07.10"E
L5	40+45.75	N: 1681123.8117 E: 3157435.2372			40+58.00	N: 1681124.0055 E: 3157447.4762			12.24	N89° 05' 33.39"E
L6	40+58.00	N: 1681124.0055 E: 3157447.4762			40+72.45	N: 1681124.1783 E: 3157461.9275			14.45	N89° 18' 54.40"E

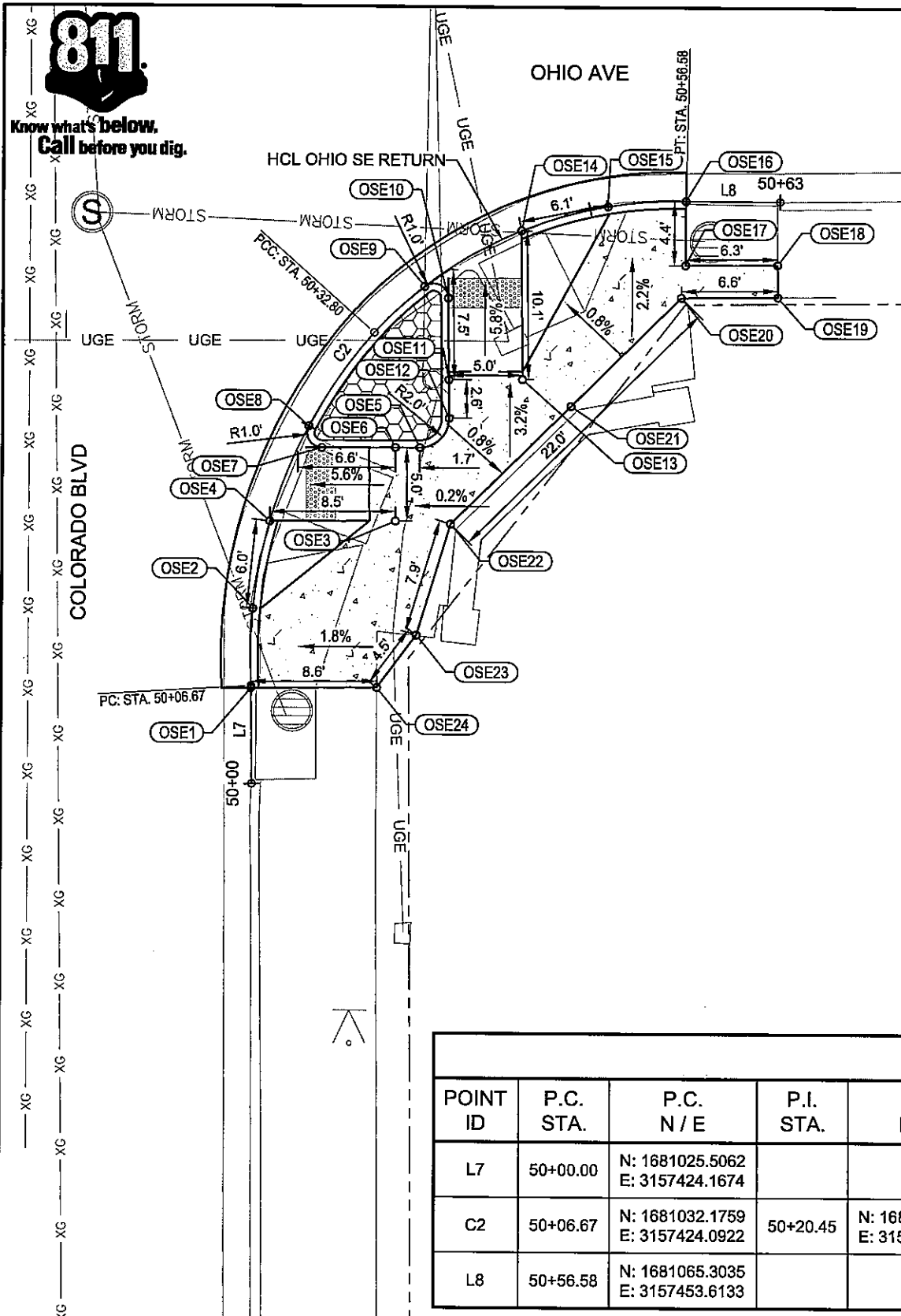
POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
ONE1	5360.07	1681153.6594	3157421.0994
ONE2	5360.66	1681153.6723	3157426.1634
ONE3	5360.82	1681148.4003	3157426.1893
ONE4	5360.86	1681148.4106	3157428.0874
ONE5	5360.59	1681139.6646	3157428.1318
ONE6	5361.18	1681131.5212	3157436.3156
ONE7	5361.83	1681131.5980	3157444.8044
ONE8	5361.79	1681129.1198	3157444.8277
ONE9	5361.88	1681129.1606	3157449.4147
ONE10	5361.34	1681124.0295	3157449.4813
ONE11	5361.11	1681123.8301	3157436.4017
ONE12	5360.93	1681124.6913	3157430.0488
ONE13	5360.99	1681125.6475	3157431.3705
ONE14	5361.08	1681130.4374	3157431.3255
ONE15	5361.03	1681131.1369	3157431.0309
ONE16	5360.69	1681134.3676	3157427.7841
ONE17	5360.67	1681134.6587	3157427.0734
ONE18	5360.60	1681134.6371	3157423.0836
ONE19	5360.61	1681133.3050	3157422.1458
ONE20	5360.46	1681139.6266	3157421.1346



Print Date: July 7, 2017	 <b>DENVER</b> THE MILE HIGH CITY	<b>DEPARTMENT OF PUBLIC WORKS</b> 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544	<b>As Constructed</b> No Revisions: Revised: Void:	<b>COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS OHIO ST (NE CORNER)</b>		Project Number												
File Name: 20303 INT DT (14-16) PL.DWG						SHE M320-092												
Horiz. Scale: 1" = 10'						20303												
City Project Manager: John Yu						Sheet Number												
1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139	<table border="1"> <thead> <tr> <th colspan="3">Sheet Revisions</th> </tr> <tr> <th>Date:</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Sheet Revisions			Date:	Comments	Init.										Designer: J. COLIP Detailer: J. COLIP Sheet Subset: ROADWAY Subset Sheets: 2 of 3	Structure Numbers Sheet Number <b>77</b>
Sheet Revisions																		
Date:	Comments	Init.																

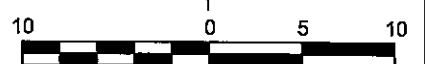
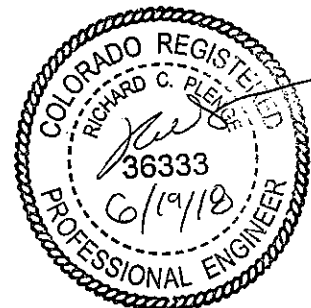


Know what's below.  
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POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING
OSE1	5363.51	1681032.0178	3157424.0940
OSE2	5363.40	1681037.4254	3157424.1933
OSE3	5363.60	1681043.4262	3157433.8796
OSE4	5363.28	1681043.3799	3157425.3323
OSE5	5363.70	1681048.4352	3157435.5157
OSE6	5363.60	1681048.4261	3157433.8525
OSE7	5363.28	1681048.3990	3157428.8510
OSE8	5363.15	1681049.8699	3157427.9634
OSE9	5362.90	1681059.4120	3157435.8127
OSE10	5362.98	1681058.6331	3157437.4279
OSE11	5363.34	1681053.0703	3157437.4802
OSE12	5363.53	1681050.4539	3157437.5048
OSE13	5363.27	1681053.1173	3157442.4800
OSE14	5362.71	1681063.2273	3157442.3850
OSE15	5362.46	1681064.9169	3157448.2874
OSE16	5362.08	1681065.3035	3157453.6149
OSE17	5362.90	1681060.9327	3157453.5978
OSE18	5362.90	1681060.9649	3157459.8816
OSE19	5363.03	1681058.7641	3157459.8965
OSE20	5362.97	1681058.7211	3157453.3097
OSE21	5363.30	1681051.3016	3157445.7925
OSE22	5363.65	1681043.2494	3157437.6341
OSE23	5364.22	1681035.6742	3157435.3171
OSE24	5364.69	1681032.0894	3157432.6476

HCL OHIO SE RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L7	50+00.00	N: 1681025.5062 E: 3157424.1674			50+06.67	N: 1681032.1759 E: 3157424.0922			6.67	N00° 38' 46.33"W
C2	50+06.67	N: 1681032.1759 E: 3157424.0922	50+20.45	N: 1681045.9307 E: 3157423.2725	50+32.80	N: 1681056.2547 E: 3157432.3982	44° 53' 06"	33.4	26.13	N19° 01' 55.19"E
L8	50+56.58	N: 1681065.3035 E: 3157453.6133			50+63.02	N: 1681065.2740 E: 3157460.0500			6.44	S89° 44' 15.23"E



Print Date: July 7, 2017  
 File Name: 20303 INT DT (14-16) PL.DWG  
 Horiz. Scale: #####  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

DEPARTMENT OF PUBLIC WORKS  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

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 No Revisions:  
 Revised:  
 Void:

COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS OHIO ST (SE CORNER)  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Structure Numbers  
 Sheet Subset: ROADWAY  
 Subset Sheets: 3 of 3

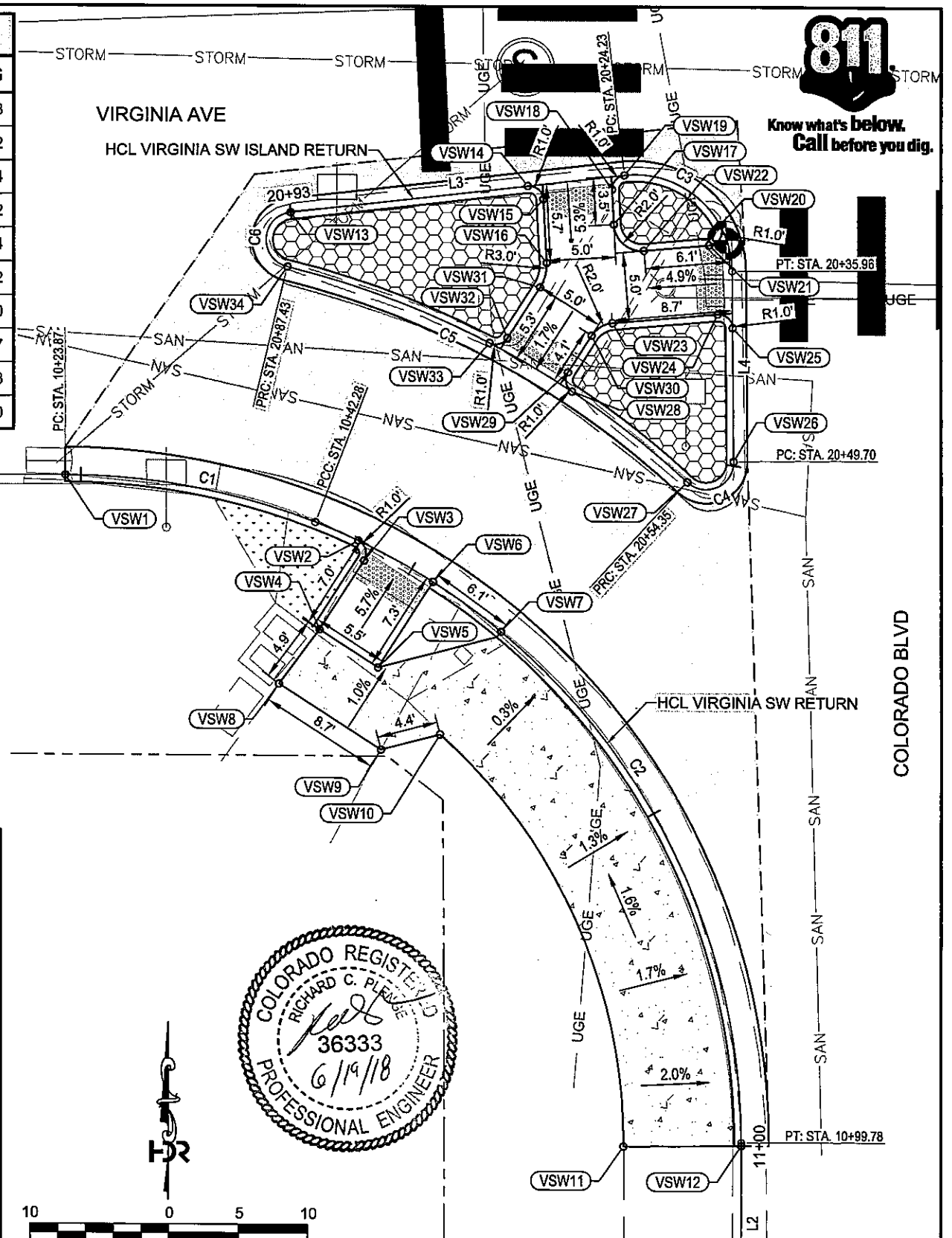
Project Number  
 SHE M320-092  
 20303  
 Sheet Number **78**



POINT TABLE				POINT TABLE				POINT TABLE			
POINT #	ELEV.	NORTHING	EASTING	POINT #	ELEV.	NORTHING	EASTING	POINT #	ELEV.	NORTHING	EASTING
VSW1	0.00	1682976.8707	3157240.3229	VSW13	5342.07	1682995.8554	3157256.5348	VSW25	5342.51	1682987.6117	3157288.4298
VSW2	5341.58	1682972.2048	3157261.4096	VSW14	5342.21	1682997.8107	3157273.6393	VSW26	5342.65	1682977.9741	3157288.5052
VSW3	5341.65	1682970.7583	3157261.8265	VSW15	5342.23	1682996.8691	3157274.7515	VSW27	5342.65	1682976.4891	3157285.1484
VSW4	5341.90	1682965.7789	3157258.6245	VSW16	5342.28	1682992.2729	3157274.9907	VSW28	5342.49	1682983.0069	3157276.8232
VSW5	5342.05	1682963.0745	3157262.8300	VSW17	5342.31	1682995.0472	3157279.8531	VSW29	5342.44	1682984.3827	3157276.5324
VSW6	5341.74	1682969.2459	3157266.7986	VSW18	5342.28	1682997.5618	3157279.7223	VSW30	5342.38	1682987.0321	3157278.2362
VSW7	5341.88	1682965.6717	3157271.7059	VSW19	5342.28	1682998.6074	3157280.6081	VSW31	5342.30	1682990.4944	3157274.5180
VSW8	5342.01	1682961.8683	3157255.6954	VSW20	5342.39	1682995.0471	3157287.5195	VSW32	5342.33	1682986.8409	3157272.1687
VSW9	5342.22	1682957.1494	3157263.0336	VSW21	5342.40	1682993.5658	3157286.7312	VSW33	5342.32	1682986.4932	3157270.8688
VSW10	5342.49	1682958.2518	3157267.3005	VSW22	5342.35	1682993.1585	3157282.0228	VSW34	5342.11	1682991.9241	3157256.2930
VSW11	5343.18	1682928.7074	3157280.5501	VSW23	5342.38	1682987.9429	3157279.7460				
VSW12	5342.50	1682928.7481	3157289.0500	VSW24	5342.48	1682988.6001	3157287.3436				

HCL VIRGINIA SW RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L1	10+00.00	N: 1682976.8674 E: 3157216.4529			10+23.87	N: 1682976.8707 E: 3157240.3229			23.87	N89° 59' 31.34"E
C1	10+23.87	N: 1682976.8707 E: 3157240.3229	10+33.18	N: 1682976.8720 E: 3157249.6339	10+42.28	N: 1682973.5217 E: 3157258.3212	21° 05' 51"	50.0	18.41	S79° 27' 33.14"E
C2	10+42.28	N: 1682973.5217 E: 3157258.3212	10+75.05	N: 1682961.7318 E: 3157288.8920	10+99.78	N: 1682928.9667 E: 3157289.0490	68° 38' 09"	48.0	57.50	S34° 35' 32.94"E
L2	10+99.78	N: 1682928.9667 E: 3157289.0490			11+26.75	N: 1682902.0007 E: 3157289.1782			26.97	S00° 16' 28.27"E

HCL VIRGINIA SW ISLAND RETURN										
POINT ID	P.C. STA.	P.C. N/E	P.I. STA.	P.I. N/E	P.T. STA.	P.T. N/E	DELTA	RADIUS	LENGTH	BEARING
L3	20+00.00	N: 1682995.8554 E: 3157256.5348			20+24.23	N: 1682998.6073 E: 3157280.6071			24.23	N83° 28' 42.14"E
C3	20+24.23	N: 1682998.6073 E: 3157280.6071	20+32.01	N: 1682999.4909 E: 3157288.3368	20+35.96	N: 1682991.7111 E: 3157288.3977	96° 04' 23"	7.0	11.73	S48° 29' 06.26"E
L4	20+35.96	N: 1682991.7111 E: 3157288.3977			20+49.70	N: 1682977.9741 E: 3157288.5052			13.74	S00° 26' 54.66"E
C4	20+49.70	N: 1682977.9741 E: 3157288.5052	20+54.32	N: 1682973.3558 E: 3157288.5414	20+54.35	N: 1682976.4891 E: 3157285.1484	133° 10' 14"	2.0	4.65	S66° 08' 12.57"W
C5	20+54.35	N: 1682976.4891 E: 3157285.1484	20+71.25	N: 1682987.9593 E: 3157272.7280	20+87.43	N: 1682991.9241 E: 3157256.2930	29° 09' 33"	65.0	33.08	N61° 51' 26.72"W
C6	20+87.43	N: 1682991.9241 E: 3157256.2930	20+98.72	N: 1682994.5716 E: 3157245.3183	20+93.01	N: 1682995.8553 E: 3157256.5346	159° 54' 29"	2.0	5.58	N03° 31' 01.13"E



Print Date: June 15, 2017  
 File Name: 20303 INT DT (17) PL.DWG  
 Horiz. Scale: ##### Vertical Exag:  
 City Project Manager: John Yu  
**HDR** 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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 DENVER, CO 80202  
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 FAX: (720) 913-4544

As Constructed  
 No Revisions:  
 Revised:  
 Void:

**COLORADO BOULEVARD 2015 SHE INTERSECTION DETAILS VIRGINIA AVE (SW CORNER)**  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 1 of 1

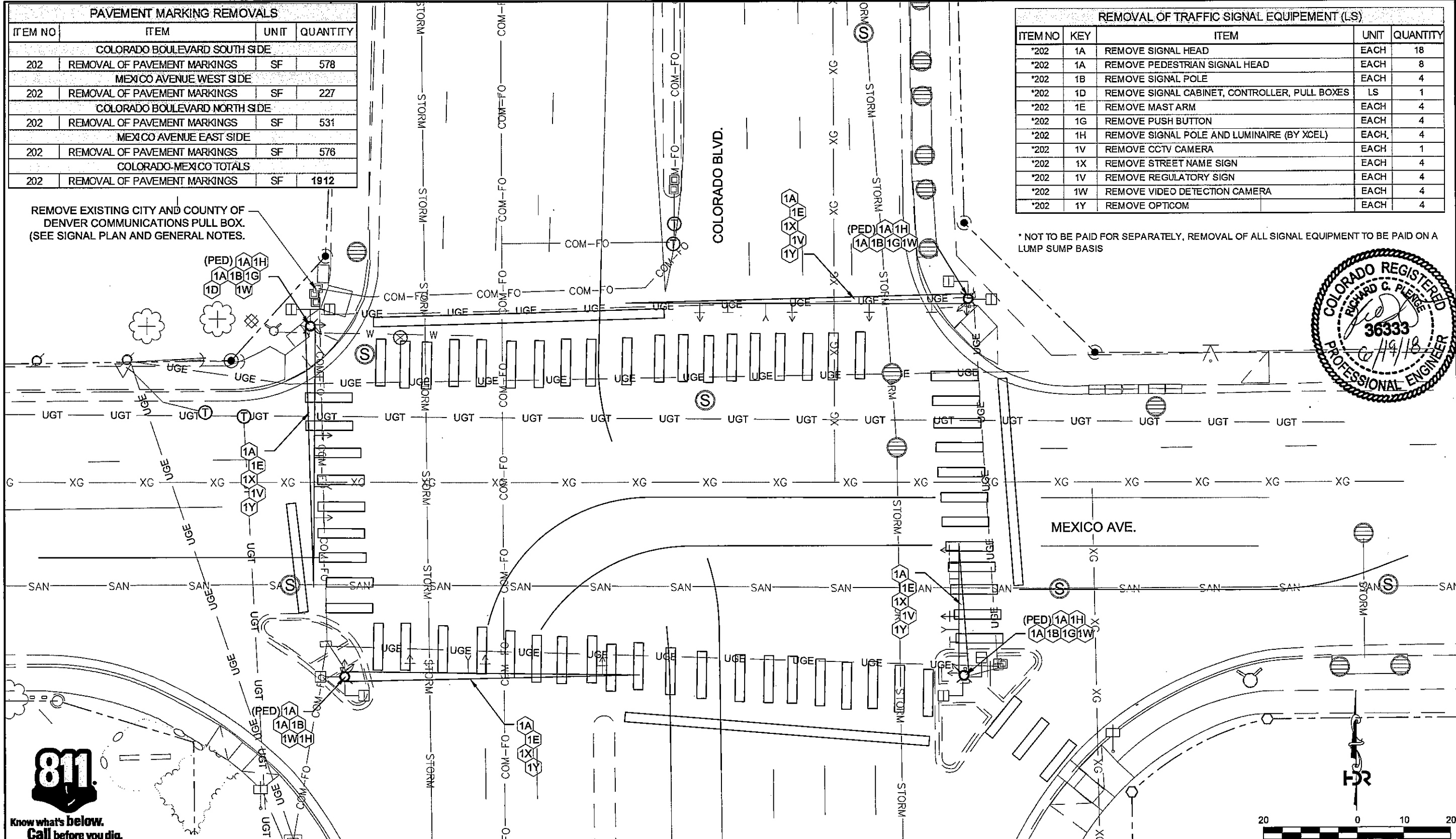
Project Number  
 SHE M320-092  
 20303  
 Sheet Number **79**





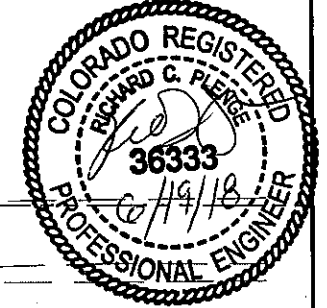
PAVEMENT MARKING REMOVALS			
ITEM NO	ITEM	UNIT	QUANTITY
COLORADO BOULEVARD SOUTH SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	578
MEXICO AVENUE WEST SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	227
COLORADO BOULEVARD NORTH SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	531
MEXICO AVENUE EAST SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	576
COLORADO-MEXICO TOTALS			
202	REMOVAL OF PAVEMENT MARKINGS	SF	1912

REMOVE EXISTING CITY AND COUNTY OF DENVER COMMUNICATIONS PULL BOX. (SEE SIGNAL PLAN AND GENERAL NOTES.)

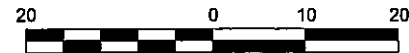


REMOVAL OF TRAFFIC SIGNAL EQUIPEMENT (LS)				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
*202	1A	REMOVE SIGNAL HEAD	EACH	18
*202	1A	REMOVE PEDESTRIAN SIGNAL HEAD	EACH	8
*202	1B	REMOVE SIGNAL POLE	EACH	4
*202	1D	REMOVE SIGNAL CABINET, CONTROLLER, PULL BOXES	LS	1
*202	1E	REMOVE MAST ARM	EACH	4
*202	1G	REMOVE PUSH BUTTON	EACH	4
*202	1H	REMOVE SIGNAL POLE AND LUMINAIRE (BY XCEL)	EACH	4
*202	1V	REMOVE CCTV CAMERA	EACH	1
*202	1X	REMOVE STREET NAME SIGN	EACH	4
*202	1V	REMOVE REGULATORY SIGN	EACH	4
*202	1W	REMOVE VIDEO DETECTION CAMERA	EACH	4
*202	1Y	REMOVE OPTICOM	EACH	4

\* NOT TO BE PAID FOR SEPARATELY, REMOVAL OF ALL SIGNAL EQUIPEMENT TO BE PAID ON A LUMP SUMP BASIS



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Print Date: June 16, 2017  
 File Name: 20303 TR REM PL 01.DWG  
 Horiz. Scale: 1" = 20'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

**DEPARTMENT OF PUBLIC WORKS**  
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 DENVER, CO 80202  
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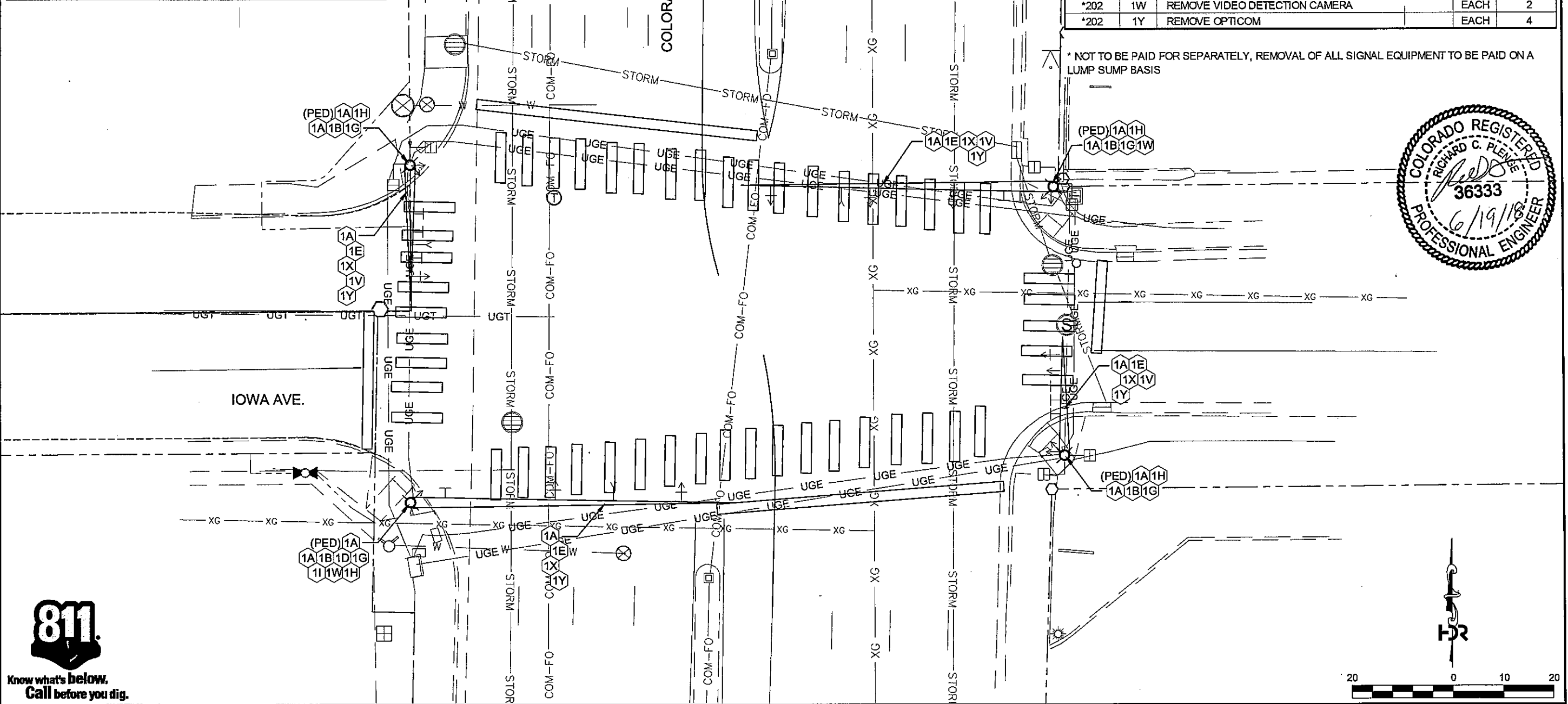
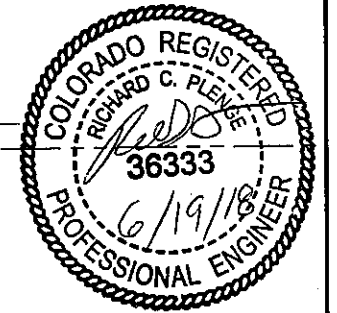
**COLORADO BOULEVARD 2015 SHE  
 SIGNAL AND STRIPING REMOVAL PLAN  
 MEXICO AVENUE**  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 1 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **81**

PAVEMENT MARKING REMOVALS			
ITEM NO	ITEM	UNIT	QUANTITY
COLORADO BOULEVARD SOUTH SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	526
IOWA AVENUE WEST SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	264
COLORADO BOULEVARD NORTH SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	537
IOWA AVENUE EAST SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	153
COLORADO-IOWA TOTALS			
202	REMOVAL OF PAVEMENT MARKINGS	SF	1480

REMOVAL OF TRAFFIC SIGNAL EQUIPMENT (LS)				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
*202	1A	REMOVE SIGNAL HEAD	EACH	15
*202	1A	REMOVE PEDESTRIAN SIGNAL HEAD	EACH	8
*202	1B	REMOVE SIGNAL POLE	EACH	4
*202	1D	REMOVE SIGNAL CABINET, CONTROLLER, PULL BOXES	LS	1
*202	1E	REMOVE MAST ARM	EACH	4
*202	1G	REMOVE PUSH BUTTON	EACH	4
*202	1H	REMOVE SIGNAL POLE AND LUMINAIRE (BY XCEL)	EACH	4
*202	1V	REMOVE CCTV CAMERA	EACH	1
*202	1X	REMOVE STREET NAME SIGN	EACH	4
*202	1V	REMOVE REGULATORY SIGN	EACH	5
*202	1W	REMOVE VIDEO DETECTION CAMERA	EACH	2
*202	1Y	REMOVE OPTICOM	EACH	4

\* NOT TO BE PAID FOR SEPARATELY, REMOVAL OF ALL SIGNAL EQUIPMENT TO BE PAID ON A LUMP SUM BASIS



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Print Date:	June 16, 2017
File Name:	20303 TR REM PL 02.DWG
Horiz. Scale:	1" = 20'
City Project Manager:	John Yu
<b>HR</b>	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

**DEPARTMENT OF PUBLIC WORKS**

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DENVER, CO 80202  
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FAX: (720) 913-4544

**DENVER**  
THE MILE HIGH CITY

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No Revisions:
Revised:
Void:

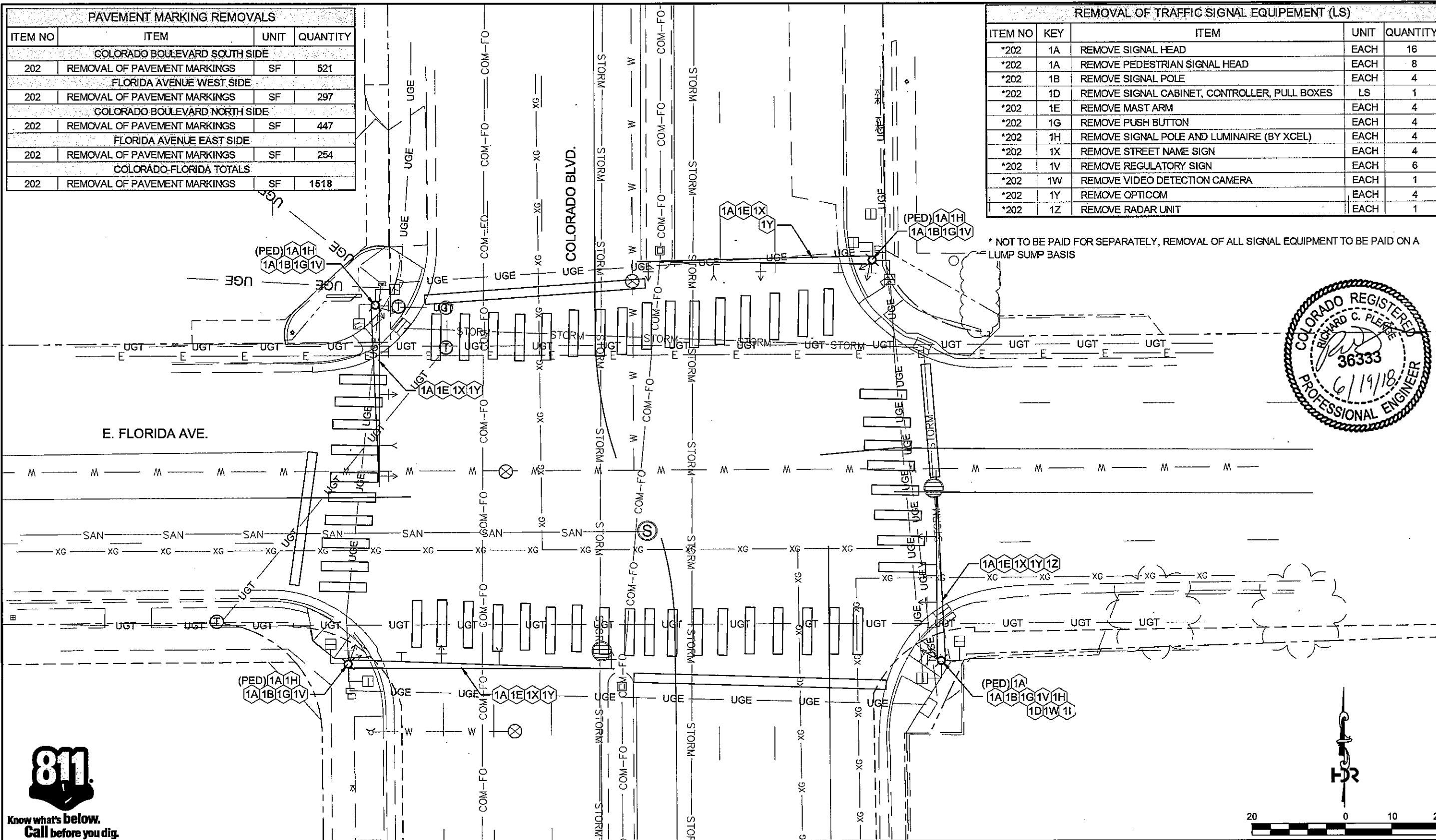
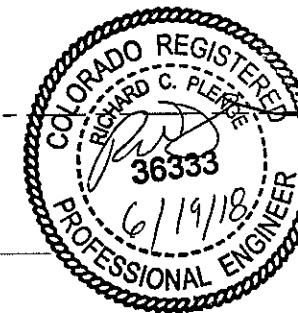
COLORADO BOULEVARD 2015 SHE SIGNAL AND STRIPING REMOVAL PLAN IOWA AVENUE		
Designer:	J. COLIP	Structure Numbers
Detailer:	J. COLIP	
Sheet Subset:	ROADWAY	Subset Sheets: 2 of 5

Project Number	SHE M320-092
	20303
Sheet Number	82

PAVEMENT MARKING REMOVALS			
ITEM NO	ITEM	UNIT	QUANTITY
COLORADO BOULEVARD SOUTH SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	521
FLORIDA AVENUE WEST SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	297
COLORADO BOULEVARD NORTH SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	447
FLORIDA AVENUE EAST SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	254
COLORADO-FLORIDA TOTALS			
202	REMOVAL OF PAVEMENT MARKINGS	SF	1518

REMOVAL OF TRAFFIC SIGNAL EQUIPMENT (LS)				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
*202	1A	REMOVE SIGNAL HEAD	EACH	16
*202	1A	REMOVE PEDESTRIAN SIGNAL HEAD	EACH	8
*202	1B	REMOVE SIGNAL POLE	EACH	4
*202	1D	REMOVE SIGNAL CABINET, CONTROLLER, PULL BOXES	LS	1
*202	1E	REMOVE MAST ARM	EACH	4
*202	1G	REMOVE PUSH BUTTON	EACH	4
*202	1H	REMOVE SIGNAL POLE AND LUMINAIRE (BY XCEL)	EACH	4
*202	1X	REMOVE STREET NAME SIGN	EACH	4
*202	1V	REMOVE REGULATORY SIGN	EACH	6
*202	1W	REMOVE VIDEO DETECTION CAMERA	EACH	1
*202	1Y	REMOVE OPTICOM	EACH	4
*202	1Z	REMOVE RADAR UNIT	EACH	1

\* NOT TO BE PAID FOR SEPARATELY, REMOVAL OF ALL SIGNAL EQUIPMENT TO BE PAID ON A LUMP SUM BASIS



Print Date: June 16, 2017  
 File Name: 20303 TR REM PL 03.DWG  
 Horiz. Scale: 1" = 20'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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 FAX: (720) 913-4544

As Constructed  
 No Revisions:  
 Revised:  
 Void:

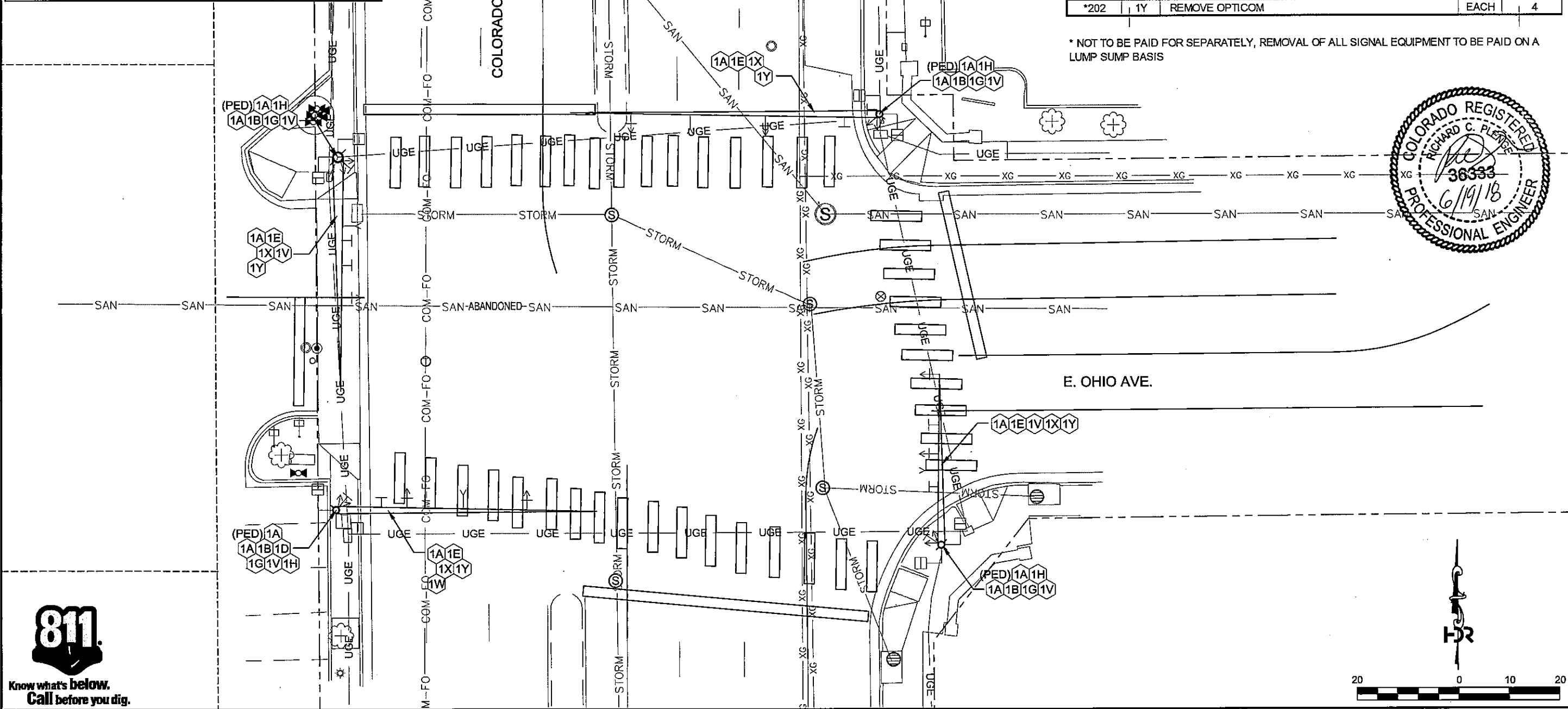
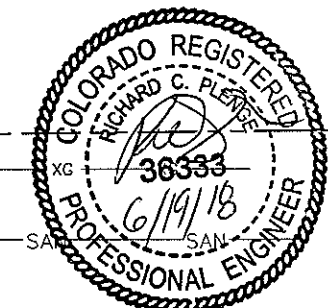
**COLORADO BOULEVARD 2015 SHE  
 SIGNAL AND STRIPING REMOVAL PLAN  
 FLORIDA AVENUE**  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 3 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **83**

PAVEMENT MARKING REMOVALS			
ITEM NO	ITEM	UNIT	QUANTITY
COLORADO BOULEVARD SOUTH SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	506
OHIO AVENUE WEST SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	61
COLORADO BOULEVARD NORTH SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	439
OHIO AVENUE EAST SIDE			
202	REMOVAL OF PAVEMENT MARKINGS	SF	550
COLORADO-OHIO TOTALS			
202	REMOVAL OF PAVEMENT MARKINGS	SF	1556

REMOVAL OF TRAFFIC SIGNAL EQUIPMENT (LS)				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
*202	1A	REMOVE SIGNAL HEAD	EACH	15
*202	1A	REMOVE PEDESTRIAN SIGNAL HEAD	EACH	8
*202	1B	REMOVE SIGNAL POLE	EACH	4
*202	1D	REMOVE SIGNAL CABINET, CONTROLLER, PULL BOXES	LS	1
*202	1E	REMOVE MAST ARM	EACH	4
*202	1G	REMOVE PUSH BUTTON	EACH	4
*202	1H	REMOVE SIGNAL POLE AND LUMINAIRE (BY XCEL)	EACH	4
*202	1X	REMOVE STREET NAME SIGN	EACH	4
*202	1V	REMOVE REGULATORY SIGN	EACH	5
*202	1W	REMOVE VIDEO DETECTION CAMERA	EACH	1
*202	1Y	REMOVE OPTICOM	EACH	4

\* NOT TO BE PAID FOR SEPARATELY, REMOVAL OF ALL SIGNAL EQUIPMENT TO BE PAID ON A LUMP SUM BASIS



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 Phone: 303-764-1520 Fax: 303-680-7139

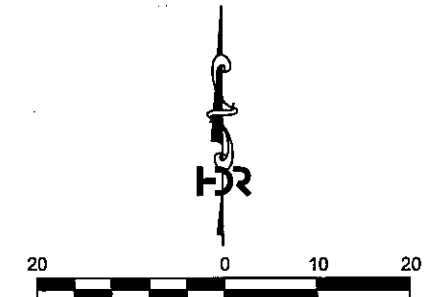
Sheet Revisions		
Date:	Comments	Init.

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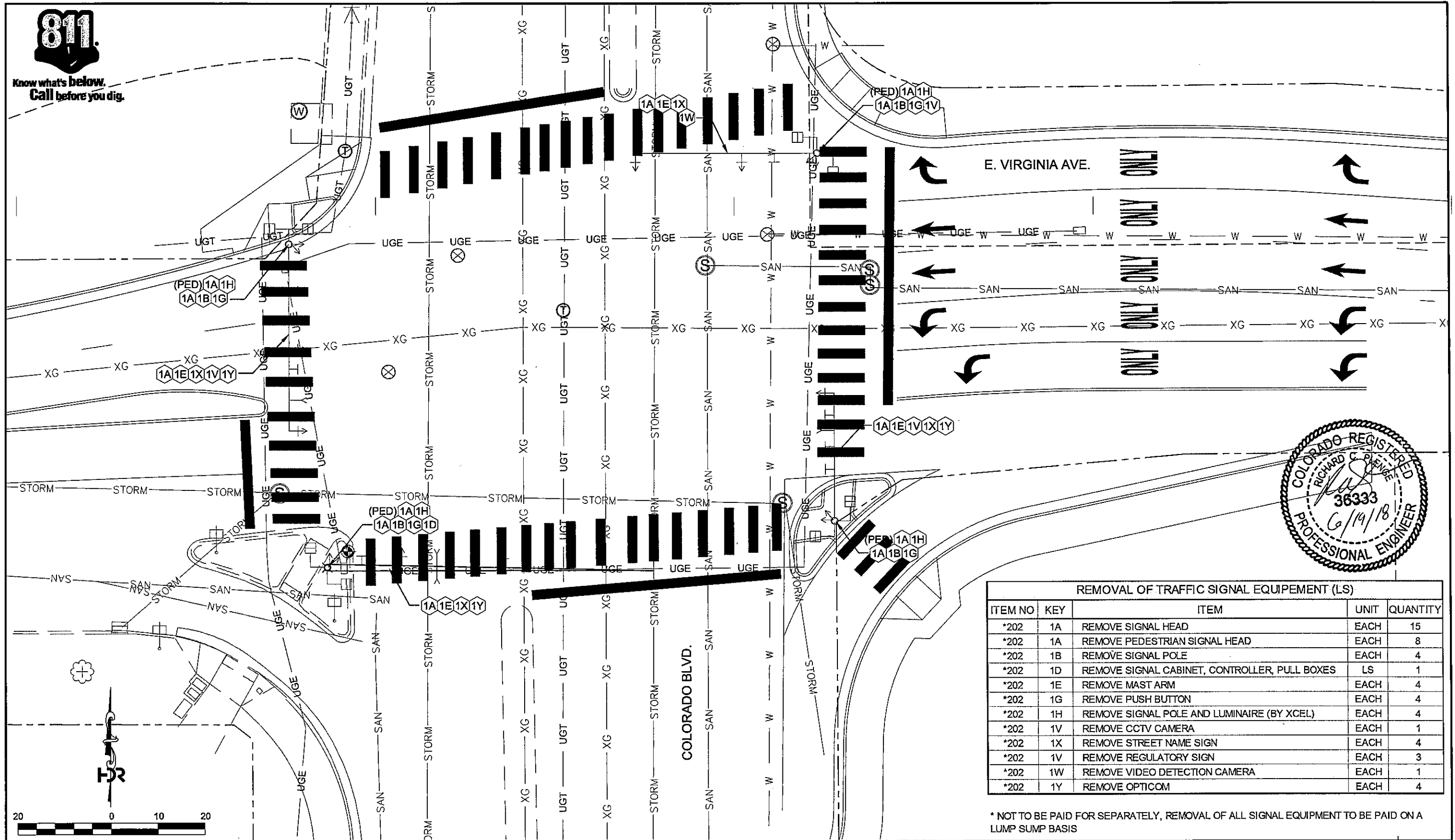
**COLORADO BOULEVARD 2015 SHE  
 SIGNAL AND STRIPING REMOVAL PLAN  
 OHIO AVENUE**  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 4 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **84**





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REMOVAL OF TRAFFIC SIGNAL EQUIPMENT (LS)				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
*202	1A	REMOVE SIGNAL HEAD	EACH	15
*202	1A	REMOVE PEDESTRIAN SIGNAL HEAD	EACH	8
*202	1B	REMOVE SIGNAL POLE	EACH	4
*202	1D	REMOVE SIGNAL CABINET, CONTROLLER, PULL BOXES	LS	1
*202	1E	REMOVE MAST ARM	EACH	4
*202	1G	REMOVE PUSH BUTTON	EACH	4
*202	1H	REMOVE SIGNAL POLE AND LUMINAIRE (BY XCEL)	EACH	4
*202	1V	REMOVE CCTV CAMERA	EACH	1
*202	1X	REMOVE STREET NAME SIGN	EACH	4
*202	1V	REMOVE REGULATORY SIGN	EACH	3
*202	1W	REMOVE VIDEO DETECTION CAMERA	EACH	1
*202	1Y	REMOVE OPTICOM	EACH	4

\* NOT TO BE PAID FOR SEPARATELY, REMOVAL OF ALL SIGNAL EQUIPMENT TO BE PAID ON A LUMP SUM BASIS

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 File Name: 20303 TR REM PL 05.DWG  
 Horiz. Scale: 1" = 20'  
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 Phone: 303-764-1520 Fax: 303-960-7139

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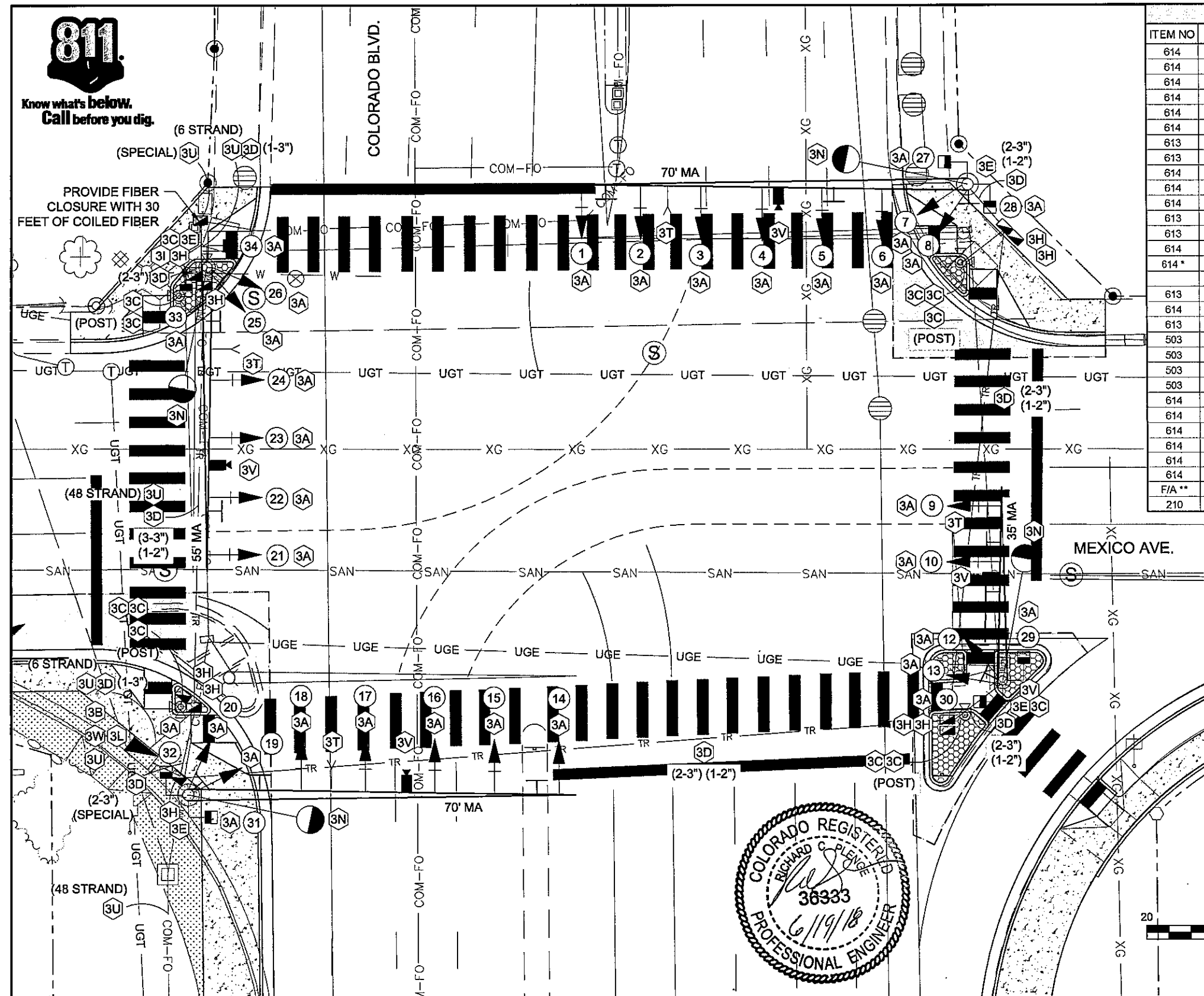
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 No Revisions:  
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 Void:

**COLORADO BOULEVARD 2015 SHE  
 SIGNAL AND STRIPING REMOVAL PLAN  
 VIRGINIA AVENUE**  
 Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers:  
 Subset Sheets: 5 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **85**

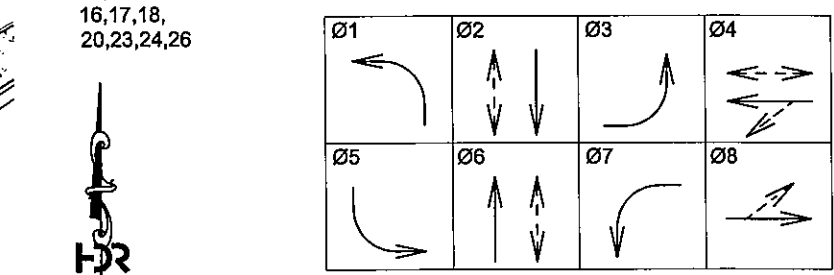
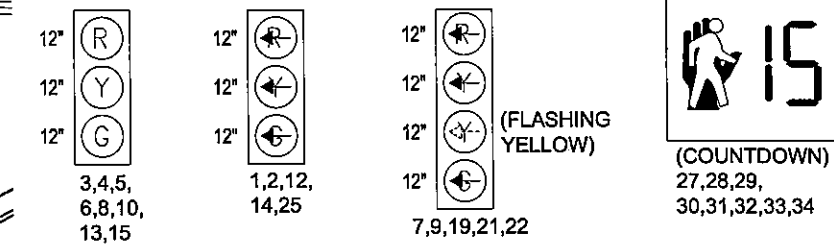


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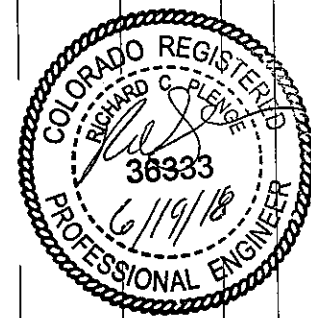
TABULATIONS OF SIGNALS				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
614	3A	TRAFFIC SIGNAL HEADS (12-12-12)	EACH	20
614	3A	TRAFFIC SIGNAL HEADS (12-12-12)	EACH	5
614	3A	PEDESTRIAN SIGNAL FACE (18) (COUNTDOWN)	EACH	8
614	3B	TRAFFIC SIGNAL CONTROLLER AND CABINET	EACH	1
614	3C	PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN	EACH	8
614	3C	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EACH	4
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	375
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	EACH	870
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-35 FOOT MAST ARM) (INSTALL ONLY)	EACH	1
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST ARM) (INSTALL ONLY)	EACH	1
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-70 FOOT MAST ARM) (INSTALL ONLY)	EACH	2
613	3H	PULL BOX (TYPE A & B) (INCIDENTAL TO CONDUIT)	EACH	
613	3H	PULL BOX (SPECIAL)	EACH	2
614	3V	INTERSECTION DETECTION SYSTEM (FLIR CAMERA)	EACH	4
614*		CLOSED CIRCUIT TELEVISION CAMERA (TRAFFIC MONITORING)	EACH	1
	3L	XCEL ENERGY TO INSTALL POWER FEED	EACH	1
613	3N	LUMINAIRE LED 5300 LUMENS	EACH	4
614	3T	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM	EACH	1
613	3W	ELECTRIC METER PEDESTAL CABINET AND BASE	EACH	1
503		DRILLED CAISSON (36 INCH)	LF	6
503		DRILLED CAISSON (36 INCH)(VACUUM)	LF	25
503		DRILL/VAC CAISSON (48 INCH)	LF	7
503		DRILL/VAC CAISSON (48 INCH)(VACUUM)	LF	27
614	3U	TELEMETRY (FIELD)	EACH	1
614		UNINTERRUPTED POWER SUPPLY	EACH	1
614		ETHERNET MANAGE FIELD SWITCH PACKAGE	EACH	1
614		FIBER OPTIC CABLE (SINGLE MODE) (6 STRAND)	LF	130
614		FIBER OPTIC CABLE (MULTI MODE)(6 SINGLE MODE/42 MULTI MODE STRAND)	LF	840
614		FIBER OPTIC CABLE TERMINATION PANEL (6 STRAND)	EACH	1
F/A**	3L	POWER SOURCE (BY XCEL)	EACH	1
210	3I	RESET RADIO COMMUNICATION ANTENNA (YAGI AND OMNI)	EACH	1

\* CCTV INSTALLED BY CONTRACTOR  
 \*\* XCEL TO PROVIDE POWER SOURCE CONTRACTOR TO EXTEND TO METER AND CONTROLLER



PROTECTED PHASE  
 PERMISSIVE PHASE  
 PEDESTRIAN PHASE

NOTE:  
 1. SEE CCD STD DWG NO. 16.1.6 FOR POWER SOURCE DETAILS  
 2. SEE SURVEY CONTROL DIAGRAMS FOR ADDITIONAL ROW INFORMATION



Print Date: June 11, 2018  
 File Name: 20303 TC PL 01.DWG  
 Horiz. Scale: ##### Vertical Exag:  
 City Project Manager: John Yu  
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 Phone: 303-764-1520 Fax: 303-860-7139

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COLORADO BOULEVARD 2015 SHE  
 TRAFFIC SIGNAL PLAN AND TABULATIONS  
 MEXICO AVENUE  
 Designer: R. PLENGE  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Subset Sheets: 1 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number  
 86





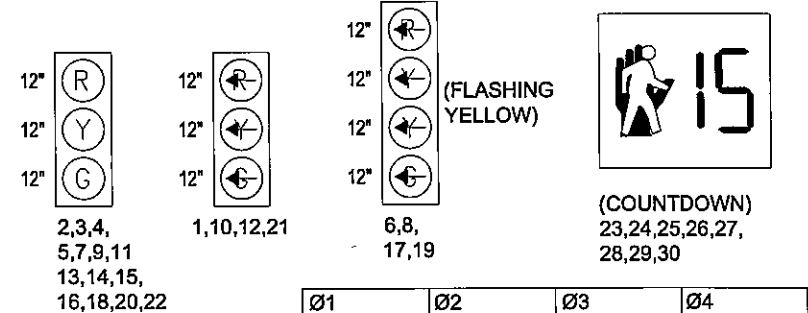
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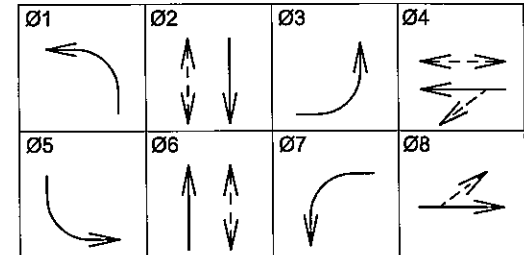
TABULATIONS OF SIGNALS				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
614	3A	TRAFFIC SIGNAL HEADS (12-12-12)	EACH	18
614	3A	TRAFFIC SIGNAL HEADS (12-12-12-12)	EACH	4
614	3A	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	8
614	3B	TRAFFIC SIGNAL CONTROLLER AND CABINET	EACH	1
614	3C	PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN	EACH	8
614	3C	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EACH	5
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	306
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	EACH	612
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-20 FOOT MAST ARM)	EACH	1
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	EACH	1
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-60 FOOT MAST ARM)	EACH	1
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-70 FOOT MAST ARM)	EACH	1
613	3H	PULL BOX (TYPE A & B) (INCIDENTAL TO CONDUIT)	EACH	1
613	3H	PULL BOX (SPECIAL)	EACH	1
614	3V	INTERSECTION DETECTION SYSTEM (FJR CAMERA)	EACH	4
614*		CLOSED CIRCUIT TELEVISION CAMERA (TRAFFIC MONITORING)	EACH	1
	3L	XCEL ENERGY TO INSTALL POWER FEED	EACH	1
613	3N	LUMINAIRE LED 5300 LUMENS	EACH	4
614	3T	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM	EACH	1
613	3W	ELECTRIC METER PEDESTAL CABINET AND BASE	EACH	1
503		DRILLED CAISSON (36 INCH)	LF	5
503		DRILLED CAISSON (36 INCH)(VACUUM)	LF	21
503		DRILL/VAC CAISSON (48 INCH)	LF	7
503		DRILL/VAC CAISSON (48 INCH)(VACUUM)	LF	27
614	3U	TELEMETRY (FIELD)	EACH	1
614		UNINTERRUPTED POWER SUPPLY	EACH	1
614		ETHERNET MANAGE FIELD SWITCH PACKAGE	EACH	1
FIA**	3L	POWER SOURCE (BY XCEL)	EACH	1
210	3I	RESET RADIO COMMUNICATION ANTENNA (YAGI AND OMNI)	EACH	1

\* CCTV INSTALLED BY CONTRACTOR

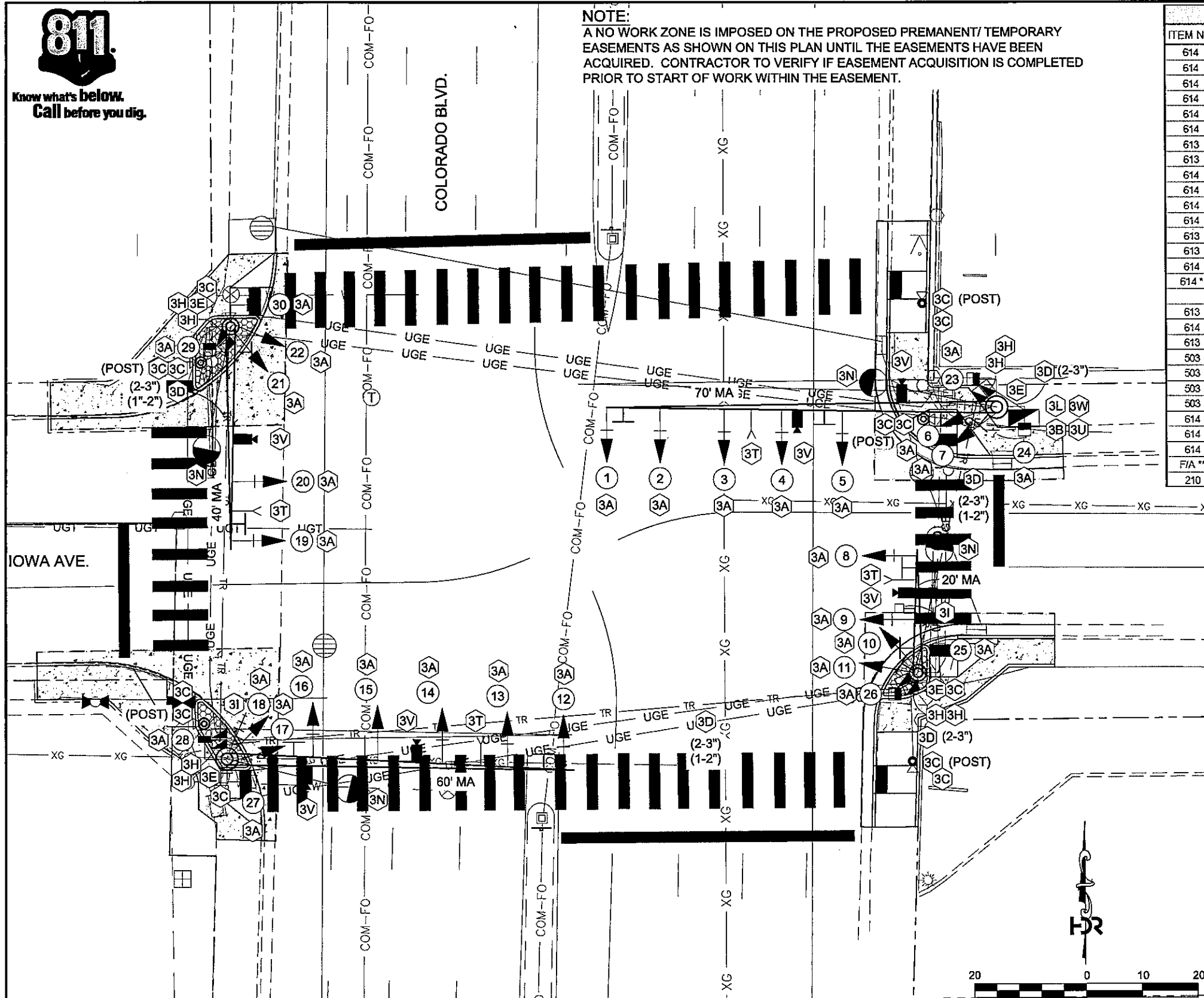
\*\* XCEL TO PROVIDE POWER SOURCE CONTRACTOR TO EXTEND TO METER AND CONTROLLER



**NOTE:**  
1. SEE CCD STD DWG NO. 16.1.6 FOR POWER SOURCE DETAILS  
2. SEE SURVEY CONTROL DIAGRAMS FOR ADDITIONAL ROW INFORMATION



→ PROTECTED PHASE  
- - - PERMISSIVE PHASE  
← - - PEDESTRIAN PHASE



Print Date: June 18, 2018  
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**COLORADO BOULEVARD 2015 SHE**  
**TRAFFIC SIGNAL PLAN AND TABULATIONS**  
**IOWA AVENUE**  
 Designer: R. PLENGE  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 2 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **87**



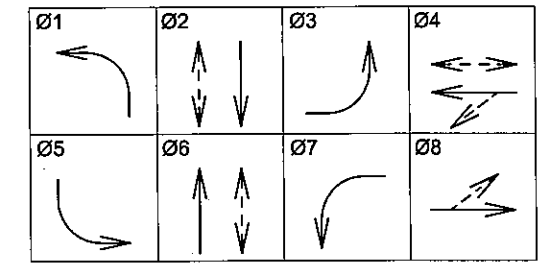
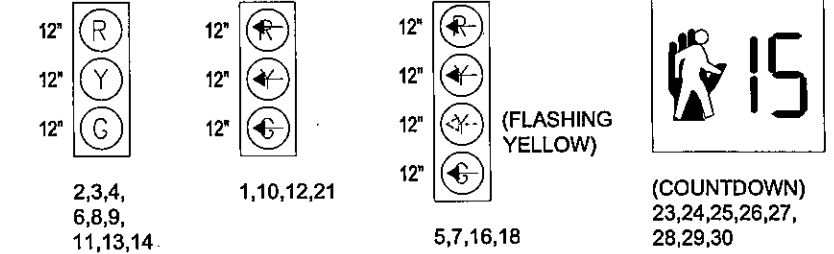


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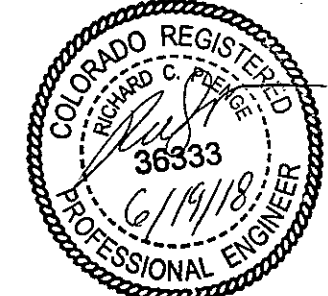
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TABULATIONS OF SIGNALS				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
614	3A	TRAFFIC SIGNAL HEADS (12-12-12)	EACH	18
614	3A	TRAFFIC SIGNAL HEADS (12-12-12)	EACH	4
614	3A	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	8
614	3B	TRAFFIC SIGNAL CONTROLLER AND CABINET	EACH	1
614	3C	PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN	EACH	8
614	3C	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EACH	5
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	297
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	EACH	644
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-35 FOOT MAST ARM)	EACH	2
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-65 FOOT MAST ARM)	EACH	2
613	3H	PULL BOX (TYPE A & B) (INCIDENTAL TO CONDUIT)	EACH	
613	3H	PULL BOX (SPECIAL)	EACH	1
614	3V	INTERSECTION DETECTION SYSTEM (FLIR CAMERA)	EACH	4
614	*	CLOSED CIRCUIT TELEVISION CAMERA (TRAFFIC SURVEILLANCE)	EACH	1
	3L	XCEL ENERGY TO INSTALL POWER FEED	EACH	1
613	3N	LUMINAIRE LED 5300 LUMENS	EACH	4
614	3T	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM	EACH	1
613	3W	ELECTRIC METER PEDESTAL CABINET AND BASE	EACH	1
503		DRILLED CAISSON (36 INCH)	LF	5
503		DRILLED CAISSON (36 INCH)(VACUUM)	LF	21
503		DRILL/VAC CAISSON (48 INCH)	LF	7
503		DRILL/VAC CAISSON (48 INCH)(VACUUM)	LF	27
614	3U	TELEMETRY (FIELD)	EACH	1
614		UNINTERRUPTED POWER SUPPLY	EACH	1
614		ETHERNET MANAGE FIELD SWITCH PACKAGE	EACH	1
F/A **	3L	POWER SOURCE (BY XCEL)	EACH	1
210	3I	RESET RADIO COMMUNICATION ANTENNA (YAGI AND OMNI)	EACH	1
210 ***	2J	RESET MICROWAVE VEHICLE RADAR DETECTOR (MVRD)	EACH	1

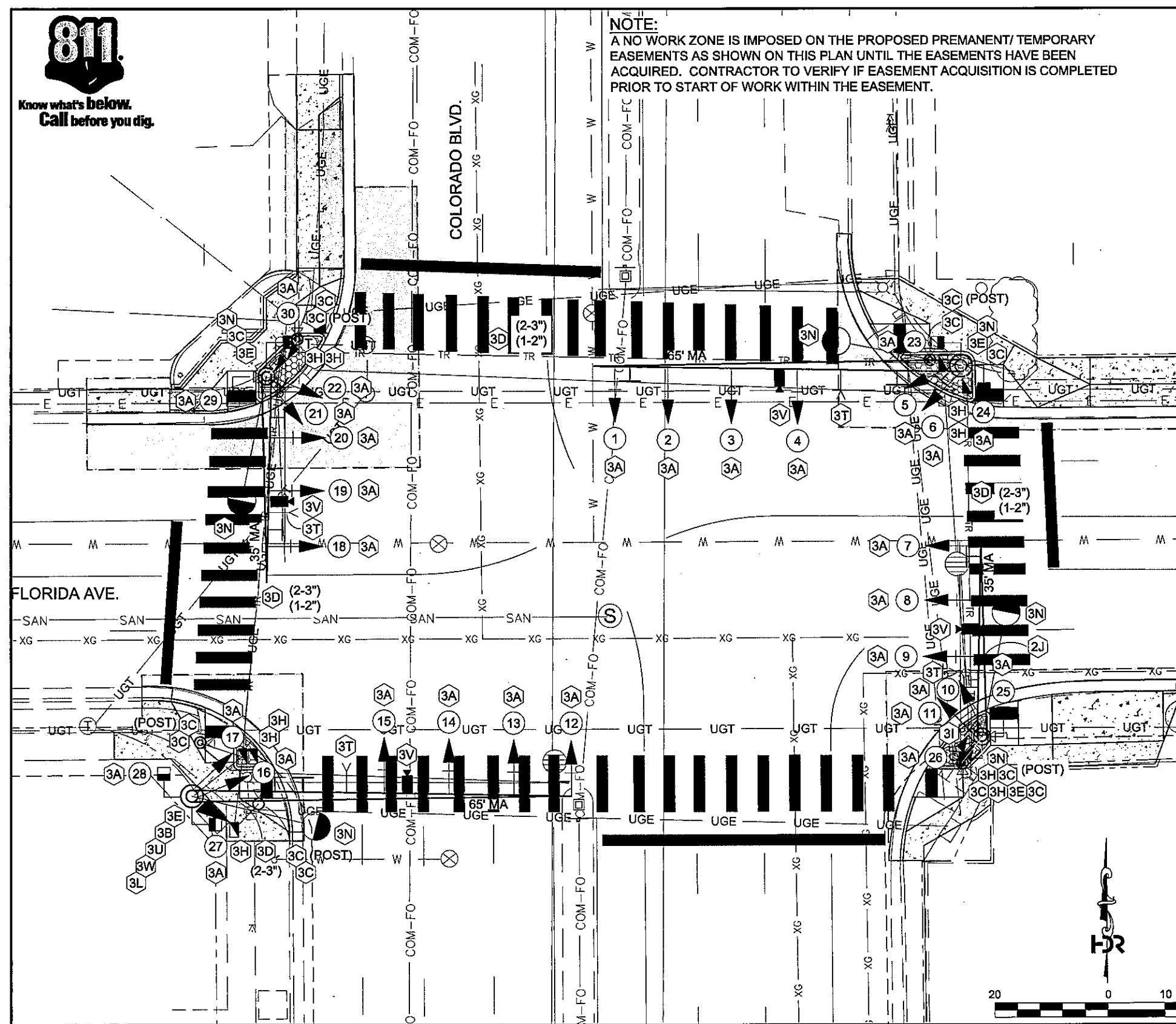
\* CCTV INSTALLED BY CONTRACTOR  
 \*\* XCEL TO PROVIDE POWER SOURCE CONTRACTOR TO EXTEND TO METER AND CONTROLLER  
 \*\*\* MICROWAVE TRAFFIC VEHICLE DETECTOR REMOVE AND RESET BY CONTRACTOR



→ PROTECTED PHASE  
 - - - PERMISSIVE PHASE  
 <- - - PEDESTRIAN PHASE



**NOTE:**  
 1. SEE CCD STD DWG NO. 16.1.6 FOR POWER SOURCE DETAILS  
 2. SEE SURVEY CONTROL DIAGRAMS FOR ADDITIONAL ROW INFORMATION



Print Date: June 11, 2018  
 File Name: 20303 TC PL 03.DWG  
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 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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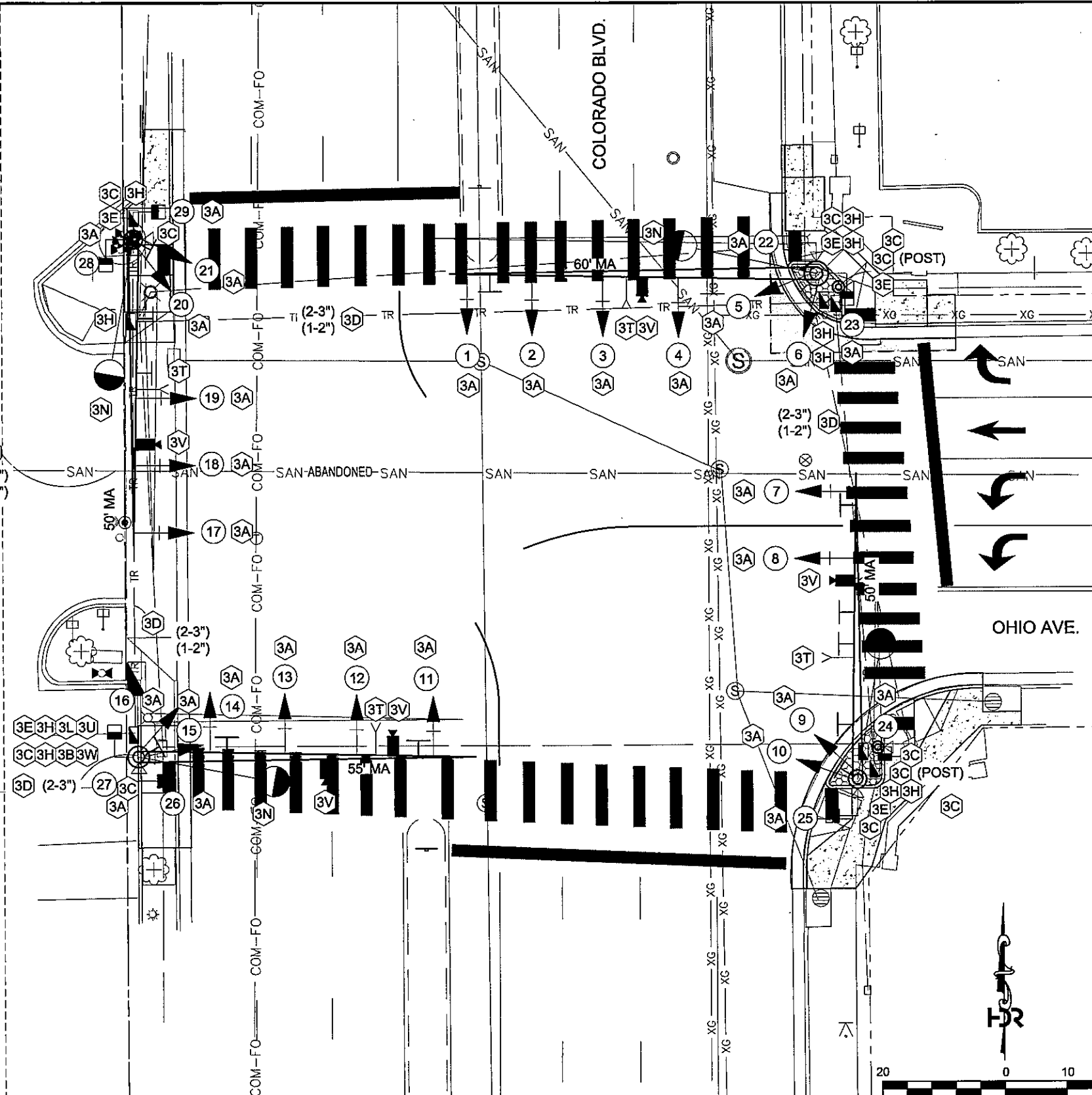
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 No Revisions:  
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 Void:

**COLORADO BOULEVARD 2015 SHE**  
**TRAFFIC SIGNAL PLAN AND TABULATIONS**  
**FLORIDA AVENUE**  
 Designer: R. PLENGE  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 3 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **88**

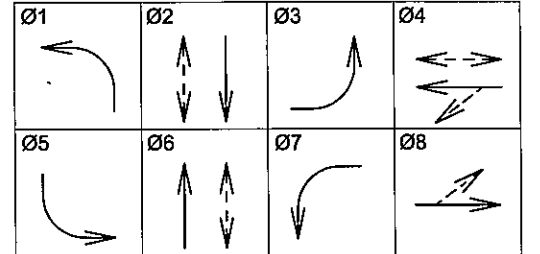
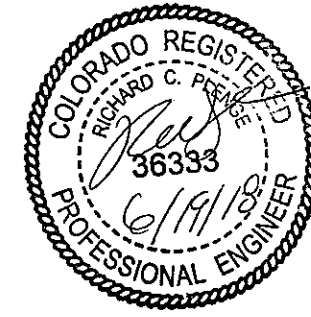
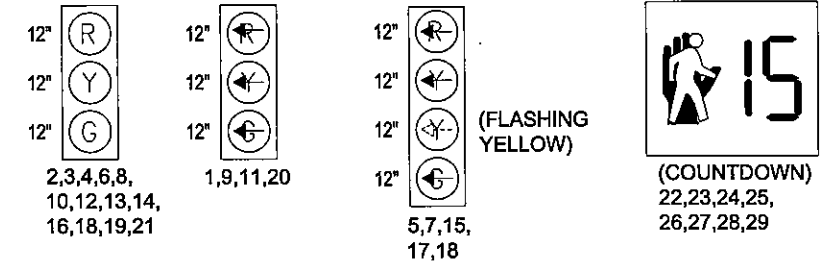


Know what's below.  
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TABULATIONS OF SIGNALS				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
614	3A	TRAFFIC SIGNAL HEADS (12-12-12)	EACH	16
614	3A	TRAFFIC SIGNAL HEADS (12-12-12)	EACH	5
614	3A	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	8
614	3B	TRAFFIC SIGNAL CONTROLLER AND CABINET	EACH	1
614	3C	PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN	EACH	8
614	3C	PEDESTRIAN PUSH BUTTON ASSEMBLY	EACH	2
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	298
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	EACH	646
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-50 FOOT MAST ARM)	EACH	2
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST ARM)	EACH	1
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-60 FOOT MAST ARM)	EACH	1
613	3H	PULL BOX (TYPE A & B) (INCIDENTAL TO CONDUIT)	EACH	
613	3H	PULL BOX (SPECIAL)	EACH	1
614	3V	INTERSECTION DETECTION SYSTEM (FLIR CAMERA)	EACH	5
614*		CLOSED CIRCUIT TELEVISION CAMERA (TRAFFIC SURVEILLANCE)	EACH	1
	3L	XCEL ENERGY TO INSTALL POWER FEED	EACH	1
613	3N	LUMINAIRE LED 5300 LUMENS	EACH	4
614	3T	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM	EACH	1
613	3W	ELECTRIC METER PEDESTAL CABINET AND BASE	EACH	1
503		DRILLED CAISSON (36 INCH)	LF	11
503		DRILLED CAISSON (36 INCH)(VACUUM)	LF	43
503		DRILL/VAC CAISSON (48 INCH)	LF	3
503		DRILL/VAC CAISSON (48 INCH)(VACUUM)	LF	14
614	3U	TELEMETRY (FIELD)	EACH	1
614		UNINTERRUPTED POWER SUPPLY	EACH	1
614		ETHERNET MANAGE FIELD SWITCH PACKAGE	EACH	1
F/A **	3L	POWER SOURCE (BY XCEL)	EACH	1

\* CCTV INSTALLED BY CONTRACTOR  
 \*\* XCEL TO PROVIDE POWER SOURCE CONTRACTOR TO EXTEND TO METER AND CONTROLLER



→ PROTECTED PHASE  
 - - - → PERMISSIVE PHASE  
 ← - - → PEDESTRIAN PHASE

NOTE:  
 1. SEE CCD STD DWG NO. 16.1.6 FOR POWER SOURCE DETAILS  
 2. SEE SURVEY CONTROL DIAGRAMS FOR ADDITIONAL ROW INFORMATION

Print Date: June 11, 2018  
 File Name: 20303 TC PL 04.DWG  
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 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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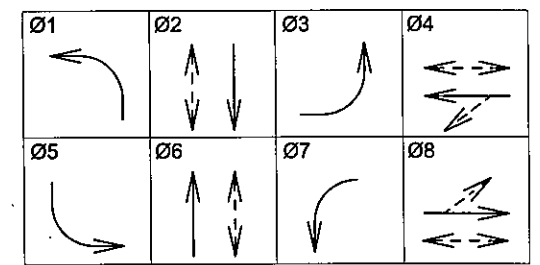
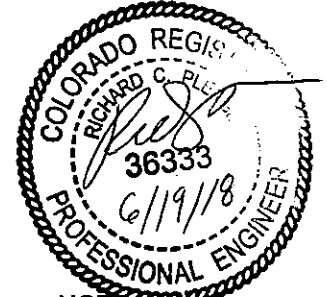
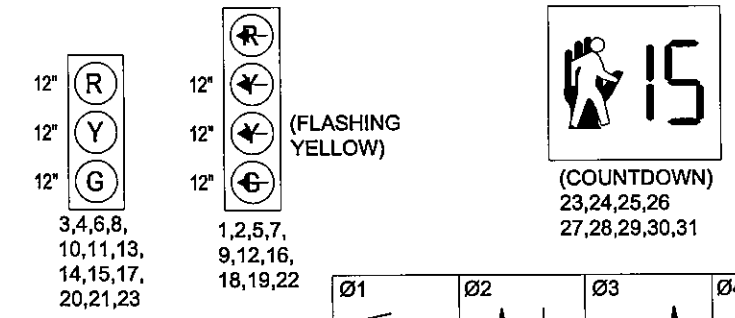
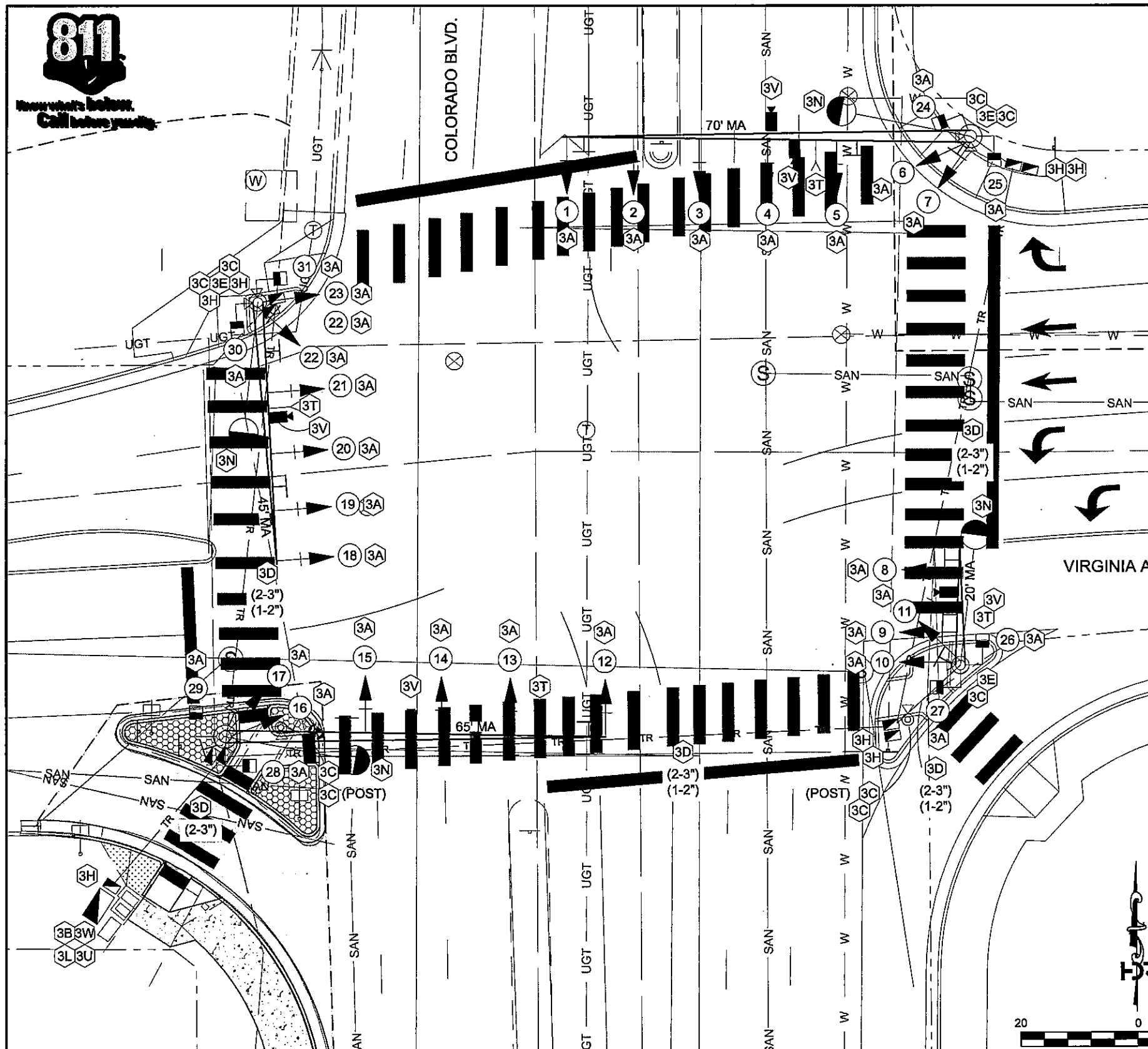
As Constructed  
 No Revisions:  
 Revised:  
 Void:

COLORADO BOULEVARD 2015 SHE  
 TRAFFIC SIGNAL PLAN AND TABULATIONS  
 OHIO AVENUE  
 Designer: R. PLENGE  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Structure Numbers  
 Subset Sheets: 4 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **89**



TABULATIONS OF SIGNALS				
ITEM NO	KEY	ITEM	UNIT	QUANTITY
614	3A	TRAFFIC SIGNAL HEADS (12-12-12)	EACH	13
614	3A	TRAFFIC SIGNAL HEADS (12-12-12-12)	EACH	10
614	3A	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	8
614	3B	TRAFFIC SIGNAL CONTROLLER AND CABINET	EACH	1
614	3C	PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN	EACH	8
614	3C	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EACH	2
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	347
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	EACH	744
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-20 FOOT MAST ARM)	EACH	1
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM)	EACH	1
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-65 FOOT MAST ARM)	EACH	1
614	3E	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-70 FOOT MAST ARM)	EACH	1
613	3H	PULL BOX (TYPE A & B) (INCIDENTAL TO CONDUIT)	EACH	
613	3H	PULL BOX (SPECIAL)	EACH	1
614	3V	INTERSECTION DETECTION SYSTEM (FLIR CAMERA)	EACH	5
614 *		CLOSED CIRCUIT TELEVISION CAMERA (TRAFFIC SURVEILLANCE)	EACH	1
	3L	XCEL ENERGY TO INSTALL POWER FEED	EACH	1
613	3N	LUMINAIRE LED 5300 LUMENS	EACH	4
614	3T	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM	EACH	1
613	3W	ELECTRIC METER PEDESTAL CABINET AND BASE	EACH	1
503		DRILLED CAISSON (36 INCH)	LF	6
503		DRILLED CAISSON (36 INCH)(VACUUM)	LF	25
503		DRILL/VAC CAISSON (48 INCH)	LF	7
503		DRILL/VAC CAISSON (48 INCH)(VACUUM)	LF	27
614	3U	TELEMETRY (FIELD)	EACH	1
614		UNINTERRUPTED POWER SUPPLY	EACH	1
614		ETHERNET MANAGE FIELD SWITCH PACKAGE	EACH	1
F/A **	3L	POWER SOURCE (BY XCEL)	EACH	1



NOTE:  
 1) SEE CCD STD DWG NO. 16.1.6 FOR POWER SOURCE DETAILS  
 2) SEE SURVEY CONTROL DIAGRAMS FOR ADDITIONAL ROW INFORMATION  
 3) CITY OF GLENDALE TO CONSTRUCT ROADWAY IMPROVEMENTS ON WEST LEG OF E. VIRGINIA AVE. CITY AND COUNTY OF DENVER WILL CONSTRUCT SIGNAL FOUNDATIONS IN ULTIMATE LOCATION.

Print Date: June 11, 2018  
 File Name: 20303 TC PL 05.DWG  
 Horiz. Scale: 1"=20'  
 City Project Manager: John Yu  
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

DEPARTMENT OF PUBLIC WORKS  
 201 WEST COLFAX AVENUE  
 DENVER, CO 80202  
 PHONE: (720) 913-4501  
 FAX: (720) 913-4544

As Constructed  
 No Revisions:  
 Revised:  
 Void:

COLORADO BOULEVARD 2015 SHE  
 TRAFFIC SIGNAL PLAN AND TABULATIONS  
 VIRGINIA AVENUE  
 Designer: R. PLENGE  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY  
 Subset Sheets: 5 of 5

Project Number  
 SHE M320-092  
 20303  
 Sheet Number **90**

SIGN TABULATIONS											
SIGN NO.	SIGN CODE	LEGEND	NOTE	SIGN PANEL SIZE	BACKGROUND COLOR	NO. OF POSTS	STEEL SIGN POSTS 2"X2" TUBING (LF)	PANEL SIZE (SF)			SPECIAL (SF)
								CLASS I	CLASS II	CLASS III	
<b>MEXICO AVENUE</b>											
M-1	OM-3R	DIAGONAL RT SYMBOL	MEDIAN MOUNTED	12"X36"	YELLOW	1	11.5	3.00			
M-2	R4-7	KEEP RIGHT SYMBOL	MEDIAN MOUNTED	24"X30"	WHITE			5.00			
M-3	W12-1	LT/RT OBJECT SYMBOL	MEDIAN MOUNTED	30"X30"	YELLOW	1	11.5	6.25			
M-4	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
M-5	SPECIAL	COLORADO BOULEVARD	MAST ARM MOUNTED	96"X20"	GREEN						13.33
M-6	SPECIAL	OFFSET RIGHT THRU SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE						6.25
M-8	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
M-9	SPECIAL	MEXICO AVE	MAST ARM MOUNTED	72"X20"	GREEN						10.00
M-10	R3-5R	RT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
M-11	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
M-12	SPECIAL	DOUBLE LEFT TURN ONLY SYMBOL	MAST ARM MOUNTED	36"X36"	WHITE						7.50
M-13	OM-3R	DIAGONAL RT SYMBOL	MEDIAN MOUNTED	12"X36"	YELLOW	1	11.5	3.00			
M-14	R4-7	KEEP RIGHT SYMBOL	MEDIAN MOUNTED	24"X30"	WHITE			5.00			
M-15	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
M-16	SPECIAL	COLORADO BOULEVARD	MAST ARM MOUNTED	96"X20"	GREEN						13.33
M-17	SPECIAL	DOUBLE LEFT TURN ONLY SYMBOL	MAST ARM MOUNTED	36"X36"	WHITE			7.50			7.50
M-18	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
M-19	SPECIAL	MEXICO AVE	MAST ARM MOUNTED	72"X20"	GREEN						10.00
M-20	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
<b>MEXICO AVENUE SIGN TOTALS</b>						<b>3</b>	<b>34.5</b>	<b>83.50</b>	<b>0</b>	<b>0</b>	<b>67.92</b>

TABULATION OF PAVEMENT MARKINGS								
LOCATION	EPOXY PAVEMENT MARKING					PREFORMED THERMOPLASTIC PAVEMENT MARKING		
	LANE (LINEAR FEET)			CENTER		CROSSWALK (2'X10") (SF)	STOP LINE (24") (SF)	ARROW / ONLY SYMBOLS (SF)
	WHITE SOLID 4 IN. (LF)	WHITE SOLID 8 IN. (LF)	DOTTE D 2'4' 8 IN. (LF)	YELLOW SOLID 4 IN. (LF)	DOUBLE YELLOW SOLID 4 IN.			
<b>MEXICO AVENUE</b>	80.0	258.0	325.0		78	1360	392	38
TOTAL (LIN FT)	80.0	258.0	325.0	0	78			
(SQ FT)	26.7	172.0	216.7	0	52	1360	392	38
TOTAL (SQ FT)	415.3			52		1360	392	38
PAVEMENT MARKINGS	WHITE			YELLOW		WHITE		
<b>TOTAL (GALLONS)</b>	ESTIMATED 105 SF/GAL			ESTIMATED 105 SF/GAL		<b>TOTAL SF</b>		
	<b>4.0</b>			<b>0.5</b>		<b>1790</b>		



Print Date: June 11, 2018		Sheet Revisions		 DEPARTMENT OF PUBLIC WORKS 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544	As Constructed		COLORADO BOULEVARD 2015 SHE SIGNING AND STRIPING TABULATIONS MEXICO AVENUE		Project Number	
File Name: 20303 STR TB (01-05).DWG		Date:	Comments:		Init.	No Revisions:			SHE M320-092	
Horiz. Scale:						Revised:	Designer: J. COLIP	Structure Numbers:		
City Project Manager: John Yu						Void:	Detailer: J. COLIP	Subset Sheets: 1 of 5	20303	
1670 BROADWAY, SUITE 3400 Phone: 303-764-1520	DENVER, COLORADO 80202 Fax: 303-860-7139		 <b>DENVER</b> THE MILE HIGH CITY				Sheet Number		<b>91</b>	



SIGN TABULATIONS											
SIGN NO.	SIGN CODE	LEGEND	NOTE	SIGN PANEL SIZE	BACKGROUND COLOR	NO. OF POSTS	STEEL SIGN POSTS 2"X2" TUBING (LF)	PANEL SIZE (SF)			SPECIAL (SF)
								CLASS I	CLASS II	CLASS III	
<b>FLORIDA AVENUE</b>											
F-1	OM-3R	DIAGONAL RT SYMBOL	MEDIAN MOUNTED	12"X36"	YELLOW	1	11.5	3.00			
F-2	R4-7	KEEP RIGHT SYMBOL	MEDIAN MOUNTED	24"X30"	WHITE			5.00			
F-3	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
F-4	SPECIAL	COLORADO BOULEVARD	MAST ARM MOUNTED	96"X20"	GREEN						13.33
F-5	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
F-6	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
F-7	SPECIAL	FLORIDA AVE	MAST ARM MOUNTED	80"X20"	GREEN						11.11
F-8	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
F-9	OM-3R	DIAGONAL RT SYMBOL	MEDIAN MOUNTED	12"X36"	YELLOW	1	11.5	3.00			
F-10	R4-7	KEEP RIGHT SYMBOL	MEDIAN MOUNTED	24"X30"	WHITE			5.00			
F-11	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
F-12	SPECIAL	COLORADO BOULEVARD	MAST ARM MOUNTED	96"X20"	GREEN						13.33
F-13	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
F-14	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
F-15	SPECIAL	FLORIDA AVE	MAST ARM MOUNTED	72"X20"	GREEN						11.11
F-16	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
<b>FLORIDA AVENUE SIGN TOTALS</b>						<b>2</b>	<b>23.0</b>	<b>66.00</b>	<b>0</b>	<b>0</b>	<b>48.89</b>

TABULATION OF PAVEMENT MARKINGS								
LOCATION	EPOXY PAVEMENT MARKING					PREFORMED THERMOPLASTIC PAVEMENT MARKING		
	LANE (LINEAR FEET)			CENTER		CROSSWALK (2'X10") (SF)	STOP LINE (24") (SF)	ARROW / ONLY SYMBOLS (SF)
	WHITE SOLID 4 IN. (LF)	WHITE SOLID 8 IN. (LF)	DOTTE D 2 1/4' 8 IN. (LF)	YELLOW SOLID 4 IN. (LF)	DOUBLE YELLOW SOLID 4 IN.			
<b>FLORIDA AVENUE</b>		206.0				1060	316	
TOTAL (LIN FT)	0	206.0	0	0	0			
(SQ FT)	0	137.3	0	0	0	1060	316	0
TOTAL (SQ FT)		137.3		0		1060	316	0
PAVEMENT MARKINGS	WHITE			YELLOW		WHITE		
<b>TOTAL (GALLONS)</b>	ESTIMATED 105 SF/GAL			ESTIMATED 105 SF/GAL		<b>TOTAL SF</b>		
	<b>1.3</b>			<b>0</b>		<b>1376</b>		



Print Date: June 11, 2018		Sheet Revisions		<b>DEPARTMENT OF PUBLIC WORKS</b> 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544	As Constructed	COLORADO BOULEVARD 2015 SHE SIGNING AND STRIPING TABULATIONS FLORIDA AVENUE		Project Number	
File Name: 20303 STR TB (01-05).DWG		Date:	Comments:		Init.:	No Revisions:			SHE M320-092
Horiz. Scale:						Revised:	Designer: J. COLIP	Structure Numbers:	20303
City Project Manager: John Yu						Void:	Detailer: J. COLIP	Subset Sheets: 3 of 5	Sheet Number <b>93</b>
1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139					Sheet Subset: SIGN-TABS				

SIGN TABULATIONS											
SIGN NO.	SIGN CODE	LEGEND	NOTE	SIGN PANEL SIZE	BACKGROUND COLOR	NO. OF POSTS	STEEL SIGN POSTS 2"X2" TUBING (LF)	PANEL SIZE (SF)			SPECIAL (SF)
								CLASS I	CLASS II	CLASS III	
<b>OHIO AVENUE</b>											
O-1	OM-3R	DIAGONAL RT SYMBOL	MEDIAN MOUNTED	12"X36"	YELLOW	1	11.5	3.00			
O-2	R4-7	KEEP RIGHT SYMBOL	MEDIAN MOUNTED	24"X30"	WHITE			5.00			
O-3	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
O-4	SPECIAL	COLORADO BOULEVARD	MAST ARM MOUNTED	96"X20"	GREEN						13.33
O-5	R3-5R	RT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
O-6	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
O-7	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
O-8	SPECIAL	OHIO AVE	MAST ARM MOUNTED	72"X20"	GREEN						10.00
O-9	R3-5R	RT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
O-10	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
O-11	OM-3R	DIAGONAL RT SYMBOL	MEDIAN MOUNTED	12"X36"	YELLOW	1	11.5	3.00			
O-12	R4-7	KEEP RIGHT SYMBOL	MEDIAN MOUNTED	24"X30"	WHITE			5.00			
O-13	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
O-14	SPECIAL	COLORADO BOULEVARD	MAST ARM MOUNTED	96"X20"	GREEN						13.33
O-16	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
O-17	SPECIAL	OHIO AVE	MAST ARM MOUNTED	72"X20"	GREEN						10.00
O-18	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
<b>OHIO AVENUE SIGN TOTALS</b>						<b>2</b>	<b>23.0</b>	<b>72.25</b>	<b>0</b>	<b>0</b>	<b>61.67</b>

TABULATION OF PAVEMENT MARKINGS								
LOCATION	EPOXY PAVEMENT MARKING					PREFORMED THERMOPLASTIC PAVEMENT MARKING		
	LANE (LINEAR FEET)			CENTER		CROSSWALK (2'X10") (SF)	STOP LINE (24") (SF)	ARROW / ONLY SYMBOLS (SF)
	WHITE SOLID 4 IN. (LF)	WHITE SOLID 8 IN. (LF)	DOTTE D 2'1/4' 8 IN. (LF)	YELLOW SOLID 4 IN. (LF)	DOUBLE YELLOW SOLID 4 IN.			
<b>OHIO AVENUE</b>		357				820	273	192
TOTAL (LIN FT)	0	357	0	0	100			
(SQ FT)	0	238	0	0	66.7	820	273	192
TOTAL (SQ FT)		238			66.7	820	273	192
PAVEMENT MARKINGS	WHITE			YELLOW		WHITE		
<b>TOTAL (GALLONS)</b>	ESTIMATED 105 SF/GAL			ESTIMATED 105 SF/GAL		<b>TOTAL SF</b>		
	<b>2.3</b>			<b>0.64</b>		<b>1290</b>		



Print Date: June 11, 2018		<b>Sheet Revisions</b>		<b>DEPARTMENT OF PUBLIC WORKS</b> 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544	As Constructed	<b>COLORADO BOULEVARD 2015 SHE SIGNING AND STRIPING TABULATIONS OHIO AVENUE</b>			Project Number		
File Name: 20303 STR TB (01-05).DWG		Date:	Comments:			Init.	No Revisions:	SHE M320-092			
Horiz. Scale:							Revised:	Designer: J. COLIP	Structure Numbers	20303	
City Project Manager: John Yu							Void:	Detailer: J. COLIP		Sheet Number <b>94</b>	
1670 BROADWAY, SUITE 3400 Phone: 303-764-1520	DENVER, COLORADO 80202 Fax: 303-860-7139				Sheet Subset: SIGN-TABS		Subset Sheets: 4 of 5				



SIGN TABULATIONS											
SIGN NO.	SIGN CODE	LEGEND	NOTE	SIGN PANEL SIZE	BACKGROUND COLOR	NO. OF POSTS	STEEL SIGN POSTS 2"X2" TUBING (LF)	PANEL SIZE (SF)			SPECIAL (SF)
								CLASS I	CLASS II	CLASS III	
<b>VIRGINIA AVENUE</b>											
V-1	OM-3R	DIAGONAL RT SYMBOL	MEDIAN MOUNTED	12"X36"	YELLOW	1	11.5	3.00			
V-2	R4-7	KEEP RIGHT SYMBOL	MEDIAN MOUNTED	24"X30"	WHITE			5.00			
V-3	W12-1	LT/RT OBJECT SYMBOL	MEDIAN MOUNTED	30"X30"	YELLOW	1	11.5	6.25			
V-4	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
V-5	SPECIAL	COLORADO BOULEVARD	MAST ARM MOUNTED	96"X20"	GREEN						13.33
V-6	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
V-7	SPECIAL	OFFSET RIGHT THRU SYMBOL	MAST ARM MOUNTED	30"X30"	WHITE						6.25
V-8	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
V-9	SPECIAL	VIRGINIA AVE	MAST ARM MOUNTED	80"X20"	GREEN						11.11
V-10	SPECIAL	DOUBLE LT TURN ONLY SYMBOL	MAST ARM MOUNTED	36"X36"	WHITE						7.50
V-11	OM-3R	DIAGONAL RT SYMBOL	MEDIAN MOUNTED	12"X36"	YELLOW	1	11.5	3.00			
V-12	R4-7	KEEP RIGHT SYMBOL	MEDIAN MOUNTED	24"X30"	WHITE			5.00			
V-13	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
V-14	SPECIAL	COLORADO BOULEVARD	MAST ARM MOUNTED	96"X20"	GREEN						13.33
V-15	SPECIAL	DOUBLE LT TURN ONLY SYMBOL	MAST ARM MOUNTED	36"X36"	WHITE						7.50
V-16	R1-5R	YIELD HERE TO PEDS	MEDIAN MOUNTED	30"X30"	WHITE	1	11.5	6.25			
V-17	W12-1	LT/RT OBJECT SYMBOL	MEDIAN MOUNTED	30"X30"	YELLOW	1	11.5	6.25			
V-18	R10-15	TURNING VEHICLES YIELD TO PEDS	SIGNAL POLE MOUNTED	30"X30"	WHITE			6.25			
V-19	SPECIAL	CHERRY CREEK N. DR.	MAST ARM MOUNTED	96"X20"	GREEN						13.33
V-20	R3-5L	LT TURN ONLY SYMBOL	MAST ARM MOUNTED	30"X36"	WHITE			6.25			
V-21	R3-5R	RT TURN ONLY SYMBOL	SIGNAL POLE MOUNTED	30"X36"	WHITE			6.25			
V-22	R1-2	YIELD HERE TO PEDS	MEDIAN MOUNTED	30"X30"	RED	1	11.5	3.13			
<b>VIRGINIA AVENUE SIGN TOTALS</b>						<b>6</b>	<b>69.0</b>	<b>81.63</b>	<b>0</b>	<b>0</b>	<b>72.36</b>

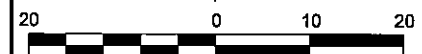
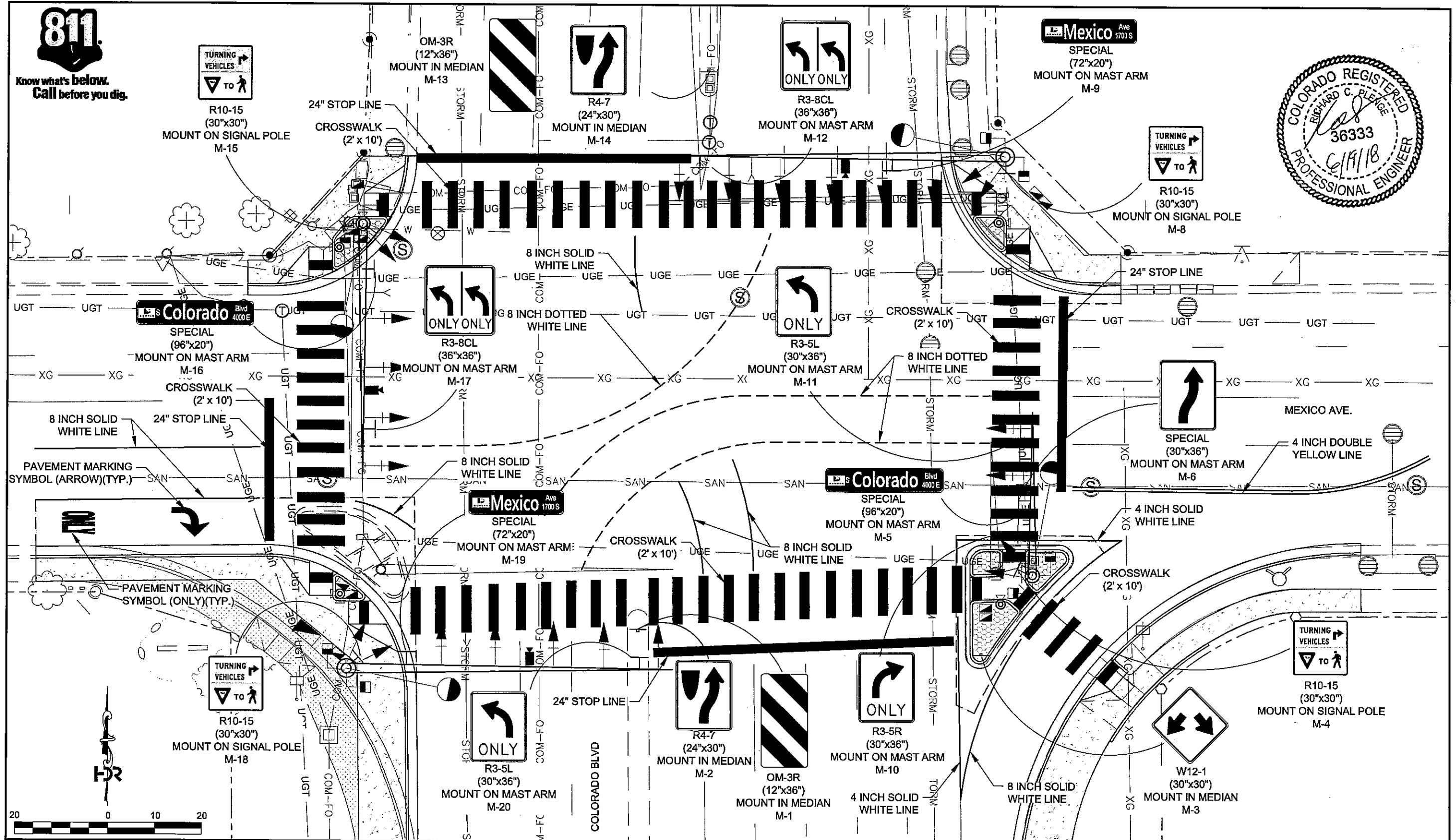
TABULATION OF PAVEMENT MARKINGS								
LOCATION	EPOXY PAVEMENT MARKING					PREFORMED THERMOPLASTIC PAVEMENT MARKING		
	LANE (LINEAR FEET)			CENTER		CROSSWALK (2'X10") (LF)	STOP LINE (24") (LF)	ARROW/ ONLY SYMBOLS (SF)
	WHITE SOLID 4 IN. (LF)	WHITE SOLID 8 IN. (LF)	DOTTE D 2'4" 8 IN. (LF)	YELLOW DASHED 4 IN. (LF)	DOUBLE YELLOW SOLID 4 IN.			
<b>VIRGINIA AVENUE</b>		0				60	0	
TOTAL (LIN FT)	0	0	0		0			
(SQ FT)	0	0.0	0	0.0	0.0	60	0	0
TOTAL (SQ FT)		0.0		0.0		60	0	0
PAVEMENT MARKINGS	WHITE			YELLOW		WHITE		
<b>TOTAL (GALLONS)</b>	ESTIMATED 105 SF/GAL			ESTIMATED 105 SF/GAL		<b>TOTAL SF</b>		
	0.0			0.00		60		



Print Date: June 11, 2018		<b>Sheet Revisions</b>		<b>DEPARTMENT OF PUBLIC WORKS</b> 201 WEST COLFAX AVENUE DENVER, CO 80202 PHONE: (720) 913-4501 FAX: (720) 913-4544	As Constructed	COLORADO BOULEVARD 2015 SHE SIGNING AND STRIPING TABULATIONS VIRGINIA AVENUE		Project Number	
File Name: 20303 STR TB (01-05).DWG		Date:	Comments:		Init.	No Revisions:	Designer: J. COLIP	Structure Numbers:	SHE M320-092
Horiz. Scale:						Revised:	Detailer: J. COLIP		20303
City Project Manager: John Yu						Void:	Sheet Subset: SIGN-TABS	Subset Sheets: 5 of 5	Sheet Number <b>95</b>
1670 BROADWAY, SUITE 3400 Phone: 303-764-1520	DENVER, COLORADO 80202 Fax: 303-860-7139		<b>DENVER</b> THE MILE HIGH CITY						



Know what's below.  
Call before you dig.



Print Date:	June 18, 2018
File Name:	20303 STR PL 01.DWG
Horiz. Scale:	1"=20'
City Project Manager:	John Yu
	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

**DEPARTMENT OF PUBLIC WORKS**

201 WEST COLFAX AVENUE  
DENVER, CO 80202  
PHONE: (720) 913-4501  
FAX: (720) 913-4544

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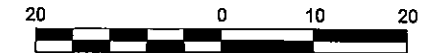
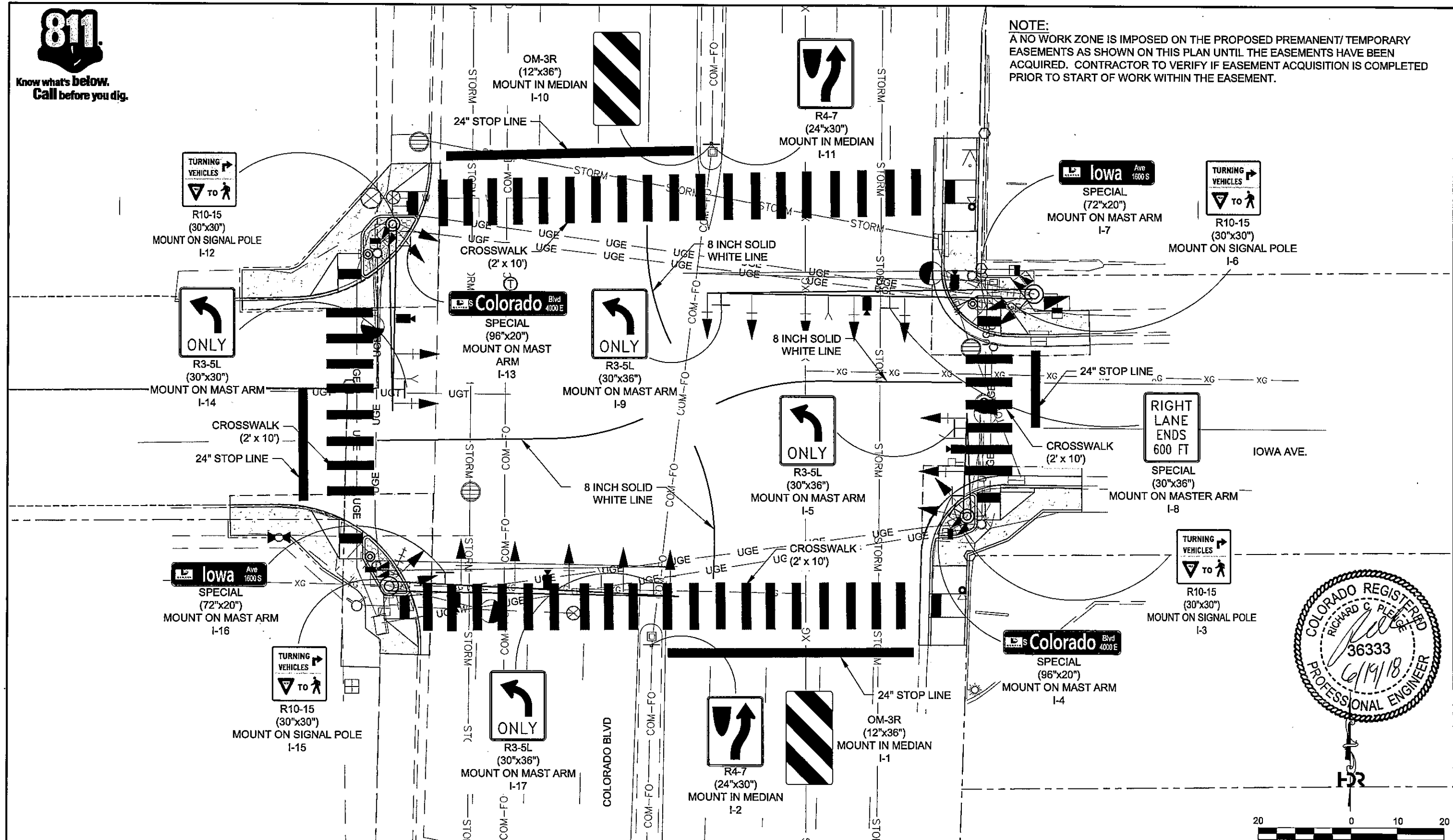
COLORADO BOULEVARD 2015 SHE SIGNING AND STRIPING PLANS MEXICO AVENUE			
Designer:	J. COLIP	Structure	
Detailer:	J. COLIP	Numbers	
Sheet Subset:	ROADWAY	Subset Sheets:	1 of 5

Project Number	
SHE M320-092	
20303	
Sheet Number	96



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**NOTE:**  
A NO WORK ZONE IS IMPOSED ON THE PROPOSED PERMANENT/ TEMPORARY EASEMENTS AS SHOWN ON THIS PLAN UNTIL THE EASEMENTS HAVE BEEN ACQUIRED. CONTRACTOR TO VERIFY IF EASEMENT ACQUISITION IS COMPLETED PRIOR TO START OF WORK WITHIN THE EASEMENT.



Print Date:	June 11, 2018
File Name:	20303 STR PL 02.DWG
Horiz. Scale:	1"=20'
City Project Manager:	John Yu
	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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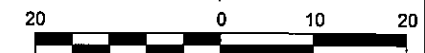
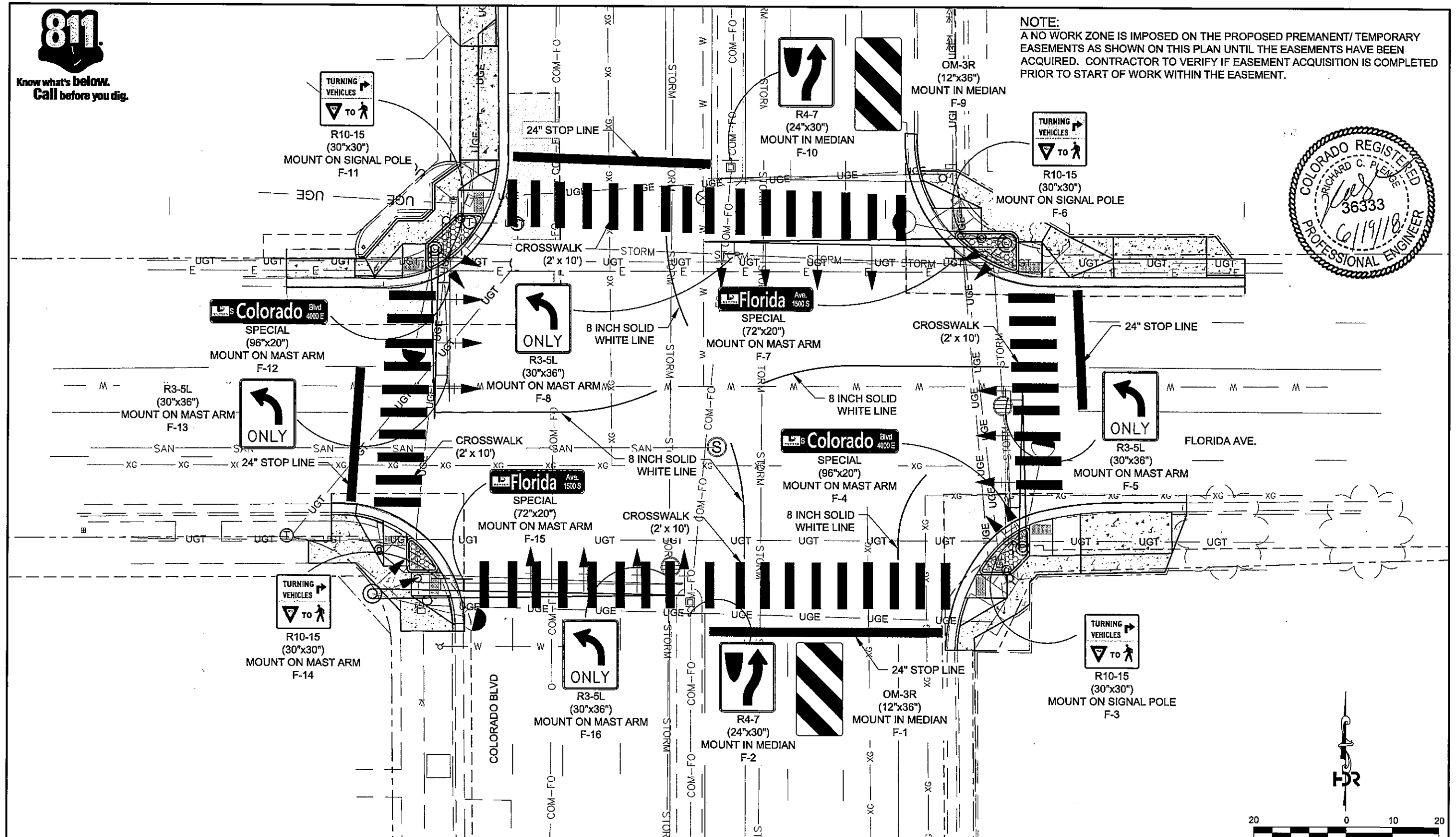
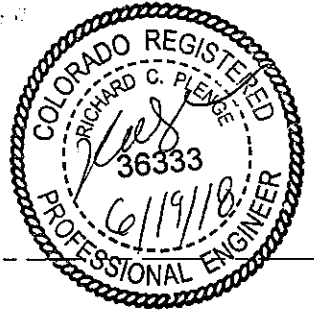
<b>COLORADO BOULEVARD 2015 SHE SIGNING AND STRIPING PLANS IOWA AVENUE</b>	
Designer:	J. COLIP
Detailer:	J. COLIP
Sheet Subset:	ROADWAY
Structure Numbers	
Subset Sheets:	2 of 5

Project Number	SHE M320-092
	20303
Sheet Number	97



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**NOTE:**  
A NO WORK ZONE IS IMPOSED ON THE PROPOSED PERMANENT/ TEMPORARY EASEMENTS AS SHOWN ON THIS PLAN UNTIL THE EASEMENTS HAVE BEEN ACQUIRED. CONTRACTOR TO VERIFY IF EASEMENT ACQUISITION IS COMPLETED PRIOR TO START OF WORK WITHIN THE EASEMENT.



Print Date:	June 11, 2018
File Name:	20303 STR PL 03.DWG
Horiz. Scale:	1"=20'
City Project Manager:	John Yu
	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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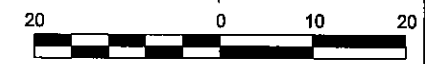
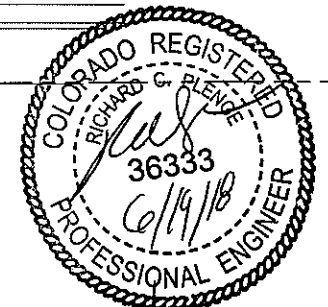
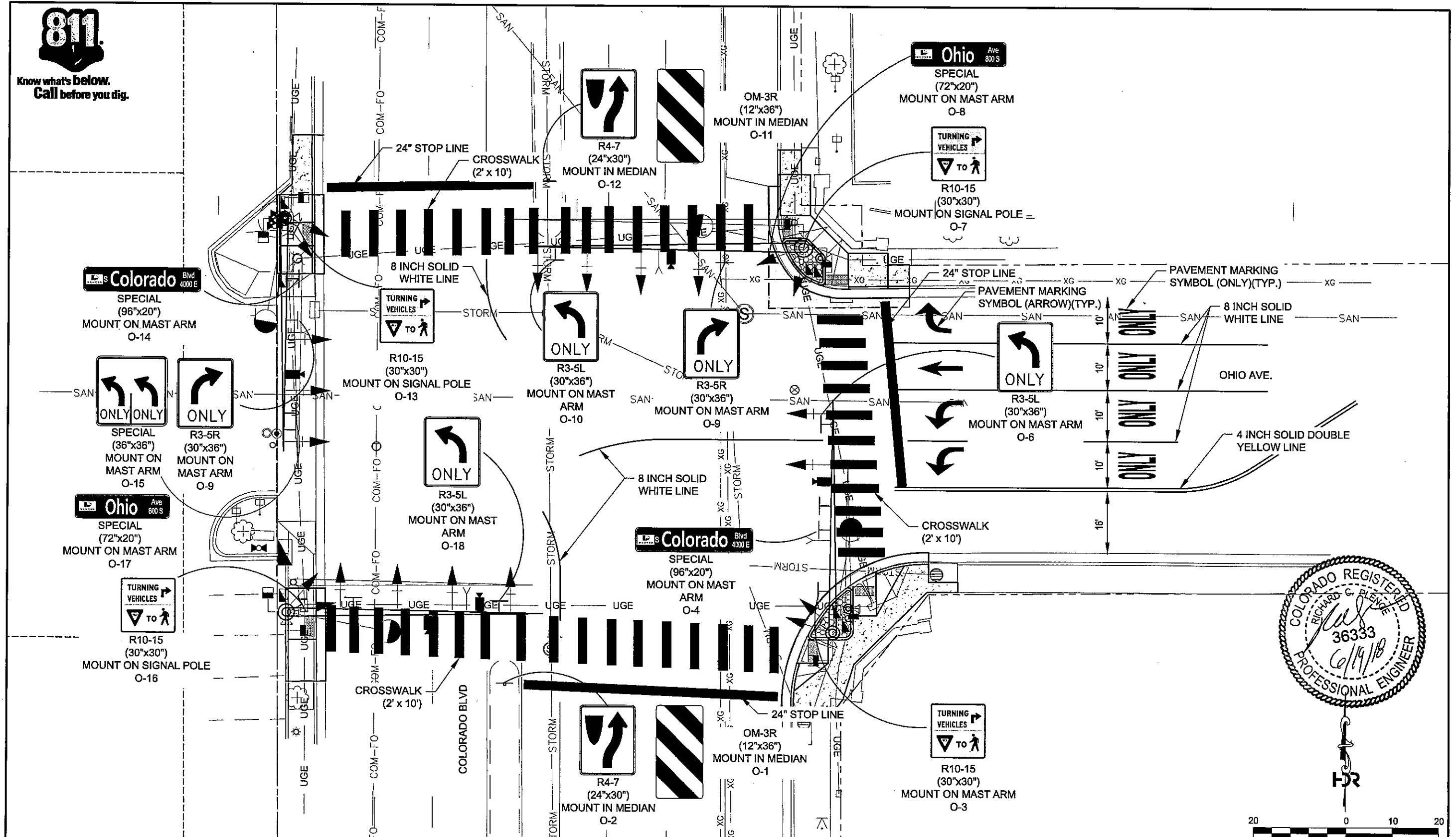
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No Revisions:	
Revised:	
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COLORADO BOULEVARD 2015 SHE SIGNING AND STRIPING PLANS E. FLORIDA AVENUE		
Designer:	J. COLIP	Structure Numbers
Detailer:	J. COLIP	
Sheet Subset:	ROADWAY	Subset Sheets: 3 of 5

Project Number	SHE M320-092
	20303
Sheet Number	98



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Print Date: June 11, 2018  
 File Name: 20303 STR PL 04.DWG  
 Horiz. Scale: 1"=20' Vertical Exag:  
 City Project Manager: John Yu  
**HR** 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202  
 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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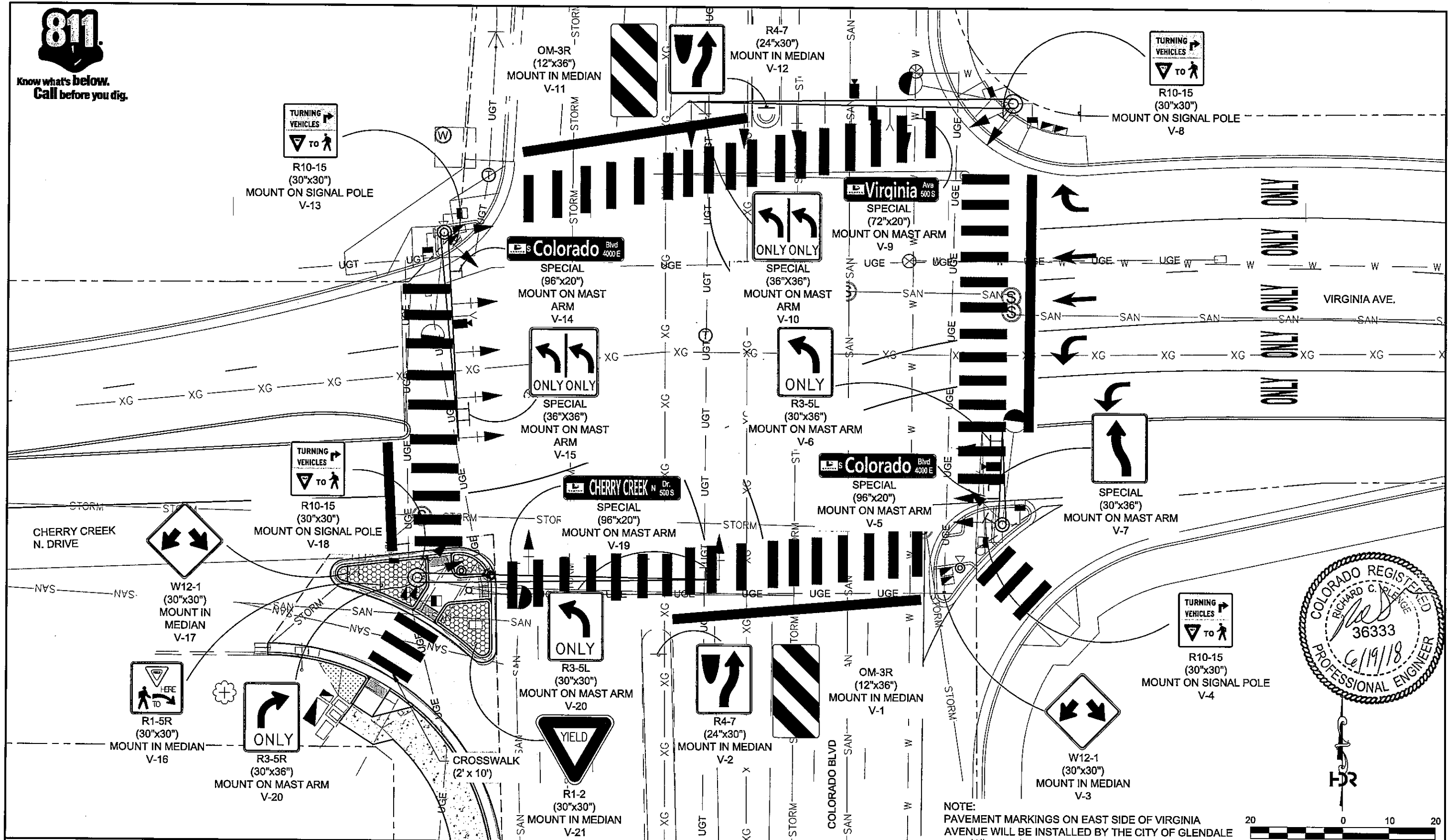
**COLORADO BOULEVARD 2015 SHE  
SIGNING AND STRIPING PLANS  
OHIO AVENUE**

Designer: J. COLIP  
 Detailer: J. COLIP  
 Sheet Subset: ROADWAY

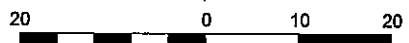
Project Number  
 SHE M320-092  
 20303  
 Sheet Number **99**



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NOTE:  
PAVEMENT MARKINGS ON EAST SIDE OF VIRGINIA AVENUE WILL BE INSTALLED BY THE CITY OF GLENDALE



Print Date:	June 11, 2018
File Name:	20303 STR PL 05.DWG
Horiz. Scale:	1"=20'
City Project Manager:	John Yu
	1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.

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Void:

<b>COLORADO BOULEVARD 2015 SHE SIGNING AND STRIPING PLANS VIRGINIA AVENUE</b>	
Designer:	J. COLIP
Detailer:	J. COLIP
Sheet Subset:	ROADWAY
Subset Sheets:	5 of 5

Project Number	SHE M320-092
	20303
Sheet Number	<b>100</b>



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TABULATION OF CONSTRUCTION TRAFFIC CONTROL DEVICES				
ITEM NUMBER	ITEM DESCRIPTION	UNITS	PROJECT TOTALS	
630-00000	FLAGGING	HOUR	950	
630-00003	UNIFORMED TRAFFIC CONTROL	HOUR	80	
630-00007	TRAFFIC CONTROL INSPECTION	DAY	40	
630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	120	
630-80335	BARRICADE (TYPE 3 M-A)(TEMPORARY)	EACH	4	
630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EACH	20	
630-80342	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EACH	24	
630-80344	CONSTRUCTION TRAFFIC SIGN (SPECIAL)	SF	72	
630-80350	VERTICAL PANEL	EACH	150	
630-80355	PORTABLE MESSAGE SIGN PANEL	EACH	2	
630-80358	ADVANCE WARNING FLASHING AND SEQUENCING ARROW PANEL (C TYPE)	EACH	4	
630-80363	DRUM CHANNELIZING DEVICE (WITH LIGHT)(FLASHING)	EACH	20	
630-80380	TRAFFIC CONE	EACH	200	

TRAFFIC CONTROL NOTES

- CONTRACTOR SHALL MAINTAIN MINIMUM 11' TRAVEL LANES.
- PORTABLE MESSAGE SIGN PANELS SHALL BE USED AS DIRECTED BY THE ENGINEER.
- ALL TRAFFIC CONTROL DEVICES, CONCRETE BARRIERS, REFLECTORIZED DRUMS, SIGNS, PAVEMENT MARKINGS AND CHANNELIZED DEVICES SHALL CONFORM TO THE LATEST CDOT, MUTCD AND CITY AND COUNTY OF DENVER STANDARDS.
- CONSTRUCTION OF THE FACILITIES SHALL BE COMPLETED IN A SAFE AND EXPEDITIOUS MANNER WITHOUT IMPACTING THE STRUCTURAL INTEGRITY OF ADJACENT BUILDINGS, STRUCTURES AND UTILITIES.
- TWENTY-FOUR HOUR EMERGENCY VEHICLE ACCESS SHALL BE MAINTAINED FOR ALL STREETS AND PROPERTIES WITHIN THE PROJECT LIMITS.
- CONTRACTOR SHALL SAFELY COVER TRENCHES AND RESTORE TRAFFIC, PEDESTRIAN AND BICYCLE ACCESS TO NORMAL CONDITIONS WHEN NOT WORKING IN THE AREA.
- EXISTING GROUND MOUNTED SIGNS SHALL BE MAINTAINED/RELOCATED AS NECESSARY. ALL CONFLICTING EXISTING SIGNS SHALL BE MASKED OR REMOVED.
- THE FIRST TWO REFLECTIVE DRUMS WITHIN A WORK ZONE WILL BE EQUIPPED WITH FLASHERS IF INTENDED TO BE LEFT IN PLACE AT NIGHT.
- ALL DRUMS SHALL BE MOVED TO THE OUTSIDE EDGE OF THE ROADWAY AT NIGHT, ON WEEKENDS AND ON HOLIDAYS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- ALL TRAFFIC CONTROL DEVICES SHALL BE MAINTAINED BY THE CONTRACTOR AT ALL TIMES. DAMAGED DEVICES SHALL BE REPAIRED OR REPLACED PROMPTLY. DEVICES THAT ARE NOT PROPERLY MAINTAINED WILL BE EXCLUDED FROM PAYMENT. WORK WILL BE STOPPED BY THE ENGINEER UNTIL DEVICES ARE MAINTAINED, REPAIRED OR REPLACED. PROJECT TIME COUNT WILL NOT BE CONTINUED. COST OF MAINTENANCE WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEMS.
- ALL CONSTRUCTION TRAFFIC CONTROL QUANTITIES ARE BASED ON TWO INTERSECTIONS UNDER CONSTRUCTION CURRENTLY, EXCEPT FOR FLAGGING, UNIFORMED TRAFFIC CONTROL INSPECTION AND TRAFFIC CONTROL MANAGEMENT WHICH ARE BASED ON PROJECT TOTALS.



Print Date: June 11, 2018		DEPARTMENT OF PUBLIC WORKS		As Constructed	COLORADO BOULEVARD 2015 SHE		Project Number
File Name: 20303 CTC TB.DWG		201 WEST COLFAX AVENUE		No Revisions:	TABULATION OF CONSTRUCTION		SHE M320-092
Horiz. Scale:		DENVER, CO 80202		Revised:	TRAFFIC CONTROL DEVICES AND NOTES		20303
City Project Manager: John Yu		PHONE: (720) 913-4501		Void:	Designer: J. COLIP	Structure Numbers	Sheet Number
1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 Fax: 303-860-7139	FAX: (720) 913-4544		Sheet Subset: ROADWAY		Subset Sheets: 6 of 6		101