PROJECT MANUAL
100% BID AND CONSTRUCTION DOCUMENTS
PR005684 ECON TO HALE WATERLINE

Prepared for:

UNIVERSITY OF COLORADO AT BOULDER
Department of Facilities Management
Research Lab No. 2
Boulder, Colorado 80309

Prepared By:

HARRIS KOCHER SMITH
engineers • land surveyors

1391 Speer Blvd, Suite 390
Denver, Colorado 80204
Ph: 303-623-6300
Fax: 303-623-6311

HKS Job No. 100303
Prepared: May 6, 2010
# TABLE OF CONTENTS

**PR005684 ECON TO HALE WATERLINE**

<table>
<thead>
<tr>
<th>Procedural Documents</th>
<th>No. of Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Advertisement for Bids</td>
<td>2</td>
</tr>
<tr>
<td>2. Information for Bidders</td>
<td>4</td>
</tr>
<tr>
<td>3. Contractors Working on Government Projects (City of Boulder Sales &amp; Use Tax Form)</td>
<td>1</td>
</tr>
<tr>
<td>4. University of Colorado Contractor's Qualification Statement</td>
<td>15</td>
</tr>
<tr>
<td>5. Contractor State of Colorado Registration SC 9.1</td>
<td>1</td>
</tr>
<tr>
<td>6. Location Map</td>
<td>1</td>
</tr>
<tr>
<td>7. Bid Form</td>
<td>2</td>
</tr>
<tr>
<td>8. Bid Alternates Form</td>
<td>1</td>
</tr>
<tr>
<td>10. Bid Bond</td>
<td>1</td>
</tr>
<tr>
<td>11. Notice of Award</td>
<td>1</td>
</tr>
<tr>
<td>12. Contractor's Agreement</td>
<td>4</td>
</tr>
<tr>
<td>13. Performance Bond</td>
<td>2</td>
</tr>
<tr>
<td>14. Labor and Material Payment Bond</td>
<td>2</td>
</tr>
<tr>
<td>15. General Conditions of the Contract (including cover &amp; table of contents)</td>
<td>54</td>
</tr>
<tr>
<td>16. Supplementary General Conditions</td>
<td>5</td>
</tr>
<tr>
<td>17. Change Order Bulletin</td>
<td>1</td>
</tr>
<tr>
<td>18. Change Order Proposal</td>
<td>2</td>
</tr>
<tr>
<td>19. Change Order</td>
<td>1</td>
</tr>
<tr>
<td>20. Request for Information Form</td>
<td>1</td>
</tr>
<tr>
<td>21. Environmental Site Assessment Form (Exhibit A)</td>
<td>1</td>
</tr>
<tr>
<td>22. Notice to Proceed</td>
<td>1</td>
</tr>
<tr>
<td>23. Certification and Affidavit Regarding Unauthorized Immigrants</td>
<td>1</td>
</tr>
<tr>
<td>24. Notice of Substantial Completion</td>
<td>2</td>
</tr>
<tr>
<td>25. Notice of Final Acceptance</td>
<td>1</td>
</tr>
<tr>
<td>26. Notice of Contractors Settlement</td>
<td>1</td>
</tr>
<tr>
<td>27. Notice of Approval of Beneficial Occupancy</td>
<td>2</td>
</tr>
<tr>
<td>28. Closing-out Checklist</td>
<td>2</td>
</tr>
<tr>
<td>29. Contract Close-out Final Punch List</td>
<td>1</td>
</tr>
<tr>
<td>30. Post Construction Warranty Report</td>
<td>1</td>
</tr>
<tr>
<td>31. Notice to Contractors: Environmental Responsibilities Environmental &amp; Safety Reminders</td>
<td>2</td>
</tr>
<tr>
<td>32. Certificate for Contractor's Payment</td>
<td>2</td>
</tr>
<tr>
<td>33. Submittal Log</td>
<td>1</td>
</tr>
</tbody>
</table>

## Division 1 - General Requirements

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>No. of Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>01000</td>
<td>General Requirements</td>
<td>2</td>
</tr>
<tr>
<td>01010</td>
<td>Summary of Work</td>
<td>3</td>
</tr>
<tr>
<td>01020</td>
<td>Administration and Supervision</td>
<td>2</td>
</tr>
<tr>
<td>01025</td>
<td>Unit Prices</td>
<td>1</td>
</tr>
<tr>
<td>01030</td>
<td>Alternates</td>
<td>1</td>
</tr>
<tr>
<td>01041</td>
<td>Project Coordination</td>
<td>3</td>
</tr>
<tr>
<td>01042</td>
<td>Mechanical and Electrical Coordination</td>
<td>1</td>
</tr>
<tr>
<td>01045</td>
<td>Cutting and Patching</td>
<td>3</td>
</tr>
<tr>
<td>01060</td>
<td>Regulatory Requirements</td>
<td>7</td>
</tr>
<tr>
<td>01075</td>
<td>Specification System</td>
<td>1</td>
</tr>
<tr>
<td>01100</td>
<td>Special Project Procedure</td>
<td>2</td>
</tr>
<tr>
<td>01121</td>
<td>Hazardous Material Procedures</td>
<td>4</td>
</tr>
<tr>
<td>01200</td>
<td>Project Meetings</td>
<td>2</td>
</tr>
<tr>
<td>01300</td>
<td>Submittals, Shop Drawings, Product Data and Samples</td>
<td>4</td>
</tr>
<tr>
<td>01400</td>
<td>Quality Control</td>
<td>2</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>01500</td>
<td>Temporary Facilities</td>
<td>2</td>
</tr>
<tr>
<td>01600</td>
<td>Material and Equipment</td>
<td>2</td>
</tr>
<tr>
<td>01700</td>
<td>Contract Closeout</td>
<td>2</td>
</tr>
<tr>
<td>01710</td>
<td>Cleaning</td>
<td>1</td>
</tr>
<tr>
<td>01720</td>
<td>Project Record Documents</td>
<td>1</td>
</tr>
<tr>
<td>01730</td>
<td>Operating and Maintenance</td>
<td>4</td>
</tr>
<tr>
<td>01740</td>
<td>Commissioning Requirements</td>
<td>1</td>
</tr>
<tr>
<td>01750</td>
<td>Basic Site Materials &amp; Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

**Division 2 - Site Work**

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>02010</td>
<td>Subsurface Exploration</td>
<td>2</td>
</tr>
<tr>
<td>02070</td>
<td>Selective Demolition</td>
<td>9</td>
</tr>
<tr>
<td>02080</td>
<td>Piped Utilities - Basic Materials and Methods</td>
<td>5</td>
</tr>
<tr>
<td>02221</td>
<td>Trenching, Backfilling, Compacting</td>
<td>9</td>
</tr>
<tr>
<td>02230</td>
<td>Site Clearing</td>
<td>6</td>
</tr>
<tr>
<td>02231</td>
<td>Tree Protection and Trimming</td>
<td>4</td>
</tr>
<tr>
<td>02240</td>
<td>Dewatering</td>
<td>3</td>
</tr>
<tr>
<td>02300</td>
<td>Earthwork</td>
<td>14</td>
</tr>
<tr>
<td>02513</td>
<td>Asphalctic Concrete Pavement</td>
<td>4</td>
</tr>
<tr>
<td>02580</td>
<td>Pavement Marking</td>
<td>3</td>
</tr>
<tr>
<td>02665</td>
<td>Water Systems</td>
<td>4</td>
</tr>
<tr>
<td>02751</td>
<td>Portland Cement Concrete Pavement</td>
<td>6</td>
</tr>
<tr>
<td>02810</td>
<td>Irrigation Systems</td>
<td>16</td>
</tr>
<tr>
<td>02900</td>
<td>Landscaping, General</td>
<td>5</td>
</tr>
<tr>
<td>02920</td>
<td>Soil Preparation</td>
<td>5</td>
</tr>
<tr>
<td>02930</td>
<td>Bluegrass Seeding</td>
<td>5</td>
</tr>
<tr>
<td>02931</td>
<td>Native Grasses Seeding</td>
<td>5</td>
</tr>
<tr>
<td>02932</td>
<td>Bluegrass Sodding</td>
<td>7</td>
</tr>
<tr>
<td>02950</td>
<td>Trees, Plants and Ground Covers</td>
<td>9</td>
</tr>
</tbody>
</table>

END
ADVERTISEMENT FOR BIDS

State of Colorado
University of Colorado
Notice Number: 10 - 16

Project No: PR 005684
Project Title: CAMP – Econ to Hale Waterline

Estimated Construction Cost: $220,000.00

Project Description
The University of Colorado at Boulder is extending the water main system near the Economics Building. Scope includes removal and reinstallation of concrete walks, removal and reinstallation of landscaping and installation of new water line.

Project Information
1. The Principal Representative has determined that the entire project shall be substantially complete within sixty (60) calendar days, from the date of the Notice to Proceed, and the project shall be finally complete, including the delivery of any or all guarantees and warranties, the submittal of sales and use tax payment forms, the completion of the final punch list and the calling for final inspection, within 10 calendar days, if applicable, from the date of substantial completion. In accordance with Article 46 of the General Conditions of the Contract, Time of Completion and Liquidated Damages, failure to complete the work within the agreed number of calendar days shall be considered breach of contract and subject the bidder to liquidated damages to the extent specified in Article 54D of the General Conditions of the Contract.

2. The right is reserved to waive informalities or irregularities and to reject any and all Bids.

3. Bidders may procure Bidding Documents from the following website on May 23, 2010 after 9:00 AM.
   - http://www.colorado.edu/facilitiesmanagement/pdc/construction/open.html
   - There will not be a charge for Contract Documents downloaded from the website.

Contact Billy Harris @ 303.623.6300 after May 23, 2010 at 9:00 A.M. if you prefer to pick up a hard copy of Contract Documents. Hard Copies of the Contract Documents may also be picked up at the mandatory pre-bid meeting on May 24, 2010 at 10:00 A.M. Meet at the East Entrance of Economics Building at main campus. Refer to campus map: http://www.colorado.edu/campusmap/map.html?bldg=ECON

4. A $35.00 is required for each complete set of Contract Documents. This deposit shall be a guaranty that the documents will be returned in good condition. Such deposits will be returned to (1) Actual Bidders who return the documents before the termination of five (5) business days after the opening of the Bids, (2) Other interested parties who return the documents within five (5) business days after checking them out. Additional copies of any documents, drawings, or specifications will be supplied at the actual cost of reproduction. Bidders desiring the Architect/Engineer to mail bid documents will be required to pay the full cost of mailing. Such expenses will be non-refundable.

5. Each Bid shall be submitted on the required Bid Form and must be accompanied by a Bid Bond on State Buildings Programs Bid Bond Form Sc-6.14 in an amount not less than 5% of the total Bid. The Bid Bond may also be (1) a cashiers check or (2) a certified check made payable to the Treasurer of the State of Colorado in an amount not less than 5% of the total Bid. The Bid Bond is submitted as a guaranty that the Bid will be maintained in full force and effect for a period of thirty (30) days after the opening of the Bids for the project.
6. The Bidder promises, in submitting his Bid, that if issued a Notice of Award, he will, within the
prescribed time, execute the required Agreement, furnish the required Performance Bond, Labor and
Material Payment Bond, Insurance Policy and Certificates of Insurance, or forfeit his Bid Guaranty as
Liquidated Damages.

7. Preference shall be given to Colorado resident bidders and for Colorado labor, as provided by law.

Pre-Bid Meeting
A mandatory Pre-Bid Meeting will be held on May 24, 2010 at 10:00 A.M. at the East Entrance of
Economics Building at main campus. Refer to campus map:
http://www.colorado.edu/campusmap/map.html?bidg=ECON

Written questions are due by 4:00 PM on May 26, 2010 to Billy Harris, Harris Kocher Smith, email
address: BHarris@HKSENG.COM and
Andy Jordan, Project Manager, email address: Robert.A.Jordan@colorado.edu

Formal responses and any pre-bid addenda will be published no later than 5:00 PM May 27, 2010.

Sealed Bids will be received from qualified contractors until this date and time at this location:
Date & Time: June 1, 2010 2:00 PM
Address: Department of Facilities Management, Research Laboratory No. 2, 1540 30th Street,
Room 320, Boulder, CO 80309

Point of Contact
Name: Robert A. Jordan
Agency: University of Colorado at Boulder
Phone: 303-735-5410
Fax: 303-492-4082
Email: robert.a.jordan@colorado.edu

This Notice is also available on the web at www.colorado.gov/dpa/dfp/sbrep

Media of Publication(s): The Daily Journal
Publication Dates: May 17, 2010

Note to Editor: Transmit one (1) copy of the Affidavit of Publication, and invoice to Marsha Slepicka,
University of Colorado at Boulder
Department of Facilities Management
Campus Box 453 UCB
Boulder, CO 80309-0453
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

INFORMATION FOR BIDDERS

Institution or Agency: University of Colorado at Boulder
Project No./Name: PR 005684/ CAMP – Econ to Hale Waterline

1. **CONTRACTOR QUALIFICATION:** State projects of $150,000 or more, and under supervision of State Buildings Programs, require the Contractor to be registered with State Buildings Programs. Projects under $150,000 do not require qualification. A Contractor, to be qualified with State Buildings Programs, must annually file State Form SC-9.1, Contractor Statement of Experience, and be qualified at least two (2) working calendar days prior to the date fixed for publicly opening sealed bids. This form can be obtained by accessing our website: [www.colorado.gov/dpa/dfp/sbrep](http://www.colorado.gov/dpa/dfp/sbrep) (Click on the navigation button State Buildings, then Contractor’s Qualification/Registration Form and then the link below the second paragraph – Contractor Registration Form). Complete the form and submit electronically to State Buildings Programs.

NOTE: Vendors/Contractors who are registered with the State of Colorado, Department of Personnel & Administration/Division of Finance and Procurement/State Purchasing Office's Bid Information and Distribution System (BIDS) are eligible to bid on building maintenance projects less than $150,000 solicited through that system and are not eligible to bid on construction projects that are $150,000 or greater as publicly advertised unless they qualify with the Colorado State Buildings Programs as stated above.

2. **BID FORM:** Bidders are required to use the Bid form attached to the bidding documents. Each bidder is required to bid on all alternates and indicate the time to substantial completion in calendar days, and if applicable because designated in the Advertisement For Bids, the bidder is required to indicate the period of time agreed to finally complete the project after the date of substantial completion, also in calendar days. Bids indicating times for substantial completion or final acceptance in excess of the number of days indicated in the Advertisement for Bids may be found non-responsive and may be rejected. The bid shall not be modified or conditioned in any manner. Bids shall be submitted in sealed envelopes bearing the address and information shown below. If a bid is submitted by mail, this aforementioned sealed envelope should be enclosed in an outer envelope and sent to the following addressee:

**INSERT NAME OF AGENCY AND ADDRESS WHERE BID SHOULD BE DELIVERED**
The outside of the sealed inner envelope should bear the following information:

Project # PR 005684
Project Name CAMP – Econ to Hale Waterline
Name and Address of Bidder
Date of Opening June, 2010
Time of Opening 2:00 PM

A bid with missing or inconsistent information may be considered non-responsive and may not be evaluated. The University will be the sole judge in determining the acceptability of an offer. The **University also reserves the right to reject any or all bids in part or in whole and to waive technicalities. Any decision shall be considered final**

3. **INCONSISTENCIES AND OMISSIONS:** Bidders may request clarification of any seeming inconsistencies, or matters seeming to require explanation, in the bidding documents at least three (3) business days prior to the time set for the opening of Bids. Decisions of major importance on such matters will be issued in the form of addendum.
4. **APPLICABLE LAWS AND REGULATIONS:** The bidder’s attention is called to the fact that all work under this Contract shall comply with the provisions of all state and local laws, approved state building codes, ordinances and regulations which might in any manner affect the work to be done or those to be employed in or about the work. Attention is also called to the fact that the use of labor for work shall be governed by the provisions of Colorado law which are hereinafter set forth in Articles 27 and 52E of the GENERAL CONDITIONS.

5. Note that the Special Provisions of the General Conditions of the Contract includes the following language: **UNAUTHORIZED IMMIGRANTS – PUBLIC CONTRACTS FOR SERVICES – CRS 8-17.5-101 and 24-76.5-101.** The Contractor certifies that the Contractor shall comply with the provisions of CRS 8-17.5-101 et seq. The Contractor shall not knowingly employ or contract with an illegal alien to perform work under this contract or enter into a contract with a subcontractor that fails to certify to the Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this contract. The Contractor represents, warrants, and agrees that it (i) has verified that it does not employ any illegal aliens, through participation in the Basic Pilot Employment Verification Program administered by the Social Security Administration and Department of Homeland Security, and (ii) otherwise will comply with the requirements of CRS 8-17.5-102(2)(b). The Contractor shall comply with all reasonable requests made in the course of an investigation under CRS 8-17.5-102 by the Colorado Department of Labor and Employment. If the Contractor fails to comply with any requirement of this provision or CRS 8-17.5-101 et seq., the State may terminate this contract for breach and the Contractor shall be liable for actual and consequential damages to the State.

A Contractor that operates as a sole proprietor hereby swears or affirms under penalty of perjury that the Contractor (i) is a citizen of the United States or otherwise lawfully present in the United States pursuant to federal law, (ii) shall comply with the provisions of CRS 24-76.5-101 et seq, and (iii) shall produce one of the forms of identification required by CRS 24-76.5-103 prior to the effective date of this Contract. Except where exempted by federal law and except as provided in CRS 24-76.5-103(3), a Contractor that receives federal or state funds under this contract must confirm that any individual natural person eighteen years of age or older is lawfully present in the United States pursuant to CRS 24-76.5-103(4) if such individual applies for public benefits provided under this contract.

6. **TAXES:** The bidder’s attention is called to the fact that the Bid submitted shall exclude all applicable federal excise or manufacturers’ taxes and all state sales and use taxes as hereinafter set forth in Article 9C of the GENERAL CONDITIONS.

7. **OR EQUAL:** The words "OR EQUAL" are applicable to all specifications and drawings relating to materials or equipment specified. Any material or equipment that will fully perform the duties specified, will be considered "equal", provided the bid submits proof that such material or equipment is of equivalent substance and function and is approved, in writing. Requests for the approval of "or equal" shall be made in writing at least five (5) business days prior to bid opening. During the bidding period, all approvals shall be issued by the Architect/Engineer in the form of addenda at least two (2) business days prior to the bid opening date.

8. **ADDENDA:** Owner/architect initiated addenda shall not be issued later than two (2) business days prior to bid opening date. All addenda shall become part of the Contract Documents and receipt must be acknowledged on the Bid form.

9. **METHOD OF AWARD - LOWEST RESPONSIBLE BIDDER:** If the bidding documents for this project require alternate prices, additive and/or deductible alternates shall be listed on the alternates bid form provided by the Principal Representative. Bidders should note the Method of Award is applicable to this Bid as stated below.
A. **DEDUCTIBLE ALTERNATES:** The lowest responsible Bid, taking into account the Colorado resident bidder preference provision of Colorado law, will be determined by and the contract will be awarded on the base bid combined with deductible alternates, deducted in numerical order in which they are listed in the alternates bid form provided by the Principal Representative. The subtraction of alternates shall result in a sum total within available funds. If this bid exceeds such amount, the right is reserved to reject all bids. An equal number of alternates shall be subtracted from the base bid of each bidder within funds available for purposes of determining the lowest responsible bidder.

B. **ADDITIVE ALTERNATES:** The lowest responsible Bid, taking into account the Colorado resident bidder preference provision of Colorado law, will be determined by and the contract will be awarded on the base bid plus all additive alternates added in the numerical order in which they are listed in the alternates bid form provided by the Principal Representative. The addition of alternates shall result in a sum total within available funds. If this bid exceeds such amount, the right is reserved to reject all bids. An equal number of alternates shall be added to the base bid of each bidder within funds available for purposes of determining the lowest responsible bidder.

C. **DEDUCTIBLE AND ADDITIVE ALTERNATES:** Additive alternates will not be used if deductible alternates are used and deductible alternates will not be used if additive alternates are used.

The Advertisement for Bids can be located at the web site: www.colorado.gov/dpa/dfp/sbrep/constructdesign.htm (Click on the link below the second paragraph Colorado Construction and Design Notices)

10. **CONTRACTOR QUALIFICATIONS:**
A. Prime Contractors:
   a. Prime Contractors bidding this project must complete "University of Colorado (UCB) Contractor Statement of Experience," and submit it with their Bid.

   b. The Prime Contractor must meet the following minimum requirements and provide written information substantiating their qualifications for evaluation. A Bidder may be found to be non-responsive and their bid rejected if the minimum requirements are not met.

      (1) The Prime Contractor must have successfully completed three (3) projects of $100,000.00 (or larger) in the last five (5) years which were similar in complexity and type to this project. For each project list:

      Name and location of project, along with a brief description of the project (include size & function).

      Name, address and phone number of client/ owner and their representative.

      Contract value and type of contract (prime or subcontract).

      Year in which work was completed.

      (2) The Contractor must have successfully completed an aggregate of $500,000.00 of projects in the last five (5) years which were similar in complexity and type on which he acted as the prime contractor (may be the same projects listed in item (1), if applicable)

      (3) The firm must have been in business as a Contractor for the last five (5) years.

B. Subcontractors
   a. The Prime Contractor is required to provide subcontractors which meet minimum qualifications for the trades listed below.
The right is reserved to reject subcontractors that do not meet the minimum requirements. The Prime Contractor will be required to replace rejected subcontractor(s) with one(s) that meet the minimum requirements with no increase in the Bid Amount prior to the Award of Contract.

Prime Contractor and Subcontractor(s) are advised that there are conditions within the Contract Documents requiring special knowledge and experience to properly execute. The University will require verification of experience to adequately provide materials and perform labor required for the following:

- Water mains
- Concrete flatwork

b. For the trades listed (subcontractors) above, the apparent low bidder must submit, within 72 hours of receipt of bids except for holidays and weekends, the "University of Colorado Contractor's Statement of Experience."

c. In addition to the information requested in Item (1), the Subcontractor must meet the following minimum requirements and provide written information substantiating their qualifications for evaluation. A Bidder may be found to be non-responsive and their bid rejected if the minimum requirements are not met:

(1) The firm must have been in business for the last five (5) years as trade proposed for this work.

(2) The firm must have successfully completed at least two (2) projects of similar size, type, and complexity in the last five (5) years. The information must include the following:

(a) Project Type (function use)
(b) Subcontract description (be specific)
(d) Subcontract amount
(e) Subcontract change orders
(f) Building owner representative and current telephone number
(g) Building architect/engineer name and current telephone number
(h) General contract name and current telephone number

(3) This firm shall give evidence of being able to be bonded up to the value of his work for this project. A letter shall be provided by the bonding agency assuring capability of bonding this subcontract amount.

11. **SITE ACCESS:** Contractors/ Bidders may schedule a time subsequent to the Site Inspection/ Pre-bid Conference to take measurements or further observe existing conditions by contacting:

Andy Jordan, Project Manager
University of Colorado at Boulder
Department of Facilities Management
(303) 735-5410

12. **BID SCHEDULE:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication date:</td>
<td>May 17, 2010</td>
</tr>
<tr>
<td>Plans specification available:</td>
<td>May 23, 2010 and at prebid meeting</td>
</tr>
<tr>
<td>Mandatory pre-bid conference:</td>
<td>May 24, 2010 10:00 A.M.</td>
</tr>
<tr>
<td>Last day for questions:</td>
<td>May 26, 2010 4:00 PM</td>
</tr>
<tr>
<td>Last day for addenda issue:</td>
<td>May 27, 2010 5:00 PM</td>
</tr>
<tr>
<td>Bid date:</td>
<td>June 1, 2010 2:00 PM</td>
</tr>
</tbody>
</table>

END
City of Boulder
Sales/Use Tax Division
303-441-3050

CONTRACTORS WORKING ON NON-CITY PERMITTED PROJECTS

To all Contractors working within the City of Boulder:

Under Boulder’s Revised Code, the contractor is deemed to be the consumer of materials used in the construction project. Contractors may not avoid payment of the City of Boulder sales or use tax by placing provisions in a construction agreement or by using the name of a tax-exempt entity on an invoice or purchase order, regardless that the contractor is indicated thereon as the agent of a tax-exempt entity. **No exemption certificate issued by the Colorado Department of Revenue or any other taxing authority shall be recognized as a basis for exemption from sales or use taxes.**

Estimated use tax must be remitted to the City of Boulder prior to the start of the project. The tax is computed on the full contract price of the project. Follow these steps to compute and remit the sales/use tax to the City:

1. Multiply the full contract price by 0.5 and then multiply the resulting product by the tax rate of 3.41% (0.0341). This is the tax that is due to the City prior to the start of the project.
2. Remit the tax to the Sales Tax Department at 1777 Broadway, P.O. Box 791, Boulder, CO 80306-0791 along with a copy of this completed form.
3. At the completion of the project the construction company has two options for closing out the project with the city.
   - Use the formula in (1.) above to compute the final tax due based on the final contract price (including all change orders). Remit the additional tax due or file a request for refund with the City; or
   - Request that the city perform a full audit. Contact Ed Kaiser at 303-441-3921 or kaisere@bouldercounty.gov to inform the City of which option you have chosen.

Contractor Name: ____________________________
Address: ____________________________________
Phone #: __________________ Contact Person: __________________
Project Name: ______________________________
Project Address: _____________________________

<table>
<thead>
<tr>
<th>Full Contract price</th>
<th>A. __________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiply ‘A’ by 0.5</td>
<td>B. __________________________</td>
</tr>
<tr>
<td>Multiply ‘B’ by 0.0341</td>
<td>C. __________________________</td>
</tr>
</tbody>
</table>

“C” is the amount of tax due to the City of Boulder. If you have any questions regarding sales/use tax or this process, contact Ed Kaiser at the above phone number or address.

Date received: __________________________ City Authority Signature: ____________________________

1777 BROADWAY P.O. BOX 791 BOULDER, CO 80306 303/441-3921
University of Colorado at Boulder

CONTRACTOR'S
STATEMENT OF EXPERIENCE

Project Name: CAMP - Econ to Hale Waterline
Project No. PR 005684

Project Manager: Robert A. Jordan
Phone: 303-735-5410
Email: Robert.a.Jordan@colorado.edu

Architect/Engineer: Billy Harris at Harris Kocher Smith
Phone #: (303) 623-6300
Fax #: (303) 623-6311
Email Address: bharris@hkseng.com

This is a project specific qualification form. Contractor must fill this out on each project.
INDEX OF DOCUMENTS

• INFORMATION FORM Page 1 of 13
• TYPES OF WORK Page 2 of 13
• IDENTIFICATION FORM Page 3, 4 of 13
• PERSONNEL OF ORGANIZATION FORM Page 5 of 13
• PROJECT EXPERIENCE FORM Page 6 of 13
• WORK CURRENTLY UNDER CONTRACT FORM Page 7 of 13
• SURETIES FORM Page 8 of 13
• CORPORATION / CO-PARTNERSHIP FORM Page 9 of 13
• AFFIDAVIT FOR CORPORATION Page 10 of 13
• AFFIDAVIT FOR CO-PARTNERSHIP Page 11 of 13
• AFFIDAVIT FOR INDIVIDUAL Page 12 of 13
• BIDDING INFORMATION Page 13 of 13
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR’S QUALIFICATION STATEMENT

INFORMATION FORM

STATEMENT OF ________________________________
(Contractor)

ADDRESS ________________________________
(Street or PO Box) (City) (State) (Zip)

TELEPHONE/FAX NO. ________________________________
(telephone) (fax)

DATE OF EXPERIENCE STATEMENT ________________________________

PRINCIPLE OWNER/OFFICER ________________________________
(Names(s) and Official Title(s))

Please indicate below if your company qualifies as one of the following:

Minority Business Enterprise (MBE) YES __ NO __
Justification: ____________________________________________
________________________________________
________________________________________

Woman-Owned Business Enterprise (WBE) YES __ NO __
Justification: ____________________________________________
________________________________________
________________________________________

Small Business Enterprise (SBE) YES __ NO __
Justification: ____________________________________________
________________________________________
________________________________________

Disadvantaged Business Enterprise (DBE) YES __ NO __
Justification: ____________________________________________
________________________________________
________________________________________
PR 005684/ CAMP – Econ to Hale Waterline

UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR'S QUALIFICATION STATEMENT

TYPES OF WORK

(1) If you are a General Contractor interested in bidding on all types of construction, mark "All Classes of Construction" only.
(2) If you are interested in contracting directly with the University for certain types of work only, mark in the column provided after the particular types of work on which you wish to bid.

<table>
<thead>
<tr>
<th>TYPES OF WORK</th>
<th>MARK WITH (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All Classes of Construction</td>
<td></td>
</tr>
<tr>
<td>2. General</td>
<td></td>
</tr>
<tr>
<td>3. Mechanical</td>
<td></td>
</tr>
<tr>
<td>4. Electrical</td>
<td></td>
</tr>
<tr>
<td>5. Excavating and Grading</td>
<td></td>
</tr>
<tr>
<td>6. Concrete</td>
<td></td>
</tr>
<tr>
<td>7. Structural Steel</td>
<td></td>
</tr>
<tr>
<td>8. Steel and Miscellaneous Iron</td>
<td></td>
</tr>
<tr>
<td>9. Painting and Decorating</td>
<td></td>
</tr>
<tr>
<td>10. Laboratory Equipment</td>
<td></td>
</tr>
<tr>
<td>11. Elevator</td>
<td></td>
</tr>
<tr>
<td>12. Plumbing</td>
<td></td>
</tr>
<tr>
<td>13. Heating and Ventilating</td>
<td></td>
</tr>
<tr>
<td>14. Air Conditioning</td>
<td></td>
</tr>
<tr>
<td>15. Boiler and Equipment</td>
<td></td>
</tr>
<tr>
<td>16. Environmental (Describe)</td>
<td></td>
</tr>
<tr>
<td>17. Other (Describe)</td>
<td></td>
</tr>
<tr>
<td>18. Other (Describe)</td>
<td></td>
</tr>
<tr>
<td>19. Other (Describe)</td>
<td></td>
</tr>
<tr>
<td>20. Other (Describe)</td>
<td></td>
</tr>
</tbody>
</table>
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR'S QUALIFICATION STATEMENT

IDENTIFICATION

(The signatory of this questionnaire guarantees the truth and accuracy of all statements and of all answers to questions hereinafter made.)

LEGAL NAME _______________________________________________________________

PRINCIPAL OFFICE __________________________________________________________

(Street or PO Box) (City) (State) (Zip)

_____ A Corporation _____A Co-partnership _____An Individual __Combination

GENERAL INFORMATION

A. Are you licensed as a contractor? Yes ( ) No ( )

Licensed in the name of Location License No.

(City or State) & Type

B. How many years has your organization been in business as a contractor under your present business name? ________________________________

C. How many years experience in __________________ construction work has your organization had? (Type)

(a) As a prime contractor? ________________ (b) As a subcontractor?

D. Have you or your organization, or any officer or partner thereof, failed to complete a contract? ________________

If so, give details ___________________________________________________________

E. If you have a controlling interest in any firms presently qualified with the University, show names thereof:

__________________________________________________________

__________________________________________________________

F. We normally perform _________% of the work with our own forces.

List trades: _____________________________________________________________

Where qualification is based on a combination of several organizations, show the experience and equipment of the combined organizations.
G. Has your firm been involved in any litigation in the past five (5) years? Yes ( ) No ( )
If yes, explain (listing type, kind, plaintiff, defendant, etc. and state the current status).

H. Are there any activities or interests of officers, principle stockholders, or employees of
your firm or other factors which would place your firm and the University of Colorado
at Boulder in a position of "Conflict of Interests"?

Yes ( ) No ( ) If yes, or in doubt, explain.

I. Has your firm ever been involved in any bankruptcy action as a bankrupt?

Yes ( ) No ( ) If yes, explain.
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR’S QUALIFICATION STATEMENT

PERSONNEL OF ORGANIZATION

1. Name the persons with whom you have been associated in business as partners or business associates in each of the last five (5) years.

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

2. Show the construction experience of the principal individuals of your present organization in the following tabulation:

<table>
<thead>
<tr>
<th>Individual’s Name</th>
<th>Present Position or Office in Your Organization</th>
<th>Years of Construction Experience</th>
<th>Magnitudes and Type of Work</th>
<th>In What Capacity</th>
</tr>
</thead>
</table>
PROJECT EXPERIENCE

Show the projects your organization has completed during the last five years in the following tabulation:

<table>
<thead>
<tr>
<th>Year Completed</th>
<th>Project</th>
<th>Type of Work (See Page 2)</th>
<th>Location</th>
<th>Contract Value</th>
<th>Contracting Authority</th>
<th>In what Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected Completion Date</td>
<td>Project</td>
<td>Type of Work (See Page 1)</td>
<td>Location</td>
<td>Contract Value</td>
<td>Contracting Authority</td>
<td>Architect or Engineer</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------</td>
<td>----------------------------</td>
<td>----------</td>
<td>----------------</td>
<td>-----------------------</td>
<td>----------------------</td>
</tr>
</tbody>
</table>
SURETIES

List the Surety Companies that have bonded your work for the past five (5) years:

<table>
<thead>
<tr>
<th>Name of Surety and Name and Address of Agent</th>
<th>Project and Location</th>
<th>Period of Bond From</th>
<th>Period of Bond To</th>
<th>General Comments</th>
</tr>
</thead>
</table>
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR'S QUALIFICATION STATEMENT

CORPORATION / CO-PARTNERSHIP

CORPORATION:
(If a corporation, answer this:)

When Incorporated: _______________________________

In What State: _________________________________

President's Name: ______________________________

Vice President's Name: __________________________

Secretary's Name: ______________________________

Treasurer's Name: _______________________________

CO-PARTNERSHIP:
(If a co-partnership, answer this:)

Date of Organization: ____________________________

State whether partnership is general, limited, or association: _________________________________________

Name and address of each partner:

(name) ____________________________ (name) ____________________________

(address) __________________________ (address) __________________________

WHERE QUALIFICATION IS BASED ON A COMBINATION OF ORGANIZATIONS, THE APPROPRIATE (ATTACHED) AFFIDAVITS MUST BE EXECUTED FOR EACH MEMBER OF SUCH COMBINATION.
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR'S QUALIFICATION STATEMENT

AFFIDAVIT FOR CORPORATION

_________________________________________________________ certifies and says: That he is

(Name of officer)

____________________ of the ________________________________

(Official capacity)

corporation submitting this statement of experience: that he/she has read the same, and
that the same is true of his/her own knowledge: that the statement is for the purpose of
inducing the University of Colorado to supply the submitter with plans and specifications,
and that any vendor, or other agency therein named is hereby authorized to supply the
University of Colorado with any information necessary to verify the statement: and that
furthermore, should this statement at any time cease to properly and truly represent
his/her condition in any substantial respect, it will refrain from further bidding on
University work until it shall have submitted a revised and corrected statement.

I certify and declare under penalty of perjury that the foregoing is true and correct:

Subscribed on ___________ at __________, __________, State of _________________
(date) (city) (county)

NOTE: Use full corporate name and
attach corporate seal here. __________________________________

(Officer must sign here)

NOTE: Statement will be returned unless affidavit is completed in EVERY respect.
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR'S QUALIFICATION STATEMENT

AFFIDAVIT FOR CO-PARTNERSHIP

_________________________________________ certifies and says: That he/she is a partner of
(Name of partner)
the partnership of _____________________________: That said partnership
(Name of Firm)
submitted this statement of experience: that he/she has read the same, and that the
same is true of his/her own knowledge: that the statement is for the purpose of inducing
the University of Colorado to supply the submittor with plans and specifications, and that
any vendor, or other agency therein named is hereby authorized to supply the University
of Colorado with any information necessary to verify the statement: and that
furthermore, should this statement at any time cease to properly and truly represent the
condition of said firm in any substantial respect, it will refrain from further bidding on
University work until they shall have submitted a revised and corrected statement.

I certify and declare under penalty of perjury that the foregoing is true and correct:

Subscribed on __________ at __________, __________, State of __________
(date) (city) (county)

The foregoing statement and affidavit are hereby offered.

_________________________________________ (Member of Firm must sign here)

_________________________________________ (Title)

_________________________________________ (Remaining members of Firm sign here) (Name of Firm)

NOTE: Statement will be returned unless affidavit is completed in EVERY respect.
UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR'S QUALIFICATION STATEMENT

AFFIDAVIT FOR INDIVIDUAL

_________________________________________ doing business __________________________
(Name of individual) (Name of Firm)

certifies and says: That he/she is the person submitting this statement of experience: that he/she has read the same, and that the same is true of his/her own knowledge: that the statement is for the purpose of inducing the University of Colorado to supply the submitter with plans and specifications, and that any vendor, or other agency therein named is hereby authorized to supply the University of Colorado with any information necessary to verify the statement: and that furthermore, should this statement at any time cease to properly and truly represent his/her condition in any substantial respect, it will refrain from further bidding on University work until it shall have submitted a revised and corrected statement.

I certify and declare under penalty of perjury that the foregoing is true and correct:

Subscribed on __________ at __________, __________, State of ______________
(date) (city) (county)

NOTE: Statement will be returned unless affidavit is completed in EVERY respect. __________________________
(Applicant must sign here)

UNIVERSITY OF COLORADO AT BOULDER
CONTRACTOR'S QUALIFICATION STATEMENT

BIDDING INFORMATION

QUALIFICATION

The University of Colorado will qualify or disqualify a Contractor on the basis of:

(1) The information contained in this statement and
(2) Past contract experience with the University.

NOTIFICATION

The University of Colorado will, in writing, notify Contractors of their qualification or disqualification.
CONTRACTOR REGISTRATION
CONTRACTOR STATEMENT OF EXPERIENCE
STATE FORM SC-9.1

STATE OF COLORADO
Department of Personnel & Administration
Division of Finance and Procurement
State Buildings and Real Estate Programs
1313 Sherman Street, Suite 319
Denver, CO 80203-1714
PHONE: (303) 866-6141
FAX: (303) 894-7478

INSTRUCTIONS

Submission of a "Contractor Statement of Experience" (Form SC-9.1) qualifies contractors through the State Buildings and Real Estate Programs' Contractor Registration Program (C.R.S 24-30-1303(1)(q) and R-24-103-402-01).

Contractor registration is required for bids on state funded construction projects equal to or greater than $150,000. This registration form must be received by State Buildings and Real Estate Programs at least two (2) business days prior to the date fixed for publicly opening sealed bids.

Registration remains in effect for one year. Contractors have 30 days from the date of expiration to resubmit and remain registered.

The form must be completed in its entirety. Failure to include all relevant information will delay or prevent registration.

This registration is not to be considered pre-qualification for any construction project for the State of Colorado. Agencies may require submittal of additional information for specific projects.

Our web site contains a list of qualified contractors. If you believe you are qualified to bid on State of Colorado construction projects equal to or greater than $150,000, please visit our web site: http://www.colorado.gov/dpa/dfp/sbrep, click on Qualified Contractors. The alphabetical letters will expand by selecting the first letter of your company name. For additional information, please call State Buildings and Real Estate Programs at (303) 866-6141.

Note: This registration is NOT for the Bid Information and Distribution System (BIDS). For information on BIDS, please visit the State Purchasing Office website at http://www.gssa.state.co.us or call the Help Desk at (303) 894-2039.
1. **BID**: Pursuant to the advertisement by the State of Colorado dated May 17, 2010, the undersigned bidder hereby proposes to furnish all the labor and materials and to perform all the work required for the complete and prompt execution of everything described or shown in or reasonably implied from the Bidding Documents, including the Drawings and Specifications, for the work and for the base bid indicated above. Bidders should include all taxes that are applicable.

2. **EXAMINATION OF DOCUMENTS AND SITE**: The bidder has carefully examined the Bidding Documents, including the Drawings and Specifications, and has examined the site of the work, so as to make certain of the conditions at the site and to gain a clear understanding of the work to be done.

3. **PARTIES INTERESTED IN BID**: The bidder hereby certifies that the only persons or parties interested in this Bid are those named herein, and that no other bidder or prospective bidder has given any information concerning this Bid.

4. **BID GUARANTEE**: This Bid is accompanied by the required Bid Guarantee. You are authorized to hold said Bid Guarantee for a period of not more than thirty (30) days after the opening of the Bids for the work above indicated, unless the undersigned bidder is awarded the Contract, within said period, in which event the Director, State Buildings and Real Estate Programs, may retain said Bid Guarantee, until the undersigned bidder has executed the required Agreement and furnished the required Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance.

5. **TIME OF COMPLETION**: The bidder agrees to achieve substantial completion of the entire project within the number of calendar days entered above, and if applicable, further agrees that the period between the date of substantial completion and the date of final acceptance of the entire project will not exceed the number of calendar days noted above. If awarded this work, the bidder agrees to begin work within ten (10) days from the date of the Notice to Proceed subject to Article 46, Time of Completion and Liquidated Damages of The General Conditions of the Contract, and agrees to prosecute the work with due diligence to completion. The bidder represents that Article 54D has been reviewed to determine the type and amount of any liquidated damages that may be specified for this contract.
6. **EXECUTION OF DOCUMENTS:** The bidder understands that if this Bid is accepted, he must execute the required Agreement and furnish the required Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance within ten (10) days from the date of the Notice of Award, and that the bidder will be required to sign to acknowledge and accept the Contract Documents, including the Drawings and Specifications.

7. **ALTERNATES:** Refer to the Information for Bidders (SC-6.12) for Method of Award for Alternates and use State Form SBO-6.13.1 Bid Alternates form to be submitted with this bid form if alternates are requested by the institution/agency in the solicitation documents.

Submit wage rates (direct labor costs) for prime contractor and subcontractor as requested by the institution/agency in the solicitation documents.

The right is reserved to waive informalities and to reject any and all Bids.

Dated this ______ Day of __________________ , 2010

(Corporate Seal)

THE BIDDER:

____________________________________________________________________________________

Company Name

ATTEST

Address (including city, state and zip)

Secretary

Phone number:

Name (Print)

Signature

Name (Print) and Title

Print Email address: _________________________________________________________________

SIGNATURES: If the Bid is being submitted by a Corporation, the Bid should be signed by an officer, i.e., President or Vice-President. The signature of the officer shall be attested to by the Secretary and properly sealed. If a sole proprietorship or a partnership is submitting the Bid, the Bid shall so indicate and be properly signed.
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

BID ALTERNATES FORM

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684/ CAMP – Econ to Hale Waterline

1. Alternates - Refer to specification section 01030 for descriptions of add alternates. If the add alternates are accepted, the base bid would be modified by the amount entered by the bidder.
   none

2. Unit Prices
   ITEM UNIT PRICE
   a. none $____________ each

Bidder Date

State Form SBP-6.131
Issued 9/2006
Addendum #1, dated 3-26-2009
MINORITY/WOMEN BUSINESS ENTERPRISE PARTICIPATION REPORT

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684/ CAMP – Econ to Hale Waterline

TO BE ELIGIBLE FOR AWARD OF THIS CONTRACT, EACH CONTRACTOR (INCLUDING ARCHITECT/ENGINEER/CONSULTANT) IS REQUESTED TO COMPLY WITH THESE REQUIREMENTS.

I. The undersigned contractor hereby certifies that the (company) (joint venture) (is) (is not)* a minority enterprise as defined in this report. The undersigned contractor hereby certifies the (company) (joint venture) (is) (is not)* a woman-owned business enterprise as defined. (*Strike out where inapplicable.)

If Corporation: If Sole Proprietorship/Partnership:

Corporation Name

By: ___________________________ Date

Title

ATTEST:

By: ___________________________ Date

Secretary

II. It is the general policy of the State of Colorado to be as inclusive as possible to all member communities when spending taxpayer dollars.

III. REQUIREMENTS

A. Minority Business Enterprise (MBE) means, for the purpose of this report, a business enterprise at least 51 percent that is owned and controlled by minority group members, or, in the case of a publicly owned business, at least 51 percent of the stock of which is owned and controlled by minority group members. Eligible persons are expected to be engaged full time in the day-to-day operation and management of the business. Minority group members are ethnic minorities including African American, Hispanic American, Native American or Asian/Pacific American.

B. Women Business Enterprise (WBE) means, for the purpose of this report, a business enterprise of at least 51 percent of which is owned and controlled by a woman or women, or, in the case of a publicly-owned business, at least 51 percent of the stock of which is owned and controlled by women. Women are expected to be engaged full time in the day-to-day operation and management of the business.

C. The State of Colorado does not have a certification process nor does it require MBE’s and WBE’s to be certified EXCEPT for certain contracts for highway and bridge construction administered by the Colorado Department of Transportation.

D. The percentages of minority and women-owned business participation will be determined by dollar value of the work subcontracted to or joint ventured with minority and women-owned firms, as compared to the total dollar value of the bid amount for all work bid under this contract.
E. Prior to the award of this contract, the contractor will be required to provide to the Principal Representative a list of M/WBE enterprises, stipulating the dollar amount of each subcontract or supplier of materials on page 2 of this Minority and Women Business Enterprises Participation Report.

F. The contractor will retain records and documents showing the level of participation for two years following completion of this contract. These records and documents, or copies thereof, will be made available at reasonable times and places for inspection by an authorized representative of the Principal Representative, or its designated representatives, and will be submitted to such representatives upon written request.

MBE: Yes ☐ WBE: Yes ☐ No ☐ No ☐

Total Contract Amount: $______________

<table>
<thead>
<tr>
<th>Name and Address of M/WBE Subcontractors and/or Suppliers and/or Self-Performed Work by M/WBE Primes*</th>
<th>MBE Contract Amounts</th>
<th>WBE Contract Amounts</th>
<th>Type of Work</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Indicate ethnicity based on Paragraph III. A. above.

Total MBE Contracts: $________________
Total WBE Contracts: $________________
Total MBE %: __________________________
Total WBE %: __________________________
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

BID BOND

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684/ CAMP – Econ to Hale Waterline

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, _______________________________, hereinafter called the "PRINCIPAL", is submitting a PROPOSAL for the above described project, to the STATE OF COLORADO, hereinafter called the "OBLIGEE".

WHEREAS, the Advertisement for Bids has required as a condition of receiving the Proposals that the Principal submit with the PROPOSAL GUARANTY in an amount not less than five per cent (5%) of the Proposal, which sum it is specifically agreed is to be forfeited as Liquidated Damages in the event that the Principal defaults in his obligation as hereinafter specified, and, in pursuance of which Requirement, this Bid is made, executed and delivered.

NOW THEREFORE, the Principal and _______________________________ a corporation of the State of _______________________________, duly authorized to transact business in Colorado, as Surety, are held and firmly bound unto the Obligee, in the sum of five per cent (5%) of the Principal's total bid price, lawful money of the United States for the payment of which sum, well and truly to be made to the Obligee, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

FURTHER THAT, a condition of the obligation that the Principal shall maintain his Proposal in full force and effect for thirty (30) days after the opening of the proposals for the project, or, if the Principal's Proposal is accepted, the Principal shall, within the prescribed time, execute the required Agreement, furnish the required Performance Bond, Labor and Material Payment Bond, Insurance Policy, and Certificates of Insurance, then this obligation shall be null and void, otherwise it shall remain in full force and effect, and subject to forfeiture upon demand as Liquidated Damages.

IN WITNESS WHEREOF said Principal and Surety have executed this Bond, this ________ day of __________, A.D., 2010.

(Corporate Seal) THE PRINCIPAL

Company Name

Address (including city, state and zip) Phone number:

Secretary Signature

Name (Print) Name (Print) and Title

SIGNATURES If the "Principal" is doing business as a Corporation, the Bid Bond shall be signed by an officer, i.e., President or Vice President. The signature of the officer shall be attested to by the Secretary and properly sealed.

If the "Principal" is an individual or a partnership, the Bid Bond shall so indicate and be properly signed.

(Corporate Seal) THE SURETY

By Attorney-in-Fact

Secretary

This bond must be accompanied by power of attorney, effectively dated. Failure to provide a properly executed bid bond with a properly executed power of attorney will result in the bidder's proposal being deemed non-responsive.

State Form SBP-6.14
Rev. 9/2006
NOTICE OF AWARD

Date of Notice: __________________________

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684/ CAMP – Econ to Hale Waterline

TO:

The State of Colorado, represented by the undersigned, has considered the Proposals submitted for the above described work.

Your Proposal, deemed to be in the best interest of the State of Colorado, in the amount of Thousand, Hundred and no/100 Dollars (\$ 0.00*) is hereby accepted, pending final execution of the Agreement.

Base Bid \$

Total Contract Amount \$

You are required to execute the approved Agreement and to furnish the Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance within ten (10) days from the date of this Notice.

If you fail to execute said Agreement and to furnish said Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance within ten (10) days from the date of this Notice, the State Controller will be entitled to retain the amount of the Proposal Guaranty submitted with your Proposal as Liquidated Damages. In this event, the right is reserved to consider all of your rights arising out of the acceptance of your Proposal as abandoned and to award the work covered by your Proposal to another, or to re-advertise the work, or otherwise dispose thereof.

By
Paul M. Leef, AIA, LEED™ AP / Date
Campus Architect
Director, Planning, Design & Construction
State Buildings Programs
(of Authorized Delegate)

By
Ronald L. Ried, Director / Date
Facilities Management Business Services
Principal Representative
(Institution or Agency)

When completely executed, this form is to be sent by certified mail to the Contractor by the Principal Representative.

State Form SBP-6.15
Rev. 9/2006
CONTRACTOR'S AGREEMENT
DESIGN/BID/BUILD STANDARD FORMAT
(STATE FORM SC-6.21)

CONTRACT ROUTING NO.

AGENCY IDENTIFICATION NO.

PROJECT NO. PR 005684

PROJECT NAME: CAMP – Econ to Hale Waterline

PROJECT MANAGER: Robert A. Jordan

CONTRACTOR:

DATE: May 2010
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

CONTRACTOR'S AGREEMENT
DESIGN/BID/BUILD STANDARD FORMAT
(STATE FORM SC-6.21 Rev. 1/2009)

CAMP – Econ to Hale Waterline

TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Recitals</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance of the Work</td>
<td>1</td>
</tr>
<tr>
<td>Provisions of the Contract Documents</td>
<td>1</td>
</tr>
<tr>
<td>Time of Completion</td>
<td>1</td>
</tr>
<tr>
<td>Essential Condition</td>
<td>1</td>
</tr>
<tr>
<td>Contract Sum</td>
<td>1</td>
</tr>
<tr>
<td>Contract Documents</td>
<td>1</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>1</td>
</tr>
</tbody>
</table>

SIGNATURE APPROVALS

Signed Notice of Award

Exhibits:
- A Contractor's Bid (Form SC-6.13)
- B Performance Bond (Form SC-6.22)
- C Labor and Material Payment Bond (Form SC-6.221)
- D Insurance Certificates
- E Minority and Women Business Enterprises Participation Report (MWBE-1)
- F Certification and Affidavit Regarding Unauthorized Immigrants (required at contract signing prior to commencing work)

Rev. 1/2009
CAMP – Econ to Hale Waterline

1. PARTIES. THIS AGREEMENT is entered into by and between the STATE OF COLORADO, acting by and through the Regents of the University of Colorado, a body corporate, hereinafter called the Principal Representative, and (vendor name) having its offices at (vendor address) hereinafter referred to as the Contractor.

2. EFFECTIVE DATE AND NOTICE OF NONLIABILITY. This Agreement shall not be effective or enforceable until it is approved and signed by the State Controller or its designee (hereinafter called the "Effective Date"), but shall be effective and enforceable thereafter in accordance with its provisions. The State shall not be liable to pay or reimburse Construction Manager for any performance hereunder or be bound by any provision hereof prior to the Effective Date.

WHEREAS, the Principal Representative intends to upgrade the water system between the Economics Building and Hale, hereinafter called the Project; and

WHEREAS, authority exists in Law and Funds have been budgeted, appropriated, and otherwise made available, and a sufficient unencumbered balance thereof remains available for payment in Fund Number 410, Speed Type / Account Number, -515192; Contract Encumbrance Number TBD,

WITNESSETH, that the State of Colorado and the Contractor agree as follows:

ARTICLE 1. PERFORMANCE OF THE WORK
The Contractor shall furnish all the work, labor and materials, and shall perform, to the satisfaction of the Principal Representative and its Architect/Engineer, all of the work required for the complete and prompt execution of everything described or shown in, or reasonably implied from the Contract Documents, including The General Conditions of the Contract and the Drawings and Specifications for the above Project.

ARTICLE 2. PROVISIONS OF THE CONTRACT DOCUMENTS
The Contractor agrees to do the work in a first class, substantial and workmanlike manner to the satisfaction of the State of Colorado and its Architect/Engineer in strict accordance with the provisions of the Contract Documents, including The General Conditions of the Contract and the Drawings and Specifications.

ARTICLE 3. TIME OF COMPLETION
The Contractor agrees to substantially complete the entire Project within sixty (60) calendar days from the date of the Notice to Proceed, and, if applicable, the Contractor agrees to complete the final punch list and finally complete the Project within 10 calendar days. The Contractor shall prosecute the work with due diligence to completion.

ARTICLE 4. ESSENTIAL CONDITION
Timely completion of the project is an essential condition of this Agreement. The Contractor shall be subject to any liquidated damages described in Article 54D of The General Conditions of the Contract for failure to satisfactorily complete the work within the time periods in Article 3 above.

ARTICLE 5. CONTRACT SUM
The Contractor shall be paid for the performance of this Agreement, subject to any additions and deductions as provided for in Articles 32, 34 and 35 of The General Conditions of the Contract, the sum of __________ Thousand, ______ Hundred and ______ and ______/100 Dollars ($ _______).

ARTICLE 6. CONTRACT DOCUMENTS
The Contract Documents, as enumerated in Article 1 of The General Conditions of the Contract, are all essential parts of this Agreement and are fully incorporated herein.

ARTICLE 7. SAFETY and SECURITY - Contractor understands that concern for the safety and well-being of University students and staff is of particular importance to the University. Contractor expressly acknowledges that it is Contractor’s duty to take reasonable precautions to protect the University’s students and staff. The extent of such precautions will depend on the particular circumstances of the work to be performed. However, to the extent that work to be performed involves security-sensitive functions or security-sensitive areas (e.g. unsupervised access to minors or work involving access to security-sensitive data), such precautions may include, but are not limited to, conducting criminal history checks on employees or agents assigned to such work at the University.*

Rev. 1/2009
THE PARTIES HERETO HAVE EXECUTED THIS CONTRACT

*Persons signing for Contractor hereby swear and affirm that they are authorized to act on Contractor’s behalf and acknowledge that the State is relying on their representations to that effect. Principal is not a recognized title and will not be accepted

THE CONTRACTOR

Legal Name of Contracting Entity

*Signature

By ________________________________

Name (print) Title

Date: ______________________________

STATE OF COLORADO, acting by and through:
The Regents of the University of Colorado
A Body Corporate
Ronald L. Ried, Director
Facilities Management Business Services

By: ________________________________

Date: ______________________________

APPROVED
DEPARTMENT OF PERSONNEL & ADMINISTRATION
STATE BUILDINGS PROGRAMS
State Architect (or authorized Delegate)
Paul M. Leef, AIA, LEED TM AP
Campus Architect & Director, Planning, Design & Construction

By: ________________________________

Date: ______________________________

ALL CONTRACTS MUST BE APPROVED BY THE STATE CONTROLLER:

CRS §24-30-202 requires the State Controller to approve all State Contracts. This Contract is not valid until signed and dated below by the State Controller or delegate. Contractor is not authorized to begin performance until such time. If Contractor begins performing prior thereto, the State of Colorado is not obligated to pay Contractor for such performance or for any goods and/or services provided hereunder.

APPROVED:
STATE OF COLORADO
STATE CONTROLLER’S OFFICE
State Controller (or authorized Delegate)
Steve McNally, Associate Vice Chancellor & Controller
By: ________________________________

Date: ______________________________

APPROVED:
STATE OF COLORADO
ATTORNEY GENERAL
(or Authorized Delegate)

By: ________________________________

Date: ______________________________
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

PERFORMANCE BOND

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684/ CAMP – Econ to Hale Waterline

BONDING COMPANY: DO NOT MAKE ANY CHANGES TO THE LANGUAGE IN THIS BOND.

KNOW ALL PERSONS BY THESE PRESENTS:

That the Contractor

as Principal and hereinafter called “Principal,”

and

as Surety and hereinafter called “Surety,” a corporation organized and existing under the laws of ________ are held and firmly bound unto the STATE OF COLORADO acting by and through the Regents of the University of Colorado, a body corporate, hereinafter called the “Principal Representative”, in the sum of ___________________________ Dollars ($____________________)

for the payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly, by these presents.

WHEREAS, the Principal and the State of Colorado acting by and through the Principal Representative have entered into a certain Contract, hereinafter called “Contract,” dated ________________________, 2010, for the construction of a PROJECT described as CAMP – Econ to Hale Waterline

which Contract is hereby by reference made a part hereof;
NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION, is such that, if the Principal shall promptly, fully and faithfully perform all the undertakings, covenants, terms, conditions and agreements of said Contract during the original term of said Contract any extensions thereof that may be granted by the Principal Representative with or without notice to the Surety, and during the life of any guaranty required under the Contract, and shall also well and truly perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

AND THE SAID SURETY, for value received hereby stipulates and agrees that whenever the Principal shall be, and declared by the Principal Representative to be in default under said Contract, the State of Colorado having performed its obligations thereunder, the Surety may promptly remedy the default or shall promptly (1) Complete the Contract in accordance with its terms and conditions, or (2) Obtain a bid or bids for submittal to the Principal Representative for completing the Contract in accordance with its terms and conditions, and upon determination by the Principal Representative and Surety of the lowest responsible bidder, arrange for a contract between such bidder and the State of Colorado acting by and through the Principal Representative and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion, less the balance of the contract price but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount hereinbefore set forth. The term “balance of the contract price” as herein used shall mean the total amount payable to the Principal under the Contract and any amendments thereto, less the amount properly paid by the State of Colorado to the Contractor.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the State of Colorado.

IN WITNESS WHEREOF said Principal and Surety have executed this Bond, this _____ day of ________________, A.D. 2010.

(Corporate Seal) THE PRINCIPAL

ATTEST:

By: ____________________________ Title: ____________________________

Secretary (Corporate Seal)

SURETY

By: ____________________________ Attorney-in-fact

THIS BOND MUST BE ACCOMPANIED BY POWER OF ATTORNEY, EFFECTIVELY DATED

Note: This bond is issued simultaneously with another bond conditioned for the full and faithful payment for all labor and material of the contract.
LABOR AND MATERIAL BOND

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684 / CAMP – Econ to Hale Waterline

BONDING COMPANY: DO NOT MAKE ANY CHANGES TO THE LANGUAGE IN THIS BOND.

KNOW ALL PERSONS BY THESE PRESENTS:

That the Contractor

as Principal and hereinafter called "Principal,"

and

as Surety and hereinafter called "Surety," a corporation organized and existing under the laws of _________________________________ are held and firmly bound unto the STATE OF COLORADO acting by

and through The Regents of the University of Colorado, a body corporate, hereinafter called "Principal Representative," and to all subcontractors and any others who have supplied or furnished or shall supply or furnish materials, rental machinery, tools, or equipment actually used in the performance of the hereinafter identified Contract, or who have performed or shall perform labor in the performance of or in connection with said Contract, hereinafter called "Obligees" in the sum of ________________________________ Dollars ($____________________)

together with interest at the rate of eight per cent (8%) per annum on all payments becoming due in accordance with said Contract, from the time such payments shall become due until such payment shall be made, for the payment of which, well and truly made to the Obligees, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly, by these presents.

WHEREAS, the Principal and the State of Colorado acting by and through the Principal Representative have entered into a certain Contract, hereinafter called "Contract," dated ________________________________ for the construction of a PROJECT described as CAMP – Econ to Hale Waterline

which Contract is hereby by reference made a part hereof;
NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal and the Surety shall fully indemnify and save harmless the State of Colorado and the Principal Representative from and against any and all costs and damages, including patent infringements, which either may suffer by reason of any failure or failures of the Principal promptly and faithfully to perform all terms and conditions of said Contract and shall fully reimburse and repay the State of Colorado and the Principal Representative all outlay and expense which the State of Colorado and the Principal Representative may incur in making good any such failure or failures, and further, if the Principal and his subcontractors shall duly and promptly pay for any and all labor, materials, team hire, sustenance, provisions, provender, rental machinery, tools, or equipment and other supplies which have been or shall be used or consumed by said Principal or his subcontractors in the performance of the work of said Contract, and it said Principal shall duly and promptly pay all his subcontractors the sums due them for any and all materials, rental machinery, tools, or equipment and labor that have been or shall be furnished, supplied, performed or used in connection with performance of said Contract, and shall also fully indemnify and save harmless the State of Colorado and the Principal Representative to the extent of any and all expenditures which either or both of them may be required to make by reason of any failures or defaults by the Principal or any subcontractor in connection with such payments; then this obligation shall be null and void, otherwise it shall remain in full force and effect.

It is expressly understood and agreed that any alterations which may be made in the terms of said Contract or in the work to be done under said Contract, or any extension(s) of time for the performance of the Contract, or any forbearance on the part of either the State of Colorado or the Principal to any of the others, shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alteration, extension or forbearance being hereby waived.

IN WITNESS WHEREOF, the Principal and the Surety have executed this Bond, this _________ day of __________________, A.D., 2010.

(Corporate Seal)  
THE PRINCIPAL  
________________________

ATTEST:

________________________  
Secretary  
(Corporate Seal)  
__________________________________

SURETY  

By: ____________________________________  
Title: ____________________________________

__________________________________

By: ____________________________________  
Attorney-in-fact

THIS BOND MUST BE ACCOMPANIED BY POWER OF ATTORNEY, EFFECTIVELY DATED

Note: This bond is issued simultaneously with another bond conditioned for the full and faithful performance of the contract.
THE GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT
DESIGN/BID/BUILD STANDARD FORMAT
(STATE FORM SC-6.23)

Project No. PR 005684
Project Name: CAMP – Econ to Hale Waterline
Project Manager: Robert A. Jordan

May 2010
TABLE OF CONTENTS

THE CONTRACT
ARTICLE 1. DEFINITIONS......................................................................................................................1
A. CONTRACT DOCUMENTS.................................................................................................................1
B. PROCEDURAL DOCUMENTS............................................................................................................1
C. DEFINITIONS OF WORDS AND TERMS USED..............................................................................2
ARTICLE 2. EXECUTION, CORRELATIONS, INTENT OF DOCUMENTS, COMMUNICATIONS AND COOPERATION.........................................................................................................................4
A. EXECUTION......................................................................................................................................4
B. CORRELATION.................................................................................................................................4
C. INTENT OF DOCUMENTS.................................................................................................................4
D. PARTNERING, COMMUNICATIONS AND COOPERATION.............................................................5
ARTICLE 3. COPIES FURNISHED...........................................................................................................5
ARTICLE 4. OWNERSHIP OF DRAWINGS............................................................................................6

THE ARCHITECT
ARTICLE 5. ARCHITECT/ENGINEER’S STATUS..................................................................................6
ARTICLE 6. ARCHITECT/ENGINEER DECISIONS AND JUDGMENTS....................................................6
A. DECISIONS.....................................................................................................................................6
B. JUDGMENTS...................................................................................................................................6
C. ACCESS TO WORK.........................................................................................................................6
D. INSPECTION..................................................................................................................................6

THE CONTRACTOR
ARTICLE 7. CONTRACTOR’S SUPERINTENDENCE AND SUPERVISION..................................................7
ARTICLE 8. MATERIALS AND EMPLOYEES........................................................................................8
ARTICLE 9. SURVEYS, PERMITS, LAWS, TAXES AND REGULATIONS................................................8
A. SURVEYS......................................................................................................................................8
B. PERMITS AND LICENSES...............................................................................................................8
C. TAXES..........................................................................................................................................8
D. LAWS AND REGULATIONS............................................................................................................9
ARTICLE 10. PROTECTION OF WORK AND PROPERTY.........................................................................9
A. GENERAL PROVISIONS................................................................................................................9
B. SAFETY PRECAUTIONS................................................................................................................9
C. EMERGENCIES..........................................................................................................................10
ARTICLE 11. DRAWINGS AND SPECIFICATIONS ON THE WORK.......................................................10
ARTICLE 12. REQUESTS FOR INFORMATION AND SCHEDULES........................................................10
A. REQUESTS FOR INFORMATION..................................................................................................10
B. SCHEDULES................................................................................................................................10
ARTICLE 13. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.......................................................12
A. SUBMITTAL PROCESS..................................................................................................................12
B. FABRICATION AND ORDERING..................................................................................................13
C. DEVIATIONS FROM DRAWINGS OR SPECIFICATIONS.............................................................13
D. CONTRACTOR REPRESENTATIONS...............................................................................................13
ARTICLE 14. SAMPLES AND TESTING...............................................................................................13
A. SAMPLES....................................................................................................................................13
B. TESTING – GENERAL...................................................................................................................14
C. TESTING – CONCRETE AND SOILS.............................................................................................14
D. TESTING – OTHER......................................................................................................................14
ARTICLE 15. SUBCONTRACTS...............................................................................................................14
ARTICLE 16. RELATIONS OF CONTRACTOR AND SUBCONTRACTOR...............................................15
ARTICLE 17. MUTUAL RESPONSIBILITY OF CONTRACTORS................................................................15
ARTICLE 18. SEPARATE CONTRACTS................................................................................................15
ARTICLE 19. USE OF PREMISES........................................................................................................16
ARTICLE 20. CUTTING, FITTING OR PATCHING................................................................................16
ARTICLE 21. UTILITIES
A. TEMPORARY UTILITIES..................................................16
B. PROTECTION OF EXISTING UTILITIES...............................16
C. CROSSING OF UTILITIES.................................................16
ARTICLE 22. UNSUITABLE CONDITIONS....................................16
ARTICLE 23. TEMPORARY FACILITIES.................................17
A. OFFICE FACILITIES....................................................17
B. TEMPORARY HEAT.......................................................17
C. WEATHER PROTECTION................................................17
D. DUST PARTITIONS.......................................................17
E. BENCH MARKS...........................................................17
F. SIGN...........................................................................17
G. SANITARY PROVISION..................................................17
ARTICLE 24. CLEANING UP....................................................18
ARTICLE 25. INSURANCE.........................................................18
A. GENERAL LIABILITY, PROPERTY DAMAGE AND AUTOMOBILE 18
B. WORKERS' COMPENSATION INSURANCE............................19
C. BUILDER'S RISK INSURANCE...........................................20
D. ADDITIONAL MISCELLANEOUS INSURANCE PROVISIONS......20
ARTICLE 26. CONTRACTOR'S PERFORMANCE AND PAYMENT BONDS..21
ARTICLE 27. LABOR AND WAGES.............................................21
ARTICLE 28. ROYALTIES AND PATENTS.................................21
ARTICLE 29. ASSIGNMENT...................................................21
ARTICLE 30. CORRECTION OF WORK BEFORE ACCEPTANCE........22
PAYMENT AND COMPENSATION
ARTICLE 31. APPLICATIONS FOR PAYMENTS............................23
A. CONTRACTOR'S SUBMITTALS..........................................23
B. ARCHITECT/ENGINEER CERTIFICATION............................23
C. RETAINAGE WITHHELD................................................23
D. RELEASE OF RETAINAGE..............................................24
ARTICLE 32. CERTIFICATES FOR PAYMENTS............................24
ARTICLE 33. PAYMENTS WITHHELD.......................................25
ARTICLE 34. DEDUCTIONS FOR UNCORRECTED WORK................25
ARTICLE 35. CHANGES IN THE WORK.....................................25
A. THE VALUE OF CHANGED WORK......................................26
B. DETAILED BREAKDOWN...............................................26
C. EMERGENCY FIELD CHANGE ORDERED WORK....................28
D. APPROPRIATION LIMITATIONS – § 24-91-103.6, C.R.S., as amended 28
ARTICLE 36. CLAIMS...........................................................29
ARTICLE 37. DIFFERING SITE CONDITIONS..............................31
A. NOTICE IN WRITING....................................................31
B. LIMITATIONS...........................................................31
ARTICLE 38. DELAYS AND EXTENSIONS OF TIME........................31
ARTICLE 39. NON-BINDING DISPUTE RESOLUTION – FACILITATED NEGOTIATIONS........................32
COMPLETION
ARTICLE 40. RIGHT OF OCCUPANCY.......................................34
ARTICLE 41. COMPLETION, FINAL INSPECTION, ACCEPTANCE AND SETTLEMENT........34
A. NOTICE OF COMPLETION..............................................34
B. FINAL INSPECTION.....................................................34
C. NOTICE OF SUBSTANTIAL COMPLETION............................35
D. NOTICE OF ACCEPTANCE.............................................36
E. SETTLEMENT...........................................................36
ARTICLE 42. GENERAL WARRANTY AND CORRECTION OF WORK AFTER ACCEPTANCE........37
ARTICLE 43. LIENS...........................................................37
General Conditions of Contract

ARTICLE 1. DEFINITIONS

A. CONTRACT DOCUMENTS
   The Contract Documents consist of:
   1. Agreement (SC-6.21);
   2. Performance Bond (SC-6.22) and Labor and Material Payment Bond (SC-6.221);
   3. General and Supplementary General Conditions of the Contract (SC-6.23);
   4. Detailed Specification Requirements, including all addenda issued prior to the opening of the bids; and,
   5. Drawings, including all addenda issued prior to the opening of the bids.
   6. Change Orders (SC-6.31) and Amendments (SC-6.0), if any, when properly executed.

B. PROCEDURAL DOCUMENTS
   The Procedural Documents used in the administration and performance of the Agreement consist of:
   1. Authorization to Bid (SBP-6.10);
   2. Information for Bidders (SBP-6.12);
   3. Bid (SBP-6.13);
   4. Bid Bond (SBP-6.14);
   5. Notice of Award (SBP-6.15);
   6. Builder's risk insurance certificates of insurance (ACORD 25-S);
   7. Liability and workers' compensation certificates of insurance;
   8. Notice to Proceed (Design/Bid/Build) (SBP-6.26);
   9. Notice of Approval of Occupancy/Use (SBP-01);
   10. Notice of Partial Substantial Completion (SBP-071);
   11. Notice of Substantial Completion (SBP-07);
   12. Notice of Partial Final Acceptance (SC-6.27);
   13. Notice of Final Acceptance (SBP-6.271);
   14. Notice of Partial Contractor's Settlement (SC-7.3);
   15. Notice of Contractor's Settlement (SBP-7.31);
   16. Application and Certificate for Contractor's Payment (SBP-7.2);
   17. Other procedural and reporting documents or forms referred to in the General Conditions, the Supplementary General Conditions, the Specifications or required by the State Buildings Programs or the Principal Representative, including but not necessarily limited to Pre-Acceptance Check List (SBP-05) and Pre-Acceptance Punch List (SBP-06), and the Building Inspection Record (SBP-BIR). A list of the current standard State Buildings Programs forms applicable to this Contract may be obtained from the Principal Representative on request.

C. DEFINITIONS OF WORDS AND TERMS USED
   1. AGREEMENT. The term "Agreement" shall mean the written agreement entered into by the State of Colorado acting by and through the Principal Representative and the Contractor for the performance of the Work and payment therefore, on State Form SC-6.21. The term
Agreement when used without reference to State Form SC-6.21 may also refer to the entirety of the parties' agreement to perform the Work described in the Contract Documents or reasonably inferable there from. The term "Contract" shall be interchangeable with this latter meaning of the term Agreement.

2. ARCHITECT/ENGINEER. The term "Architect/Engineer" shall mean either the architect of record or the engineer of record under contract to the State of Colorado for the Project identified in the Contract Documents.

3. OCCUPANCY. The term "Occupancy" means occupancy taken by the State as Owner after the Date of Substantial Completion at a time when a building or other discrete physical portion of the Project is used for the purpose intended. The Date of Occupancy shall be the date of such first use, but shall not be prior to the date of execution of the Notice of Approval of Occupancy/Use. Prior to the date of execution of a Notice of Approval of Occupancy/Use, the state shall have no right to occupy and the project may not be considered safe for occupancy for the intended use.

4. CHANGE ORDER. The term "Change Order" means a written order, signed by a Procurement Officer, directing the Contractor to make changes in the Work, in accordance with Article 35A, The Value of Changed Work.

5. COLORADO LABOR. The term "Colorado labor" shall be defined, as provided in § 8-17-101, C.R.S., as any person who is a resident of the state of Colorado, at the time of employment, without discrimination as to race, color, creed, sex, age, or religion except when sex or age is a bona fide occupational qualification, or shall have such other meaning as the term may otherwise be given in § 8-17-101, C.R.S., as amended.

6. CONTRACTOR. The word "Contractor" shall mean the person, company, firm, corporation or other legal entity entering into a contract with the State of Colorado acting by and through the Principal Representative.

7. DAYS. The term "days" whether singular or plural shall mean calendar days unless expressly stated otherwise. Where the term "business days" is used it shall mean business days of the State of Colorado.

8. DRAWINGS. The term "Drawings" shall mean all drawings approved by appropriate State officials which have been prepared by the Architect/Engineer showing the work to be done, except that where a list of drawings is specifically enumerated in the Supplementary General Conditions or division 1 of the Specifications, the term shall mean the drawings so enumerated, including all addenda drawings.

9. EMERGENCY FIELD CHANGE ORDER. The term "Emergency Field Change Order" shall mean a written change order for extra work or a change in the work necessitated by an emergency as defined in Article 35C executed on State form SC 6.31 and identified as an Emergency Field Change Order. The use of such orders is limited to emergencies and to the amounts shown in Article 35C.

10. FINAL ACCEPTANCE. The terms "final acceptance" or "finally complete" mean the stage in the progress of the work, after substantial completion, when all remaining items of work have been completed, all requirements of the Contract Documents are satisfied and the Notice of Acceptance can be issued. Discrete physical portions of the Project may be separately and partially deemed finally complete at the discretion of the Principal Representative when that portion of the Project reaches such stage of completion and a partial Notice of Acceptance can be issued.

11. NOTICE. The term "Notice" shall mean any communication in writing from either contracting party to the other by such means of delivery that receipt cannot properly be denied. Notice shall be provided to the person identified to receive it in Article 54E, Notice Identification, or to such other person as either party identifies in writing to receive Notice. Notice by facsimile transmission where proper transmission is evidence shall be adequate where facsimile numbers are included in Article 54E. Notwithstanding an email delivery or return receipt, email Notice shall not be adequate. Acknowledgment of receipt of a voice message shall not be deemed to waive the requirement that Notice, where required, shall be in writing.
12. OWNER. The term "Owner" shall mean the Principal Representative.

13. PRINCIPAL REPRESENTATIVE. The term "Principal Representative" shall be defined, as provided in § 24-30-1301(11), C.R.S., as the governing board of a state department, institution, or agency; or if there is no governing board, then the executive head of a state department, institution, or agency, as designated by the governor or the general assembly and as specifically identified in the Contract Documents, or shall have such other meaning as the term may otherwise be given in § 24-30-1301(11), C.R.S., as amended. The Principal Representative may delegate authority. The Contractor shall have the right to inquire regarding the delegated authority of any of the Principal Representative's representatives on the project and shall be provided with a response in writing when requested.

14. PROCUREMENT OFFICER. The term "Procurement Officer" means any person duly authorized to enter into and administer contracts and make written determinations with respect thereto. "Procurement Officer" includes an authorized representative of the Principal Representative acting within the limits of his or her authority.

15. PRODUCT DATA. The term "Product Data" shall mean all submittals in the form of printed manufacturer's literature, manufacturer's specifications, and catalog cuts.

16. REASONABLY INFERABLE: The phrase "reasonably inferable" means that if an item or system is either shown or specified, all material and equipment normally furnished with such items or systems and needed to make a complete installation shall be provided whether mentioned or not, omitting only such parts as are specifically excepted, and shall include only components which the Contractor could reasonably anticipate based on his or her skill and knowledge using an objective, industry standard, not a subjective standard. This term takes into consideration the normal understanding that not every detail is to be given on the Drawings and Specifications. The phrase shall not, however, be construed to make the Contractor, rather than the Architect/Engineer, responsible for producing the Drawings and Specifications.

17. SAMPLES. The term "Samples" shall mean examples of materials or work provided to establish the standard by which the Work will be judged.

18. SC. The term "SC" means "State Contract" which is used in connection with labeling applicable State form documents (e.g. "SC 6.23" is the State form number for these General Conditions of the Contract).

19. SBP. The term "SBP" means "State Buildings", which is used in connection with labeling applicable State form documents (e.g., "SBP-01" is the form number for Notice of Approval of Occupancy/Use).

20. SHOP DRAWINGS. The term "Shop Drawings" shall mean any and all detailed drawings prepared and submitted by Contractor, Subcontractor at any tier, vendors or manufacturers providing the products and equipment specified on the Drawings or called for in the Specifications.

21. SPECIFICATIONS. The term "Specifications" shall mean the requirements of divisions 1 through 17 of the project manual prepared by the Architect/Engineer describing the work to be accomplished.

22. STATE BUILDINGS PROGRAMS. The term "State Buildings Programs" is the shortened name of the division of State Buildings Programs. It shall refer to the division of the executive department of State government responsible for project administration, review, approval and coordination of plans, construction procurement policy, contractual procedures, and code compliance and inspection of all buildings, public works and improvements erected for state purposes; except public roads and highways and projects under the supervision of the division of wildlife and the division of parks and outdoor recreation as provided in § 24-30-1301, et seq., C.R.S. The term State Buildings Programs shall also mean that individual within a State Department agency or institution, including institutions of higher education, who has signed an agreement accepting delegation to perform all or part of the responsibilities and functions of State Buildings Programs.

23. SUBMITTALS. The term "submittals" means drawings, lists, tables, documents and samples prepared by the Contractor to facilitate the progress of the work as required by these General Conditions or the Drawings and Specifications. They consist of Shop Drawings, Product Data, Samples, and various administrative support documents including but not limited to lists of subcontractors, construction progress schedules, schedules of values, applications for
payment, inspection and test results, requests for information, various document logs, and as-built drawings. Submittals are required by the Contract Documents, but except to the extent expressly specified otherwise are not themselves a part of the Contract Documents.

24. SUBSTANTIAL COMPLETION. The terms "substantial completion" or "substantially complete" mean the stage in the progress of the work when the construction is sufficiently complete, in accordance with the Contract Documents as modified by any Change Orders, so that the Work, or at the discretion of the Principal Representative, any designated portion thereof, is available for its intended use by the Principal Representative and a Notice of Substantial Completion can be issued. Portions of the Project may, at the discretion of the Principal Representative, be designated as substantially complete.

25. SURETY. The term "Surety" shall mean the company providing the labor and material payment and performance bonds for the Contractor as obligor.

26. WORK. The term "Work" shall mean all or part of the labor, materials, equipment, and other services required by the Contract Documents or otherwise required to be provided by the Contractor to meet the Contractor's obligations under the Contract.

ARTICLE 2. EXECUTION, CORRELATION, INTENT OF DOCUMENTS, COMMUNICATION AND COOPERATION

A. EXECUTION

The Contractor, within ten (10) days from the date of Notice of Award, will be required to:

1. Execute the Agreement, State Form SC-6.21;
2. Furnish fully executed Performance and Labor and Material Payment Bonds on State Forms SC-6.22 and SC-6.221; and
3. Furnish certificates of insurance evidencing all required insurance on standard Acord forms designed for such purpose.
4. Furnish certified copies of any insurance policies requested by the Principal Representative.

B. CORRELATION

By execution of the Agreement the Contractor represents that the Contractor has visited the site, has become familiar with local conditions and local requirements under which the Work is to be performed, including the building code programs of the State Buildings Program as implemented by the Principal Representative, and has correlated personal observations with the requirements of the Contract Documents.

C. INTENT OF DOCUMENTS

The Contract Documents are complementary, and what is called for by any one document shall be as binding as if called for by all. The intention of the documents is to include all labor, materials, equipment and transportation necessary for the proper execution of the Work. Words describing materials or work which have a well-known technical or trade meaning shall be held to refer to such recognized standards.

In any event, if any error exists, or appears to exist, in the requirements of the Drawings or Specifications, or if any disagreement exists as to such requirements, the Contractor shall have the same explained or adjusted by the Architect/Engineer before proceeding with the work in question. In the event of the Contractor's failure to give prior written Notice of any such errors or disagreements of which the Contractor or the Subcontractors at any tier are aware, the Contractor shall, at no additional cost to the Principal Representative, make good any damage to, or defect in, work which is caused by such omission.

Where a conflict occurs between or within standards, Specifications or Drawings, which is not resolved by reference to the precedence between the Contract Documents, the more stringent or higher quality requirements shall apply so long as such more stringent or higher quality requirements are reasonably inferable. The Architect/Engineer shall decide which requirements will provide the best installation.

With the exception noted in the following paragraph, the precedence of the Contract Documents is in the following sequence:

Rev. 1/2009 4
1. The Agreement (SC-6.21);
2. The Supplementary General Conditions, if any;
3. The General Conditions (SC-6.23); and
4. Drawings and Specifications, all as modified by any addenda.

Change Orders and Amendments, if any, to the Contract Documents take precedence over the original Contract Documents.

Notwithstanding the foregoing order of precedence, the Special Provisions of Article 52 of the General Conditions, Special Provisions, shall take precedence, rule and control over all other provisions of the Contract Documents.

Unless the context otherwise requires, form numbers in this document are for convenience only. In the event of any conflict between the form required by name or context and the form required by number, the form required by name or context shall control. The Contractor may obtain State forms from the Principal Representative upon request.

D. PARTNERING, COMMUNICATIONS AND COOPERATION
In recognition of the fact that conflicts, disagreements and disputes often arise during the performance of construction contracts, the Contractor and the Principal Representative aspire to encourage a relationship of open communication and cooperation between the employees and personnel of both, in which the objectives of the Contract may be better achieved and issues resolved in a more fully informed atmosphere.

The Contractor and the Principal Representative each agree to assign an individual who shall be fully authorized to negotiate and implement a voluntary partnering plan for the purpose of facilitating open communications between them. Within thirty days (30) of the Notice to Proceed, the assigned individuals shall meet to discuss development of an informal agreement to accomplish these goals.

The assigned individuals shall endeavor to reach an informal agreement, but shall have no such obligation. Any plans these parties voluntarily agree to implement shall result in no change to the contract amount, and no costs associated with such plan or its development shall be recoverable under any contract clause. In addition, no plan developed to facilitate open communication and cooperation shall alter, amend or waive any of the rights or duties of either party under the Contract unless and except by written Amendment to the Contract, nor shall anything in this clause or any subsequently developed partnering plan be deemed to create fiduciary duties between the parties unless expressly agreed in a written Amendment to the Contract. It is also recognized that projects with relatively low contract values may not justify the expense or special efforts required. In the case of small projects with an initial Contract value under $500,000, the requirements of the preceding paragraph shall not apply.

ARTICLE 3. COPIES FURNISHED
The Contractor will be furnished, free of charge, the number of copies of Drawings and Specifications as specified in the Contract Documents, or if no number is specified, all copies reasonably necessary for the execution of the work.

ARTICLE 4. OWNERSHIP OF DRAWINGS
Drawings or Specifications, or copies of either, furnished by the Architect/Engineer, are not to be used on any other work. At the completion of the Work, at the written request of the Architect/Engineer, the Contractor shall endeavor to return all Drawings and Specifications.

The Contractor may retain the Contractor’s Contract Document set, copies of Drawings and Specifications used to contract with others for any portion of the Work and a marked up set of as-built drawings.
ARTICLE 5. ARCHITECT/ENGINEER'S STATUS
The Architect/Engineer is the representative of the Principal Representative for purposes of administration of the Contract, as provided in the Contract Documents and the Agreement. In case of termination of employment or the death of the Architect/Engineer, the Principal Representative will appoint a capable Architect/Engineer against whom the Contractor makes no reasonable objection, whose status under the Contract shall be the same as that of the former Architect/Engineer.

ARTICLE 6. ARCHITECT/ENGINEER DECISIONS AND JUDGMENTS, ACCESS TO WORK AND INSPECTION

A. DECISIONS
The Architect/Engineer shall, within a reasonable time, make decisions on all matters relating to the execution and progress of the Work or the interpretation of the Contract Documents, and in the exercise of due diligence shall be reasonably available to the Contractor to timely interpret and make decisions with respect to questions relating to the design or concerning the Contract Documents.

B. JUDGMENTS
The Architect/Engineer is, in the first instance, the judge of the performance required by the Contract Documents as it relates to compliance with the Drawings and Specifications and quality of workmanship and materials.

The Architect/Engineer shall make judgments regarding whether directed work is extra or outside the scope of Work required by the Contract Documents at the time such direction is first given. If, in the Contractor’s judgment, any performance directed by the Architect/Engineer is not required by the Contract Documents or if the Architect/Engineer does not make the judgment required, it shall be a condition precedent to the filing of any claim for additional cost related to such directed work that the Contractor, before performing such work, shall first obtain in writing, the Architect/Engineer’s written decision that such directed work is included in the performance required by the Contract Documents. If the Architect/Engineer’s direction to perform the work does not state that the work is within the performance required by the Contract Documents, the Contractor shall, in writing, request the Architect/Engineer to advise in writing whether the directed work will be considered extra work or work included in the performance required by the Contract Documents.

The Architect/Engineer shall respond to any such written request for such a decision within three (3) business days and if no response is provided, or if the Architect/Engineer’s written decision is to the effect that the work is included in the performance required by the Contract Documents, the Contractor may file with the Principal Representative and the Architect/Engineer a Notice of claim in accordance with Article 36, Claims. Whether or not a Notice of claim is filed, the Contractor shall proceed with the ordered work. Disagreement with the decision of the Architect/Engineer shall not be grounds for the Contractor to refuse to perform the work directed or to suspend or terminate performance.

C. ACCESS TO WORK
The Architect/Engineer, the Principal Representative and representatives of State Buildings Programs shall at all times have access to the work. The Contractor shall provide proper facilities for such access and for their observations or inspection of the work.

D. INSPECTION
The Architect/Engineer has agreed to make, or that structural, mechanical, electrical engineers or other consultants will make, periodic visits to the site to generally observe the progress and quality of the Work to determine in general if the Work is proceeding in accordance with the Contract Documents. Observation may extend to all or any part of the Work and to the preparation, fabrication or manufacture of materials.

Without in any way meaning to be exclusive or to limit the responsibilities of the Architect/Engineer or the Contractor, the Architect/Engineer has agreed to observe, among other aspects of the Work, the following for compliance with the Contract Documents:
1. Bearing surfaces of excavations before concrete is placed based upon the findings and recommendations of the Principal Representative's soils engineering consultant;
2. Reinforcing steel after installation and before concrete is poured;
3. Structural concrete;
4. Laboratory reports on all concrete testing based upon the findings and recommendations of the Principal Representative's testing consultant;
5. Structural steel during and after erection and prior to its being covered or enclosed;
6. Steel welding; Principal Representative will furnish steel welding inspection consultant/agency if required or necessary for the project;
7. Mechanical and plumbing work following its installation and prior to its being covered or enclosed;
8. Electrical work following its installation and prior to its being covered or enclosed;
9. Compaction testing reports based upon the findings and recommendations of the Principal Representative's testing consultant; and
10. Any special or quality control testing required in the Contract Documents provided by the Principal Representative's testing consultant.

If the Specifications, the Architect/Engineer's instructions, laws, ordinances of any public authority require any work to be specifically tested or approved, the Contractor shall give the Architect/Engineer timely notice of its readiness for observation by the Architect/Engineer or inspection by another authority, and if the inspection is by another authority, of the date fixed for such inspection, required certificates of inspection being secured by the Contractor. The Contractor shall give all required Notices to the Principal Representative or his or her designee for inspections required for the building inspection program. It shall be the responsibility of the Contractor to determine the Notice required by the State pursuant to Building Inspection Record for the Project, according to State form SBP-B.I.R., or the equivalent form required by the Principal Representative as approved by the State Buildings Program. If any such work is covered up without approval or consent of the Architect/Engineer or prior to any building code inspection, it must, if required by the Architect/Engineer, the Principal Representative or the State Buildings Programs, be uncovered for examination, at the Contractor's expense. If such work is found to be not in accordance with the Contract Documents, the Contractor shall pay such costs, unless he or she shall show that the defect in the work was caused by another contractor engaged by the Principal Representative. In that event, the Principal Representative shall pay such cost. In addition, examination of questioned work may be ordered, and if so ordered, the work must be uncovered by the Contractor. If such work be found in accordance with the Contract Documents, the Contractor shall be reimbursed the cost of examination and replacement.

ARTICLE 7. CONTRACTOR'S SUPERINTENDENCE AND SUPERVISION
The Contractor shall employ, and keep present on the Project during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Architect/Engineer and the Principal Representative. The superintendent shall not be changed except with the consent of the Architect/Engineer and the Principal Representative, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his or her employ. The superintendent shall represent the Contractor in his or her absence and all directions given to the superintendent shall be as binding as if given to the Contractor. Directions received by the superintendent shall be documented by the superintendent and confirmed in writing with the Contractor.

The Contractor shall give efficient supervision to the Work, using his or her best skill and attention. He or she shall carefully study and compare all Drawings, Specifications and other written instructions and shall without delay report any error, inconsistency or omission which he or she may discover in writing to the Architect/Engineer. The Contractor shall not be liable to the Principal Representative for damage to the extent it results from errors or deficiencies in the Contract Documents or other instructions by the Architect/Engineer, unless the Contractor knew or had reason to know, that damage would result by proceeding and the Contractor fails to so advise the Architect/Engineer.
The superintendent shall see that the Work is carried out in accordance with the Contract Documents and in a uniform, thorough and first-class manner in every respect. The Contractor's superintendent shall establish all lines, levels, and marks necessary to facilitate the operations of all concerned in the Contractor's Work. The Contractor shall lay out all work in a manner satisfactory to the Architect/Engineer, making permanent records of all lines and levels required for excavation, grading, foundations, and for all other parts of the Work.

ARTICLE 8. MATERIALS AND EMPLOYEES
Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of the Work.

Unless otherwise specified, all materials shall be new and both workmanship and materials shall be first class and of uniform quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor is fully responsible for all acts and omissions of the Contractor's employees and shall at all times enforce strict discipline and good order among employees on the site. The Contractor shall not employ on the Work any person reasonably deemed unfit by the Principal Representative or anyone not skilled in the work assigned to him.

ARTICLE 9. SURVEYS, PERMITS, LAWS, TAXES AND REGULATIONS
A. SURVEYS
The Principal Representative shall furnish all surveys, property lines and bench marks deemed necessary by the Architect/Engineer, unless otherwise specified.

B. PERMITS AND LICENSES
Permits and licenses necessary for the prosecution of the Work shall be secured and paid for by the Contractor. Unless otherwise specified in the Specifications, no local municipal or county building permit shall be required. However, State Buildings Programs requires each Principal Representative to administer a building code inspection program, the implementation of which may vary at each agency or institution of the State. The Contractors' employees shall become personally familiar with these local conditions and requirements and shall fully comply with such requirements. State electrical and plumbing permits are required, unless the requirement to obtain such permits is altered by State Building's Programs. The Contractor shall obtain and pay for such permits.

Easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Principal Representative, unless otherwise specified.

C. TAXES
1. REFUND OF SALES AND USE TAXES
The Contractor shall pay all local taxes required to be paid, including but not necessarily limited to all sales and use taxes. If requested by the Principal Representative prior to issuance of the Notice to Proceed or directed in the Supplementary General Conditions or the Specifications, the Contractor shall maintain records of such payments in respect to the Work, which shall be separate and distinct from all other records maintained by the Contractor, and the Contractor shall furnish such data as may be necessary to enable the State of Colorado, acting by and through the Principal Representative, to obtain any refunds of such taxes which may be available under the laws, ordinances, rules or regulations applicable to such taxes. When so requested or directed, the Contractor shall require Subcontractors at all tiers to pay all local sales and use taxes required to be paid and to maintain records and furnish the Contractor with such data as may be necessary to obtain refunds of the taxes paid by such Subcontractors. No State sales and use taxes are to be paid on material to be used in this Project. On application by the purchaser or seller, the Department of Revenue shall issue to a Contractor or to a
Subcontractor at any tier, a certificate or certificates of exemption per § 39-26-114(1)(d), C.R.S., and § 39-26-203, C.R.S.

2. **FEDERAL TAXES**
   The Contractor shall exclude the amount of any applicable federal excise or manufacturers’ taxes from the proposal. The Principal Representative will furnish the Contractor, on request exemption certificates.

**D. LAWS AND REGULATIONS**

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn or specified. If the Contractor observes that the Drawings or Specifications require work which is at variance therewith, the Contractor shall without delay notify the Architect/Engineer in writing and any necessary changes shall be adjusted as provided in Article 35, Changes In The Work.

The Contractor shall bear all costs arising from the performance of work required by the Drawings or Specifications that the Contractor knows to be contrary to such laws, ordinances, rules or regulations, if such work is performed without giving Notice to the Architect/Engineer.

**ARTICLE 10. PROTECTION OF WORK AND PROPERTY**

**A. GENERAL PROVISIONS**

The Contractor shall continuously maintain adequate protection of all work and materials, protect the property from injury or loss arising in connection with this Contract and adequately protect adjacent property as provided by law and the Contract Documents. The Contractor shall make good any damage, injury or loss, except to the extent:

1. Directly due to errors in the Contract Documents;
2. Caused by agents or employees of the Principal Representative; and,
3. Due to causes beyond the Contractor’s control and not to fault or negligence; provided such damage, injury or loss would not be covered by the insurance required to be carried by the Contractor;

**B. SAFETY PRECAUTIONS**

The Contractor shall take all necessary precautions for the safety of employees on the Project, and shall comply with all applicable provisions of federal, State and municipal safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the Work is being performed. He or she shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of workers and the public and shall post danger signs warning against the hazards created by such features of construction as protruding nails, hoists, well holes, elevator hatchways, scaffolding, window openings, stairways and falling materials; and he or she shall designate a responsible member of his or her organization on the Project, whose duty shall be the prevention of accidents. The name and position of any person so designated shall be reported to the Architect/Engineer by the Contractor.

The Contractor shall provide all necessary bracing, shoring and tying of all structures, decks and framing to prevent any structural failure of any material which could result in damage to property or the injury or death of persons; take all precautions to insure that no part of any structure of any description is loaded beyond its carrying capacity with anything that will endanger its safety at any time during the execution of this Contract; and provide for the adequacy and safety of all scaffolding and hoisting equipment. The Contractor shall not permit open fires within the building enclosure. The Contractor shall construct and maintain all necessary temporary drainage and do all pumping necessary to keep excavations and floors, pits and trenches free of water. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work, except as otherwise noted.
The Contractor shall take due precautions when obstructing sidewalks, streets or other public ways in any manner, and shall provide, erect and maintain barricades, temporary walkways, roadways, trench covers, colored lights or danger signals and any other devices necessary or required to assure the safe passage of pedestrians and automobiles.

C. EMERGENCIES

In an emergency affecting the safety of life or of the Work or of adjoining property, the Contractor without special instruction or authorization from the Architect/Engineer or Principal Representative, is hereby permitted to act, at his or her discretion, to prevent such threatened loss or injury; and he or she shall so act, without appeal, if so authorized or instructed. Provided the Contractor has no responsibilities for the emergency, if the Contractor incurs additional cost not otherwise recoverable from insurance or others on account of any such emergency work, the Contract sum shall be equitably adjusted in accordance with Article 35, Changes In The Work.

ARTICLE 11. DRAWINGS AND SPECIFICATIONS ON THE WORK

The Contractor shall keep on the job site one copy of the Contract Documents in good order, including current copies of all Drawings and Specifications for the Work, and any approved Shop Drawings, Product Data or Samples, and as-built drawings. As-built drawings shall be updated weekly by the Contractor and Subcontractors to reflect actual constructed conditions including dimensioned locations of underground work and the Contractor's failure to maintain such updates may be grounds to withhold portions of payments otherwise due in accordance with Article 33, Payments Withheld. All such documents shall be available to the Architect/Engineer and representatives of the State. In addition, the Contractor shall keep on the job site one copy of all approved addenda, Change Orders and requests for information issued for the Work.

The Contractor shall develop procedures to insure the currency and accuracy of as-built drawings and shall maintain on a current basis a log of requests for information and responses thereto, a Shop Drawing and Product Data submittal log, and a Sample submittal log to record the status of all necessary and required submittals.

ARTICLE 12. REQUESTS FOR INFORMATION AND SCHEDULES

A. REQUESTS FOR INFORMATION

The Architect/Engineer shall furnish additional instructions with reasonable promptness, by means of drawings or otherwise, necessary for the proper execution of the Work. All such drawings and instructions shall be consistent with the Contract Documents and reasonably inferable there from. The Architect/Engineer shall determine what additional instructions or drawings are necessary for the proper execution of the Work.

The Work shall be executed in conformity with such instructions and the Contractor shall do no work without proper drawings, specifications or instructions. If the Contractor believes additional instructions, specifications or drawings are needed for the performance of any portion of the Work, the Contractor shall give Notice of such need in writing through a request for information furnished to the Architect/Engineer sufficiently in advance of the need for such additional instructions, specifications or drawings to avoid delay and to allow the Architect/Engineer a reasonable time to respond. The Contractor shall maintain a log of the requests for information and the responses provided.

B. SCHEDULES

1. SUBMITTAL SCHEDULES

Prior to filing the Contractor 's first application for payment, a schedule shall be prepared which may be preliminary to the extent required, fixing the dates for the submission and initial review of required Shop Drawings, Product Data and Samples for the beginning of manufacture and installation of materials, and for the completion of the various parts of the Work. It shall be prepared so as to cause no delay in the Work or in the work of any other contractor. The schedule shall be subject to change from time to time in accordance with the progress of the Work, and it shall be subject to the review and approval by the Architect/Engineer. It shall fix the dates at which the various Shop Drawings Product Data and Samples will be required from
the Architect/Engineer. The Architect/Engineer, after review and agreement as to the time provided for initial review, shall review and comment on the Shop Drawings, Product Data and Samples in accordance with that schedule. The schedule shall be finalized, prepared and submitted with respect to each of the elements of the Work in time to avoid delay, considering reasonable periods for review, manufacture or installation.

At the time the schedule is prepared, the Contractor, the Architect/Engineer and Principal Representative shall jointly identify the Shop Drawing, Product Data and Samples, if any, which the Principal Representative shall receive simultaneously with the Architect/Engineer for the purposes of owner coordination with existing facility standards and systems. The Contractor shall furnish a copy for the Principal Representative when so requested. Transmittal of Shop Drawings and Product Data copies to the Principal Representative shall be solely for the convenience of the Principal Representative and shall neither create nor imply responsibility or duty of review by the Principal Representative.

The Contractor may also, or at the direction of the Principal Representative at any time shall, prepare and maintain a schedule, which may also be preliminary and subject to change to the extent required, fixing the dates for the initial responses to requests for information or for detail drawings which will be required from the Architect/Engineer to allow the beginning of manufacture, installation of materials and for the completion of the various parts of the Work. The schedule shall be subject to review and approval by the Architect/Engineer. The Architect/Engineer shall, after review and agreement, furnish responses and detail drawings in accordance with that schedule. Any such schedule shall be prepared and approved in time to avoid delay, considering reasonable periods for review, manufacture or installation, but so long as the request for information schedule is being maintained, it shall not be deemed to transfer responsibility to the Contractor for errors or omissions in the Contract Documents where circumstances make timely review and performance impossible.

The Architect/Engineer shall not unreasonably withhold approval of the Contractor's schedules and shall inform the Contractor and the Principal Representative of the basis of any refusal to agree to the Contractor's schedules. The Principal Representative shall attempt to resolve any disagreements.

2. SCHEDULE OF VALUES
Within twenty-one (21) calendar days after the date of the Notice to Proceed, the Contractor shall submit to the Architect/Engineer and Principal Representative, for approval, and to the State Buildings Programs when specifically requested, a complete itemized schedule of the values of the various parts of the Work, as estimated by the Contractor, aggregating the total price. The schedule of values shall be in such detail as the Architect/Engineer or the Principal Representative shall require, prepared on forms acceptable to the Principal Representative. It shall, at a minimum, identify on a separate line each division of the Specifications including the general conditions costs to be charged to the Project. The Contractor shall revise and resubmit the schedule of values for approval when, in the opinion of the Architect/Engineer or the Principal Representative, such resubmittal is required due to changes or modifications to the Contract Documents or the Contract sum.

The total cost of each line item so separately identified shall, when requested by the Architect/Engineer or the Principal Representative, be broken down into reasonable estimates of the value of:

a. Material, which shall include the cost of material actually built into the Project plus any local sales or use tax paid thereon; and,
b. Labor and other costs.

The cost of subcontracts shall be incorporated in the Contractor's schedule of values, and when requested by the Architect/Engineer or the Principal Representative, shall be separately shown as line items.
The Architect/Engineer shall review the proposed schedules and approve it after consultation with the Principal Representative, or advise the Contractor of any required revisions within ten (10) days of its receipt. In the event no action is taken on the submittal within ten days, the Contractor may utilize the schedule of values as its submittal for payment until it is approved or until revisions are requested.

When the Architect/Engineer deems it appropriate to facilitate certification of the amounts due to the Contractor, further breakdown of subcontracts, including breakdown by labor and materials, may be directed.

This schedule of values, when approved, will be used in preparing Contractor's applications for payment on State Form SC-7.2, Application for Payment.

3. CONSTRUCTION SCHEDULES
Within twenty-one (21) calendar days after the date of the Notice to Proceed, the Contractor shall submit to the Architect/Engineer and the Principal Representative, and to the State Buildings Programs when specifically requested, on a form acceptable to them, an overall timetable of the construction schedule for the Project. Unless the Supplementary General Conditions or the Specifications allow scheduling with bar charts or other less sophisticated scheduling tools, the Contractor's schedule shall be a critical-path method (CPM) construction schedule. The CPM schedule shall start with the date of the Notice to Proceed and include submittals activities, the various construction activities, change order work (when applicable), close-out, testing, demonstration of equipment operation when called for in the Specifications, and acceptance. The CPM shall at a minimum correlate to the schedule of values line items and shall be cost loaded if requested by the Architect/Engineer or Principal Representative. The completion time shall be the time specified in the Agreement and all Project scheduling shall allocate float utilizing the full period available for construction as specified in the Agreement on State Form SC 6.13, without indication of early completion, unless such earlier completion is approved in writing by the Principal Representative and State Building Programs.

The time shown between the starting and completion dates of the various elements within the construction schedule shall represent one hundred per cent (100%) completion of each element.

All other elements of the CPM schedule shall be as required by the Specifications. In addition, the Contractor shall submit monthly updates of the construction schedule. These updates shall reflect the Contractor's "work in place" progress.

When requested by the Architect/Engineer, the Principal Representative or the State Buildings Programs, the Contractor shall revise the construction schedule to reflect changes in the schedule of values.

When the testing of materials is required by the Specifications, the Contractor shall also prepare and submit to the Architect/Engineer and the Principal Representative a schedule for testing in accordance with Article 14, Samples and Testing.

ARTICLE 13. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES
A. SUBMITTAL PROCESS
The Contractor shall check and field verify all dimensions. The Contractor shall check, approve and submit to the Architect/Engineer in accordance with the schedule described in Article 12, Requests for Information and Schedules, all Shop Drawings, Product Data and Samples required by the specifications or required by the Contractor for the work of the various trades. All Drawings and Product Data shall contain identifying nomenclature and each submittal shall be accompanied by a letter of transmittal identifying in detail all enclosures. The number of copies of Shop Drawings and
Product Data to be submitted shall be as specified in the Specifications and if no number is specified then three copies shall be submitted.

The Architect/Engineer shall review and comment on the Shop Drawings and Product Data within the time provided in the agreed upon schedule for conformance with information given and the design concept expressed in, or reasonably inferred from, the Contract Documents. The nature of all corrections to be made to the Shop Drawings and Product Data, if any, shall be clearly noted, and the submittals shall be returned to the Contractor for such corrections. If a change in the scope of the Work is intended by revisions requested to any Shop Drawings and Product Data, the Contractor shall be requested to prepare a change proposal in accordance with Article 35, Changes In The Work. On resubmitted Shop Drawings, Product Data or Samples, the Contractor shall direct specific attention in writing on the transmittal cover to revisions other than those corrections requested by the Architect/Engineer on any previously checked submittal. The Architect/Engineer shall promptly review and comment on, and return, the resubmitted items.

The Contractor shall thereafter furnish such other copies in the form approved by the Architect/Engineer as may be needed for the prosecution of the work.

B. FABRICATION AND ORDERING
Fabrication shall be started by the Contractor only after receiving approved Shop Drawings from the Architect/Engineer. Materials shall be ordered in accordance with approved Product Data. Work which is improperly fabricated, whether through incorrect Shop Drawings, faulty workmanship or materials, will not be acceptable.

C. DEVIATIONS FROM DRAWINGS OR SPECIFICATIONS
The review and comments of the Architect/Engineer of Shop Drawings, Product Data or Samples shall not relieve the Contractor from responsibility for deviations from the Drawings or Specifications, unless he or she has in writing called the attention of the Architect/Engineer to such deviations at the time of submission, nor shall it relieve the Contractor from responsibility for errors of any sort in Shop Drawings or Product Data. Review and comments on Shop Drawings or Product Data containing identified deviations from the Contract Documents shall not be the basis for a Change Order or a claim based on a change in the scope of the Work unless Notice is given to the Architect/Engineer and Principal Representative of all additional costs, time and other impacts of the identified deviation by bring it to their attention in writing at the time the submittals are made, and any subsequent change in the Contract sum or the Contract time shall be limited to cost, time and impacts so identified.

D. CONTRACTOR REPRESENTATIONS
By preparing, approving, and/or submitting Shop Drawings, Product Data and Samples, the Contractor represents that the Contractor has determined and verified all materials, field measurements, and field construction criteria related thereto, and has checked and co-ordinated the information contained within each submittal with the requirements of the Work, the Project and the Contract Documents and prior reviews and approvals.

ARTICLE 14. SAMPLES AND TESTING
A. SAMPLES
The Contractor shall furnish for approval, with such promptness as to cause no delay in his or her work or in that of any other Contractor, all Samples as directed by the Architect/Engineer. The Architect/Engineer shall check and approve such Samples, with reasonable promptness, but only for conformance with the design intent of the Contract Documents and the Project, and for compliance with any submission requirements given in the Contract Documents.

B. TESTING - GENERAL
The Contractor shall provide such equipment and facilities as the Architect/Engineer may require for conducting field tests and for collecting and forwarding samples to be tested. Samples themselves shall not be incorporated into the Work after approval without the permission of the Architect/Engineer.
All materials or equipment proposed to be used may be tested at any time during their preparation or use. The Contractor shall furnish the required samples without charge and shall give sufficient Notice of the placing of orders to permit the testing thereof. Products may be sampled either prior to shipment or after being received at the site of the Work.

Tests shall be made by an accredited testing laboratory. Except as otherwise provided in the Specifications, sampling and testing of all materials, and the laboratory methods and testing equipment, shall be in accordance with the latest standards and tentative methods of the American Society of Testing Materials (ASTM). The cost of testing which is in addition to the requirements of the Specifications shall be paid by the Contractor if so directed by the Architect/Engineer, and the Contract sum shall be adjusted accordingly by Change Order; provided however, that whenever testing shows portions of the Work to be deficient, all costs of testing including that required to verify the adequacy of repair or replacement work shall be the responsibility of the Contractor.

C. TESTING - CONCRETE AND SOILS
Unless otherwise specified or provided elsewhere in the Contract Documents, the Principal Representative will contract for and pay for the testing of concrete and for soils compaction testing through an independent laboratory or laboratories selected and approved by the Principal Representative. The Contractor shall assume the responsibility of arranging, scheduling and coordinating the concrete sample collection efforts and soils compaction efforts. Testing shall be performed in accordance with the requirements of the Specifications, and if no requirements are specified, the Contractor shall request instructions and testing shall be as directed by the Architect/Engineer or the soils engineer, as applicable, and in accordance with standard industry practices.

The Principal Representative and the Architect/Engineer shall be given reasonable advance notice of each concrete pour and reserve the right to either increase or decrease the number of cylinders or the frequency of tests.

Soil compaction testing shall be at random locations selected by the soils engineer. In general, soils compaction testing shall be as directed by the soils engineer and shall include all substrate prior to backfill or construction.

D. TESTING - OTHER
Additional testing required by the Specifications will be accomplished and paid for by the Principal Representative in a manner similar to that for concrete and soils unless noted otherwise in the Specifications. In any case, the Contractor will be responsible for arranging, scheduling and coordinating additional tests. Where the additional testing will be contracted and paid for by the Principal Representative the Contractor shall give the Principal Representative not less than one month advance written Notice of the date the first such test will be required.

ARTICLE 15. SUBCONTRACTS
The Contractor shall, within twenty one (21) days after the date of the Notice of Award, submit to the Architect/Engineer, the Principal Representative and State Buildings Programs a preliminary list of Subcontractors. It shall be as complete as possible at the time, showing all known Subcontractors planned for the work. The list shall be supplemented as other Subcontractors are determined by the Contractor and any such supplemental list shall be submitted to the Architect/Engineer, the Principal Representative and State Buildings Programs not less than ten (10) days before the Subcontractor commences work.

The Contractor's list shall include those Subcontractors, if any, which the Contractor indicated in its bid would be employed for specific portions of the Work if such indication was requested in the bid documents issued by the State. The substitution of any Subcontractor listed in the Contractor's bid shall be justified in writing not less than ten (10) days after the date of the Notice of Award, and shall be subject to the approval of the Principal Representative. For reasons such as the Subcontractor's refusal to perform as agreed,
subsequent unavailability or later discovered bid errors, or other similar reasons, but not including the availability of a lower Subcontract price, such substitution may be approved. The Contractor shall bear any additional cost incurred by such substitutions.

The Contractor shall not employ any Subcontractor that the Architect/Engineer, within seven (7) days after the date of receipt of the Contractor’s list of Subcontractors or any supplemental list, objects to in writing as being unacceptable to either the Architect/Engineer, the Principal Representative or State Buildings Programs. If a Subcontractor is deemed unacceptable, the Contractor shall propose a substitute Subcontractor and the Contract sum shall be adjusted by any demonstrated difference between the Subcontractor’s bids, except where the Subcontractor has been debarred by the State or fails to meet qualifications of the Contract Documents to perform the work proposed.

The Contractor shall be fully responsible to the Principal Representative for the acts and omissions of Subcontractors and of persons either directly or indirectly employed by them. All instructions or orders in respect to work to be done by Subcontractors shall be given to the Contractor.

ARTICLE 16. RELATIONS OF CONTRACTOR AND SUBCONTRACTOR
The Contractor agrees to bind each Subcontractor to the terms of these General Conditions and to the requirements of the Drawings and Specifications, and any Addenda thereto, and also all the other Contract Documents, so far as applicable to the work of such Subcontractor. The Contractor further agrees to bind each Subcontractor to those terms of the General Conditions which expressly require that Subcontractors also be bound, including without limitation, requirements that Subcontractors waive all rights of subrogation, provide adequate general commercial liability and property insurance, automobile insurance and workers’ compensation insurance as provided in Article 25, Insurance.

Nothing contained in the Contract Documents shall be deemed to create any contractual relationship whatsoever between any Subcontractor and the State of Colorado acting by and through its Principal Representative.

ARTICLE 17. MUTUAL RESPONSIBILITY OF CONTRACTORS
Should the Contractor cause damage to any separate contractor on the work, the Contractor agrees, upon due Notice, to settle with such contractor by agreement, if he or she will so settle. If such separate contractor sues the Principal Representative on account of any damage alleged to have been so sustained, the Principal Representative shall notify the Contractor, who shall defend such proceedings if requested to do so by Principal Representative. If any judgment against the Principal Representative arises there from, the Contractor shall pay or satisfy it and pay all costs and reasonable attorney fees incurred by the Principal Representative, in accordance with Article 52C, Indemnification, provided the Contractor was given due Notice of an opportunity to settle.

ARTICLE 18. SEPARATE CONTRACTS
The Principal Representative reserves the right to enter into other contracts in connection with the Project or the Contract. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his or her work with theirs. If any part of the Contractor’s work depends, for proper execution or results, upon the work of any other contractor, the Contractor shall inspect and promptly report to the Architect/Engineer any defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the other contractor’s work as fit and proper for the reception of work, except as to defects which may develop in the other Contractor’s work after the execution of the Contractor’s work.

To insure the proper execution of subsequent work, the Contractor shall measure work already in place and shall at once report to the Architect/Engineer any discrepancy between the executed work and the Drawings.
ARTICLE 19. USE OF PREMISES
The Contractor shall confine apparatus, the storage of materials and the operations of workmen to limits indicated by law, ordinances, permits and any limits lines shown on the Drawings. The Contractor shall not unreasonably encumber the premises with materials.

The Contractor shall enforce all of the Architect/Engineer's instructions and prohibitions regarding, without limitation, such matters as signs, advertisements, fires and smoking.

ARTICLE 20. CUTTING, FITTING OR PATCHING
The Contractor shall do all cutting, fitting or patching of work that may be required to make its several parts come together properly and fit it to receive or be received by work of other Contractors shown upon, or reasonably inferred from, the Drawings and Specifications for the complete structure, and shall provide for such finishes to patched or fitted work as the Architect/Engineer may direct. The Contractor shall not endanger any work by cutting, excavating or otherwise altering the work and shall not cut or alter the work of any other Contractor save with the consent of the Architect/Engineer.

ARTICLE 21. UTILITIES
A. TEMPORARY UTILITIES
Unless otherwise specifically stated in the Specifications or on the Drawings, the Principal Representative shall be responsible for the locations of all utilities as shown on the Drawings or indicated elsewhere in the Specifications, subject to the Contractor's compliance with all statutory or regulatory requirements to call for utility locates. When actual conditions deviate from those shown the Contractor shall comply with the requirements of Article 37, Differing Site Conditions. The Contractor shall provide and pay for the installation of all temporary utilities required to supply all the power, light and water needed by him and other Contractors for their Work and shall install and maintain all such utilities in such manner as to protect the public and workmen and conform with any applicable laws and regulations. Upon completion of the work, he or she shall remove all such temporary utilities from the site. The Contractor shall pay for all consumption of power, light and water used by him or her and the other Contractors, without regard to whether such items are metered by temporary or permanent meters. The Superintendent shall have full authority over all trades and Subcontractors at any tier to prevent waste. The cut-off date on permanent meters shall be either the agreed date of the date of the Notice of Substantial Completion or the Notice of Approval of Occupancy/Use of the Project.

B. PROTECTION OF EXISTING UTILITIES
Where existing utilities, such as water mains, sanitary sewers, storm sewers and electrical conduits, are shown on the Drawings, the Contractor shall be responsible for the protection thereof, without regard to whether any such utilities are to be relocated or removed as a part of the Work. If any utilities are to be moved, the moving must be conducted in such manner as not to cause undue interruption or delay in the operation of the same.

C. CROSSING OF UTILITIES
When new construction crosses highways, railroads, streets, or utilities under the jurisdiction of State, city or other public agency, public utility or private entity, the Contractor shall secure proper written permission before executing such new construction. The Contractor will be required to furnish a proper release before final acceptance of the Work.

ARTICLE 22. UNSUITABLE CONDITIONS
The Contractor shall not work at any time, or permit any work to be done, under any conditions contrary to those recommended by manufacturers or industry standards which are otherwise proper, unsuited for proper execution, safety and performance. Any cost caused by ill-timed work shall be borne by the Contractor unless the timing of such work shall have been directed by the Architect/Engineer or the Principal Representative, after the award of the Contract, and the Contractor provided Notice of any additional cost.
ARTICLE 23. TEMPORARY FACILITIES

A. OFFICE FACILITIES
The Contractor shall provide and maintain without additional expense for the duration of the Project temporary office facilities, as required and as specified, for his or her own use and the use of the Architect/Engineer, representatives of the Principal Representative and State Buildings Programs.

B. TEMPORARY HEAT
The Contractor shall furnish and pay for all the labor, facilities, equipment, fuel and power necessary to supply temporary heating, ventilating and air conditioning, except to the extent otherwise specified, and shall be responsible for the installation, operation, maintenance and removal of such facilities and equipment. Unless otherwise specified, the permanent HVAC system shall not be used for temporary heat in whole or in part. If the Contractor desires to put the permanent system into use, in whole or in part, the Contractor shall set it into operation and furnish the necessary fuel and manpower to safely operate, protect and maintain that HVAC system. Any operation of all or any part of the permanent HVAC system including operation for testing purposes shall not constitute acceptance of the system, nor shall it relieve the Contractor of his or her one-year guarantee of the system from the date of the Notice of Substantial Completion of the entire Project, and if necessary due to prior operation, the Contractor shall provide manufacturers' extended warranties from the date of the Contractor's use prior to the date of the Notice of Substantial Completion.

C. WEATHER PROTECTION
The Contractor shall, at all times, provide protection against weather, so as to maintain all work, materials, apparatus and fixtures free from injury or damages.

D. DUST PARTITIONS
If the Work involves work in an occupied existing building, the Contractor shall erect and maintain during the progress of the work, suitable dust-proof temporary partitions, or more permanent partitions as specified, to protect such building and the occupants thereof.

E. BENCH MARKS
The Contractor shall maintain any site bench marks provided by the Principal Representative and shall establish any additional benchmarks specified by the Architect/Engineer as necessary for the Contractor to layout the work and ascertain all grades and levels as needed.

F. SIGN
The Contractor shall erect and permit one 4' x 8' sign only at the site to identify the Project as specified or directed by the Architect/Engineer which shall be maintained in good condition during the life of the Project.

G. SANITARY PROVISION
The Contractor shall provide and maintain suitable, clean, temporary sanitary toilet facilities for any and all workmen engaged on the Work, for the entire construction period, in strict compliance with the requirement of all applicable codes, regulations, laws and ordinances, and no other facilities, new or existing, may be used by any person on the Project. When the Project is complete the Contractor shall promptly remove them from the site, disinfect, and clean or treat the areas as required. If any new construction surfaces in the Project other than the toilet facilities provided for herein are soiled at any time, the entire areas so soiled shall be completely removed from the Project and rebuilt.

ARTICLE 24. CLEANING UP
The Contractor shall keep the building and premises free from all surplus material, waste material, dirt and rubbish caused by employees or work, and at the completion of the Work shall remove all such surplus material, waste material, dirt, and rubbish, as well as all tools, equipment and scaffolding, and shall wash and clean all window glass and plumbing fixtures, perform cleanup and cleaning required by the Specifications and leave all of the work clean unless more exact requirements are specified.
ARTICLE 25. INSURANCE

A. GENERAL LIABILITY, PROPERTY DAMAGE AND AUTOMOBILE

The Contractor shall procure and maintain comprehensive commercial general liability and property damage insurance and comprehensive automobile liability and property damage insurance as hereinafter specified, at his or her own expense, during the life of this Contract. This insurance shall include a provision preventing cancellation without forty-five (45) days’ prior Notice by certified mail and shall state whether the coverage is “claims made” or “per occurrence”. The Contractor shall obtain “per occurrence” insurance unless otherwise agreed in writing by the Principal Representative. A completed Certificate of Insurance shall be filed with State Buildings Programs within ten (10) days after the date of the Notice of Award, said Certificate to specifically state the inclusion of the coverages and provisions set forth herein.

This insurance must protect the Contractor from all claims for bodily injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with, any operations under this Contract, whether such operations be by the Contractor or by any Subcontractor under him or anyone directly or indirectly employed by the Contractor or by a Subcontractor. All such insurance shall be written with limits and coverages as specified below and shall be written on a Comprehensive Form of Policy. In the event any of the hazards or exposures, normally listed in standard policies as “Exclusions”, are involved or required under this Contract, then such hazards or exposures shall be covered and protection afforded under the policy and such exclusions (X), (c) and (u), as excerpted from standard policies, must be removed from the policy as listed below:

“(X) Injury to or destruction of any property arising out of blasting or explosion, other than the explosion of air or steam vessels, piping under pressure, prime movers, machinery of power transmitting equipment”

“(c) The collapse of or structural injury to any building or structure due to: (1) grading of land, excavating, burrowing, filling, backfilling, tunneling, pile driving, cofferdam work or caisson work; or (2) moving, shoring, underpinning, raising or demolition of any building or structure, or removal or rebuilding of any structural support thereof;”

“(u) (1) injury to or destruction of wires, conduits, pipes, mains, sewers or other similar property, or any apparatus in connection therewith, below the surface of the ground, if such injury or destruction is caused by and occurs during the use of mechanical equipment for the purpose of grading of land, paving, excavating or drilling; or, (2) injury to or destruction of property at any time resulting there from.”

Such insurance shall be written with limits and coverages as follows, and the State of Colorado shall be named as an additional insured listed on the Acord form. The additional insured endorsement shall be requested on Insurance Services Office, Inc. (ISO) endorsement form No. CG20101185. If CG20101185 is not available, the endorsement shall be furnished by CG20101093. Additionally, CG20371001 shall be included, if possible. All aggregate amounts must be specified on the Acord form.

A. Commercial General Liability (CGL), (including bodily injury, personal injury and property damage) with the following coverages depending upon format:

1. Occurrence basis policy-combined single limit of $1,000,000
2. Annual Aggregate limit policy-not less than $2,000,000
   (Acord example) Minimum limits: $1,000,000 each occurrence
   $2,000,000 general aggregate with dedicated limits per project site
   $2,000,000 products and completed operations aggregate
The following coverages shall be included in the CGL:

1. Premises-Operations
2. Explosion/Collapse Hazard
3. Underground Hazard
4. Products/Completed Operations Hazard
5. Broad Form Contractual
6. Independent Contractors
7. Broad Form Property Damage
8. Personal Injury

B. Automobile Liability and business auto liability covering liability arising out of any auto (including owned, hired and non-owned autos).

Occurrence basis policy-combined single limit of $1,000,000

(Acord example) Minimum limit: $1,000,000 combined single limit each accident

Coverages:

1. Additional insured endorsement
2. Specific waiver of subrogation
3. Contractual liability

C. Umbrella/Excess Liability (for construction projects exceeding $10,000,000, provide the following coverage): The vendor shall maintain umbrella/excess liability insurance on an occurrence basis in excess of the underlying insurance described in Sections A, B, and D, which is at least as broad as each and every area of the underlying policies. The amounts of insurance required in Sections A, B, and D may be satisfied by the vendor purchasing coverage for the limits specified or by any combination of underlying and umbrella limits, so long as the total amount of insurance is not less than the limits specified in each section previously mentioned.

(Acord example) Minimum limit: $5,000,000 combined single limit and aggregate limit

Coverages:

1. Additional insured endorsement
2. Pay on behalf of wording
3. Concurrency of effective dates with primary
4. Blanket contractual liability
5. Punitive damages coverage (where not prohibited by law)

B. WORKERS’ COMPENSATION INSURANCE

The Contractor shall procure and maintain Workers' Compensation Insurance at his or her own expense during the life of this Contract, including occupational disease provisions for all employees. This insurance, if issued by a private carrier, shall contain the same forty-five (45) days' Notice of cancellation as required in Article 25, Insurance for the Comprehensive General Liability Insurance. Evidence of such insurance shall be by the issuance of either a Certificate by the State Compensation Insurance Fund (or its successor) or, if issued by a private carrier, the completion of a Certificate of Insurance, and such Certificate shall be filed with the State Buildings Program. The Certificate shall be filed within ten (10) days after the date of the Notice of Award.

The Contractor shall also require each Subcontractor to furnish Workers' Compensation Insurance, including occupational disease provisions for all of the latter's employees, and to the extent not furnished, the Contractor accepts full liability and responsibility for Subcontractor's employees.
In cases where any class of employees engaged in hazardous work under this Contract at the site of the Project is not protected under the Workers’ Compensation statute, the Contractor shall provide, and shall cause each Subcontractor to provide, adequate and suitable insurance for the protection of employees not otherwise protected.

C. **BUILDER’S RISK INSURANCE**

Unless otherwise expressly stated in the Supplementary General Conditions (e.g. where the State elects to provide for projects with a completed value of less than $1,000,000), the Contractor shall effect and maintain a policy of insurance to provide, at Contractor’s expense, All Risk Builder’s Risk Insurance Coverage which shall be in the dollar amount of the total Project for which the Work of this Contract is to be done. Such policy may have a deductible clause but not to exceed ten thousand dollars ($10,000.00).

The Contractor shall waive all rights of subrogation as regards the State of Colorado, its officials, its officers, its agents and its employees, all while acting within the scope and course of their employment. The Insurer shall not void such insurance policy by reason of the Contractor waiving said rights. The Contractor shall require all Subcontractors at any tier to similarly waive all such rights of subrogation and shall expressly include such a waiver in all subcontracts. The insurance shall remain in effect until the Date of Notice specified on the Notice of Acceptance, State Form SBP-6.27, whether or not the building or some part thereof is occupied in any manner prior to final acceptance of the Project, and shall remain fully in effect notwithstanding any acceptance of the work of any Subcontractor on the Project. Such insurance shall be in an amount equal to the total insurable value of the construction. Upon request, the amount of such insurance shall be increased to include the cost of any additional work to be done on the Project, or materials or equipment to be incorporated in the Project, or materials or equipment to be incorporated in the Project, under other independent contracts let or to be let. In such event, the Contractor shall be reimbursed for this cost as his or her share of the insurance in the same ratio as the ratio of the insurance represented by such independent contracts let or to be let to the total insurance carried.

All such insurance shall insure the State of Colorado acting by and through its Principal Representative, the Contractor and his or her Subcontractors at any tier as their interests may appear. The insurance shall include a loss payable provision naming the State Controller, as loss payee.

The Principal Representative, with approval of the State Controller, shall have the power to adjust and settle any loss. Unless it is agreed otherwise, all monies received shall be applied first on rebuilding or repairing the destroyed or injured work.

The Certificate of Insurance shall specifically state the inclusion of the provisions herein above. A certificate for such insurance shall be filed with State Buildings Programs within ten (10) days after date of Notice of Award. The Insurance shall include a provision preventing cancellation without forty five (45) days’ prior Notice in writing by certified mail.

D. **ADDITIONAL MISCELLANEOUS INSURANCE PROVISIONS**

Certificates of Insurance and/or insurance policies required under this Contract shall be subject to the following stipulations and additional requirements:

1. The clause entitled “Other Insurance Provisions” contained in any policy including the State of Colorado as an additional named insured shall not apply to the State of Colorado;
2. Any and all deductibles or self-insured retentions contained in any Insurance policy shall be assumed by and at the sole risk of the Contractor;
3. If any of the said policies shall fail at any time to meet the requirements of the Contract Documents as to form or substance, or if a company issuing any such policy shall be or at any time cease to be approved by the Division of Insurance of the State of Colorado, or be or cease to be in compliance with any stricter requirements of the Contract Documents, the Contractor shall promptly obtain a new policy, submit the same to State Building Programs for approval if
requested, and submit a Certificate of Insurance as hereinbefore provided. Upon failure of the 
Contractor to furnish, deliver and maintain such insurance as provided herein, this Contract, in 
the sole discretion of the State of Colorado, may be immediately declared suspended, 
discontinued, or terminated. Failure of the Contractor in obtaining and/or maintaining any 
required insurance shall not relieve the Contractor from any liability under the Contract, nor 
shall the insurance requirements be construed to conflict with the obligations of the Contractor 
concerning indemnification;

4. All requisite insurance shall be obtained from financially responsible insurance companies, 
authorized to do business in the State of Colorado and acceptable to the State;

5. Receipt, review or acceptance by the State of any insurance policies or certificates of 
insurance required by this Contract shall not be construed as a waiver or relieve the Contractor 
from its obligation to meet the insurance requirements contained in these General Conditions.

ARTICLE 26. CONTRACTOR’S PERFORMANCE AND PAYMENT BONDS
The Contractor shall furnish a Performance Bond and a Labor and Material Payment Bond on State Forms 
SC-6.22, Performance Bond, and SC-6.221, Labor and Material Payment Bond, or such other forms as 
State Buildings Programs may approve for the Project, executed by a corporate Surety authorized to do 
business in the State of Colorado and in the full amount of the Contract sum. The expense of these bonds 
shall be borne by the Contractor and the bonds shall be filed with State Buildings Programs.

If, at any time, a Surety on such a bond is found to be, or ceases to be in strict compliance with any 
qualification requirements of the Contract Documents or the bid documents, or loses its right to do business 
in the State of Colorado, another Surety will be required, which the Contractor shall furnish to State 
Buildings Programs within ten (10) days after receipt of Notice from the State or after the Contractor 
otherwise becomes aware of such conditions.

ARTICLE 27. LABOR AND WAGES
In accordance with laws of Colorado, C.R.S. § 8-17-101, et. seq., as amended, Colorado labor shall be 
employed to perform the work to the extent of not less than eighty percent (80%) of each type or class of 
labor in the several classifications of skilled and common labor employed on the Project. If the Federal 
Davis-Bacon Act shall be applicable to the Project, as indicated in Article 54B, Modification of Article 27, the 
minimum wage rates to be paid on the Project will be specified in the Contract Documents.

ARTICLE 28. ROYALTIES AND PATENTS
The Contractor shall be responsible for assuring that all rights to use of products and systems have been 
properly arranged and shall take such action as may be necessary to avoid delay, at no additional charge to 
the Principal Representative, where such right is challenged during the course of the work. The Contractor 
shall pay all royalties and license fees required to be paid and shall defend all suits or claims for 
INFRINGEMENT of any patent rights and shall save the State of Colorado harmless from loss on account 
thereof, in accordance with Article 52C, Indemnification; provided, however, the Contractor shall not be 
responsible for such loss or defense for any copyright violations contained in the Contract Documents 
prepared by the Architect/Engineer or the Principal Representative of which the Contractor is unaware, or for 
any patent violations based on specified processes that the Contractor is unaware are patented or that the 
Contractor should not have had reason to believe were patented.

ARTICLE 29. ASSIGNMENT
Except as otherwise provided hereafter the Contractor shall not assign the whole or any part of this Contract 
without the written consent of the Principal Representative. This provision shall not be construed to prohibit 
assignments of the right to payment to the extent permitted by Section 4-9-406, C.R.S., as amended, 
provided that written Notice of assignment adequate to identify the rights assigned is received by the 
Principal Representative and the controller for the agency, department, or institution executing this Contract 
(as distinguished from the State Controller). Such assignment of the right to payment shall not be deemed 
valid until receipt by the Principal Representative and such controller and the Contractor assumes the risk 
that such written Notice of assignment is received by the Principal Representative and the controller for the 
agency, department, or institution involved. In case the Contractor assigns all or part of any moneys due or 
to become due under this Contract, the instrument of assignment shall contain a clause substantially to the
effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the Contractor shall be subject to all claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the work called for in this Contract, whether said service or materials were supplied prior to or after the assignment. Nothing in this Article shall be deemed a waiver of any other defenses available to the State against the Contractor or the assignee.

ARTICLE 30. CORRECTION OF WORK BEFORE ACCEPTANCE
The Contractor shall promptly remove from the premises all work or materials condemned or declared irreparably defective as failing to conform to the Contract Documents on receipt of written Notice from the Architect/Engineer or the Principal Representative, whether incorporated in the Work or not. If such materials shall have been incorporated in the Work, or if any unsatisfactory work is discovered, the Contractor shall promptly replace and re-execute his or her work in accordance with the requirements of the Contract Documents without expense to the Principal Representative, and shall also bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement of such defective material or work.

If the Contractor does not remove such condemned or irreparably defective work or material within a reasonable time, the Principal Representative may, after giving a second seven (7) day advance Notice to the Contractor and the Surety, remove them and may store the material at the Contractor's expense. The Principal Representative may accomplish the removal and replacement with its own forces or with another Contractor. If the Contractor does not pay the expense of such removal and pay all storage charges within ten (10) days thereafter, the Principal Representative may, upon ten (10) days' written Notice, sell such material at auction or at private sale and account for the net proceeds thereof, after deducting all costs and expenses which should have been borne by the Contractor. If the Contractor shall commence and diligently pursue such removal and replacement before the expiration of the seven day period, or if the Contractor shall show good cause in conjunction with submittal of a revised CPM schedule showing when the work will be performed and why such removal of condemned work should be scheduled for a later date, the Principal Representative shall not proceed to remove or replace the condemned work.

Should any defective work or material be discovered during the process of construction, or should reasonable doubt arise as to whether certain material or work is in accordance with the Contract Documents, the value of such defective or questionable material or work shall not be included in any application for payment, or if previously included, shall be deducted by the Architect/Engineer from the next application submitted by the Contractor.

If the Contractor does not perform repair, correction and replacement of defective work, in lieu of proceeding by issuance of a Notice of intent to remove condemned work as outlined above, the Principal Representative may, not less than seven (7) days after giving the original written Notice of the need to repair, correct, or replace defective work, deduct all costs and expenses of replacement or correction as instructed by the Architect/Engineer from the Contractor's next application for payment in addition to the value of the defective work or material. The Principal Representative may also make an equitable deduction from the Contract sum by unilateral Change Order, in accordance with Article 33, Payments Withheld and Article 35, Changes In The Work.

If the Contractor disagrees with the Notice to remove work or materials condemned or declared irreparably defective, the Contractor may request facilitated negotiation of the issue and the Principal Representative's right to proceed with removal and to deduct costs and expenses of repair shall be suspended and tolled until such time as the parties meet and negotiate the issue.

During construction, whenever the Architect/Engineer has advised the Contractor in writing, in the Specifications, by reference to Article 6, Architect/Engineer Decisions And Judgments, of these General Conditions or elsewhere in the Contract Documents of a need to observe materials in place prior to their being permanently covered up, it shall be the Contractor's responsibility to notify the Architect/Engineer at least forty-eight (48) hours in advance of such covering operation. If the Contractor fails to provide such notification, Contractor shall, at his or her expense, uncover such portions of the work as required by the Architect/Engineer for observation, and re-install such covering after observation. When a covering operation
is continued from day to day, notification of the commencement of a single continuing covering operation shall suffice for the activity specified so long as it proceeds regularly and without interruption from day to day, in which event the Contractor shall coordinate with the Architect/Engineer regarding the continuing covering operation.

ARTICLE 31. APPLICATIONS FOR PAYMENTS

A. CONTRACTOR’S SUBMITTALS

On or before the first day of each month and no more than five days prior thereto, the Contractor may submit applications for payment for the work performed during such month covering the portion of the Work completed as of the date indicated, and payments on account of this Contract shall be due within thirty (30) days after the last day of the period for which payment is requested. The Contractor shall submit the application for payment to the Architect/Engineer on State forms SBP-7.2, Certificate for Contractor’s Payment, or such other format as the State Buildings Programs shall approve, in an itemized format in accordance with the schedule of values or a cost loaded CPM when required, supported to the extent reasonably required by the Architect/Engineer or the Principal Representative by receipts or other vouchers, showing payments for materials and labor, prior payments and payments to be made to Subcontractors and such other evidence of the Contractor’s right to payments as the Architect/Engineer or Principal Representative may direct.

If payments are made on account of materials not incorporated in the Work but delivered and suitably stored at the site, or at some other location agreed upon in writing, such payments shall be conditioned upon submission by the Contractor of bills of sale or such other procedure as will establish the Principal Representative’s title to such material or otherwise adequately protect the Principal Representative’s interests, and shall provide proof of insurance whenever requested by the Principal Representative or the Architect/Engineer, and shall be subject to the right to inspect the materials at the request of either the Architect/Engineer or the Principal Representative.

All applications for payment, except the final application, and the payments there under, shall be subject to correction in the next application rendered following the discovery of any error.

B. ARCHITECT/ENGINEER CERTIFICATION

In accordance with the Architect/Engineer’s agreement with the Principal Representative, the Architect/Engineer after appropriate observation of the progress of the work shall certify to the Principal Representative the amount that the Contractor is entitled to, and forward the application to the Principal Representative. If the Architect/Engineer certifies an amount different from the amount requested or otherwise alters the Contractor’s application for payment, a copy shall be forwarded to the Contractor.

If the Architect/Engineer is unable to certify all or portions of the amount requested due to the absence or lack of required supporting evidence, the Architect/Engineer shall advise the Contractor of the deficiency. If the deficiency is not corrected at the end of ten (10) days, the Architect/Engineer may either certify the remaining amounts properly supported to which the Contractor is entitled, or return the application for payment to the Contractor for revision with a written explanation as to why it could not be certified.

C. RETAINAGE WITHHELD

Unless otherwise provided in the Supplementary General Conditions, an amount equivalent to ten percent (10%) of the amount shown to be due the Contractor on each application for payment shall be withheld until fifty percent (50%) of the work required by the Contract has been performed. Thereafter, the remaining Certificates for Contractor’s Payment (SBP-7.2) shall be paid without retaining additional funds, if in the opinion of the Architect/Engineer and the Principal Representative, satisfactory progress is being made in the Work. The withheld percentage of the contract price of any such work, improvement, or construction shall be administered according to § 24-91-101, et seq., C.R.S., as amended, and except as provided in § 24-91-103, C.R.S., as amended, and Article 31D, shall be
retained until the Work or discrete portions of the Work, have been completed satisfactorily, finally or partially accepted, and advertised for final settlement as further provided in Article 41.

D. RELEASE OF RETAINAGE

The Contractor may, for satisfactory and substantial reasons shown to the Principal Representative's satisfaction, make a written request to the Principal Representative and the Architect/Engineer for release of part or all of the withheld percentage applicable to the work of a Subcontractor which has completed the subcontracted work in a manner finally acceptable to the Architect/Engineer, the Contractor, and the Principal Representative. Any such request shall be supported by a written approval from the Surety furnishing the Contractor's bonds and any surety that has provided a bond for the Subcontractor. The release of any such withheld percentage shall be further supported by such other evidence as the Architect/Engineer or the Principal Representative may require, including but not limited to, evidence of prior payments made to the Subcontractor, copies of the Subcontractor's contract with the Contractor, any applicable warranties, as-built information, maintenance manuals and other customary close-out documentation. Neither the Principal Representative nor the Architect Engineer shall be obligated to review such documentation nor shall they be deemed to assume any obligations to third parties by any review undertaken.

The Contractor's obligation under these General Conditions to guarantee work for one year from the date of the Notice of Substantial Completion or the date of any Notice of Partial Substantial Completion of the applicable portion or phase of the Project, shall be unaffected by such partial release; unless a Notice of Partial Substantial Completion is issued for the work subject to the release of retainage.

Any rights of the Principal Representative which might be terminated by or from the date of any final acceptance of the Work, whether at common law or by the terms of this Contract, shall not be affected by such partial release of retainage prior to any final acceptance of the entire Project.

The Contractor remains fully responsible for the Subcontractor's work and assumes any risk that might arise by virtue of the partial release to the Subcontractor of the withheld percentage, including the risk that the Subcontractor may not have fully paid for all materials, labor and equipment furnished to the Project.

If the Principal Representative considers the Contractor's request for such release satisfactory and supported by substantial reasons, the Architect/Engineer shall make a "final inspection" of the applicable portion of the Project to determine whether the Subcontractor's work has been completed in accordance with the Contract Documents. A final punch list shall be made for the Subcontractor's work and the procedures of Article 41, Completion, Final Inspection, Acceptance and Settlement, shall be followed for that portion of the work, except that advertisement of the intent to make final payment to the Subcontractor shall be required only if the Principal Representative has reason to believe that a supplier or Subcontractor to the Subcontractor for which the request is made, may not have been fully paid for all labor and materials furnished to the Project.

ARTICLE 32. CERTIFICATES FOR PAYMENTS

State Form SBP-7.2, Certificate For Contractor's Payment, and its continuation detail sheets, when submitted, shall constitute the Certificate of Contractor's Application for Payment, and shall be a representation by the Contractor to the Principal Representative that the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and materials for which payment is requested have been incorporated into the Project except as noted in the application. If requested by the Principal Representative the Certificate of Contractor's Application for Payment shall be sworn under oath and notarized.

ARTICLE 33. PAYMENTS WITHHELD

The Architect/Engineer, the Principal Representative or State Buildings Programs may withhold, or on account of subsequently discovered evidence nullify, the whole or any part of any application on account of, but not limited to any of the following:
1. Defective work not remedied;
2. Claims filed or reasonable evidence indicating probable filing of claims;
3. Failure of the Contractor to make payments to Subcontractors for material or labor;
4. A reasonable doubt that the Contract can be completed for the balance of the contract price then unpaid;
5. Damage or injury to another contractor or any other person, persons or property except to the extent of
   coverage by a policy of insurance;
6. Failure to obtain necessary permits or licenses or to comply with applicable laws, ordinances, codes,
   rules or regulations or the directions of the Architect/Engineer;
7. Failure to submit a monthly construction schedule;
8. Failure of the Contractor to keep work progressing in accordance with the time schedule;
9. Failure to keep a superintendent on the work;
10. Failure to maintain as built drawings of the work in progress;
11. Unauthorized deviations by the Contractor from the Contract Documents; or
12. On account of liquidated damages.

In addition, the Architect Engineer, Principal Representative or State Buildings Programs may withhold or
nullify the whole or any part of any application for any reason noted elsewhere in these General Conditions
of the Contract. Nullification shall mean reduction of amounts shown as previously paid on the application.
The amount withheld or nullified may be in such amount as the Architect/Engineer or the Principal
Representative estimates to be required to allow the State to accomplish the Work, cure the failure and
cover any damages or injuries, including an allowance for attorneys fees and costs where appropriate.
When the grounds for such withholding or nullifying are removed, payment shall be made for the amounts
thus withheld or nullified on such grounds.

ARTICLE 34. DEDUCTIONS FOR UNCORRECTED WORK

If the Architect/Engineer and the Principal Representative deem it inequitable to correct work injured or not
performed in accordance with the Contract Documents, the Principal Representative may, after consultation
with the Architect/Engineer and ten (10) days' Notice to the Contractor of intent to do so, make reasonable
reductions from the amounts otherwise due the Contractor on the next application for payment. Notice shall
specify the amount or terms of any contemplated reduction. The Contractor may during this period elect to
correct or perform the work. If the Contractor does not elect to correct or perform the work, an equitable
deduction from the Contract sum shall be made by Change Order, in accordance with Article 35, Changes In
The Work, unilaterally if necessary. If either party elects facilitation of this issue after Notice is given, the
ten-day notice period shall be extended and tolled until facilitation has occurred.

ARTICLE 35. CHANGES IN THE WORK

The Principal Representative, or such other Procurement Officer as the Principal Representative may
designate, without invalidating the Agreement, and with the approval of State Buildings Programs and the
State Controller, may order extra work or make changes with or without the consent of the Contractor as
hereafter provided, by altering, adding to or deducting from the Work, the Contract sum being adjusted
accordingly. All such changes in the Work shall be within the general scope of and be executed under the
conditions of the Contract, except that any claim for extension of time made necessary due to the change or
any claim of other delay or other impacts caused by or resulting from the change in the Work shall be
presented by the Contractor and adjusted by Change Order to the extent known at the time such change is
ordered and before proceeding with the extra or changed work. Any claims for extension of time or of delay
or other impacts, and any costs associated with extension of time, delay or other impacts, which are not
presented before proceeding with the change in the Work, and which are not adjusted by Change Order to
the extent known, shall be waived.

The Architect/Engineer shall have authority to make minor changes in the Work, not involving extra cost, and
not inconsistent with the intent of the Contract Documents, but otherwise, except in an emergency
endangering life or property, no extra work or change in the Contract Documents shall be made unless by 1)
a written Change Order, approved by the Principal Representative, State Buildings Programs, and the State
Controller prior to proceeding with the changed work; or 2) by an Emergency Field Change Order approved
by the Principal Representative and State Buildings Programs as hereafter provided in Article 35C, Emergency Field Ordered Changed Work; or 3) by an allocation in writing of any allowance already provided in the encumbered contract amount, the Contract sum being later adjusted to decrease the Contract sum by any unallocated or unexpended amounts remaining in such allowance. No change to the Contract sum shall be valid unless so ordered.

A. THE VALUE OF CHANGED WORK

1. The value of any extra work or changes in the Work shall be determined by agreement in one or more of the following ways:
   a. By estimate and acceptance of a lump-sum amount;
   b. By unit prices specified in the Agreement, or subsequently agreed upon, that are extended by specific quantities;
   c. By actual cost plus a fixed fee in a lump sum amount for profit, overhead and all indirect and off-site home office costs, the latter amount agreed upon in writing prior to starting the extra or changed work.

2. Where the Contractor and the Principal Representative cannot agree on the value of extra work, the Principal Representative may order the Contractor to perform the changes in the Work and a Change Order may be unilaterally issued based on an estimate of the change in the Work prepared by the Architect/Engineer. The value of the change in the Work shall be the Principal Representative's determination of the amount of equitable adjustment attributable to the extra work or change. The Principal Representative's determination shall be subject to appeal by the Contractor pursuant to the claims process in Article 36, Claims. The Principal Representative is the Procurement Officer for purposes of all of the remedies provisions of the Contract.

3. Except as otherwise provided in Article 35B, Detailed Breakdown, below, the Cost Principles of the Colorado Procurement Rules in effect on the date of this Contract, pursuant to § 24-107-101, C.R.S., as amended, shall govern all Contract changes.

B. DETAILED BREAKDOWN

In all cases where the value of the extra or changed work is not known based on unit prices in the Contractor's bid or the Agreement, a detailed change proposal shall be submitted by the Contractor on a Change Order Proposal (SC-6.312), or in such other format as the State Buildings Program approves, with which the Principal Representative may require an itemized list of materials, equipment and labor, indicating quantities, time and cost for completion of the changed work.

Such detailed change proposals shall be stated in lump sum amounts and shall be supported by a separate breakdown, which shall include estimates of all or part of the following when requested by the Architect/Engineer or the Principal Representative:

1. Materials, indicating quantities and unit prices including taxes and delivery costs if any (separated where appropriate into general, mechanical and electrical and/or other Subcontractors' work; and the Principal Representative may require in its discretion any significant subcontract costs to be similarly and separately broken down).
2. Labor costs, indicating hourly rates and time and labor burden to include Social Security and other payroll taxes such as unemployment, benefits and other customary burdens.
3. Costs of project management time and superintendence time of personnel stationed at the site, and other field supervision time, but only where a time extension, other than a weather delay, is approved as part of the Change Order, and only where such project management time and superintendence time is directly attributable to and required by the change; provided however that additional cost of on-site superintendence shall be allowable whenever in the opinion of the Architect/Engineer the impact of multiple change requests to be concurrently performed will result in inadequate levels of supervision to assure a proper result unless additional superintendence is provided.
4. Construction equipment (including small tools). Expenses for equipment and fuel shall be based on customary commercially reasonable rental rates and schedules. Equipment and hand tool costs shall not include the cost of items customarily owned by workers.

5. Workers' compensation costs, if not included in labor burden.

6. The cost of commercial general liability and property damage insurance premiums but only to the extent charged the Contractor as a result of the changed work.

7. Overhead and profit, as hereafter specified.

8. Builder's risk insurance premium costs.

9. Bond premium costs.

10. Testing costs not otherwise excluded by these General Conditions.

11. Subcontract costs.

Unless modified in the Supplementary General Conditions, overhead and profit shall not exceed the percentages set forth in the table below.

<table>
<thead>
<tr>
<th></th>
<th>OVERHEAD</th>
<th>PROFIT</th>
<th>COMMISSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>To the Contractor or to Subcontractors for the portion of work performed with their own forces:</td>
<td>10%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>To the Contractor or to Subcontractors for work performed by others at a tier immediately below either of them:</td>
<td>5%</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

Overhead shall include: a) insurance premium for policies not purchased for the Project and itemized above, b) home office costs for office management, administrative and supervisory personnel and assistants, c) estimating and change order preparation costs, d) incidental job burdens, e) legal costs, f) data processing costs, g) interest costs on capital, h) general office expenses except those attributable to increased rental expenses for temporary facilities, and all other indirect costs, but shall not include the Social Security tax and other direct labor burdens. The term "work" as used in the proceeding table shall include labor, materials and equipment and the "Commission" shall include all costs and profit for carrying the subcontracted work at the tiers below except direct costs as listed in items 1 through 11 above if any.

On proposals for work involving both additions and credits in the amount of the Contract sum, the overhead and profit will be allowed on the net increase only. On proposals resulting in a net deduct to the amount of the Contract sum, profit on the deducted amount shall be returned to the Principal Representative at fifty percent (50%) of the rate specified. The inadequacy of the profit specified shall not be a basis for refusal to submit a proposal.

Except in the case of Change Orders or Emergency Field Change Orders agreed to on the basis of a lump sum amount or unit prices as described in paragraphs 35A1 and 35A2 above, The Value of Changed Work, the Contractor shall keep and present a correct and fully auditable account of the several items of cost, together with vouchers, receipts, time cards and other proof of costs incurred, summarized on a Change Order form (SC-6.31) using such format for supporting documentation as the Principal Representative and State Buildings Programs approve. This requirement applies equally to work done by Subcontractors. Only auditable costs shall be reimbursable on Change Orders where the value is determined on the basis of actual cost plus a fixed fee pursuant to paragraph 35A3 above, or where unilaterally determined by the Principal Representative on the basis of an equitable adjustment in accordance with the Procurement Rules, as described above in Article 35A, The Value Of Changed Work.

Except for proposals for work involving both additions and credits, changed work shall be adjusted and considered separately for work either added or omitted. The amount of adjustment for work omitted shall be estimated at the time it is directed to be omitted, and when reasonable to do so, the agreed

Rev. 1/2009 27
adjustment shall be reflected on the schedule of values used for the next Contractor’s application for payment.

The Principal Representative reserves the right to contract with any person or firm other than the Contractor for any or all extra work; however, unless specifically required in the Contract Documents, the Contractor shall have no responsibility without additional compensation to supervise or coordinate the work of persons or firms separately contracted by the Principal Representative.

C. **EMERGENCY FIELD CHANGE ORDERED WORK**

The Principal Representative, without invalidating the Agreement, and with the approval of State Buildings Programs and without the approval of the State Controller, may order extra work or make changes in the case of an emergency that is a threat to life or property or where the likelihood of delays in processing a normal Change Order will result in substantial delays and or significant cost increases for the Project. Emergency Field Orders are not to be used solely to expedite normal Change Order processing absent a clear showing of a high potential for significant and substantial cost or delay. Such changes in the Work may be directed through issuance of an Emergency Field Change Order signed by the Contractor, the Principal Representative (or by a designee specifically appointed to do so in writing), and approved by the Director of State Buildings Program or his or her delegate. The change shall be directed using a State Change Order form (SC-6.31), modified with the words “Emergency Field Change Order” at the top.

If the amount of the adjustment of the Contract price and time for completion can be determined at the time of issuance of the Emergency Field Change Order, those adjustments shall be reflected on the face of the Emergency Field Change Order. Otherwise, the Emergency Field Change Order shall reflect a not to exceed (NTE) amount for any schedule adjustment (increasing or decreasing the time for completion) and an NTE amount for any adjustment to Contract sum, which NTE amount shall represent the maximum amount of adjustment to which the Contractor will be entitled, including direct and indirect costs of changed work, as well as any direct or indirect costs attributable to delays, inefficiencies or other impacts arising out of the change. Emergency Field Change Orders directed in accordance with this provision need not bear the approval signatures of the State Controller.

On Emergency Field Change Orders where the price and schedule have not been finally determined, the Contractor shall submit final costs for adjustment as soon as practicable. No later than seven (7) days after issuance, except as otherwise permitted, and every seven days thereafter, the Contractor shall report all costs to the Principal Representative and the Architect/Engineer. Weekly cost reports and the final adjustment of the Emergency Field Change Orders amount and the adjustment to the Project time for completion shall be prepared in accordance with the procedures described in Article 35A, The Value of Changed Work, and B, Detailed Breakdown, above. Unless otherwise provided in writing signed by the Director of State Buildings Programs to the Principal Representative and the Contractor, describing the extent and limits of any greater authority, individual Emergency Field Change Orders shall not be issued for more than $25,000, nor shall the cumulative value of Emergency Field Change Orders exceed an amount of $100,000.

D. **APPROPRIATION LIMITATIONS - § 24-91-103.6, C.R.S., as amended**

The amount of money appropriated, as shown on the Agreement (SC 6.21), is equal to or in excess of the Contract amount. No Change Order, Emergency Field Change Order, or other type of order or directive shall be issued by the Principal Representative, or any agent acting on his or her behalf, which directs additional compensable work to be performed, which work causes the aggregate amount payable under the Contract to exceed the amount appropriated for the original Contract, as shown on the Agreement (SC-6.13), unless one of the following occurs: (1) the Contractor is provided written assurance from the Principal Representative that sufficient additional lawful appropriations exist to cover the cost of the additional work; or (2) the work is covered by a contractor remedy provision under the Contract, such as a claim for extra cost. By way of example only, no assurance is required for any order, directive or instruction by the Architect/Engineer or the Principal Representative to perform work which is determined to be within the performance required by the Contract Documents; the Contractor’s remedy shall be as described elsewhere in these General Conditions.
Written assurance shall be in the form of an Amendment to the Contract reciting the source and amount of such appropriation available for the Project. No remedy granting provision of this Contract shall obligate the Principal Representative to seek appropriations to cover costs in excess of the amounts recited as available to pay for the work to be performed.

ARTICLE 36. CLAIMS

It is the intent of these General Conditions to provide procedures for speedy and timely resolution of disagreements and disputes at the lowest level possible. In the spirit of on the job resolution of job site issues, the parties are encouraged to use the partnering processes of Article 2D, Partnering, Communications and Cooperation, before turning to the more formal claims processes described in this Article 36, Claims. The use of non-binding dispute resolution, whether through the formal processes described in Article 39, Non-Binding Dispute Resolution - Facilitated Negotiations, or through less formal alternative processes developed as part of a partnering plan, are also encouraged. Where such process cannot resolve the issues in dispute, the claims process that follows is intended to cause the issues to be presented, decided and where necessary, documented in close proximity to the events from which the issues arise. To that end, and in summary of the remedy granting process that follows commencing with the next paragraph of this Article 36, Claims, the Contractor shall 1) first, seek a decision by the Architect/Engineer, and 2) shall second, informally present the claim to Principal Representative as described hereafter, and 3) failing resolution in the field, give Notice of intent to exercise statutory rights of review of a formal contract controversy, and 4) seek resolution outside the Contract as provided by the Procurement Code.

If the Contractor claims that any instructions, by detailed drawings, or otherwise, or any other act or omission of the Architect/Engineer or Principal Representative affecting the scope of the Contractor's work, involve extra cost, extra time or changes in the scope of the Work under this Contract, the Contractor shall have the right to assert a claim for such costs or time, provided that before either proceeding to execute such work (except in an emergency endangering life or property), or filing a Notice of claim, the Contractor shall have obtained or requested a written decision of the Architect/Engineer following the procedures as provided in Article 6A and B, Architect/Engineer Decisions and Judgments, respectively; provided, however, that in the case of a directed change in the Work pursuant to Article 36A4, no written judgment or decision of the Architect/Engineer is required. If the Contractor is delayed by the lack of a response to a request for a decision by the Architect/Engineer, the Contractor shall give Notice in accordance with Article 38, Delays And Extensions Of Time.

Unless it is the Architect/Engineer's judgment and determination that the work is not included in the performance required by the Contract Documents, the Contractor shall proceed with the work as originally directed. Where the Contractor's claim involves a dispute concerning the value of work unilaterally directed pursuant to Article 35A4 the Contractor shall also proceed with the work as originally directed while his or her claim is being considered.

The Contractor shall give the Principal Representative and the Architect/Engineer Notice of any claim promptly after the receipt of the Architect/Engineer's decision, but in no case later than three (3) business days after receipt of the Architect/Engineer's decision (or no later than ten (10) days from the date of the Contractor's request for a decision when the Architect/Engineer fails to decide as provided in Article 6). The Notice of claim shall state the grounds for the claim and the amount of the claim to the extent known in accordance with the procedures of Article 35, Changes In The Work. The period in which Notice must be given may be extended by the Principal Representative if requested in writing by the Contractor with good cause shown, but any such extension to be effective shall be in writing.

The Principal Representative shall respond in writing, with a copy to the Architect/Engineer, within a reasonable time, and except where a request for facilitation of negotiation has been made as hereafter provided, in no case later than seven (7) business days (or at such other time as the Contractor and Principal Representative agree) after receipt of the Contractor's Notice of claim regarding such instructions or alleged act or omission. If no response to the Contractor's claim is received within seven (7) business days of Contractor's Notice (or at such other time as the Contractor and Principal Representative agree) and
the instructions have not been retracted, it shall be deemed that the Principal Representative has denied the claim.

The Principal Representative may grant or deny the claim in whole or in part, and a Change Order shall be issued if the claim is granted. To the extent any portion of claim is granted where costs are not clearly shown, the Principal Representative may direct that the value of that portion of the work be determined by any method allowed in Article 35A, The Value Of Changed Work. Except in the case of a deemed denial, the Principal Representative shall provide a written explanation regarding any portion of the Contractor's claim that is denied.

If the Contractor disagrees with the Principal Representative’s judgment and determination on the claim and seeks an equitable adjustment of the Contract sum or time for performance, he or she shall give Notice of intent to exercise his or her statutory right to seek a decision on the contract controversy within ten (10) days of receipt of the Principal Representative’s decision denying the claim. A “contract controversy,” as such term is used in the Colorado Procurement Code, § 24-109-106, C.R.S., shall not arise until the initial claim process described above in this Article 36 has been properly exhausted by the Contractor. The Contractor's failure to proceed with work directed by the Architect/Engineer or to exhaust the claim process provided above in this Article 36, shall constitute an abandonment of the claim by the Contractor and a waiver of the right to contest the decision in any forum.

At the time of filing the Notice of intent to exercise his or her statutory right to seek a decision on the contract controversy, the Contractor may request that the Principal Representative defer a decision on the contract controversy until a later date or until the end of the Project. If the Principal Representative agrees, he or she shall so advise the Contractor in writing. If no such request is made, or if the Principal Representative does not agree to such a request, the Principal Representative shall render a written decision within twenty (20) business days and advise the Contractor of the reasons for any denial. Unless the claim has been decided by the Principal Representative (as opposed to delegates of the Principal Representative), the person who renders the decision on this statutory contract controversy shall not be the same person who decided the claim. To the extent any portion of the contract controversy is granted where costs are not clearly shown, the Principal Representative may direct that the value of that portion of the work be determined by any method allowed in Article 35A, The Value Of Changed Work. In the event of a denial the Principal Representative shall give Notice to the Contractor of his or her right to administrative and judicial reviews as provided in the Colorado Procurement Code, § 24-109-201 et seq, C.R.S., as amended. If no decision regarding the contract controversy is issued within twenty (20) business days of the Contractor’s giving Notice (or such other date as the Contractor and Principal Representative have agreed), and the instructions have not been retracted or the alleged act or omission have not been corrected, it shall be deemed that the Principal Representative has ruled by denial on the contract controversy. Except in the case of a deemed denial, the Principal Representative shall provide an explanation regarding any portion of the contract controversy that involves denial of the Contractor’s claim.

Either the Contractor or the Principal Representative may request facilitation of negotiations concerning the claim or the contract controversy, and if requested, the parties shall consult and negotiate before the Principal Representative decides the issue. Any request for facilitation by the Contractor shall be made at the time of the giving of Notice of the claim or Notice of the contract controversy. Facilitation shall extend the time for the Principal Representative to respond by commencing the applicable period at the completion of the facilitated negotiation, which shall be the last day of the parties’ meeting, unless otherwise agreed in writing.

Disagreement with the decision of the Architect Engineer, or the decision of the Principal Representative to deny any claim or denying the contract controversy, shall not be grounds for the Contractor to refuse to perform the work directed or to suspend or terminate performance. During the period that any claim or contract controversy decision is pending under this Article 36, Claims, the Contractor shall proceed diligently with the work directed.

In all cases where the Contractor proceeds with the work and seeks equitable adjustment by filing a claim and or statutory appeal, the Contractor shall keep a correct account of the extra cost, in accordance with
Article 35B, Detailed Breakdown supported by receipts. The Principal Representative shall be entitled to reject any claim or contract controversy whenever the foregoing procedures are not followed and such accounts and receipts are not presented.

The payments to the Contractor in respect of such extra costs shall be limited to reimbursement for the current additional expenditure by the Contractor made necessary by the change in the work, plus a reasonable amount for overhead and profit, determined in accordance with Article 35B, Detailed Breakdown, determined solely with reference to the additional work, if any, required by the change.

ARTICLE 37. DIFFERING SITE CONDITIONS

A. NOTICE INWRITING

The Contractor shall promptly, and where possible before conditions are disturbed, give the Architect/Engineer and the Principal Representative Notice in writing of:

1. subsurface or latent physical conditions at the site differing materially from those indicated in or reasonably assumed from the information provided in the Contract Documents; and,

2. unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

The Architect/Engineer shall promptly investigate the conditions, and if it is found that such conditions do materially so differ and cause an increase or decrease in the Contractor’s costs of performance of any part of the work required by the Contract Documents, whether or not such work is changed as a result of such conditions, an equitable adjustment shall be made and the Contract sum shall be modified in accordance with Article 35, Changes In The Work.

If the time required for completion of the work affected by such materially differing conditions will extend the work on the critical path as indicated on the CPM schedule, the time for completion shall also be equitably adjusted.

B. LIMITATIONS

No claim of the Contractor under this clause shall be allowed unless the Contractor has given the Notice required in Article 37A, Notice in Writing, above. The time prescribed for presentation and adjustment in Articles 36, Claims and 38, Delays And Extensions Of Time, shall be reasonably extended by the State to the extent required by the nature of the differing conditions; provided, however, that even when so extended no claim by the Contractor for an equitable adjustment hereunder shall be allowed if not quantified and presented prior to the date the Contractor requests a final inspection pursuant to Article 41A, Notice Of Completion.

ARTICLE 38. DELAYS AND EXTENSIONS OF TIME

If the Contractor is delayed at any time in the progress of the Work by any act or neglect of the State of Colorado or the Architect/Engineer, or of any employee or agent of either, or by any separately employed Contractor or by strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties or any other causes beyond the Contractor’s control, including weather delays as defined below, the time of Completion of the Work shall be extended for a period equal to such portion of the period of delays directly affecting the completion of the Work as the Contractor shall be able to show he or she could not have avoided by the exercise of due diligence.

The Contractor shall provide Notice in writing to the Architect/Engineer, the Principal Representative and State Buildings Programs within three (3) business days from the beginning of such delay and shall file a written claim for an extension of time within seven (7) business days after the period of such delay has ceased, otherwise, any claim for an extension of time is waived.

Provided that the Contractor has submitted reasonable schedules for approval when required by Article 12, Requests for Information and Schedules, if no schedule is agreed to fixing the dates on which the responses
to requests for information or detail drawings will be needed, or Shop Drawings, Product Data or Samples are to be reviewed as required or allowed by Article 12B, Schedules, no extension of time will be allowed for the Architect/Engineer's failure to furnish such detail drawings as needed, or for the failure to initially review Shop Drawings, Product Data or Samples, except in respect of that part of any delay in furnishing detail drawings or instructions extending beyond a reasonable period after written demand for such detailed drawings or instructions is received by the Architect/Engineer. In any event, any claim for an extension of time for such cause will be recognized only to the extent of delay directly caused by failure to furnish detail drawings or instructions or to review Shop Drawings, Product Data or Samples pursuant to schedule, after such demand.

All claims for extension of time due to a delay claimed to arise or result from ordered changes in the scope of the Work, or due to instructions claimed to increase the scope of the Work, shall be presented to the Architect/Engineer, the Principal Representative and State Buildings Programs as part of a claim for extra cost, if any, in accordance with Article 36, Claims, and in accordance with the Change Order procedures required by Article 35, Changes In The Work.

Except as otherwise provided in this paragraph, no extension of time shall be granted when the Contractor has failed to utilize a CPM schedule or otherwise identify the Project's critical path as specified in Article 12, Requests for Information and Schedules, or has elected not to do so when allowed by the Supplementary General Conditions or the Specifications to use less sophisticated scheduling tools, or has failed to maintain such a schedule. Delay directly affecting the completion of the Work shall result in an extension of time only to the extent that completion of the Work was affected by impacts to the critical path shown on Contractor's CPM schedule. Where the circumstances make it indisputable in the opinion of the Architect/Engineer that the delay affected the completion of the Work so directly that the additional notice of the schedule impact by reference to a CPM schedule was unnecessary, a reasonable extension of time may be granted.

Extension of the time for completion of the Work will be granted for delays due to weather conditions only when the Contractor demonstrates that such conditions were more severe and extended than those reflected by the ten-year average for the month, as evidenced by the Climatological Data, U. S. Department of Commerce, for the Project area.

Extensions of the time for completion of the Work due to weather will be granted on the basis of one and three tenths (1.3) calendar days for every day that the Contractor would have worked but was unable to work, with each separate extension figured to the nearest whole calendar day.

For weather delays and delays caused by events, acts or omissions not within the control of the Principal Representative or any person acting on the Principal Representative's behalf, the Contractor shall be entitled to an extension of time only and shall not be entitled to recovery of additional cost due to or resulting from such delays. This Article does not, however, preclude the recovery of damages for delay by either party under other provisions in the Contract Documents.

ARTICLE 39. NON-BINDING DISPUTE RESOLUTION – FACILITATED NEGOTIATIONS

The Contractor and Principal Representative agree to designate one or more mutually acceptable persons willing and able to facilitate negotiations and communications for the resolution of conflicts, disagreements or disputes between them at the specific request of either party with regard to any Project decision of either of them or any decision of the Architect/Engineer. The designation of such person(s) shall not carry any obligation to use their services except that each party agrees that if the other party requests the intervention of such person(s) with respect to any such conflict, dispute or disagreement, the non-requesting party shall participate in good faith attempts to negotiate a resolution of the issue in dispute. If the parties cannot agree on a mutually acceptable person to serve in this capacity one shall be so appointed; provided, however, that either party may request the director of State Buildings Programs to appoint such a person, who, if appointed, shall be accepted for this purpose by both the Contractor and the Principal Representative.

The cost, if any, of the facilitative services of the person(s) so designated shall be shared if the parties so agree in any partnering plan; or in the absence of agreement the cost shall be borne by the party requesting the facilitation of negotiation.
Any dispute, claim, question or disagreement arising from or relating to the Contract or an alleged breach of the Contract may be subject to a request by either party for facilitated negotiation subject to the limitations hereafter listed, and the parties shall participate by consultation and negotiation with each other, as guided by the facilitator and with recognition of their mutual interests, in an attempt to reach an equitable solution satisfactory to both parties.

The obligation to participate in facilitated negotiations shall be as described above and elsewhere in these General Conditions, as by way of example in Article 36, Claims, or Article 34, Deductions for Uncorrected Work, and to the extent not more particularly described or limited elsewhere, each party’s obligations shall be as follows:

1. a party shall not initiate communication with the facilitator regarding the issues in dispute; except that any request for facilitation shall be made in writing with copies sent, faxed or delivered to the other party;
2. a party shall prepare a brief written description of its position if so requested by the facilitator (who may elect to first discuss the parties’ positions with each party separately in the interest of time and expense);
3. a party shall respond to any reasonable request for copies of documents requested by the facilitator, but such requests, if voluminous, may consist of an offer to allow the facilitator access to the parties’ documents;
4. a party shall review any meeting agenda proposed by a facilitator and endeavor to be informed on the subjects to be discussed;
5. a party shall meet with the other party and the facilitator at a mutually acceptable place and time, or, if none can be agreed to, at the time and place designated by the facilitator for a period not to exceed four hours unless the parties agree to a longer period;
6. a party shall endeavor to assure that any facilitation meeting shall be attended by any other persons in their employ that the facilitator requests be present, if reasonably available, including the Architect/Engineer;
7. each party shall participate in such facilitated face-to-face negotiations of the issues in dispute through persons fully authorized to resolve the issue in dispute;
8. each party shall be obligated to participate in negotiations requested by the other party and to perform the specific obligations described in paragraphs (1) through (10) this Article 39, Facilitated Negotiation, no more than three times during the course of the Project;
9. neither party shall be under any obligation to resolve any issue by facilitated negotiation, but each agrees to participate in good faith and the Principal Representative shall direct the Architect/Engineer to appropriately document any resolution or agreement reached and to execute any Amendment or Change Order to the Contract necessary to implement their agreement; and,
10. any discussions and documents prepared exclusively for use in the negotiations shall be deemed to be matters pertaining to settlement negotiations and shall not be subsequently available in further proceedings except to the extent of any documented agreement.

In accordance with State Fiscal Rules and Article 52F, Choice of Law; No Arbitration, nothing in this Article 39 shall be deemed to call for arbitration or otherwise obligate the State to participate in any form of binding alternative dispute resolution.

A partnering plan developed as described in Article 2D, Communications and Cooperation, may modify or expand the requirements of this Article but may not reduce the obligation to participate in facilitated negotiations when applicable. In the case of small projects estimated to be valued under $500,000, the requirements of this Article may be deleted from this Contract, by modification in Article 54, Optional Provisions And Elections. When so modified, the references to the parties’ right to elect facilitated negotiation elsewhere in these General Conditions shall be deleted.
ARTICLE 40.    RIGHT OF OCCUPANCY
The Principal Representative shall have the right to take possession of and to use any completed or partially completed portions of the Work, even if the time for completing the entire Work or portions of the Work has not expired and even if the Work has not been finally accepted, and the Contractor shall fully cooperate with the Principal Representative to allow such possession and use. Such possession and use shall not constitute an acceptance of such portions of the Work.

Prior to any occupancy of the Project, an inspection shall be made by the Architect/Engineer, State Buildings Programs and the Contractor. Such inspection shall be made for the purpose of ensuring that the building is secure, protected by operation safety systems as designed, operable exits, power, lighting and HVAC systems, and otherwise ready for the occupancy intended and the Notice of Substantial Completion has been issued for the occupancy intended. The inspection shall also document existing finish conditions to allow assessment of any damage by occupants. The Contractor shall assist the Principal Representative in completing and executing State Form SBP-01, Approval of Occupancy/Use, prior to the Principal Representative's possession and use. Any and all areas so occupied will be subject to a final inspection when the Contractor complies with Article 41, Completion, Final Inspection, Acceptance and Settlement.

ARTICLE 41.    COMPLETION, FINAL INSPECTION, ACCEPTANCE AND SETTLEMENT
A. NOTICE OF COMPLETION
When the Work, or a discrete physical portion of the Work (as hereafter described) which the Principal Representative has agreed to accept separately, is substantially complete and ready for final inspection, the Contractor shall file a written Notice with the Architect/Engineer that the Work, or such discrete physical portion, in the opinion of the Contractor, is substantially complete under the terms of the Contract. The Contractor shall prepare and submit with such Notice a comprehensive list of items to be completed or corrected prior to final payment, which shall be subject to review and additions as the Architect/Engineer or the Principal Representative shall determine after inspection. If the Architect/Engineer or the Principal Representative believe that any of the items on the list of items submitted, or any other item of work to be corrected or completed, or the cumulative number of items of work to be corrected or completed, will prevent a determination that the Work is substantially complete, those items shall be completed by the Contractor and the Notice shall then be resubmitted.

B. FINAL INSPECTION
Within ten (10) days after the Contractor files written Notice that the Work is substantially complete, the Architect/Engineer, the Principal Representative, and the Contractor shall make a "final inspection" of the Project to determine whether the Work is substantially complete and has been completed in accordance with the Contract Documents. State Buildings Programs shall be notified of the inspection not less than three (3) business days in advance of the inspection. The Contractor shall provide the Principal Representative and the Architect/Engineer an updated punch list in sufficient detail to fully outline the following:

1. work to be completed, if any; and
2. work not in compliance with the Drawings or Specifications, if any.

A final punch list shall be made by the Architect/Engineer in sufficient detail to fully outline to the Contractor:

1. work to be completed, if any;
2. work not in compliance with the Drawings or Specifications, if any; and
3. unsatisfactory work for any reason, if any.

The required number of copies of the final punch list will be countersigned by the authorized representative of the Principal Representative and will then be transmitted by the Architect/Engineer to the Contractor, the Principal Representative, and State Buildings Programs. The Architect/Engineer's final punch list shall control over the Contractor's preliminary punch list.
C. NOTICE OF SUBSTANTIAL COMPLETION
Notice of Substantial Completion shall establish the date of substantial completion of the Project. The Contractor acknowledges and agrees that because the departments, agencies and institutions of the State of Colorado are generally involved with the business of the public at large, greater care must be taken in establishing the date of substantial completion than might otherwise be the case to ensure that a project or building or discrete physical portion of the Work is fully usable and safe for public use, and that such care necessarily raises the standard by which the concept of substantial completion is applied for a public building.

The Notice of Substantial Completion shall not be issued until the following have been fully established:

1. All required building code inspections have been called for and the appropriate code officials have affixed their signatures to the Building Inspection Record indicating successful completion of all required code inspections;
2. All required corrections noted on the Building Inspection Record shall have been completed unless the Architect/Engineer, the Principal Representative and State Buildings Programs, in their complete and absolute discretion, all concur that the condition requiring the remaining correction is not in any way life threatening, does not otherwise endanger persons or property, and does not result in any undue inconvenience or hardship to the Principal Representative or the public;
3. The building, structure or Project can be fully and comfortably used by the Principal Representative and the public without undue interference by the Contractor's employees and workers during the completion of the final punch list taking into consideration the nature of the public uses intended and taking into consideration any stage or level of completion of HVAC system commissioning or other system testing required by the Specifications to be completed prior to issuance of the Notice of Substantial Completion;
4. The Project has been fully cleaned as required by these General Conditions, and as required by any stricter requirements of the Specifications, and the overall state of completion is appropriate for presentation to the public; and
5. The Contractor has provided a schedule for the completion of each and every item identified on the punch list which specifies the Subcontractor or trade responsible for the work, and the dates the completion or correction of the item will be commenced and finished; such schedule will show completion of all remaining final punch list items within the period indicated in the Contract for final punch list completion prior to Final Acceptance, with the exception of only those items which are beyond the control of the Contractor despite due diligence. The schedule shall provide for a reasonable punch list inspection process. Unless liquidated damages have been specified in Article 54D(2), the cost to the Principal Representative, if any, for re-inspections due to failure to adhere to the Contractor's proposed punch-list completion schedule shall be the responsibility of the Contractor and may be deducted by the Principal Representative from final amounts due to the Contractor.

Substantial completion of the entire Project shall not be conclusively established by a decision by the Principal Representative to take possession and use of a portion, or all of the Project, where portions of the Project cannot meet all the criteria noted above. Notice of Substantial Completion for the entire Project shall, however, only be withheld for substantial reasons when the Principal Representative has taken possession and uses all of the Project in accordance with the terms of Article 40, Right Of Occupancy. Failure to furnish the required completion schedule shall constitute a substantial reason for withholding the issuance of any Notice of Substantial Completion.

The Contractor shall have the right to request a final inspection of any discrete physical portion of the Project when in the opinion of the Architect/Engineer a final punch list can be reasonably prepared, without confusion as to which portions of the Project are referred to in any subsequent Notice of Partial Final Settlement which might be issued after such portion is finally accepted. Discrete physical portions of the Project may be, but shall not necessarily be limited to, such portions of the Project as separate buildings where a Project consists of multiple buildings. Similarly, an addition to an existing...
building where the Project also calls for renovation or remodeling of the existing building may constitute a discrete physical portion of the Project. In such circumstances, when in the opinion of the Principal Representative, the Architect/Engineer and State Buildings Programs, the requirements for issuance of a Notice of Substantial Completion can be satisfied with respect to the discrete portion of the Project, a partial Notice of Substantial Completion may be issued for such discrete physical portion of the Project. The ability to beneficially occupy a discrete physical portion of the Project shall also be considered.

D. NOTICE OF ACCEPTANCE

The Notice of Acceptance shall establish the completion date of the Project. It shall not be authorized until the Contractor shall have performed all of the work to allow completion and approval of the Pre-Acceptance Checklist (SBP-05). It shall not be authorized until the Pre-Acceptance punch list (SBP-06) shall have been prepared and approved containing no more than ten items of work remaining to be completed or repaired.

Where partial Notices of Substantial Completion have been issued, partial Notices of Final Acceptance may be similarly issued when appropriate for that portion of the Work. Partial Notice of Final Acceptance may also be issued to exclude the work described in Change Orders executed during late stages of the Project where a later completion date for the Change Ordered work is expressly provided for in the Contract as amended by the Change Order, provided the work can be adequately described to allow partial advertisement of any Notice of Partial Final Settlement to be issued without confusion as to the work included for which final payment will be made.

E. SETTLEMENT

Final payment and settlement shall be made on the date fixed and published for such payment except as hereafter provided. The Principal Representative shall not authorize final payment until all items on the Pre-Acceptance punch list (SBP-06) have been completed, the Notice of Acceptance issued, and the Notice of Contractors Settlement published. If the work shall be substantially completed, but Final Acceptance and completion thereof shall be prevented through delay in correction of minor defects, or unavailability of materials or other causes beyond the control of the Contractor, the Principal Representative in his or her discretion may release to the Contractor such amounts as may be in excess of three times the cost of completing the unfinished work or the cost of correcting the defective work, as estimated by the Architect/Engineer and approved by State Buildings Programs. Before the Principal Representative may issue the Notice of Contractor's Settlement and advertise the Project for final payment, the Contractor shall have corrected all items on the punch list except those items for which delayed performance is expressly permitted, subject to withholding for the cost thereof, and shall have:

1. Delivered to the Architect/Engineer:
   a. All guarantees and warranties;
   b. All statements to support local sales tax refunds, if any;
   c. Three (3) complete bound sets of required operating maintenance instructions; and,
   d. One (1) set of as-built Contract Documents showing all job changes.

2. Demonstrated to the operating personnel of the Principal Representative the proper operation and maintenance of all equipment.

Upon completion of the foregoing the Project shall be advertised in accordance with the Notice of Contractor's Settlement by two publications of Notice, the last publication appearing at least ten (10) days prior to the time of final settlement. Publication and final settlement should not be postponed or delayed solely by virtue of unresolved claims against the Project or the Contractor from Subcontractors, suppliers or materialmen based on good faith disputes; the resolution of the question of payment in such cases being directed by statute.
Except as hereafter provided, on the date of final settlement thus advertised, provided the Contractor has submitted a written Notice to the Architect/Engineer that no claims have been filed, and further provided the Principal Representative shall have received no claims, final payments and settlement shall be made in full. If any unpaid claim for labor, materials, rental machinery, tools, supplies or equipment is filed before payment in full of all sums due the Contractor, the Principal Representative and the State Controller shall withhold from the Contractor on the date established for final settlement, sufficient funds to insure the payment of such claim, until the same shall have been paid or withdrawn, such payment or withdrawal to be evidenced by filing a receipt in full or an order for withdrawal signed by the claimant or his or her duly authorized agent or assignee. The amount so withheld may be in the amount of 125% of the claims or such other amount as the Principal Representative reasonably deems necessary to cover expected legal expenses. Such withheld amounts shall be in addition to any amount withheld based on the cost to compete unfinished work or the cost to repair defective work. However, as provided by statute, such funds shall not be withheld longer than ninety (90) days following the date fixed for final settlement with the Contractor, as set forth in the published Notice of Contractor’s Settlement, unless an action at law shall be commenced within that time to enforce such unpaid claim and a Notice of such action at law shall have been filed with the Principal Representative and the State Controller. At the expiration of the ninety (90) day period, the Principal Representative shall authorize the State Controller to release to the Contractor all other money not the subject of such action at law or withheld based on the cost to compete unfinished work or the cost to repair defective work.

Notices of Partial Final Settlement may be similarly advertised, provided all conditions precedent have been satisfied as though that portion of the work affected stood alone, a Notice of Partial Acceptance has been issued, and the consent of surety to the partial final settlement has been obtained in writing. Thereafter, partial final payments may be made to the Contractor subject to the same conditions regarding unpaid claims.

ARTICLE 42. GENERAL WARRANTY AND CORRECTION OF WORK AFTER ACCEPTANCE
The Contractor warrants that the materials used and the equipment furnished shall be new and of good quality unless specified to the contrary. The Contractor further warrants that the Work shall in all respects be free from material defects not permitted by the Specifications and shall be in accordance with the requirements of the Contract Documents. Neither the final certificate for payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for defects or faulty materials or workmanship. The Contractor shall be responsible to the Principal Representative for such warranties for the longest period permitted by any applicable statute of limitations.

In addition to these general warranties, and without limitation of these general warranties, for a period of one year after the date of any Notice of Substantial Completion, or any Notice of Partial Substantial Completion if applicable, the Contractor shall remedy defects, and faulty workmanship or materials, and work not in accordance with the Contract Documents which was not accepted at the time of the Notice of Final Acceptance, all in accordance with the provisions of Article 45, One-Year Guarantee And Special Guarantees And Warranties.

ARTICLE 43. LIENS
Colorado statutes do not provide for any right of lien against public buildings. In lieu thereof, § 38-26-107, C.R.S., provides adequate relief for any claimant having furnished labor, materials, rental machinery, tools, equipment, or services toward construction of the particular public work in that final payment may not be made to a Contractor until all such creditors have been put on Notice by publication in the public press of such pending payment and given opportunity for a period of up to ninety (90) days to stop payment to the Contractor in the amount of such claims.

ARTICLE 44. ONE-YEAR GUARANTEE AND SPECIAL GUARANTEES AND WARRANTIES
A. ONE-YEAR GUARANTEE OF THE WORK
The Contractor shall guarantee to remedy defects and repair or replace the Work for a period of one year from the date of the Notice of Substantial Completion or from the dates of any partial Notices of Substantial Completion issued for discrete physical portions of the Work. The Contractor shall remedy
any defects due to faulty materials or workmanship and shall pay for, repair and replace any damage
to other work resulting there from, which shall appear within a period of one year from the date of such
Notice(s) of Substantial Completion. The Contractor shall also remedy any deviation from the
requirements of the Contract Documents which shall later be discovered within a period of one year
from the date of the Notice of Substantial Completion; provided, however, that the Contractor shall not
be required to remedy deviations from the requirements of the Contract Documents where such
deviations were obvious, apparent and accepted by the Architect/Engineer or the Principal
Representative at the time of the Notice of Final Acceptance. The Principal Representative shall give
Notice of observed defects or other work requiring correction with reasonable promptness. Such
Notice shall be in writing to the Architect/Engineer and the Contractor.

The one year guarantee of the Contractor's work may run separately for discrete physical portions of
the Work for which partial Notices of Substantial Completion have been issued, however, it shall run
from the last Notice of Substantial Completion with respect to all or any systems common to the work
to which more than one Notice of Substantial Completion may apply.

This one-year guarantee shall not be construed to limit the Contractor's general warranty described in
Article 42, General Warranty and Correction of Work After Acceptance, that all materials and
equipment are new and of good quality, unless specified to the contrary, and that the Work shall in all
respects be free from material defects not permitted by the Specifications and in accordance with the
requirements of the Contract Documents.

B. SPECIAL GUARANTEES AND WARRANTIES
In case of work performed for which product, manufacturers or other special warranties are required by
the Specifications, the Contractor shall secure the required warranties and deliver copies thereof to the
Principal Representative through the Architect/Engineer upon completion of the work.

These product, manufacturers or other special warranties, as such, do not in any way lessen the
Contractor's responsibilities under the Contract. Whenever guarantees or warranties are required by
the Specifications for a longer period than one year, such longer period shall govern.

ARTICLE 45. GUARANTEE INSPECTIONS AFTER COMPLETION
The Architect/Engineer, the Principal Representative and the Contractor together shall make at least two (2)
complete inspections of the work after the Work has been determined to be substantially complete and
accepted. One such inspection, the "Six-Month Guarantee Inspection," shall be made approximately six (6)
months after date of the Notice of Substantial Completion, unless in the case of smaller projects valued
under $500,000 this inspection is declined in Article 54A, Modification of Article 45, in which case the
inspection to occur at six months shall not be required. Another such inspection, the "Eleven-Month
Guaranty Inspection" shall be made approximately eleven (11) months after the date of the Notice of
Substantial Completion. The Principal Representative shall schedule and so notify all parties concerned,
including State Buildings Programs, of these inspections. If more than one Notice of Substantial Completion
has been issued at the reasonable discretion of the Principal Representative separate eleven month
inspections may be required where the one year guarantees do not run reasonably concurrent.

Written punch lists and reports of these inspections shall be made by the Architect/Engineer and forwarded
to the Contractor, the Principal Representative, State Buildings Programs, and all other participants within
ten (10) days after the completion of the inspections. The punch list shall itemize all guarantee items, prior
punch list items still to be corrected or completed and any other requirements of the Contract Documents to
be completed which were not waived by final acceptance because they were not obvious or could not
reasonably have been previously observed. The Contractor shall immediately initiate such remedial work as
may be necessary to correct any deficiencies or defective work shown by this report, and shall promptly
complete all such remedial work in a manner satisfactory to the Architect/Engineer, the Principal
Representative and State Buildings Programs.

If the Contractor fails to promptly correct all deficiencies and defects shown by this report, the Principal
Representative may do so, after giving the Contractor ten (10) days written Notice of intention to do so.
The State of Colorado, acting by and through the Principal Representative, shall be entitled to collect from
the Contractor all costs and expenses incurred by it in correcting such deficiencies and defects, as well as all
damages resulting from such deficiencies and defects.

ARTICLE 46. TIME OF COMPLETION AND LIQUIDATED DAMAGES
It is hereby understood and mutually agreed, by and between the parties hereto, that the date of beginning,
rate of progress, and the time for completion of the Work to be done hereunder are ESSENTIAL
CONDITIONS of this Agreement, and it is understood and agreed that the Work embraced in this Contract
shall be commenced at the time specified in the Notice to Proceed (SC-6.26).

It is further agreed that time is of the essence of each and every portion of this Contract, and of any portion
of the Work described on the Drawings or Specifications, wherein a definite and certain length of time is
fixed for the performance of any act whatsoever. The parties further agree that where under the Contract
additional time is allowed for the completion of the Work or any identified portion of the Work, the new time
limit or limits fixed by such extension of the time for completion shall be of the essence of this Agreement.

The Contractor acknowledges that subject to any limitations in the Advertisement for Bids, issued for the
Project, the Contractor’s bid is consistent with and considers the number of days to substantially complete
the Project and the number of days to finally complete the Project to which the parties may have stipulated
in the Agreement, which stipulation was based on the Contractor’s bid. The Contractor agrees that work
shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as will ensure the
Project will be substantially complete, and fully and finally complete, as recognized by the issuance of all
required Notices of Substantial Completion and Notices of Final Acceptance, within any times stipulated and
specified in the Agreement, as the same may be amended by Change Order or other written modification,
and that the Principal Representative will be damaged if the times of completion are delayed.

It is expressly understood and agreed, by and between the parties hereto, that the times for the Substantial
Completion of the Work or for the final acceptance of the Work as may be stipulated in the Agreement, and
as applied here and in Article 54D, Modifications of Article 46, are reasonable times for these stages of
completion of the Work, taking into such consideration all factors, including the average climatic range and
usual industrial conditions prevailing in the locality of the building operations.

If the Contractor shall neglect, fail or refuse to complete the Work within the times specified in the
Agreement, such failure shall constitute a breach of the terms of the Contract and the State of Colorado,
acting by and through the Principal Representative, shall be entitled to liquidated damages for such neglect,
failure or refusal, as specified in Article 54D, Modification of Article 46.

The Contractor and the Contractor’s Surety shall be jointly liable for and shall pay the Principal
Representative, or the Principal Representative may withhold, the sums hereinafter stipulated as liquidated
damages for each calendar day of delay until the entire Project is 1) substantially completed, and the Notice
(or all Notices) of Substantial Completion are issued, 2) finally complete and accepted and the Notice (or all
Notices) of Acceptance are issued, or 3) both. Delay in substantial completion shall be measured from the
Date of the Notice to Proceed and delay in final completion and acceptance shall be measured from the
Date of the Notice of Substantial Completion.

In the first instance, specified in Article 54D(1), Modification of Article 46, liquidated damages, if any, shall be
the amount specified therein, for each calendar day of delay beginning after the stipulated number of days
for Substantial Completion from the date of the Notice to Proceed, until the date of the Notice of Substantial
Completion. Unless otherwise specified in any Supplementary General Conditions, in the event of any
partial Notice of Substantial Completion, liquidated damages shall accrue until all required Notices of
Substantial Completion are issued.

In the second instance, specified in Article 54D(2), Modification of Article 46, liquidated damages, if any,
shall be the amount specified in Article 54D, Modification of Article 46, for each calendar day in excess of
the number of calendar days specified in the Contractor’s bid for the Project and stipulated in the
Agreement to finally complete the Project (as defined by the issuance of the Notice of Acceptance) after the final Notice of Substantial Completion has been issued.

In the third instance, when so specified in both Articles 54D(1) and (2), both types of liquidated damages shall be separately assessed where those delays have occurred.

The parties expressly agree that said amounts are a reasonable estimate of the presumed actual damages that would result from any of the breaches listed, and that any liquidated damages that are assessed have been agreed to in light of the difficulty of ascertaining the actual damages that would be caused by any of these breaches at the time this Contract was formed; the liquidated damages in the first instance representing an estimate of damages due to the inability to use the Project; the liquidated damages in the second instance representing an estimate of damages due to the additional administrative, technical, supervisory and professional expenses related to and arising from the extended closeout period including delivery of any or all guarantees and warranties, the submittals of sales and use tax payment forms, the calling for the final inspection and the completion of the final punch list.

The parties also agree and understand that the liquidated damages to be assessed in each instance are separate and distinct, although potentially cumulative, damages for the separate and distinct breaches of delayed substantial completion or final acceptance. Such liquidated damages shall not be avoided by virtue of the fact of concurrent delay caused by the Principal Representative, or anyone acting on behalf of the Principal Representative, but in such event the period of delay for which liquidated damages are assessed shall be equitably adjusted in accordance with Article 38, Delays And Extensions Of Time.

ARTICLE 47. DAMAGES
If either party to this Contract shall suffer damage under this Contract in any manner because of any wrongful act or neglect of the other party or of anyone employed by either of them, then the party suffering damage shall be reimbursed by the other party for such damage. Except to the extent of damages liquidated for the Contractor’s failure to achieve timely completion as set forth in Article 46, Time of Completion and Liquidated Damages, the Principal Representative shall be responsible for, and at his or her option may insure against, loss of use of any existing property not included in the Work, due to fire or otherwise, however caused. Notwithstanding the foregoing, or any other provision of this Contract, to the contrary, no term or condition of this contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protection, or other provisions of the Colorado Governmental Immunity Act, Section 24-10-101, et seq., CRS, as now or hereafter amended. The parties understand and agree that liability for claims for injuries to persons arising out of negligence of the State of Colorado, its departments, institutions, agencies, boards, officials and employees is controlled and limited by the provisions of Section 24-10-101, et seq., CRS, as now or hereafter amended and the risk management statutes, Section 24-30-1501, et seq., CRS, as now or hereafter amended.

Notice of intent to file a claim under this clause shall be made in writing to the party liable within a reasonable time of the first observance of such damage and not later than the time of final payment, except that in the case of claims by the Principal Representative involving warranties against faulty work or materials Notice shall be required only to the extent stipulated elsewhere in these General Conditions. Claims made to the Principal Representative involving extra cost or extra time arising by virtue of instructions to the Contractor to which Article 36, Claims, applies shall be made in accordance with Article 36. Other claims arising under the Contract involving extra cost or extra time which are made to the Principal Representative under this clause shall also be made in accordance with the procedures of Article 36, whether or not arising by virtue of instructions to the Contractor; provided however that it shall not be necessary to first obtain or request a written judgment of the Architect/Engineer.

Provided written Notice of intent to file a claim is provided as required in the preceding paragraph, nothing in this Article shall limit or restrict the rights of either party to bring an action at law or to seek other relief to which either party may be entitled, including consequential damages, if any, and shall not be construed to limit the time during which any action might be brought. Nothing in these General Conditions shall be deemed to limit the period of time during which any action may be brought as a matter of contract, tort, warranty or otherwise, it being the intent of the parties to allow any and all actions at law or in equity for such
periods as the law permits. All such rights shall, however, be subject to the obligation to assert claims and to appeal denials pursuant to Article 36, Claims, where applicable.

ARTICLE 48. STATE’S RIGHT TO DO THE WORK; TEMPORARY SUSPENSION OF WORK; DELAY DAMAGES

A. STATE’S RIGHT TO DO THE WORK
If after receipt of Notice to do so, the Contractor should neglect to prosecute the Work properly or fail to perform any provision of the Contract, the Principal Representative, after a second seven (7) days’ advance written Notice to the Contractor and the Surety may, without prejudice to any other remedy the Principal Representative may have, take control of all or a portion of the Work, as the Principal Representative deems necessary and make good such deficiencies deducting the cost thereof from the payment then or thereafter due the Contractor, as provided in Article 30, Correction Of Work Before Acceptance and Article 33, Payments Withheld, provided, however, that the Architect/Engineer shall approve the amount charged to the Contractor by approval of the Change Order.

B. TEMPORARY SUSPENSION OF WORK
The State, acting for itself or by and through the Architect/Engineer, shall have the authority to suspend the Work, either wholly or in part, for such period or periods as may be deemed necessary due to:

1. Unsuitable weather;
2. Faulty workmanship;
3. Improper superintendence;
4. Contractor’s failure to carry out orders or to perform any provision of the Contract Documents;
5. Loss of, or restrictions to, appropriations;
6. Conditions, which may be considered unfavorable for the prosecution of the Work.

If it should become necessary to stop work for an indefinite period, the Contractor shall store materials in such manner that they will not become an obstruction or become damaged in any way; and he or she shall take every precaution to prevent damage to or deterioration of the Work, provide suitable drainage and erect temporary structures where necessary.

Notice of suspension of work shall be provided to the Contractor in writing stating the reasons therefore. The Contractor shall again proceed with the work when so notified in writing.

The Contractor understands and agrees that the State of Colorado cannot predict with certainty future revenues and could ultimately lack the revenue to fund the appropriations applicable to this Contract. The Contractor further acknowledges and agrees that in such event that State may, upon Notice to the Contractor, suspend the work in anticipation of a termination of the Contract for the convenience of the State, pursuant to Article 50, Termination For Convenience of State. If the Contract is not so terminated the Contract sum and the Contract time shall be equitably adjusted at the time the Principal Representative directs the work to be recommenced and gives Notice that the revenue to fund the appropriation is available.

C. DELAY DAMAGES
The Principal Representative and the State of Colorado shall be liable to the Contractor for the payment of any claim for extra costs, extra compensation or damages occasioned by hindrances or delays encountered in the work only when and to the limited extent that such hindrance or delay is caused by an act or omission within the control of the Principal Representative, the Architect/Engineer or other persons or entities acting on behalf of the Principal Representative. Further, the Principal Representative and the State of Colorado shall be liable to the Contractor for the payment of such a claim only if the Contractor has provided required Notice of the delay or impact, or has presented its claim for an extension of time or claim of other delay or other impact due to changes ordered in the work before proceeding with the changed work. Except as otherwise provided, claims for extension of time shall be Noticed and filed in accordance with Article 38, Delays and Extensions of Time, within
three (3) business days of the beginning of the delay with any claim filed within seven (7) days after the delay has ceased, or such claim is waived. Claims for extension of time or for other delay or other impact resulting from changes ordered in the Work shall be presented and adjusted as provided in Article 35, Changes in the Work.

ARTICLE 49. STATE'S RIGHTS TO TERMINATE CONTRACT

A. GENERAL

If the Contractor should be adjudged bankrupt, or if he or she should make a general assignment for the benefit of his or her creditors, or if a receiver should be appointed to take over his affairs, or if he or she should fail to prosecute his or her work with due diligence and carry the work forward in accordance with the construction schedule and the time limits set forth in the Contract Documents, or if he or she should fail to subsequently perform one or more of the provisions of the Contract Documents to be performed by him, the Principal Representative may serve written Notice on the Contractor and the Surety on performance and payment bonds, stating his or her intention to exercise one of the remedies hereinafter set forth and the grounds upon which the Principal Representative bases his or her right to exercise such remedy.

In such event, unless the matter complained of is satisfactorily cleared within ten (10) days after delivery of such Notice, the Principal Representative may, without prejudice to any other right or remedy, exercise one of such remedies at once, having first obtained the concurrence of the Architect/Engineer in writing that sufficient cause exists to justify such action.

B. CONDITIONS AND PROCEDURES

1. The Principal Representative may terminate the services of the Contractor, which termination shall take effect immediately upon service of Notice thereof on the Contractor and his or her Surety, whereupon the Surety shall have the right to take over and perform the Contract. If the Surety does not provide Notice to the Principal Representative of its intent to commence performance of the Contract within ten (10) days after delivery of the Notice of termination, the Principal Representative may take over the Work, take possession of and use all materials, tools, equipment and appliances on the premises and prosecute the Work to completion by such means as he or she shall deem best. In the event of such termination of his or her service, the Contractor shall not be entitled to any further payment under the Contract until the Work is completed and accepted. If the Principal Representative takes over the Work and if the unpaid balance of the contract price exceeds the cost of completing the Work, including compensation for any damages or expenses incurred by the Principal Representative through the default of the Contractor, such excess shall be paid to the Contractor. If, however, the cost, expenses and damages as certified by the Architect/Engineer exceed such unpaid balance of the contract price, the Contractor and his or her Surety shall pay the difference to the Principal Representative.

2. The Principal Representative may require the Surety on the Contractor's bond to take control of the Work and see to it that all the deficiencies of the Contractor are made good, with due diligence within ten (10) days of delivery of Notice to the Surety to do so. As between the Principal Representative and the Surety, the cost of making good such deficiencies shall all be borne by the Surety. If the Surety takes over the Work, either by election upon termination of the services of the Contractor pursuant to Section B(1) of this Article 49, State's Right To Terminate Contract, or upon instructions from the Principal Representative to do so, the provisions of the Contract Documents shall govern the work to be done by the Surety, the Surety being substituted for the Contractor as to such provisions, including provisions as to payment for the Work, the times of completion and provisions of this Article as to the right of the Principal Representative to do the Work or to take control of all or a portion of the Work.

3. The Principal Representative may take control of all or a portion of the Work and make good the deficiencies of the Contractor, or the Surety if the Surety has been substituted for the Contractor, with or without terminating the Contract, employing such additional help as the Principal Representative deems advisable in accordance with the provisions of Article 48A, State's Right To Do The Work; Temporary Suspension Of Work; Delay Damages. In such
event, the Principal Representative shall be entitled to collect from the Contractor and his or her Surety, or to deduct from any payment then or thereafter due the Contractor, the costs incurred in having such deficiencies made good and any damages or expenses incurred through the default of Contractor, provided the Architect/Engineer approves the amount thus charged to the Contractor.

If the Contract is not terminated, a Change Order to the Contract shall be executed, unilaterally if necessary, in accordance with the procedures of Article 35, Changes In The Work.

C. ADDITIONAL CONDITIONS

If any termination by the Principal Representative for cause is later determined to have been improper, the termination shall be automatically converted to and deemed to be a termination by the Principal Representative for convenience and the Contractor shall be limited in recovery to the compensation provided for in Article 50, Termination For Convenience Of State. Termination by the Contractor shall not be subject to such conversion.

ARTICLE 50. TERMINATION FOR CONVENIENCE OF STATE

A. NOTICE OF TERMINATION

The performance of Work under this Contract may be terminated, in whole or from time to time in part, by the State whenever for any reason the Principal Representative shall determine that such termination is in the best interest of State. Termination of work hereunder shall be effected by delivery to the Contractor of a Notice of such termination specifying the extent to which the performance of work under the Contract is terminated and the date upon which such termination becomes effective.

B. PROCEDURES

After receipt of the Notice of termination, the Contractor shall, to the extent appropriate to the termination, cancel outstanding commitments hereunder covering the procurement of materials, supplies, equipment and miscellaneous items. In addition, the Contractor shall exercise all reasonable diligence to accomplish the cancellation or diversion of all applicable outstanding commitments covering personal performance of any work terminated by the Notice. With respect to such canceled commitments, the Contractor agrees to:

1. settle all outstanding liabilities and all claims arising out of such cancellation of commitments, with approval or ratification of the Principal Representative, to the extent he or she may require, which approval or ratification shall be final for all purposes of this clause; and,
2. assign to the State, in the manner, at the time, and to the extent directed by the Principal Representative, all of the right, title, and interest of the Contractor under the orders and subcontracts so terminated, in which case the State shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.

The Contractor shall submit his or her termination claim to the Principal Representative promptly after receipt of a Notice of termination, but in no event later than three (3) months from the effective date thereof, unless one or more extensions in writing are granted by the Principal Representative upon written request of the Contractor within such three month period or authorized extension thereof. Upon failure of the Contractor to submit his or her termination claim within the time allowed, the Principal Representative may determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

Costs claimed, agreed to, or determined pursuant to the preceding and following paragraph shall be in accordance with the provisions of § 24-107-101, C.R.S., as amended and associated Cost Principles of the Colorado Procurement Rules as in effect on the date of this Contract.

Subject to the preceding provisions, the Contractor and the Principal Representative may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the termination under this clause, which amount or amounts may include any reasonable cancellation...
charges thereby incurred by the Contractor and any reasonable loss upon outstanding commitments for personal services which he or she is unable to cancel; provided, however, that in connection with any outstanding commitments for personal services which the Contractor is unable to cancel, the Contractor shall have exercised reasonable diligence to divert such commitments to other activities and operations. Any such agreement shall be embodied in an Amendment to this Contract and the Contractor shall be paid the agreed amount.

The State may from time to time, under such terms and conditions as it may prescribe, make partial payments against costs incurred by the Contractor in connection with the termination portion of this Contract, whenever, in the opinion of the Principal Representative, the aggregate of such payments is within the amount to which the Contractor will be entitled hereunder.

The Contractor agrees to transfer title and deliver to the State, in the manner, at the time, and to the extent, if any, directed by the Principal Representative, such information and items which, if the Contract had been completed, would have been required to be furnished to the State, including:

a. completed or partially completed plans, Drawings and information; and,
b. materials or equipment produced or in process or acquired in connection with the performance of the work terminated by the Notice.

Other than the above, any termination inventory resulting from the termination of the Contract may, with written approval of the Principal Representative, be sold or acquired by the Contractor under the conditions prescribed by and at a price or prices approved by the Principal Representative. The proceeds of any such disposition shall be applied in reduction of any payments to be made by the State to the Contractor under this Contract or shall otherwise be credited to the price or cost of work covered by this Contract or paid in such other manner as the Principal Representative may direct. Pending final disposition of property arising from the termination, the Contractor agrees to take such action as may be necessary, or as the Principal Representative may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the State has or may acquire an interest.

Any disputes as to questions of fact, which may arise hereunder, shall be subject to the Remedies provisions of the Colorado Procurement Code, §§ 24-109-101, et seq., C.R.S., as amended.

ARTICLE 51. CONTRACTOR'S RIGHT TO STOP WORK AND/OR TERMINATE CONTRACT
If the Work shall be stopped under an order of any court or other public authority for a period of three (3) months through no act or fault of the Contractor or of any one employed by him, then the Contractor may on seven (7) days' written Notice to the Principal Representative and the Architect/Engineer stop work or terminate this Contract and recover from the Principal Representative payment for all work executed, any losses sustained on any plant or material, and a reasonable profit. If the Architect/Engineer shall fail to issue or otherwise act in writing upon any certificate for payment within ten (10) days after it is presented and received by the Architect/Engineer, as provided in Article 31, Applications For Payments, or if the Principal Representative shall fail to pay the Contractor any sum certified that is not disputed in whole or in part by the Principal Representative in writing to the Contractor and the Architect/Engineer within thirty (30) days after the Architect/Engineer's certification, then the Contractor may on ten (10) days' written Notice to the Principal Representative and the Architect/Engineer stop work and/or give written Notice of intention to terminate this Contract.

If the Principal Representative shall thereafter fail to pay the Contractor any amount certified by the Architect/Engineer and not disputed in writing by the Principal Representative within ten (10) days after receipt of such Notice, then the Contractor may terminate this Contract and recover from the Principal Representative payment for all work executed, any losses sustained upon any plant or materials, and a reasonable profit. The Principal Representative's right to dispute an amount certified by the Architect/Engineer shall not relieve the Principal Representative of the obligation to pay amounts not in dispute as certified by the Architect/Engineer.
ARTICLE 52. SPECIAL PROVISIONS

A. CONTROLLER’S APPROVAL CRS 24-30-202(1)
This Contract shall not be deemed valid until it has been approved by the Colorado State Controller or designee.

B. FUND AVAILABILITY CRS 24-30-202(5.5)
Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available

C. GOVERNMENTAL IMMUNITY
No term or condition of this contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, of the Colorado Governmental Immunity Act, CRS §24-10-101 et seq., or the Federal Tort Claims Act, 28 U.S.C. §§1346(b) and 2671 et seq., as applicable now or hereafter amended.

D. INDEPENDENT CONTRACTOR 4 CCR 801-2
Contractor shall perform its duties hereunder as an independent contractor and not as an employee. Neither Contractor nor any agent or employee of Contractor shall be deemed to be an agent or employee of the State. Contractor and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Contractor or any of its agents or employees. Unemployment insurance benefits will be available to Contractor and its employees and agents only if such coverage is made available by Contractor or a third party. Contractor shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this contract. Contractor shall not have authorization, express or implied, to bind the State to any agreement, liability or understanding, except as expressly set forth herein. Contractor shall (a) provide and keep in force workers’ compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.

E. COMPLIANCE WITH LAW
Contractor shall strictly comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. CHOICE OF LAW
Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this contract. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. Any provision incorporated herein by reference which purports to negate this or any other Special Provision in whole or in part shall not be valid or enforceable or available in any action at law, whether by way of complaint, defense, or otherwise. Any provision rendered null and void by the operation of this provision shall not invalidate the remainder of this contract, to the extent capable of execution.

G. BINDING ARBITRATION PROHIBITED
The State of Colorado does not agree to binding arbitration by any extra-judicial body or person. Any provision to the contrary in this contract or incorporated herein by reference shall be null and void.

H. SOFTWARE PIRACY PROHIBITION. Governor’s Executive Order D 002 00
State or other public funds payable under this contract shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Contractor hereby certifies and warrants that, during the term of this contract and any extensions, Contractor has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Contractor is in violation of this
provision, the State may exercise any remedy available at law or in equity or under this contract, including, without limitation, immediate termination of this contract and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. **EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST CRS 24-18-201 & CRS 24-50-507**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this contract. Contractor has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Contractor's services and Contractor shall not employ any person having such known interests.

J. **VENDOR OFFSET CRS 24-30-202(1) & CRS 24-30-202.4**

Subject to CRS §24-30-202.4 (3.5), the State Controller may withhold payment under the State's vendor offset intercept system for debts owed to State agencies for: (a) unpaid child support debts or child support arrearages; (b) unpaid balances of tax, accrued interest, or other charges specified in CRS §39-21-101, et seq.; (c) unpaid loans due to the Student Loan Division of the Department of Higher Education; (d) amounts required to be paid to the Unemployment Compensation Fund; and (e) other unpaid debts owing to the State as a result of final agency determination or judicial action.

K. **PUBLIC CONTRACTS FOR SERVICES. CRS §8-17.5-101. [Not Applicable to agreements relating to the offer, issuance, or sale of securities, investment advisory services or fund management services, sponsored projects, intergovernmental agreements, or information technology services or products and services]** Contractor certifies, warrants, and agrees that it does not knowingly employ or contract with an illegal alien who will perform work under this contract and will confirm the employment eligibility of all employees who are newly hired for employment in the United States to perform work under this contract, through participation in the E-Verify Program or the Department program established pursuant to CRS §8-17.5-102(5)(c). Contractor shall not knowingly employ or contract with an illegal alien to perform work under this contract or enter into a contract with a subcontractor that fails to certify to Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this contract. Contractor (a) shall not use E-Verify Program or Department program procedures to undertake pre-employment screening of job applicants while this contract is being performed, (b) shall notify the subcontractor and the contracting State agency within three days if Contractor has actual knowledge that a subcontractor is employing or contracting with an illegal alien for work under this contract, (c) shall terminate the subcontract if a subcontractor does not stop employing or contracting with the illegal alien within three days of receiving the notice, and (d) shall comply with reasonable requests made in the course of an investigation, undertaken pursuant to CRS §8-17.5-102(5), by the Colorado Department of Labor and Employment. If Contractor participates in the Department program, Contractor shall deliver to the contracting State agency, Institution of Higher Education or political subdivision a written, notarized affirmation, affirming that Contractor has examined the legal work status of such employee, and shall comply with all of the other requirements of the Department program. If Contractor fails to comply with any requirement of this provision or CRS §8-17.5-101 et seq., the contracting State agency, institution of higher education or political subdivision may terminate this contract for breach and, if so terminated, Contractor shall be liable for damages.

L. **PUBLIC CONTRACTS WITH NATURAL PERSONS. CRS §24-76.5-101.**

Contractor, if a natural person eighteen (18) years of age or older, hereby swears and affirms under penalty of perjury that he or she (a) is a citizen or otherwise lawfully present in the United States pursuant to federal law, (b) shall comply with the provisions of CRS §24-76.5-101 et seq., and (c) has produced one form of identification required by CRS §24-76.5-103 prior to the effective date of this contract.
ARTICLE 53. MISCELLANEOUS PROVISIONS

A. CONSTRUCTION OF LANGUAGE
The language used in these General Conditions shall be construed as a whole according to its plain meaning, and not strictly for or against any party. Such construction shall, however, construe language to interpret the intent of the parties giving due consideration to the order of precedence noted in Article 2C, Intent of Documents.

B. SEVERABILITY
If any covenant, term, condition, or provision contained in these General Conditions is held by a court of competent jurisdiction to be invalid, illegal, or unenforceable in any respect, such covenant, term, condition, or provision shall be severed or modified to the extent necessary to make it enforceable, and the resulting General Conditions shall remain in full force and effect, and such invalidity or other failure shall not affect the validity of any other covenant, term or provision hereof. Provided the same does not work a substantial injustice, these General Conditions shall be construed as if such invalid portion had not been inserted.

C. SECTION HEADINGS
The section or paragraph headings contained within these General Conditions are inserted for convenience only and shall not be construed to vary or add to the meaning of this Contract.

D. AUTHORITY
Each person executing the Agreement and its Exhibits in a representative capacity expressly represents and warrants that he or she has been duly authorized by one of the parties to execute the Agreement and has authority to bind said party to the terms and conditions hereof.

E. INTEGRATION OF UNDERSTANDING
This Contract is intended as the complete integration of all understandings between the parties and supersedes all prior negotiations, representations, or agreements, whether written or oral. No prior or contemporaneous addition, deletion, or other amendment hereto shall have any force or effect whatsoever, unless embodied herein in writing. No subsequent novation, renewal, addition, deletion, or other amendment hereto shall have any force or effect unless embodied in a written Change Order or Amendment to this Contract.

F. VENUE
The parties agree that venue for any action related to performance of this Contract shall be an appropriate District Court of the State of Colorado.

G. NO THIRD PARTY BENEFICIARIES
Except as herein specifically provided otherwise, this Contract shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns. The enforcement of the terms and conditions of this Contract and all rights of action relating to such enforcement, shall be strictly reserved to the parties to the Agreement. Nothing contained in the Contract Documents shall give or allow any claim or right of action whatsoever by any other person or entity as beneficiary; all such non-parties shall be deemed incidental beneficiaries only.

H. WAIVER
The waiver of any breach of a term hereof shall not be construed as a waiver of any other term, of the same term upon subsequent breach.

I. INDEMNIFICATION
Contractor shall indemnify, save, and hold harmless the State, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and attorney fees and related costs, incurred as a result of any act or omission by Contractor, or its employees, agents, subcontractors, or assignees pursuant to the terms of this contract.
ARTICLE 54.  OPTIONAL PROVISIONS AND ELECTIONS
The provisions of this Article 54 alter the preceding Articles or enlarge upon them as indicated:
The Principal Representative and or the State Buildings Programs shall mark boxes and initial where applicable.

A. MODIFICATION OF ARTICLE 45. GUARANTEE INSPECTIONS AFTER COMPLETION
If the box below is marked the six month guarantee inspection is not required.

☐ ______ Principal Representative initial

B. MODIFICATION OF ARTICLE 27. LABOR AND WAGES
If the box is marked the Federal Davis-Bacon Act shall be applicable to the Project. The minimum wage rates to be paid on the Project shall be furnished by the Principal Representative and included in the Contract Documents.

☐ ______ Principal Representative initial

C. MODIFICATION OF ARTICLE 39. NON-BINDING DISPUTE RESOLUTION – FACILITATED NEGOTIATIONS
If the box is marked, and initialed by the State as noted, the requirement to participate in facilitated negotiations shall be deleted from this Contract. Article 39, Non-Binding Dispute Resolution – Facilitated Negotiations, shall be deleted in its entirety and all references to the right to the same where ever they appear in the contract shall be similarly deleted.
The box may be marked only for projects with an estimated value of less than $500,000.

☐ ______ Principal Representative initial

D. MODIFICATION OF ARTICLE 46. TIME OF COMPLETION AND LIQUIDATED DAMAGES
If an amount is indicated immediately below, liquidated damages shall be applicable to this Project as, and to, the extent shown below. Where an amount is indicated below, liquidated damages shall be assessed in accordance with and pursuant to the terms of Article 46, Time Of Completion And Liquidated Damages, in the amounts and as here indicated. The election of liquidated damages shall limit and control the parties right to damages only to the extent noted.

1. For the inability to use the Project, for each day after the number of calendar days specified in the Contractor’s bid for the Project and the Agreement for achievement of Substantial Completion, until the day that the Project has achieved Substantial Completion and the Notice of Substantial Completion is issued, the Contractor agrees that an amount equal to N/A Dollars ($ N/A) shall be assessed against Contractor from amounts due and payable to the Contractor under the Contract, or the Contractor and the Contractor’s Surety shall pay to the Principal Representative such sum for any deficiency, if amounts on account thereof are deducted from remaining amounts due, but amounts remaining are insufficient to cover the entire assessment.

2. For damages related to or arising from additional administrative, technical, supervisory and professional expenses related to and arising from the extended closeout period, for each day in excess of the number of calendar days specified in the Contractor’s bid for the Project and the Agreement to finally complete the Project as defined by the issuance of the Notice of Final Acceptance) after the issuance of the final Notice of Substantial Completion, the Contractor agrees that an amount equal to N/A Hundred and no/100 Dollars ($N/A) shall be assessed against Contractor from amounts due and payable to the Contractor under the Contract, or the Contractor and the Contractor’s Surety shall pay to the Principal Representative such sum for
any deficiency, if amounts on account thereof are deducted from remaining amounts due but amounts remaining are insufficient to cover the entire assessment.

E. NOTICE IDENTIFICATION

All Notices pertaining to General Conditions or otherwise required to be given shall be transmitted in writing, to the individuals at the addresses listed below, and shall be deemed duly given when received by the parties at their addresses below or any subsequent persons or addresses provided to the other party in writing.

Notice to Principal Representative:

With copies to: State Buildings Programs (or Delegee)
State of Colorado

Notice to Contractor:

With copies to:
INDEX

24-30-1301(11), 3
38-26-107, 36
39-26-114(1)(d), 9
8-17-101, 2, 20
acceptance, 12, 15, 17, 19, 20, 23, 25, 33, 38
Agreement, 1, 2, 4, 5, 12, 24, 25, 27, 32, 38, 39, 45, 46, 47
American Society of Testing Materials, 14
approval, 3, 7, 11, 13, 14, 19, 20, 23, 24, 27, 31, 35, 40, 42, 43
Architect/Engineer, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44
Beneficial Occupancy, 1, 2, 33, 34
Bids, 1, 38
Bonds, 1, 4
business days, 2, 6, 28, 29, 30, 33, 41
Change Order, 2, 4, 5, 10, 13, 14, 21, 24, 25, 26, 27, 29, 31, 32, 35, 38, 40, 46
claim, 31
Contract, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47
contract sum, 10, 11, 13, 14, 20, 21, 24, 25, 26, 29, 30
contract time, 13
Contractor, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47
correction, 21, 22, 34, 35, 37
defect, 5, 7
Drawings, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 31, 33, 35, 43
final acceptance, 2, 16, 17, 19, 23, 35, 37, 38, 39
final payment, 23, 35, 38, 39
final settlement, 23, 36
guarantee, 17, 23, 37, 46
indemnify, 44
instructions, 7, 10, 14, 15, 16, 28, 29, 31, 35, 39, 41
Insurance, 15, 18, 19, 20
manufacturer’s warranty, 17
Notice, 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 17, 18, 19, 20, 21, 23, 24, 28, 29, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 47
observe, 6, 7, 22
Occupancy, 1, 2, 33, 34, 35
Owner, 2, 3
partnering plan, 5, 28, 32
payment, 1, 4, 20, 21, 23
precedence, 5, 45
Principal Representative, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 46, 47
Procurement Officer, 2, 3, 25
Product Data, 3, 4, 10, 11, 12, 13
Samples, 3, 4, 10, 11, 12, 13
SBP-01, 1, 33
SBP-05, 1, 35
SBP-B.I.R., 7
SC-6.13, 1, 2, 4, 27
SC-6.22, 4, 20
SC-6.221, 4, 20
SC-6.26, 38
SC-6.27, 1, 19
SC-6.31, 26
SC-6.312, 25
SC-7.2, 12, 22, 23
schedule, 10, 11, 12, 13, 21, 22, 24, 27, 30, 31, 34, 37, 41
Shop Drawings, 3, 4, 10, 11, 12, 13, 31
Specifications, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 22, 33, 34, 36, 37, 38
State Buildings Programs, 1, 6, 7, 8, 11, 12, 14, 15, 17, 18, 19, 20, 24, 25, 27, 30, 31, 33, 34, 35, 37
State Form, i, 2, 4, 12, 19, 20, 23, 27, 33, 35
Subcontractor, 3, 9, 14, 15, 18, 19, 23, 34
substantial completion, 2, 4, 16, 34, 39
Substantial Completion, 1, 2, 4, 17, 33, 34, 35, 36, 37, 38, 47
substantially complete, 4, 33, 35, 38
Surety, 4, 20, 21, 23, 38, 40, 41, 42, 47
termination, 6, 41, 42, 43
testing, 7, 12, 14, 17, 34
time of completion, 30
warranties, 17, 23, 35, 36, 37, 39
weather, 17, 25, 30, 31, 40
Work, 2, 3, 4, 6, 7, 8, 9, 10, 11, 13, 14, 17, 19, 22, 23, 24, 25, 27, 28, 30, 31, 33, 36, 37, 38, 39, 40, 41, 42
Supplementary General Conditions
University of Colorado at Boulder

1. GENERAL CONDITIONS, ARTICLE 23. F. SIGN – DELETE the entire section.

2. GENERAL CONDITIONS, ARTICLE 25 INSURANCE - DELETE the entire section and replace with the following:

The Contractor shall obtain and maintain, at its own expense and for the duration of the contract, the minimum insurance coverages set forth below. By requiring such minimum insurance, the University shall not be deemed or construed to have assessed the risk that may be applicable to the Contractor under this contract. The Contractor shall assess its own risks and if it deems appropriate and/or prudent, maintain higher limits and/or broader coverages. The Contractor is not relieved of any liability or other obligations assumed or pursuant to the Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

COVERAGES

1. Commercial General Liability – ISO CG 00001 or equivalent, Coverage to include:
   • Premises and Operations
   • Explosions, Collapse and Underground Hazards
   • Personal / Advertising Injury
   • Products / Completed Operations
   • Liability assumed under an Insured Contract (including defense costs assumed under contract)
   • Broad Form Property Damage
   • Independent Contractors
   • Additional Insured—Owners, Lessees or Contractors Endorsement, ISO Form 2010 (2004 Edition or equivalent), if possible.
   • Additional Insured—Owners, Lessees or Contractors Endorsement, ISO CG 2037 (7/2004 Edition or equivalent), if possible.

2. Automobile Liability including all:
   • Owned Vehicles
   • Non-Owned Vehicles
   • Hired Vehicles

3. Excess/Umbrella Liability (Applies to projects totaling $10,000,000 or more)
   • Excess of Commercial General Liability, Automobile Liability, and Employers’ Liability.
   • Coverages should be as broad as primary.
   • Risk Management reserves the right to require higher limits.

4. Workers Compensation
   • Statutory Benefits (Coverage A)
   • Employers Liability (Coverage B)

5. Builder’s Risk Completed Value (Applies to buildings additions and new buildings)
   • See Builders Risk section in this document.

6. Installation Floater
   • Special cause of loss
   • Theft
   • Faulty workmanship
   • Vandalism
   • Labor costs to repair damaged work

1 of 5
7. **Contractors Pollution Liability**

This section applies only to the following types of proposals:

- ASBESTOS/LEAD ABATEMENT Contracting Services

The University requires this coverage whenever work at issue under this contract involves potential pollution risk to the environment or losses caused by pollution conditions (including asbestos) that may arise from the operations of the Contractor described in the Contractor’s scope of services. Policy shall cover the Contractors completed operations. Such coverage shall include:

- Bodily Injury, sickness, disease, mental anguish or shock sustained by any person, including death.
- Property Damage including natural resource damages, physical injury to or destruction of tangible property including resulting loss of use, clean up costs, and the loss of use of tangible property that has not been physically injured or destroyed.
- Defense, including costs, charges and expenses incurred in the investigation, adjustment or defense of claims for such compensatory damages.
- Cleanup costs, removal, storage, disposal, and or use of the pollutant; and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims.
- Coverage shall apply to sudden and gradual pollution conditions resulting from the escape of release of smoke, vapors, fumes, acids, alkalies, toxic chemicals, liquids, or gases, natural gas, waste materials, or other irritants, contaminants, or pollutants (including asbestos). If the coverage is written on a claims-made basis, the Contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of this contract; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of three (or specify desired number) years beginning from the time that work under this contract is completed.
- On the Automobile Liability Coverage endorsements CA9948 and MCS-90 are required if the Contractor is transporting any type of hazardous materials.
- **The Regents of the University of Colorado**, a body corporate as “Additional Insured” for work that is being performed by the Contractor and as respects the Contractors Pollution Liability.

**LIMITS REQUIRED**

The Contractor shall carry the following limits of liability as required below:

**Commercial General Liability**

<table>
<thead>
<tr>
<th>Limit</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Aggregate</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>Products/Completed Operations Aggregate</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>Each Occurrence Limit</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Personal/Advertising Injury</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Fire Damage (Any One Fire)</td>
<td>$50,000</td>
</tr>
<tr>
<td>Medical Payments (Any One Person)</td>
<td>$5,000</td>
</tr>
</tbody>
</table>

**Excess/Umbrella Liability (as required-See Coverages #3)**

<table>
<thead>
<tr>
<th>Limit</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Aggregate Limit</td>
<td>$5,000,000</td>
</tr>
<tr>
<td>Products/Completed Operations Aggregate</td>
<td>$5,000,000</td>
</tr>
</tbody>
</table>

**Automobile Liability**

<table>
<thead>
<tr>
<th>Limit</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodily Injury/Property Damage (Each Accident)</td>
<td>$1,000,000</td>
</tr>
</tbody>
</table>
Workers’ Compensation
Coverage A (Workers’ Compensation)  Statutory
Coverage B (Employers Liability)  $ 100,000 Each Accident
$ 100,000 Disease Ea. Employ
$ 500,000 Disease-Policy Limit

Contractors Pollution Liability (as required-See Coverages #7)
Per Loss  $1,000,000
Aggregate  $1,000,000

Builder’s Risk (as required-See Coverages #5)
• This coverage is required for new buildings or additions to existing buildings.
• See the Builders Risk section (below) for required terms and conditions.

Installation Floater
This coverage is to cover materials and equipment to be installed in existing structures.
• Shall be written for 100% of the completed value (replacement cost basis)
• Deductible maximum is $10,000.00
• Waiver of Subrogation applies on Builders Risk

ADDITIONAL INSURANCE REQUIREMENTS

1. All insurers must be licensed or approved to do business within the State of Colorado, and unless otherwise specified, all policies must be written on a per occurrence basis.
2. The Contractor shall provide the University of Colorado a Certificate of Insurance Form evidencing all required coverages, prior to commencing work or entering University premises.
3. The Contractor shall name “The State of Colorado and The Regents of the University of Colorado, a body corporate” as an Additional Insured as respects General Liability.
4. Upon request by the University, Contractor must provide a copy of the actual insurance policy effecting coverage(s) required by the contract.
5. The University requires that all policies of insurance be written on a primary basis, non-contributory with any other insurance coverages and/or self-insurance carried by the University.
6. A Separation of Insureds Clause must be included in general liability policies.
7. The Contractor shall advise the University in the event any general aggregate or other aggregate limits are reduced below the required per occurrence limit. At their own expense, the Contractor will reinstate the aggregate limits to comply with the minimum requirements and shall furnish to the University a new certificate of insurance showing such coverage is in force.
8. Contractor’s insurance carrier should possess a minimum A.M. Best’s Insurance Guide rating of A-VI.
9. Commercial General Liability Completed Operations policies must be kept in effect for up to three (3) years after completion of the project.
10. Contractors Pollution Liability policies must be kept in effect for up to three (3) years after completion of the project.
11. Provide a minimum of thirty (30) days advance written notice to the University for cancellation, non-renewal, or material changes to policies required under the contract.
12. Certificate Holder: University of Colorado, University Risk Management, 4001 Discovery Drive, Suite 230, Campus Box 587, Boulder, CO 80303

Failure of the Contractor to fully comply with these requirements during the term of the Contract may be considered a material breach of contract and may be cause for immediate termination of the Contract at the option of the University. The University reserves the right to negotiate additional specific insurance requirements at the time of the contract award.
Non-Waiver
The parties hereto understand and agree that The University is relying on, and does not waive or intend to waive by any provision of this Contract, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, 24-10-101 et seq., as from time to time amended, or otherwise available to the University or its officers, employees, agents, and volunteers.

Mutual Cooperation
The University and Contractor shall cooperate with each other in the collection of any insurance proceeds which may be payable in the event of any loss, including the execution and delivery of any proof of loss or other actions required to effect recovery.

Builder’s Risk Insurance

(As required-See Coverages #5)

Unless otherwise provided, the Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the project is located, Builder’s Risk Insurance in the amount of the initial contract amount as well as subsequent modifications for the entire project at the site on a replacement cost basis without voluntary deductibles. Such Builder’s Risk Insurance shall be maintained, unless otherwise provided in the contract documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the University has insurable interest in the property to be covered, whichever is earlier. The Builder’s Risk insurance shall include interests of the University of Colorado, the General Contractor, subcontractors and sub-tier contractors in the project.

Builders’ Risk Coverage shall be on a Special Covered Cause of Loss Form and shall include theft, vandalism, malicious mischief, collapse, false-work, temporary buildings and debris removal including demolition, increased cost of construction, architect’s fees and expenses, flood and earthquake, and all below and above ground structures, water and sewer mains. Other coverages may be required if provided in contract documents. Coverages shall be written for 100% of the completed value (replacement cost basis) of the work being performed. At the option of the University of Colorado, the University of Colorado may include Soft Costs (including Loss of Use)/Delay in Opening Endorsement under the builder’s risk policy. The University of Colorado agrees to provide the necessary exposure base information for quotation by the Builder’s Risk carrier. The University of Colorado agrees to pay the premium associated with the Soft Costs coverage, the University of Colorado decides to purchase this coverage.

The Builder’s Risk shall also include the follow amendments/provisions:

- Waiver of Subrogation against all parties named as insured, but only to the extent the loss is covered.
- Beneficial Occupancy Clause. The policy shall specifically permit partial or beneficial occupancy at or before substantial completion or final acceptance of the entire work. Partial occupancy or use of the work shall not commence until the insurance company or companies providing insurance have consented to such partial occupancy or use. The University of Colorado and Contractor shall take reasonable steps to obtain consent of the insurance company or companies and agree to take no action, other than upon mutual written consent, with respect to occupancy or use of the work that could lead to cancellation, lapse or reduction of insurance.
- Equipment Breakdown Coverage (a.k.a. Boiler & Machinery) required by the Contract Documents or by law, which shall specifically cover insured equipment during installation and testing (including hot testing).
- Deletion of Coinsurance Provisions
- Replacement Costs Basis - including modification of the valuation clause to cover all costs needed to repair the structure or work (including overhead and profits) and will pay based on the values figured at the time of rebuilding or repairing, not at the time of loss

4 of 5
• Deletion of any exclusions pertaining to Law, Ordinance or Regulation
• Deletion of exclusions for design errors & omissions
• Modification of the electrical apparatus breakdown exclusions and the mechanical breakdown exclusion so that it does not apply to subsequent loss or damage
• Modify exclusion pertaining to damage to interior of building caused by an perils insured against are covered
• Resultant Damage Extension including amendment of exclusion pertaining to design error
• Settling, cracking, shrinking or expansion (including coverage for loss resulting from settling, cracking, shrinking or expansion) of foundation walls, floors, or other parts of the structure
• Other coverages may be required if provided in Contract Documents
• The deductible shall not exceed $10,000 and shall be the responsibility of the Contractor except for losses that involve all Acts of God such as flood, earthquake, windstorm, tsunami, volcano, etc.
• The Policy shall be amended to show thirty (30) days notice of cancellation. Such notice shall be given to the University of Colorado and Contractor.
• Losses in excess of $10,000 insured shall be adjusted in conjunction with the University of Colorado. Any insurance payments/proceeds shall be made payable to the University of Colorado subject to requirements of any applicable mortgage clause. The Contractor shall pay subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require subcontractors to make payments to their sub-subcontractors in similar manner.
• The University of Colorado shall have the authority to adjust and settle any losses in excess of $10,000 with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the University of Colorado exercise of this power. It is expressly agreed that nothing in this section shall be subject to arbitration and any references to arbitration are expressly deleted.

If requested, the Contractor shall file with the University of Colorado a copy of the policy that includes the insurance coverages required in this section. The policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to the Project.

If the Contractor does not intend to purchase such Builder’s Risk Insurance required by the Contract and with all of the coverages in the amount described above, the Contractor shall so inform the University of Colorado as stated in writing prior to commencement of the work. The University of Colorado may then effect insurance that will protect the interests of the University of Colorado, the General Contractor, Subcontractors and sub-tier contractors in the project. Coverages applying shall be the same as stated above including other coverages that may be required by the University of Colorado. The cost shall be charged to the Contractor. Coverage shall be written for 100% of the completed value of the work being performed, with a deductible not to exceed $10,000 per occurrence for most projects.

All deductibles will be assumed by the Contractor. Waiver of Subrogation is to apply against all parties named as insureds, but only to the extent the loss is covered, and Beneficial Occupancy Endorsements are to apply.

If the University of Colorado is damaged by the failure or neglect of the Contractor to purchase or maintain insurance as described above, without so notifying the University of Colorado, then the Contractor shall bear all reasonable costs properly attributable thereto.

Contractors engaged in modifications of existing structures are required to secure a Beneficial Occupancy Endorsement that enables the University of Colorado to occupy the facility during construction.

Revised 02/20/06
CHANGE ORDER BULLETIN

Change Order Bulletin No: ____________________________ Date ____________________________
Contractor: ____________________________
Institution or Agency: University of Colorado at Boulder
Project No./Name: PR 005684/ CAMP – Econ to Hale Waterline
Description of Work: ____________________________

This bulletin is issued to define the scope of revision in drawings and/or specifications for a contemplated change order. The work called for by these revisions shall be in accordance with the requirements of the original contract documents.

Please prepare and submit a proposal for the changes described below. For pricing use State Form SC-6.312. A formal change order State Form SC-6.31 will be issued after approval of your proposal by the Principal Representative and the Architect. Your proposal shall include a statement as to the effect this change will have on the time for completion of the project.

This bulletin is NOT an authorization to proceed.

DESCRIPTION OF CHANGE:

SPECIFICATION REVISIONS:

STATUS OF EXISTING WORK:

PREPARED BY: ____________________________
ARCHITECT/ENGINEER OR CONTRACTOR

APPROVED BY: ____________________________
PRINCIPAL REPRESENTATIVE
(INSTITUTION or AGENCY)
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS
CHANGE ORDER PROPOSAL

Change Order Proposal No. Date
Reference Change Order Bulletin No: Date

Contractor
University of Colorado at Boulder
Institution or Agency
PR 005684 / CAMP – Econ to Hale Waterline
Project No./Name

(Before completing this form, read instructions on reverse side.)

PART I - WORK PERFORMED BY CONTRACTOR

Line 1. Direct Labor Costs........................................ $
Line 2. Labor Overhead (Direct Labor Burdens) (% X Line 1)...........
Line 3. Total Contractor’s Labor Costs (Lines 1 and 2)........................ $
Line 4. Direct Materials Costs.................................................. $
Line 5. Materials Overhead (Delivery Costs & Taxes) (% X Line 4)...
Line 6. Total Materials Costs (Lines 4 and 5)........................................ $
Line 7. Total Equipment Costs.................................................. $
Line 8. PART I - TOTAL CONTRACTOR’S L, M & E COSTS (Lines 3, 6 and 7) Part I $

PART II - WORK PERFORMED BY SUBCONTRACTOR

Line 9. Direct Labor Costs........................................ $
Line 10. Labor Overhead (Direct Labor Burdens) (% X Line 9).......... $
Line 11. Total Subcontractor’s Labor Cost (Lines 9 and 10)................. $
Line 12. Direct Materials Costs.................................................. $
Line 13. Materials Overhead (Delivery Costs & Taxes) (% X Line 12)...
Line 14. Total Subcontractor’s Materials Costs (Lines 12 and 13)........... $
Line 15. Subcontractor’s Equipment Costs........................................ $
Line 16. Subcontractor’s L, M & E Costs (Lines 11, 14 and 15).............. $
Line 17. Subcontractor’s Overhead (Indirect Costs) (% X Line 16)...........
Line 18. Subcontractor’s Profit (% X Line 16) or (2 ½ % Deduct)............ $
Line 19. PART II - TOTAL SUBCONTRACTOR’S COSTS (Lines 11, 17 and 18) Part II $

PART III - CONTRACTOR’S OVERHEAD & PROFIT

Line 20. Contractor’s Overhead (Indirect Costs) (% X Part I Total)...........
Line 21. Contractor’s Profit (% X Part I Total)................................. $
Line 22. PART III - TOTAL CONTRACTOR OVERHEAD & PROFIT (Lines 20 and 21)Part III $

PART IV - CONTRACTOR’SMarkup ON SUBCONTRACTOR

Line 23. Contractor’s Commission on Subcontractor (% X Part II Total).... $
Line 24. Contractor’s Profit on Subcontractor (% X Part II Total) or (2 ½ % Deduct) $
Line 25. PART IV - TOTAL CONTRACTOR MARKUP ON SUBCONTRACTOR (Lines 23 & 24)Part IV $

PART V - SUBTOTAL C.O. PROPOSAL (Parts I and II and III and IV)........ Part V (Subtotal) $

PART VI - CONTRACTOR’S BOND COST (% X Part V).......................... Part VI $

PART VII - GRAND TOTAL CHANGE ORDER PROPOSAL (Sum of Totals: Parts V and VI) Grand Total $

PART VIII - CONTRACT TIME

COMPLETION DATE (IS) (IS NOT) EXTENDED ____________ CALENDAR DAYS AS A RESULT OF THIS PROPOSAL.

CONTRACTOR’S CERTIFICATE:
This is to certify that, to the best of my knowledge and belief, the cost/price data submitted in response to the listed C.O. Bulletin, are accurate, complete and current as of ____________

Firm: ____________________________ Name & Title: ____________________________

Signature: ________________________ Date: ____________________________

*The proposal shall remain in full force and effect for a period of ____________ calendar days from date of signature.

ARCHITECT/ENGINEER’S CERTIFICATE:
This is to certify that I have analyzed the proposal and find, to the best of my knowledge and belief, that the proposal represents current, fair, factual and competitive cost/price data.

Firm: ____________________________ Name & Title: ____________________________

Signature: ________________________ Date: ____________________________

STATE BUILDINGS PROGRAMS
(Institution or Agency) ____________________________ (or Authorized Delegate) ____________________________ Date ____________________________

State Form SC-6.312 (Rev. 9/2006)
INSTRUCTIONS FOR COMPLETING “CHANGE ORDER PROPOSAL”
COST/PRICE DATA SUMMARY (STATE FORM SC-6.312)

BULLETIN NUMBER/DATED: Insert C.O. Bulletin No. and Date Issued
LEFT HAND BOX: Fill in Contractor’s Name; State Project Number and Title
RIGHT HAND BOX: Fill in Description of Changes from Bulletin, noting exceptions that are listed in the Bulletin but are excluded; i.e., not priced on this form.

PART I - WORK PERFORMED BY CONTRACTOR:

Line 1. Direct Labor Costs: Fill in subtotal of direct labor costs, which includes base rates plus applicable fringe benefits. On Contractor’s letterhead/spreadsheet show costs as follows:

<table>
<thead>
<tr>
<th>Trade</th>
<th>Rate</th>
<th>Hours</th>
<th>Extended Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Direct Labor Costs = $

Line 2. Labor Overhead (Direct Labor Burdens, etc.): Fill in as a percentage of Line 1.
Line 4. Direct Materials Costs: Fill in subtotal of direct materials costs. Provide quotes or invoices. On letterhead/spreadsheet, show direct materials costs as follows:

<table>
<thead>
<tr>
<th>Materials</th>
<th>Units</th>
<th>Unit Cost</th>
<th>Extended Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Direct Materials Costs = $

Line 5. Materials Overhead: Fill in as percentage cost of Line 4. Overhead costs include delivery, taxes, insurance costs, etc. (As mutually agreed upon at contract signing)
Line 6. Total Materials Costs: Fill in total of lines 4 and 5.
Line 7. Total Equipment Costs: Fill in total equipment costs including indirect overhead costs in hourly rate - except indirect labor costs. On letterhead/spreadsheet show total equipment costs as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Hours</th>
<th>Extended Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Equipment Cost = $


PART II - WORK PERFORMED BY SUBCONTRACTOR:

Line 9. Direct Labor Costs: Fill in subtotal of direct labor costs, which includes base rates plus applicable fringe benefits. On Subcontractor’s letterhead/spreadsheet show costs by trade, rate, hours and extended costs. See Instructions for line 1.
Line 10. Labor Overhead (Direct Labor Burdens, etc.): Fill in as a percentage of Line 9.
Line 13. Materials Overhead: Fill In as a percentage of line 12. Overhead costs include delivery, taxes, insurance costs, etc.
Line 15. Total Subcontractor’s Equipment Costs: Fill in total equipment costs including indirect overhead costs in hourly rate - except indirect labor costs. On letterhead/spreadsheet show total equipment costs by description, rate, hours and extended costs. See Instructions for line 7.
Line 16. Total Subcontractor’s Labor, Materials and Equipment (L, M & E) Costs: Fill in total of lines 11, 14 and 15.
Line 17. Subcontractor’s Overhead (Indirect Costs): Fill in as percentage cost of line 16. See Article 35 of General Conditions.

PARTS III THROUGH VIII - Self-explanatory.

CERTIFICATIONS
A. The Contractor, who prepares this proposal form, certifies the cost/price data by signing, dating, and forwarding same to the Architect/Engineer (or Consultant) for further action.
B. The Architect/Engineer (or Consultant) reviews and analyzes the cost/price data for the requirements that these are: 1) currently prevalent, 2) reasonably fair, 3) factually applicable, and 4) equivalently competitive market selling prices. The Architect/Engineer (or Consultant) may negotiate—after receipt of the cost proposal—any or all of the cost elements of the proposal to support a recommendation of acceptance to the Principal Representative. Certification by the A/E (or Consultant) of the above requirements is made upon his signature. The Architect/Engineer (or Consultant) forwards the proposal with the supporting back-up to the Agency.
C. Authority for the Institution or Agency (usually the Principal Representative) reviews the proposal, signs, dates, and forwards to State Buildings Programs or Delegate for final action.
D. State Buildings Programs or Delegate reviews the cost proposal, with all supporting back-up, for technical and procedural requirements and, if in order, signs and dates the proposal.

State Form SC-6.312 (Rev. 9/2006)
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

CHANGE ORDER

Change Order No: __________________________ Date _________________________
Contractor: _______________________________________________________________________________________
Institution or Agency: University of Colorado at Boulder
Project No./Name: PR 005684 / CAMP – Econ to Hale Waterline

Your Change Order Proposal, dated ___________ is hereby being designated for approval of the following work:
(Note: If more space is needed for description of work, attach additional 8-1/2” x 11” sheets hereto.)

This change order was originated by the Contractor ☐, Architect/Engineer ☐, State ☐, and/or We hereby recommend acceptance and approval of the change to the Contractor’s Agreement Dated ___________ which is by this reference, made a part hereof, and identified as Exhibit ___________ with an increase ☐, a decrease ☐, no change ☐, of $ __________________________
Contract completion date is extended __________________________ days ☐, is not extended ☐.
New completion date is ___________ Month ___________ Day ___________ Year

Architect/Engineer Firm ____________________________________________________________________________ Signature ___________ Date ___________
Contractor ______________________________________________________________________________________ Signature ___________ Date ___________
University of Colorado at Boulder-Project Manager ____________________________________________________________________________ Signature ___________ Date ___________

<table>
<thead>
<tr>
<th>CONTRACT STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Contract Value $ __________________________</td>
</tr>
<tr>
<td>Previous increases by CO/Amend $ __________________________</td>
</tr>
<tr>
<td>Previous decreases by CO/Amend $ __________________________</td>
</tr>
<tr>
<td>Value After Prior CO’s/Amend $ __________________________</td>
</tr>
<tr>
<td>This CO/Amend Increases ☐ $ __________________________</td>
</tr>
<tr>
<td>Decreases ☐ $ __________________________</td>
</tr>
<tr>
<td>CURRENT CONTRACT VALUE $ __________________________</td>
</tr>
<tr>
<td>(Verification)</td>
</tr>
</tbody>
</table>

DATE

State Form SC-6.31
Rev. 9/2006
Page 1 of 1
REQUEST FOR INFORMATION  
(RFI # ___)

Project No. Project Name:   PR 005684 / CAMP – Econ to Hale Waterline

Date:
To:
From:
Sent Via:

Drawing Ref.:  Spec. Ref.:  

Subject:

Proposed Solution:


Schedule Impact:  NO YES  

Cost Impact:  

# Days  

Estimated Cost $  

Date Response Required

Sent Via:  E-mail

Signature:  Company:

Response:


Response Date:

Sent Via:  

Person Responding:  Signature:

Further Action Required:


Other Documents This RFI Refers to:

Letters  RFP  PCO  CO  Other


## ENVIRONMENTAL SITE ASSESSMENT FORM

<table>
<thead>
<tr>
<th>Building &amp; Location</th>
<th>Job Description</th>
<th>Work Order / Project Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMP</td>
<td>Description of work that will be done</td>
<td>MY010905</td>
</tr>
</tbody>
</table>

### Follow-up required for:
Suspect Building Components, Materials, and Site Conditions:
Lists all suspect materials for asbestos and/or lead-based paint. Also describes any other environmental and safety conditions, e.g. laboratory, hazardous materials, radiation issues, etc. Will address other conditions of the building being worked in, e.g. classroom, offices, laboratories, or other uses.

**SAMPLE REPORT ONLY**

### Samples / Results:
Lists all know results of suspect materials or environmental monitoring results. Where suspect materials are not known, lists these as presumed positive.

**SAMPLE REPORT ONLY**

### REQUIRED ACTION:
Identifies any action that may be required by all parties for the project, conditions that shall be followed, and all other notations relevant to the project. Explains further steps that must be taken for the project and responsibilities of key project staff, e.g. Project Managers, Contractors, EH&S, etc.

**SAMPLE REPORT ONLY**

### EH&S Inspector:
Certified CDPHE Inspector

| Date Inspected: | 1/9/2005 |

### EH&S Manager:
Michael Yanker

| Date Reviewed: | 1/9/2005 |

### University Representative / Project Manager

### Contractor Name:
Contractor

### Contractor Representative (signature):
Foreman or Superintendent

### Date Signed:
NOTICE TO PROCEED (DESIGN/BID/BUILD CONTRACT)

Date of Notice: ____________________________

Institution/Agency: University of Colorado at Boulder

Project No./Name: PR 005684 / CAMP – Econ to Hale Waterline

TO:

This is to advise you that your Performance Bond, Labor and Material Payment Bond, the requisite Builder's Risk Insurance Policy or Certificate for same, and Certificates of Insurance have been received. Our issuance of this Notice does not relieve you of responsibility to assure that the bond and insurance requirements of the Contract Documents are met for the duration of the Agreement. The Agreement covering the above described work has been fully executed.

You are hereby authorized and directed to proceed within ten (10) days from date of this Notice as required in the Agreement. Any liquidated damages for failure to achieve substantial completion by the date agreed that may be applicable to this contract will be calculated using the date of this Notice for the date of the commencement of the Work.

Actual on-site construction may not commence until all applicable building permits have been obtained by the Contractor.

By

Paul M. Leef, AIA, LEED ™ AP / Date
Campus Architect
Director, Planning, Design & Construction
State Buildings Programs
(of Authorized Delegate)

By

Ronald L. Ried, Director / Date
Facilities Management Business Services
Principal Representative
(Institution or Agency)

When completely executed, this form is to be sent by certified mail to the Contractor by the Principal Representative.
CERTIFICATION AND AFFIDAVIT REGARDING UNAUTHORIZED IMMIGRANTS

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684 / CAMP – Econ to Hale Waterline

A. CERTIFICATION STATEMENT  CRS 8-17.5-101 & 102 (HB 06-1343, SB 08-193)

The Vendor, whose name and signature appear below, certifies and agrees as follows:

1. The Vendor shall comply with the provisions of CRS 8-17.5-101 et seq. The Vendor shall not knowingly employ or contract with an unauthorized immigrant to perform work for the State or enter into a contract with a subcontractor that knowingly employs or contracts with an unauthorized immigrant.

2. The Vendor certifies that it does not now knowing employ or contract with and unauthorized immigrant who will perform work under this contract, and that it will participate in either (i) the “E-Verify Program”, jointly administered by the United States Department of Homeland Security and the Social Security Administration, or (ii) the “Department Program” administered by the Colorado Department of Labor and Employment in order to confirm the employment eligibility of all employees who are newly hired to perform work under this contract.

3. The Vendor shall comply with all reasonable requests made in the course of an investigation under CRS 8-17.5-102 by the Colorado Department of Labor and Employment. If the Vendor fails to comply with any requirement of this provision or CRS 8-17.5-101 et seq., the State may terminate work for breach and the Vendor shall be liable for damages to the State.

B. AFFIDAVIT  CRS 24-76.5-101 (HB 06S-1023)

4. If the Vendor is a sole proprietor, the undersigned hereby swears or affirms under penalty of perjury under the laws of the State of Colorado that (check one):

☐ I am a United States citizen, or
☐ I am a Permanent Resident of the United States, or
☐ I am lawfully present in the United States pursuant to Federal law.

I understand that this sworn statement is required by law because I am a sole proprietor entering into a contract to perform work for the State of Colorado. I understand that state law requires me to provide proof that I am lawfully present in the United States prior to starting work for the State. I further acknowledge that I will comply with the requirements of CRS 24-76.5-101 et seq, and will produce the required form of identification prior to starting work. I acknowledge that making a false, fictitious, or fraudulent statement or representation in this sworn affidavit is punishable under the criminal laws of Colorado as perjury in the second degree under CRS 18-5-503 and it shall constitute a separate criminal offense each time a public benefit is fraudulently received.

CERTIFIED and AGREED to this _____ day of ______________, 2010.

VENDOR:

________________________________________
Vendor Full Legal Name

BY: ____________________________________
Signature of Authorized Representative    Title
NOTICE OF SUBSTANTIAL COMPLETION

Date of Substantial Completion: ____________________________

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684/ CAMP – Econ to Hale Waterline

TO: Robert A. Jordan, Project Manager
University of Colorado at Boulder
Department of Facilities Management
Campus Box 453 UCB
Boulder, CO 80309-0453
(Principal Representative)

And

(Contractor)

This is to advise you that the Work has been reviewed, inspected and determined, to the best knowledge, information and belief of the Architect/Engineer, to be substantially complete as of the date noted above in accordance with the criteria outlined in Article 41 of The General Conditions of the Contract and the Specifications, including without limitation a) suitable for occupancy, b) inspected for code compliance with Building Inspection Records signed by code officials for the State, c) determined to be fully and comfortably usable, and d) fully cleaned and appropriate for presentation to the public.

A punch list of work to be completed, work not in compliance with the Drawings or Specifications, and unsatisfactory work is attached hereto, along with the Contractor’s schedule for the completion of each and every item identified on the punch list specifying the Subcontractor or trade responsible for the work, and the dates the completion or correction will be commenced and finished within any period indicated in the Agreement for punch list completion prior to Final Acceptance.

Except as stated on the reverse side of this Notice of Substantial Completion, all manufacturers’ warranties, other special warranties and the Contractor’s one-year obligation to perform remedial work, shall commence on the Date of Substantial Completion noted above.

This Notice of Substantial Completion shall be effective and establish the Date of Substantial Completion only when fully executed on the reverse by the Contractor and the Principal Representative. The Principal Representative accepts the Work as substantially complete as of the Date of Substantial Completion herein noted. The Contractor agrees to complete or correct the Work identified on the attached punch list and to do so in accordance with attached punch list completion schedule.
The responsibilities of the Principal Representative and the Contractor for security, maintenance, heat, utilities, and insurance shall be as specified in the Contract Documents or as otherwise hereafter noted:

Exceptions, if any, to the commencement of warranties shall be:

The attached final punch list consists of __________ pages, and the attached Contractor's schedule showing the dates of commencement and completion of each punch list item consists of __________ pages.

When completely executed, this form shall be sent to the Contractor and the Principal Representative with a copy to State Buildings Programs.
NOTICE OF FINAL ACCEPTANCE

Date of Notice of Acceptance: ________________________________

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684 / CAMP – Econ to Hale Waterline

TO:

Notice is hereby given that the State of Colorado, acting by and through the Regents of the University of Colorado at Boulder, accepts as complete* the above numbered project.

By ________________________________ / ________________________________
Paul M. Leef, AIA, LEED™ AP / Date
Campus Architect
Director, Planning, Design & Construction
State Buildings Programs
(of Authorized Delegate)

By ________________________________ / ________________________________
Ronald L. Ried, Director / Date
Facilities Management Business Services
Principal Representative
(Institution or Agency)

*When completely executed, this form is to be sent by certified mail to the Contractor by the Principal Representative.
NOTICE OF CONTRACTOR'S SETTLEMENT

Institution/Agency: University of Colorado at Boulder
Project No./Name: PR 005684 / CAMP – Econ to Hale Waterline

Notice is hereby given that on the ___th day of ___, 2010 at Boulder, Colorado, final settlement will be made by the STATE OF COLORADO with ___, hereinafter called the "CONTRACTOR", for and on account of the contract for the construction of a PROJECT described as CAMP – Econ to Hale Waterline

1. Any person, co-partnership, association or corporation who has an unpaid claim against the said project, for or on account of the furnishing of labor, materials, team hire, sustenance, provisions, provender, rental machinery, tools, or equipment and other supplies used or consumed by such Contractor or any of his subcontractors in or about the performance of said work, may at any time up to and including said time of such final settlement, file a verified statement of the amount due and unpaid on account of such claim.

2. All such claims shall be filed with Robert A. Jordan, project manager, Department of Facilities Management, Campus Box 453 UCB, Boulder, CO 80309-0453.

3. Failure on the part of a creditor to file such statement prior to such final settlement will relieve the State of Colorado from any and all liability for such claim.

Dated at Boulder, Colorado, this ___th day of ___, 2010.

Paul M. Leef, AIA, LEED™ AP  Date  Ronald L. Ried, Director  Date
Campus Architect &  Principal Representative
Director of Planning, Design & Construction  (Institution or Agency)
State Buildings Programs  (or Authorized Delegate)
(At least ten (10) days prior to above settlement date)

MEDI A OF PUBLICATION:

PUBLICATION DATES:
First:  
Second:  

NOTES TO EDITOR:

Transmit two (2) copies of the Affidavit of Publication, and invoice, to: Marsha Slepicka, University of Colorado at Boulder, Department of Facilities Management, Campus Box 453 UCB, Boulder, CO 80309-0453

State Form SBP-7.3  
Rev. 9/2006
**NOTICE OF APPROVAL OF BENEFICIAL OCCUPANCY**

Date of Beneficial Occupancy: ____________________________________________

Institution/Agency: University of Colorado at Boulder

Project No./Name: PR 005684 / CAMP – Econ to Hale Waterline

Portion(s) of project for which beneficial occupancy is approved:

Type of Beneficial Occupancy: □ Total or □ Partial

The items identified below must be complied with before Beneficial Occupancy is Approved.

<table>
<thead>
<tr>
<th>Entire Building</th>
<th>Portion Occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>The Building Inspection Cards are completely signed-off or a Temporary Certificate of Occupancy has been issued.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2a.</td>
<td>Notify the local Fire Department which portion(s) of the building will be occupied and the Date(s).</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2b.</td>
<td>Fire alarms, smoke detection systems and building sprinkler systems fully checked and operable.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2c.</td>
<td>The building's siamese fire connection must be installed and operable, if applicable.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Coordination for final utility and service connections, meters, etc., (water, gas, sewer, electricity and telecommunication), has been made and in full operating order.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Sterilization of plumbing systems has been performed.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Operational test of systems and equipment has been performed as required.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Systems adjustments such as balancing, equipment operations, etc., have been performed. Reports have been submitted to the architect for approval.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>State personnel are instructed in system and equipment operations as required by contract.</td>
</tr>
</tbody>
</table>

State Form SBP-01
Rev. 9/2006
8. Instructions, manuals, guides, charts, etc., are transmitted to Principal Representative.

9. Principal Representative furnished equipment and furnishings are coordinated and placed.

10. All elements left unfinished must be in such a state that there would be no hazard to the health or safety of the occupants.

11. All restroom facilities must be fully functional and operable.

12. All light fixtures must be installed and operate.

13. All exit lights and emergency lighting systems checked and operable.

14. All windows glazed and hardware available for ventilation purposes.

15. All routes of egress clear of construction materials and debris at all times.

16. There must be a means of pedestrian access to each building. Contractor must have sidewalks installed before occupancy and pedestrian barricades and other means of public protection as required.

Beneficial occupancy does not constitute acceptance of the project as being complete. It simply provides the Principal Representative the opportunity to occupy the project or the applicable portion thereof, prior to final completion and acceptance. Occupants can expect to be impacted by the Contractor's efforts to complete the project. The Contractor under the contract would not repair any damage by normal use or willfulness caused by the occupants.

The terms of this Beneficial Occupancy are approved by:

Harris Kocher Smith
Architect/Engineer

Ronald L. Ried, Director
Facilities Business Services
Principal Representative
(Institution or Agency)

Paul M. Lee, AIA, LEED™ AP
Campus Architect
Director, Planning, Design & Construction
State Buildings Programs
(or Authorized Delegate)

Contractor
(If Applicable)
After Contractor or Construction Manager is satisfied that work is complete, a date for final review is established. Architect/Engineer inspection is made with Contractor(s) and Principal Representative and State Buildings Programs (SBP) present. Forms are processed as required.

<table>
<thead>
<tr>
<th>DATE COMPLETED</th>
<th>SIGNOFF INITIALS</th>
<th>REMARKS</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>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1a. Final inspections have been made and permission to occupy Project is obtained through SBP Delegate. The Inspection Cards are completely signed off and attached.

1b. If Principal Representative wishes to occupy entire project or portions of Project before completion (Beneficial Occupancy) Project review of condition and responsibility is conducted and noted. (Fill out Form SBP-01 in addition to this form).

2. Notify the local fire department of the date the building will be occupied.

3. Coordination for final utility and service connections, meters, etc., has been made (water, gas, sewer, electricity and telecommunication) and in full operating order.

4. Sterilization of plumbing systems has been performed.

5. Operational tests of systems and equipment have been performed as required.

6. Systems adjustments, such as balancing, equipment operations, etc., have been performed. Reports have been submitted to Architect/Engineer and approved.

7. State personnel are instructed in system and equipment operations as required by contract.

8. Instructions, manuals, guides, charts, etc., are transmitted to Principal Representative.

9. Principal Representative furnish equipment and furnishing are coordinated and placed.

10. Review drawing, specifications, addenda, change orders, etc. for work to be done and note.
11. On the Contract Close-out Punch List (Form SBP-06) the final punch list items deficient or still required are made by the Architect and includes lists furnished by the consultants and promptly distributed to all parties.

12. Schedule for corrections, deficiencies, and items to be supplied is established by Contractor, Assistant Contractor and trades as to location of specific defects if necessary.

13. Final Change Orders are processed (must be completed prior to contract acceptance.

14. The Principal Representative shall not authorize final payment until all items on the punch lists have been completed, the Notice of Acceptance issued and the Notice of Contractor’s Settlement Date is published.

15. Permanent keying, keys and keying instructions have been performed.

16. Extra materials, spares, etc., are delivered to Principal Representative.

17. Record drawings (as-built) requirements have been submitted to A/E.

18. Guarantee/Warranty requirements are met.

19. All records, reports, files, documents, etc., of construction inspector are in order and turned over to Owner as arranged, and to SBP as applicable.

20. Removal of Contractor’s temporary work; cleanup and debris removal is understood and performed.

21. Post-contract maintenance conditions, such as equipment, landscaping, etc., are understood and arranged for.

* Verification, item by item, as applicable, to be submitted with Notice of Acceptance Form SC-6.27.

Harris Kocher Smith  
Architect/Engineer  
Date

Contractor  
Date

Paul M. Leef, AIA, LEED™ AP  
Campus Architect &  
Director, Planning, Design & Construction  
State Buildings Programs  
(or Authorized Delegate)  
Date

Ronald L. Ried, Director  
Facilities Business Services  
Vice Chancellor for Administration  
Principal Representative  
(Institution or Agency)  
Date
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS
Contract Close-out Final Punch List

Institution/Agency: University of Colorado at Boulder
Final Punch List Date
Contractor: 
Project No./Name: PR 005684/ CAMP – Econ to Hale Waterline

This form to be used after follow-up inspections have been made and punch list is worked down to less than ten items:

<table>
<thead>
<tr>
<th>Final Punch List Item</th>
<th>Disposition</th>
<th>Date</th>
<th>Remarks</th>
</tr>
</thead>
</table>

Contractor

Date

Harris Kocher Smith
Architect/Engineer

Date

Paul M. Leef, AIA, LEED™ AP
Campus Architect &
Director, Planning, Design & Construction
State Buildings Programs
(or Authorized Delegate)

Date

Ronald L. Ried, Director
Facilities Business Services
Principal Representative
(Institution or Agency)

Date

State Form SBP-06
Rev. 9/2006
Post Construction Warranty Report

Project: PR 005684 / CAMP – Econ to Hale Waterline
Warranty Contractor:

Date Warranty Begins: __________________ Date Warranty Expires: ______________
Facilities Management (F/M) FAX No. 303-492-4082 Reported By: __________________
Campus Box 453 UCB, Boulder, CO 80309-0453 F/M Rep. Informed: __________________

Date Reported: _________________________ Taken By: _________________________

Extended Warranty Item:

Description of Warranty Item:

Date Reported to Contractor: ________________________________

Contractor Response:

Date of Resolution: ______________________________

Note:

Post construction warranty rpt
Notice to Contractors:

GIVEN TO:

CONTRACTOR PR 005684

PROJECT NO.

CAMP – Econ to Hale Waterline

PROJECT NAME

Signature

DATE

ENVIRONMENTAL RESPONSIBILITIES

The University of Colorado at Boulder (UCB) and the Boulder community are very sensitive to pollution issues. We endeavor to be leaders in promoting excellence in environmental stewardship and expect that all faculty, staff, students and contractors be aware of their environmental responsibilities and perform their activities in an environmentally responsible manner.

Contractors working on the UCB campus are required to comply with all applicable University, City, State and Federal environmental regulations and safety standards. Hazardous and regulated materials must be managed and disposed of properly. Work sites must control dust, debris and run-off, and pay special attention to preventing any pollutants from entering the storm sewer or surface water collection systems. These systems ultimately drain into our creeks and waterways.

Please do your part to promote awareness and compliance!

On the reverse side of this flyer you will find examples of the kinds of environmental and safety issues and practices that often require attention at construction sites.

Questions, Comments or Concerns? – Please Contact:

Environmental Health and Safety 303-492-6025.
## Environmental & Safety REMINDERS at Construction Sites:

| ✓ Construction Waste & Debris | Keep saw-cut slurry, drywall mud, grout and mortar, paint, and all other wastes OUT OF GUTTERS, STREETS, TRENCHES, AND STORM DRAINS! Use berms, sand bags, straw, buckets and drums; sweep and shovel to construction dumpster; allow solids to settle before pouring off water to the sanitary sewer. Identify drains in advance and designate sanitary sewer drain(s) where it’s OK to dump liquids that are pre-approved by EH&S 303-492-6025. Recycle (303-492-5321) construction materials wherever possible. |
| ✓ OSHA | Confined space entry, MSDS, product identification & labeling, PPE, trenching and shoring, fall protection, welding vision screens, etc. |
| ✓ Asbestos & Lead-Based Paint | Assume all building materials are asbestos-containing unless written report(s) indicate otherwise. A pre-construction environmental site survey is required prior to beginning work - call EH&S Asbestos / Lead Management 303-492-6168. |
| ✓ Dust Control | Use wet methods, exhaust fans, HEPA vacs, barriers, etc.; visible emissions are not permitted. |
| ✓ Hazardous Materials & Waste | Includes paints and solvents, oils, fuels, coolants, corrosives, cleaners, pesticides, PCB light ballasts, mercury vapor lamps, smoke detectors, rechargeable and lead acid batteries, and many other materials and products. **Do not** place in the trash or down the drain without approval from EH&S. |
| ✓ Odors and Vapors, IAQ | Use barriers, smoke eaters, exhaust fans, ventilation system controls, etc. |
| ✓ De-watering | Submit plan to Facilities Management for groundwater / stormwater / drainage controls. Discharge permits may be required from the Colorado Department of Public Health and Environment - Water Quality Division 303-692-3500). |
| ✓ Spills and Emergencies | Post contingency/preparedness plan; prevent releases to the environment; call 911 immediately to report hazardous spills (weekdays also report to EH&S 303-492-6025). |
| ✓ Utility Locates | Before digging, **ALWAYS** call the Utility Notification Center of Colorado (UNCC) 1-800-922-1987. |
**STATE OF COLORADO**  
**OFFICE OF THE STATE ARCHITECT**  
**STATE BUILDINGS PROGRAMS**

**CERTIFICATE FOR CONTRACTOR'S PAYMENT**

<table>
<thead>
<tr>
<th>PAY APPLICATION #:</th>
<th>____________</th>
<th>FROM:</th>
<th>________</th>
<th>TO:</th>
<th>________</th>
<th>P.O. NO:</th>
<th>__________</th>
<th>FEIN:</th>
<th>__________</th>
</tr>
</thead>
</table>

**AGENCY/INSTITUTION:**  

**PROJECT #:/TITLE:**  
PR 005664/ CAMP-Econ to Hale Waterline

---

**AMENDMENTS/CHANGE ORDER SUMMARY**

<table>
<thead>
<tr>
<th>Prior amendments / Change Orders</th>
<th>Deductions (L)</th>
<th>Additions (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO#s:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Approved This Period**

<table>
<thead>
<tr>
<th>Number</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Current to Date Total Amount Earned (Due to Date (i))**  

<table>
<thead>
<tr>
<th>Retainage</th>
<th>Current to Date Payment Less Retainage</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prior Payments Total Amount Earned</th>
<th>Retainage</th>
<th>Prior Payments Less Retainage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>This Payment Total Amount Earned</th>
<th>Retainage</th>
<th>This Payment Less Retainage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**Net change by Amendments / Change Orders (L + M)**  

<table>
<thead>
<tr>
<th>Deductions (L)</th>
<th>Additions (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

---

**Contractor certifies that all work and materials included in this estimate complies with the terms and conditions of the construction contract and authorized changes thereto.**

**ARCHITECTS/ENGINEER'S CERTIFICATION**

In accordance with the Contract and this Application for Payment, the above Contractor is entitled to a payment of:  

$0.00

---

**INSTITUTION/AGENCY (or Authorized Delegate) Date**

**STATE BUILDINGS PROGRAMS (or Authorized Delegate) Date**

**CONTRACTOR**  

**HARRIS KOCHER SMITH**  

---

State Form SBP-7.2  
Rev. 9/2006  
Page 1 of 1
STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

CERTIFICATE FOR CONTRACTOR'S PAYMENT

PAY APPLICATION #: ______________ FROM: ____________ TO: ____________ P.O. NO: ____________ FEIN: ____________
CONTRACTOR: __________________________________________________________________________
AGENCY/INSTITUTION: ___________________________________________________________________
PROJECT #:/TITLE: PR 005684/ CAMP-Econ to Hale Waterline

AMENDMENTS/CHANGE ORDER SUMMARY

<table>
<thead>
<tr>
<th>Prior amendments / Change Orders</th>
<th>Deductions (L)</th>
<th>Additions (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO#s:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Approved This Period

<table>
<thead>
<tr>
<th>Number</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Current to Date Total Amount Earned (Due to Date (l)) $0.00
Retainage

Prior Payments Total Amount Earned
Retainage

This Payment Total Amount Earned
Retainage

Total Approved this Period $0.00 $0.00

Net change by Amendments / Change Orders (L + M) $0.00

Contractor certifies that all work and materials included in this estimate complies with the terms and conditions of the conditions construction contract and authorized changes thereunder.

ARCHITECTS/ENGINEER'S CERTIFICATION

In accordance with the Contract and this Application for Payment, the above Contractor is entitled to a payment of: $0.00

INSTITUTION/AGENCY (or Authorized Delegate) Date

STATE BUILDINGS PROGRAMS (or Authorized Delegate) Date

CONTRACTOR Date

HARRIS KOCHER SMITH Date
### PROJECT SUBMITTAL LOG

**Project**  PR 005684 / CAMP-Econ to Hale Waterline

### Table

<table>
<thead>
<tr>
<th>Spec. Section No.</th>
<th>Sub No.</th>
<th>Contr No.</th>
<th>Description</th>
<th>Report Date</th>
<th>No. of Copies Rec</th>
<th>Action</th>
<th>Date Returned to Architect</th>
<th>Distribution copies-Trans</th>
<th>DAYS OUT TO Architect</th>
<th>DAYS OUT TO Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

a. The Submittal Log lists the specification section that requires submittals. It is the Contractor's responsibility to reference the appropriate subsection of the specification section for specific individual submittal requirements and to submit accordingly.

b. The Submittal Log does not necessarily list all specification sections that require submittals. The Contractor is responsible for any additional submittals that may be called for and required on drawings in the individual schedules and notes.
SECTION 01000 – GENERAL REQUIREMENTS

1.01 CONDITIONS AND REQUIREMENTS

Division 1 - General Requirements shall govern work under all Divisions of the Specifications.

1.02 SPECIFICATION LANGUAGE EXPLANATION

Specifications are of abbreviated, simplified or streamlined type and include incomplete sentences. Omissions of words or phrases such as "the Contractor shall," "in conformity therewith," "shall be," "as noted on the Drawings," "a," "the" are intentional. Supply omitted words or phrases by inference in same manner as they are when "NOTE" occurs on Drawings. Supply words "shall be" or "shall" by inference when colon is used within sentences or phrases. Supply words "on the Drawings" by inference when "as indicated" is used with sentences or phrases.

Where reference is made to specifications, societies, institutes, or associations or manufacturer's directions, they are, except as may be inconsistent herewith, made part of specifications, to same extent as if written out in full herein. Use latest edition, at time of bidding, if a date is not given.

1.03 ABBREVIATIONS

References in Contract Documents to trade associations, technical societies, recognized authorities and other institutions include following organizations, which are sometimes referred to only by corresponding abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Aluminum Association</td>
</tr>
<tr>
<td>AAMA</td>
<td>Architectural Aluminum Manufacturer's Association</td>
</tr>
<tr>
<td>ACI</td>
<td>American Concrete Institute</td>
</tr>
<tr>
<td>AIMA</td>
<td>Acoustical and Insulating Materials Association (successor to AMA and IBI)</td>
</tr>
<tr>
<td>AISC</td>
<td>American Institute of Steel Construction</td>
</tr>
<tr>
<td>AISI</td>
<td>American Iron and Steel Institute</td>
</tr>
<tr>
<td>AITC</td>
<td>American Institute of Timber Construction</td>
</tr>
<tr>
<td>AMA</td>
<td>Acoustical Materials Association</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute (successor to USASI and ASA)</td>
</tr>
<tr>
<td>APA</td>
<td>American Plywood Association</td>
</tr>
<tr>
<td>ASHRAE</td>
<td>American Society of Heating, Refrigerating and Air Conditioning Engineers</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing Materials</td>
</tr>
<tr>
<td>AWI</td>
<td>Architectural Woodwork Institute</td>
</tr>
<tr>
<td>AWPA</td>
<td>American Wood Preservers Association</td>
</tr>
<tr>
<td>AWS</td>
<td>American Welding Society</td>
</tr>
<tr>
<td>CDA</td>
<td>Copper Development Associations, Inc.</td>
</tr>
<tr>
<td>CM/GC</td>
<td>Construction Manager/General Contractor</td>
</tr>
<tr>
<td>CRA</td>
<td>California Redwood Association</td>
</tr>
<tr>
<td>CRSI</td>
<td>Concrete Reinforcing Steel Institute</td>
</tr>
<tr>
<td>CS</td>
<td>Commercial Standard (U.S. Department of Commerce)</td>
</tr>
<tr>
<td>DFPA</td>
<td>Douglas Fir Plywood Association</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>FGMA</td>
<td>Flat Glass Marketing Association</td>
</tr>
<tr>
<td>FIA</td>
<td>Factory Insurance Association</td>
</tr>
<tr>
<td>FM</td>
<td>Factory Mutual Engineering Division</td>
</tr>
<tr>
<td>FS</td>
<td>Federal Specification</td>
</tr>
<tr>
<td>MIA</td>
<td>Marble Institute of America</td>
</tr>
</tbody>
</table>
1.04 LAYING OUT WORK

The Contractor will furnish reference bench mark and maintain bench mark and all other grades, lines, and levels and dimensions as indicated in the Contract Documents. Report any errors or inconsistencies in above to Owner before commencing work.

Except as delegated by subcontract or normal trade practice, the Contractor will be responsible for all lines, elevations, and measurements of work indicated.

1.05 EXAMINATION OF SITE

Failure to visit the site will in no way relieve any Contractor from the necessity of furnishing materials or performing work that may be required to complete work in accordance with the Contract Documents without additional cost to Owner.

END OF SECTION
SECTION 01010 – SUMMARY OF WORK

PART 1 - GENERAL

1.01 SCHEDULE OF DRAWINGS, SPECIFICATIONS AND ADDENDA

The following Drawings, Project Manual, and Addenda from the Contract Documents.

A. Set(s) of Drawings & Project Manual dated May 6, 2010. Drawing list is as follows:

<table>
<thead>
<tr>
<th>Sheet No.</th>
<th>Titled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cover Sheet</td>
</tr>
<tr>
<td>2</td>
<td>Overall Plan</td>
</tr>
<tr>
<td>3</td>
<td>Waterline Plan and Profile</td>
</tr>
<tr>
<td>4</td>
<td>Waterline Plan and Profile</td>
</tr>
<tr>
<td>5</td>
<td>Staging, Access and Detour Plan</td>
</tr>
<tr>
<td>6</td>
<td>Details</td>
</tr>
</tbody>
</table>


C. Addenda: All Addenda issued prior to bidding.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. Work covered: Work under this contract includes all materials, equipment and labor necessary to complete the work indicated on the drawings, described in specifications, addenda or reasonably inferred.

1.03 CONTRACTORS

All work will be executed under one prime construction contract between the Owner and the Contractor.

Except as indicated otherwise, all work under this contract will be under the direction of the prime Contractor.

1.04 JOB CONDITIONS

A. Areas of the building immediately adjacent to areas under construction will be occupied by the public during the work of this project. Conduct the work of this project in a manner that will minimize disruption of the Owner's occupancy of adjacent areas.

B. Do not interrupt building access and use, except as permitted by the Owner.

Provide eight (8) work days notice to the Owner of construction activities which will severely impact the occupancy and use of adjacent areas.

C. Provide temporary barriers and/or partitions as required to protect the occupants of the building and the general public from injury due to the work of this project; and/or to protect adjacent areas of the building from the spread of dust and dirt caused by the work or this project.
Remove temporary barriers and partitions upon completion of the Project.

1. Temporary partitions shall be constructed of 1/2" plywood on the construction face nominal 2" X 4" wood studs and 1/2" gypsum wallboard on the public occupied face.

D. Do not interrupt power, lighting, plumbing, telephone and HVAC services to occupied areas without Owner's approval. Such interruptions must be scheduled at least eight (8) work days in advance and have Owner's approval.

1.05 PROTECTION OF WORK AND ADJACENT PROPERTY

A. Buildings and property adjacent to work included in this project may be subject to damage due to construction operations.

Prior to the start of the work included in this Contract, record the existing condition of adjacent structures and property. Contractor shall provide one set of 3" X 5" prints or a set on disk to the Owner and retain negatives and one set of prints for their records. Sufficient photos with adequate detail to thoroughly document the conditions surrounding the work shall be provided.

B. At the completion of the project, Contractor shall restore existing buildings, landscaping, parking facilities and property to same condition as prior to the start of the work.

C. In addition to the requirements of the General Conditions of the Contract for Construction, the Contractor shall:

1. Notify, in writing, the Owner of University or private property which interferes with the work and arrange with them for disposition of such property.

2. Provide and maintain proper shoring and bracing to prevent earth from caving or washing into excavation. Provide temporary protection around openings through and at floors, roofs, and other openings.

3. Provide and maintain proper shoring and bracing for existing underground utilities, sewers, etc., encountered during excavation work, to protect them from collapse or other type of damage until such time as they are to be removed, incorporated into the work of this project, or can be properly back-filled upon completion of new work.

4. Weather Protection: Provide protection against rain, snow, wind, ice, storms, or heat so as to maintain work, materials, apparatus, and fixtures free from injury or damage. At the end of each day's work, cover new work likely to be damaged.

5. Provide and maintain adequate protection of the work from damage due to freezing, especially freezing earth and soils. Risk of proceeding with the work on or with freezing or frozen materials will be the sole responsibility of the Contractor.

6. Water Protection: Provide protection from damage at all times from rain water, ground water, backing up of drains or sewers, and other water. Provide pumps and equipment enclosures to provide this protection.

7. The Contractor will maintain free of obstructions and debris, all designated corridors and emergency exits, handicap access ramps and sidewalks to building. Provide temporary directional handicapped signage for routing to the nearest accessible facilities.
1.06 NOT USED FOR THIS PROJECT

1.07 CONTRACTOR’S ACCESS PARKING AND STAGING AREAS

A. Work included in this project will need to be performed within the limitations of available access at the site. The University shall limit the area available for staging and parking due to the additional number of construction projects planned during the execution of this contract. Contractor shall adjust the means and methods of construction to allow for the restrictions surrounding the site.

B. All parking on campus except for some one-hour zones on city streets and a few metered spaces is under control and authority of the Parking and Transportation Services (PTS) of the University. All University parking is by permit only.
   1. Types of parking and staging are defined as follows:

   **General Staging Areas** are approved areas adjacent to the site when available or in University designated group staging yards. General Staging Areas may be used for any purpose, including employee parking, on a space available basis, but must be coordinated through the UCB Project Manager and PTS. Vehicles may not park outside of general staging areas except in areas coordinated and approved by PTS.

   **Restricted Staging Areas** are approved areas near the site for the construction dumpster, off-loading of equipment, and materials that are soon to be incorporated into the work. No vehicles shall park in a restricted staging area for more than 20 minutes between the hours of 8:00 a.m. and 5:00 p.m. weekdays.

   **Contractor Employee Parking** are areas for workers needing parking on campus. Coordinate through UCB Project Manager and PTS.

   **Prohibited Parking** are areas designated in the Contract Documents as No Parking areas. The Contractor shall not allow any parking in areas so designated under any circumstance.

C. The restrictions in this Section are in addition to any other restrictions or rules provided by PTS.
   1. Fees shall be assessed for the use of any PTS facility for staging and construction activities.

D. The designated staging area for this project is as shown on the Drawings

1.08 TEMPORARY ELECTRIC SERVICE

A. Connect to existing power service. Power consumption shall not disrupt owners need for continuous service. Owner to pay for power consumed. Provide power outlets for construction operations, branch wiring, distribution boxes, and flexible power cords as required.

END OF SECTION
SECTION 01020 – ADMINISTRATION AND SUPERVISION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to work of this section.

1.02 SURVEYS, LAYOUTS, AND LEVELS

A. General: Working from lines and levels established by the existing building, and as shown in relation to the work, establish and maintain bench marks and other dependable markers to set the lines and levels for the work of construction as needed to properly locate every element of the work of the entire project. Calculate and measure required dimensions as shown (within recognized tolerances if not otherwise indicated); do not scale the drawings to determine dimensions. Continuously advise tradesmen performing the work of the marked lines and levels provided for use in the layout of work.

1.03 PROJECT RECORD DOCUMENTS

A. Maintain at job site, one copy of:
   1. Contract Drawings
   2. Specifications
   3. Addenda
   4. Reviewed Shop Drawings
   5. Change Orders
   6. Other Modifications to Contract
   7. Field Test Records
   8. As-Built Drawings

B. Maintain documents in clean, dry, legible condition and do not use record documents for construction purposes. Make documents available at all times for inspection by the Engineer and Owner.

C. Label each document "Project Record" in 1-inch or larger printed letters.

D. Record drawing information in colored pencil with different colors for the various systems and defined by color legend.

E. Record drawings and specifications shall include the following:
   1. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure. Location of concealed valves, dampers, controls, balancing devices, junction boxes, clean-outs, and other items requiring access or maintenance.
   2. Field changes of dimension and detail, changes made by Change Order or Field Order and details not on original contract drawings.
   3. Fire protection and alarm systems shop drawings.

F. Submit all record drawings to the Engineer at the completion of the project.
1.04 CLEANING

A. Cleaning and Protection Work: At the time each unit of work or element of the construction is completed (substantially) in each area of the Project, clean the unit or element to a condition suitable for occupancy and use (as intended), and restore minor or superficial damage. Replace units and elements which are damaged beyond successful restoration. Clean and restore adjoining surfaces and other work which was soiled or damaged (superficially) during the installation; replace other work damaged beyond successful restoration. Where the performance of subsequent work could possibly result in damage to the complete unit or element, provide protective covering or other provisions to minimize possible damage. Repeat cleaning and protection operations during remainder of construction period, wherever work might otherwise be damaged by sustained soiling or exposure.

B. During Construction: Oversee cleaning and ensure that building, grounds, and public properties are maintained free from accumulation of waste materials and rubbish. At reasonable intervals during daily progress of work, clean up site and access and dispose of waste materials, rubbish, and debris. Vacuum clean interior building areas when ready and continue vacuum cleaning on an as-needed basis until building is ready for acceptance or occupancy.

1.05 PROJECT SIGN

Erect no project sign or job-site sign of any kind, except warning signs as specified in Section 01500, without written authorization of the Owner.

1.06 COORDINATION

A. The Contractor shall coordinate the work so as not to interfere with the building custodian's normal cleanup activities.

B. The Contractor shall be responsible for coordinating all the work of the project. The Contractor shall coordinate the efforts of all subContractor(s) and the deliveries of suppliers so that the work progresses in an orderly fashion without delay towards timely completion of a complete project in accordance with the drawings and specifications.

C. The Contractor shall note that concurrent with his work, other Contractors, suppliers, and the Owner's facilities and maintenance personnel may be working in relatively close proximity. The Contractor will be solely responsible for coordinating his work with that of other Contractors and will make no claims for failure to do so.

1.07 METHODS OF CONSTRUCTION

A. The procedure and method of construction is the prerogative and the responsibility of the Contractor. If professional assistance is required to safely implement method of construction, the Contractor shall, on his own, employ professional help.

END OF SECTION
SECTION 01026 - UNIT PRICES

PART 1 - GENERAL

1.01 GENERAL

Quantities indicated on the drawing or extra quantities specified shall be included in the Contractor's Base Bid. For Adding or Deducting from Base Bid quantities, the unit prices described in this section will be applied. The Contractor will be notified, in writing, of the quantities applicable for each unit price, and the Contract Price will be adjusted accordingly by Change Order.

All unit prices shall include all labor, materials, equipment, services, delivery to the project, overhead, profit, insurance, and all other incidental expenses to complete the work specified unless indicated otherwise. All work covered by unit prices shall be performed in accordance with requirements of the applicable sections of the Specifications.

END OF SECTION
SECTION 01030 - ALTERNATES

PART 1 - GENERAL

1.01 GENERAL ALTERNATE REQUIREMENTS

A. General: The description for each alternate is recognized to be incomplete and abbreviated but implies that each change must be complete for the scope of work affected. Refer to applicable sections and to applicable drawings for the specific requirements of the owner, whether or not references are so noted in the description of each alternate. Modify surrounding work as required to integrate with the work of each alternate.

1.02 SPECIFIC ALTERNATES

A. Add Alternates:

No add alternates are specified for this project.

END OF SECTION
SECTION 01041 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

A. General Contractor is responsible for all of the work of this contract.
   1. Assign and subcontract portions of the work as required to assure that all work is
      constructed in compliance with these documents.
   2. Coordinate the work of the several subcontractors for the project.
   3. Coordinate work of this contract with work by separate Contractors.

B. Each subcontractor shall:
   1. Coordinate work of his own employees and subcontractors.
   2. Expedite his work to assure compliance with schedules.
   3. Coordinate his work with that of other subcontractors and work by separate Contractor.
   4. Comply with orders and instructions of owner.

C. Related Requirements
   1. All Division 1 Sections.

1.02 CONSTRUCTION ORGANIZATION AND START-UP

A. Establish on-site lines of authority and communications.
   1. Attend pre-construction meeting with subcontractors upon commencement of the project.
   2. Establish procedures for intra-project communications.
      a. Submittals.
      b. Reports and records.
      c. Recommendations.
      d. Coordination Drawings.
      e. Schedules.
      f. Resolution of conflicts.
      a. Consult with Architect to obtain interpretation.
      b. Assist in resolution of questions or conflicts which may arise.
      c. Transmit written interpretations to subcontractors, and to other concerned parties.
   4. Assist in obtaining permits and approvals.
      a. Obtain building permits and special permits required for work or for temporary
         facilities.
      b. Verify that subcontractors have obtained inspections for work and for temporary
         facilities.
   5. Control the use of site.
      a. Supervise field engineering and site layout.
      b. Allocate space for each subcontractor’s use for field offices, sheds, work and
         storage areas.
      c. Establish access, traffic and parking allocations and regulations.
      d. Monitor use of site during construction.
1.03 CONTRACTOR DUTIES

A. Construction Schedules.
   1. Coordinate schedules with several subcontractors.
   2. Monitor schedules as work progresses.
      a. Identify potential variances between schedules and probable completion dates for each phase.
      b. Recommend adjustments in schedule to meet required completion dates.
      c. Adjust schedules of subcontractors as required.
      d. Document changes in schedule.
   3. Observe work of each subContractor to monitor compliance with schedule.
      a. Verify that labor and equipment are adequate for the work and the schedule.
      b. Verify that product procurement schedules are adequate.
      c. Verify that product deliveries are adequate to maintain schedule.

B. Process Shop Drawings, Product Data and Samples.
   1. Review for compliance with Contract Documents.
      a. Field dimensions and clearance dimensions.
      b. Relation to available space.
      c. Relation to other trades, equipment and systems.
      d. Submit to Architect.

C. Monitor the use of temporary utilities.
   1. Verify that adequate services are provided and maintained.

D. Inspection and Testing.
   1. Inspection work to assure performance in accord with requirements of Contract Documents.
   2. Administer special testing and inspections of suspected work.
   3. Reject work which does not comply with requirements of Contract Documents.
   4. Coordinate testing laboratory services.
      a. Verify that required laboratory personnel are present.
      b. Verify that tests are made in accordance with specified standards.
      c. Review test reports for compliance with specified criteria.
      d. Recommend and administer required retesting.

E. Monitor Contractor's periodic cleaning.
   1. Enforce compliance with specifications.
   2. Resolve any conflicts.

F. Coordinate changes.
   1. Recommend necessary or desirable changes.
   2. Assist owner in negotiating change orders.
   3. Promptly notify all subcontractors of pending changes.

G. Maintain Reports and Records at Job Site available to Architect and Subcontractors.
   1. Log progress of work of each subContractor.
   2. Records
      a. Contracts.
      b. Purchase orders.
c. Materials and equipment records.
d. Applicable handbooks, codes and standards.
3. Obtain information from subcontractors and maintain file of Project Record Documents.
4. Assemble documentation for handling of claims and disputes.

H. Coordinate work of this Contract and requirements of this section with work by Separate Contract including but not limited to:
1. Removal of asbestos containing materials by separate contract.

1.04 CONTRACT CLOSEOUT

A. Coordinate equipment start-up.
1. Provide seven days notification prior to start-up of each item.
2. Ensure that each piece of equipment or system is ready for operation.
3. Execute start-up under supervision of responsible persons in accordance with manufacturer’s instructions.
4. Perform required testing and balancing.
5. Record dates of start of operation of systems and equipment. Submit written report that equipment or system has been properly installed and is functioning correctly.
6. Provide written notice of beginning of warranty period for equipment put into service.

B. Demonstration and Instructions
1. Demonstrate operation and maintenance of products to Owner’s personnel two weeks prior to Substantial Completion.
2. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, seasonal operation, and shutdown of each item of equipment.

C. At completion of work of each Section, conduct an inspection to assure that
1. Specified cleaning has been accomplished.
2. Temporary facilities have been removed from site.

D. At completion
1. Conduct an inspection to list work to be completed or corrected.
2. Supervise correction and completion of work as established in Certificate of Completion.

E. When a portion of the Project is occupied prior to final completion, coordinate established responsibilities of each subContractor.

F. Final completion.
1. When each SubContractor determines that work is finally complete, conduct an inspection to verify completion of work.
2. Assist owner and architect in inspection.

G. Administer contract closeout.
1. Receive and review SubContractor’s final submittals.
2. Transmit to architect with recommendation for action.

END OF SECTION
SECTION 01042 - MECHANICAL AND ELECTRICAL COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

A. Carefully coordinate the interface between Division 15 (Mechanical) and Division 16 (Electrical) before submitting any equipment for review or commencing installation.

B. Contractor must review all concrete embedded items (including conduit) with owner prior to placement.

PART 2 - PRODUCTS

2.01 MOTOR HORSEPOWER

A. In general, all motors 1/2 HP and above shall be three phase, all motors less than 1/2 HP shall be single phase.

B. Voltage and phase of motors as scheduled on the electrical drawings shall take precedence in the case of a conflict between the mechanical and electrical drawings or General Condition 2.01 A., above.

C. Work under Division 15 includes coordinating the electrical requirements of all mechanical equipment with the requirements of the work under Division 16, before ordering the equipment.

1. If motor horsepower is changed under the work of Division 15, without a change in duty of the motor's driven device, coordination of additional electrical work (if any) and additional payment for the work (if any) shall be provided under the section of Division 15 initiating the change. Increases or decreases in motor horsepower from that specified shall not be made without written approval from the Engineer.

PART 3 – EXECUTION (NOT USED FOR THIS PROJECT)

END OF SECTION
SECTION 01045 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included: This section establishes general requirements in addition to those indicated in the General Conditions of the Contract for Construction pertaining to cutting, fitting, and patching of the work required to:
   1. Make the several parts fit properly.
   2. Uncover work to provide for installation, inspection, or both, of ill-timed work.
   3. Remove and replace work not conforming to requirements of Contract Documents.
   4. Patch new construction into existing construction.

B. Related Work:
   1. In addition to requirements specified, upon the Engineer's request, uncover work to provide for inspection of covered work, and remove samples of installed materials for testing.
   2. Do not cut or alter work performed under separate contract without the Engineer's written permission.

1.02 QUALITY ASSURANCE

A. Perform all cutting and patching in strict accordance with pertinent requirements of the Specifications and, in the event no such requirements are determined, in conformance with the Engineer's written direction.
   1. Use skilled workmen to perform all cutting and patching work.
   2. Use methods least likely to damage existing surfaces and materials to remain, while providing proper surfaces to receive installation of repair, patching, and/or new work.

B. Visual Quality:
   1. Do not cut and patch work exposed to public view, and the exterior and/or interior of the building in a manner that will result in an unacceptable appearance as determined by the Engineer.
   2. Do not cut and patch work in a manner that will result in obvious appearance that cutting and patching work was done.
   3. When cutting existing structural concrete, do not extend saw cuts beyond the corners of the required opening on either side of the opening.

1.03 EXISTING CONSTRUCTION

A. Where cutting and patching of existing construction is required; prior to start of work, inform Owner of existing construction to be disturbed. Owner will determine if elements of existing construction contain asbestos. Do not proceed with work until after Owner has examined areas to be disturbed. Refer to Exhibit A, Project Pre-Inspection for Possible Presence of Asbestos for additional information concerning the possible presence of materials containing asbestos.

1.04 SUBMITTALS

A. Submit proposed cutting and patching procedures in writing for the following categories of work prior to proceeding with this work:
1. Cutting new openings in existing structural concrete walls, parapets, and suspended slabs.
2. Cutting new openings in existing roofs and roofing materials.

B. Submittals shall comply with Section 01300.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as otherwise indicated in pertinent sections of these specifications, or as directed by the Engineer, use materials which are identical to existing materials in workmanship, appearance, and performance.

B. If identical materials are not available, match existing as closely as possible, especially existing visual characteristics.

PART 3 - EXECUTION

3.01 INSPECTION

A. Before proceeding, inspect existing conditions, including elements subject to movement or damage during cutting, excavating, backfilling, and patching.

B. After uncovering the work, inspect conditions affecting installation of new work.

C. If uncovered conditions are not as anticipated or if existing construction is not as indicated on the Drawings, immediately notify the Engineer for further instructions.

3.02 PREPARATION

A. Provide shoring, bracing, and support as required to maintain structured integrity of the project.

B. Take all necessary action required to protect adjacent existing surfaces from damage due to the work of this section.

C. Take all precautions necessary to protect existing surfaces and materials, new work, and the work of this section from damage due to adverse weather conditions.

D. Provide temporary support of work to cut and adjacent work to prevent failure or damage due to the work of this section.

E. Properly prepare substrate surfaces exposed during cutting as required to receive the work of this or other sections of these specifications in strict compliance with manufacturer’s recommendations and these specifications.
3.03 EXECUTION

A. Perform all required cutting and patching as required or reasonably implied under pertinent sections of these specifications.

B. Perform cutting and demolition by methods which will prevent damage to other portions of the work and will provide proper finished installation complying with the specified tolerances and finishes.

3.04 PERFORMANCE

A. Execute cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs and new work. Saw-cut and otherwise isolate areas to be demolished.

B. Repair or otherwise rebuild and/or construct all surfaces affected by cutting and demolition. Execute fitting and adjustment of products to provide totally finished installation to comply with tolerances, finishes, and profiles of adjacent surfaces, whether new or existing.

C. Restore work which has been cut or exposed by demolition; install new construction in compliance with specifications for type of new work to be done or as required to match existing adjacent surfaces. In no case shall any exposed existing surface be left in a raw, marred, or unfinished surface.

D. Refinish entire surfaces as necessary to provide an even finish.
   1. Continuous Surfaces: To nearest intersections.

END OF SECTION
SECTION 01060 - REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:
   A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 - Specification sections, apply to work of this section.

1.02 SUMMARY:
   A. Section Includes:
      1. General administrative requirements and procedures and related applicable codes.

1.03 APPROVAL AND RECOMMENDATION AGENCIES:
   A. The University of Colorado at Boulder has jurisdiction for the interpretation and enforcement of code requirements for construction of projects.

1.04 CODES:
   A. All Contractors shall comply with all applicable codes, ordinances and regulations in effect at the time of bid openings.

APPROVED STATE BUILDING CODES (updated July 2008)

The following approved building codes and standards have been adopted by State Buildings Programs (SBP) as the minimum requirements to be applied to all state-owned buildings and physical facilities including capital construction and controlled maintenance construction projects.

The 2006 edition of the International Building Code (IBC)
(as adopted by the Colorado State Buildings Program as follows: Chapters 2-35 and Appendices C and I)

The 2006 edition of the International Mechanical Code (IMC)
(as adopted by the Colorado State Buildings Program as follows: Chapters 2-15 and Appendix A)

(as adopted by the Colorado State Buildings Program)

The 2008 edition of the National Electrical Code (NEC)
(National Fire Protection Association Standard 70) (as adopted by the Colorado State Electrical Board)

The 2006 edition of the International Plumbing Code (IPC)
(as adopted by the Colorado Examining Board of Plumbers as follows: Chapter 1 Section 101.2, 102, Chapters 2-13 and Appendices B, D, E, F and G)

The National Fire Protection Association Standards (NFPA)
(as adopted by the Department of Labor and Employment/Boiler Inspection Section)

(as adopted by the Colorado General Assembly as follows: CRS 9-5-101, as amended, for  
accessible housing)


In case of a conflict between references applicable codes, the one having the more stringent  
requirements shall govern. Where governing codes indicate that the drawings or specifications do  
ot comply with the minimum requirements of the codes, the Contractor shall be responsible for  
providing an installation, which will comply with code requirements. Drawings and specifications  
shall be followed where they are superior to code requirements.

Note: Additional codes, standards and appendices may be adopted by the state agencies and  
institutions in addition to the minimum codes and standards herein adopted by State Buildings  
Programs.

1. The 2006 edition of the IBC became effective on July 1 of 2007. Consult the state  
electrical and plumbing boards and the state boiler inspector and conveyance  
administrator and the Division of Fire Safety for adoption of current editions and  
amendments to their codes.

2. Projects should be designed and plans and specifications should be reviewed based upon  
the approved codes at the time of A/E contract execution. If an agency prefers to design  
to a different code such as a newer edition of a code that State Buildings Programs has  
not yet adopted, the agency must contact SBP for approval and then amend the A/E  
contract with a revised Exhibit D, Approved State Building Codes. Please note that the  
state plumbing and electrical boards enforce the editions of their codes that are in effect  
at the time of permitting not design.

3. The state’s code review agents, or the State Buildings Programs approved agency  
building official, shall review all documents for compliance with the codes stipulated  
herein. Note: The Department of Public Health and Environment, Division of Consumer  
Protection will review drawings for food service related projects.

4. This policy does not prohibit the application of various life safety codes as established by  
each agency for specific building types and funding requirements. NFPA 101 and other  
standards notwithstanding, approved codes will supersede where their minimum  
requirements are the most restrictive in specific situations. If a conflict arises, contact  
State Buildings Programs for resolution.

5. It is anticipated that compliance with the federal Americans with Disabilities Act  
Accessibility Guidelines for Buildings and Facilities (ADAAG) and Colorado Revised  
Statutes Section 9-5-101 will be met by compliance with the 2006 International Building  
Code and ICC/ANSI A117.1. However, each project may have unique aspects that may  
require individual attention to these legislated mandates.

6. The 2003 edition of the International Building Code (IBC) is to be applied to factory-built  
nonresidential structures as established by the Division of Housing within the Department  
of Local Affairs.

A. Appendices
Appendices are provided to supplement the basic provisions of the codes. Approved IBC Appendices are as follows:

1. Mandatory
   IBC Appendix Chapter C - Agricultural Buildings
   IBC Appendix Chapter I - Patio Covers

2. Optional
   Any non-mandatory appendix published in the International Building Code may be utilized at the discretion of the agency. Use of an appendix shall be indicated in the project code approach.

B. Amendments

None

C. Referenced Codes

1. While not adopted in entirety, portions of the following codes are referenced in the International Building Code (IBC), the International Mechanical Code (IMC), the International Energy Conservation Code (IECC), the International Plumbing Code (IPC), and the International Fuel Gas Code (IFGC). These following codes would be applied as reference standards.

   2006 International Fire Code (IFC)
   2006 International Existing Building Code (IEBC)

D. Referenced Standards

The IBC, IMC, IECC, IPC and IFGC standards shall be utilized to provide specific, or prescriptive, requirements on how to achieve the requirements established in the code. These standards may be unique to the code or may be derived from other established industry standards. Recognized standards may also be used to show compliance with the standard of duty established by the code.


In case of a conflict between references applicable codes, the one having the more stringent requirements shall govern. Where governing codes indicate that the drawings or specifications do not comply with the minimum requirements of the codes, the Contractor shall be responsible for providing an installation, which will comply with code requirements. Drawings and specifications shall be followed where they are superior to code requirements.

1.05 OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA):

A. The Contractor shall have sole responsibility for compliance on the job site to all applicable portions of the Occupational Safety and Health Act. The Contractor is responsible for other regulatory requirements as they relate to occupational Health and Safety requirements. For example, NIOSH, ANSI, and MSA.

B. Protection of life, health and public welfare as it relates to the execution of the construction contract is the responsibility of the Contractor. The Owner's Representative may, at their discretion, observe, inspect, or comment on plans, procedures, or actions employed at the project as they relate to safety of life, health or public welfare. If conditions are imposed by the Owner
which interfere with, or imply actions detrimental to safety, written notice shall be returned to the Owner for action prior to affecting any unsafe conditions.

C. Contractors shall use OSHA Lock Out / Tag Out procedures when working with energized equipment.

D. All Contractors entering confined spaces owned by CU or while conducting work under contract with CU shall develop a written program and utilize procedures that, at a minimum, comply with all federal, state and local confined space standards and all applicable regulatory requirements. Contractors shall, independent of the University, monitor the space to obtain their own data to ensure a safe entry and exit. Any data generated by a Contractor's confined space entry, should be provided to the Facilities Management confined Space Program Manager.

E. When Contractors perform work that may involve Facilities Management controlled permit required confined spaces, Facilities Management will:
   1. Inform Contractors of permit required confined spaces and that entry is allowed only after compliance with the confined space entry standard;
   2. Require Contractors planning to enter a confined space to provide the Facilities Management Confined Space Program Manager in charge of that space, 48-hour advance notice of such planned entry. The Contractors entry will be in accordance with the current Occupational Safety and Health Administration confined space entry standard and a signed document stating such, shall be provided to the FM Confined Space Program Manager prior to entry.

F. The FM Confined Space Program Manager, following receipt of notice of Contractor planned entry, will:
   1. Apprise Contractor of the hazards identified in the confined space and of any prior experience that is documented on the space;
   2. Appraise the Contractor of any precautions or procedures that CU has implemented for the protection of workers in or near the confined space;
   3. Coordinate entry operations with the Contractor when both Facilities Management and Contractor personnel are working in or around the confined space;
   4. Debrief the Contractor at the end of the entry operations regarding hazards confronted or created.

1.06 HOT WORK PERMITS

A. All Contractors shall be required to obtained a Hot Work Permit, three (3) working days in advance, for work that involves welding, heat treating, grinding, thawing pipe, hot riveting, soldering and brazing, power driven fasteners and similar activities involving spark, flame or heat. Compliance with the requirements of the applicable fire code, the International Building Code, and NFPA Standard 51B are mandatory and all Contractors performing hot work activities shall read and understand these code requirements. To obtain a current Hot Work Permit, go to website: http://fm.colorado.edu/firesafety/hotwork.html

B. Contractors shall read and comply with the procedures and requirements for Fire Watch, Fire Alarm Interruption and Fire Suppression Interruption as found on the following websites:

   Fire Watch Procedures:
   http://fm.colorado.edu/firesafety/firewatch.html

   Fire Alarm and Detection System Interruption/Outage:
   http://fm.colorado.edu/firesafety/firealrmdetectsys.html

   Fire Suppression System Interruption/Outage:
   http://fm.colorado.edu/firesafety/firesuppressionsystems.html
C. No hot work shall be conducted in any campus facility without a hot work permit. Any person or firm who conducts hot work without a permit shall be fined one thousand dollars ($1,000) for each occurrence and their non-permitted activities shall be stopped immediately until they obtain a hot work permit. Contractor shall be responsible for any damages caused as a result of improper hot work activities or the work stoppage.

D. Individuals or firms who obtain a permit shall fully read, understand and implement the requirements of the permit. Any person or firm who conducts hot work without the full implementation of the permit requirements shall be fined five hundred dollars ($500) the first time and one thousand dollars ($1,000) for subsequent occurrences. When the requirements of the hot work permit are not being implemented, the improper activities shall be stopped immediately until a hot work permit is obtained. Contractor shall be responsible for any damages caused as a result of improper hot work activities or the work stoppage. Any Contractor who is found to be in non-compliance a third time, will not be allowed to work on campus until further notice by Facilities Management.

E. The campus inspectors, project managers and fire marshal shall have the authority to stop improper or non-permitted hot work activities.

F. The Contractor shall notify the CU Fire Alarm Supervisor to deactivate all smoke alarms in the vicinity of the work prior to any demolition and construction work activity. Failure of the Contractor to comply with the smoke alarm deactivation requirement and cause a false alarm and arrival of the Boulder Fire Department shall be a $400 fine per occurrence.

1.07 PERMITS

A. The Contractor must obtain a no fee building permit prior to starting work from Office Manager, Facilities Management at (303) 492-2904 in the Planning, Design and Construction Office, Research Laboratory No. 2, 1540 30th Street, Boulder, Colorado. Building permits are required on all projects except the following:
   1. Fences not over 6 feet high & general landscape work
   2. Retaining walls which are not over 4 feet in height, unless supporting a surcharge of impounding Class I, II or III-A liquids
   3. Platforms, walks and driveways not more than 30 inches above grade and not over any basement or story below.
   4. Painting, papering, and similar finish work that meet the requirements of chapter 8 of UBC. (Uniform Building Code).
   5. Temporary motion picture, television and theater stage sets and scenery. Review for fire-safety issues is required.

B. The Contractor must post the permit(s) in a prominent location at the jobsite including all inspection reports. The Contractor shall have an updated set of contract documents available at the jobsite for all inspections.

1.08 INSPECTIONS

A. The Contractor must schedule all required inspections 48 hours in advance by calling (303) 492-2922. CU or their designated inspectors will complete these inspections within 48 hours with the exception of weekends and state holidays.

B. The Contractor is required to arrange for the following inspections:
   1. Required inspections: General. Reinforcing steel or structural framework of any part of any building of structure shall not be covered or concealed without first obtaining the approval of the building official.
2. Lath or gypsum board inspection: To be made after lathing and gypsum board, interior and exterior, is in place, but before any plastering is applied or before gypsum board joints and fasteners are taped and finished.
3. Final inspection: To be made after finish grading and the building is completed and ready for occupancy.
4. Special inspection: Special inspection may be required on special projects and special types of construction.
5. Re-inspections: A re-inspection fee may be assessed for each inspection or reinspecktion when such portion of work for which inspection is called is not complete or when corrections called for are not made.

C. The Contractor will be responsible for all cost related to re-inspections and will be billed at a rate of $100.00 per hour for CU re-inspections and at the testing agency bill-out rate for other re-inspections.

1.09 UNIVERSITY OF COLORADO SEXUAL HARASSMENT POLICY

A. Contractors should be aware of and review the University of Colorado at Boulder’s policies that prohibit discrimination and harassment on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation or veteran status. These policies are located on the web at: http://www.colorado.edu/odh/ Contractor personnel must adhere to these policies and conduct themselves in a manner that does not discriminate or harass as a result of interacting with an around the University of Colorado faculty, staff and students and visitors.

1.10 FIRE ALARM INTERRUPTION

A. Contractor shall contact CU Fire Alarm Systems Supervisor at 303-492-0633 prior to all interruptions or shutdowns of fire alarm systems. Interruptions or shutdowns shall be scheduled three (3) working days in advance with CU Fire Alarm Systems Shop, CU Project Manager and building proctor. Contractor shall provide a fire watch as directed by CU Fire Alarm Systems Shop during interruption or shutdown.

B. The Contractor shall be responsible for preventing nuisance alarm due to activities at their work site. Common sources of nuisance alarms are:

1. Smoke (soldering, welding, cooking, etc.)
2. Grinding
3. Dust (drilling, welding, canister vacuums, sand blasting, etc.)
4. Water leaking (plumbing leaks, overflows)
5. Water sprayed on or near detectors (pressure washing or cleaning with water)
6. Popcorn or other food burning in microwaves
7. Static electricity (covering or uncovering detectors)
8. Changing filters on air handling units (dust)
9. Steam (leaks, pressure pop-offs)
10. Broken or frozen sprinkler heads
11. Sprinkler drain valves turned by mistake
12. Vandalism

Precautions to prevent nuisance alarms are:

1. During construction projects, treat all buildings, except totally new construction, as though they were occupied buildings with live systems.
2. Do not assume that all detectors are in plain sight. Contact University personnel for verification.
3. Maintain dust control measures per UCB Standards:
   a. Maintaining barriers
   b. Covering air returns
c. Asking CU personnel to cap or disable smoke detectors (Note any capping or disabling of fire safety devices is to be done ONLY by CU personnel, not Contractors.)
d. Avoiding recirculation of dust or smoke through the building air handling system.
4. Follow campus hot work procedures. Refer to specification Section 01060, paragraph 1.06.
3. Do not expose fire alarm devices to water or extreme temperatures.
4. Contact Fire Systems Group for any actions that affect fire detection, alarm, and suppression systems.

1.11 STORMWATER MANAGEMENT PLAN (SWMP)

A. Stormwater Management Plan (SWMP): Prior to any construction activity disturbing one acre of land or more, an approved SWMP and a Stormwater Permit for Construction Activity application from the Colorado Department of Public Health and Environment (CDPHE) are required. The SWMP shall be prepared in accordance with the CDPHE requirements for “Contents of the Stormwater Management Plan” and the UDFCD's Urban Storm Drainage Criteria Manual, Volume 3, “Best Management Practices” (UDFCD Drainage Criteria Manual). Stormwater quality management and erosion control measures are to be constructed and maintained in accordance with the SWMP and the UDFCD Drainage Criteria Manual.

1.12 UTILITY LOCATES

Contractor MUST CALL 811 (or 1-800-922-1987) for utility locates BEFORE DIGGING on any project at the University of Colorado at Boulder. This includes even small projects such as, but not limited to, planting trees or shrubs, sidewalk removal/installation or fence post installation. Digging without calling can disrupt service to the campus or surrounding neighborhoods and potentially result in fines and repair costs.

END OF SECTION
SECTION 01075 - SPECIFICATION SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:
   1. Specification system format.
   2. Grammar (syntax) description.

1.02 DESCRIPTION

A. These specifications have been derived from automated specification systems, and include minor deviations from format and traditional writing forms. Such deviations must be recognized as a normal result of this production technique, and no other meaning will be implied or permitted.

B. Imperative language of the technical sections is directed to the Contractor. The term "provide" used repeatedly in the text is defined to mean..."furnish and install, complete, in place and ready for operation and use unless specifically indicated otherwise."

C. Specifications are of abbreviated, simplified or streamlined type and include incomplete sentences. Omissions of work or phrases such as "the Contractor shall", "in conformity therewith," "shall be," "as noted on the Drawings", "A", "The", are intentional. Supply omitted words or phrases by inference in same manner as they are when "Note" occurs on Drawings. Supply words "on the Drawings" by inference when "as indicated" is used with sentences or phrases.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION
SECTION 01100 - SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Remodel Work scheduling.
   2. Construction sequence scheduling.

B. Related Sections:
   1. Section 01500 - Temporary Facilities and Controls.

1.02 SYSTEM DESCRIPTION

A. An essential condition of this Contract shall be the scheduling and conduct of all phases of construction operations in such a manner that the Owner's operations and use of the existing buildings and campus shall be uninterrupted at all times, except for such limited interruption as is required and approved by the owner.

B. Contractor shall repair at his own expense all damage done to Owner's property, unknown utilities and adjoining public property as a result of Contractor's construction activities.

1.03 PROJECT/SITE CONDITIONS

A. Access and use of site:
   1. Contractor shall use the designated site access for construction offices and material storage in such a manner that access to existing buildings and campus remain accessible at all times for use.
   2. Confine operations to as limited a use of the existing building and campus as possible. A route of access to and from the work for employees shall be agreed upon and it shall be the Contractor's responsibility to see that the agreed route is maintained in order to prevent unwarranted or unnecessary traffic through the existing buildings or site.

B. Owner notice and approval:
   1. All arrangements and scheduling in connection with the work of this Contract shall be made with and subject to the approval of the Engineer and the Owner.
   2. All work under this Contract which will require interruption of service of the existing building shall be scheduled to suit the need and convenience of the Owner's operation, and arrangements shall be made with the Owner and the Architect at least eight (8) working days in advance of the start of such work.

PART 2 - PRODUCTS

Not Used
PART 3 - EXECUTION

3.01 REMODELING

A. Construction activities of all areas to be constructed in existing facilities shall be completely separated from the rest of the building by dust-proof enclosures erected by Contractor.

B. All surfaces in existing facilities not indicated to be remodeled, or removal of existing items by any Contractor, shall be repaired by the responsible Contractor to match existing adjoining similar surfaces.

3.02 CLEAN-UP

A. All areas within existing facilities, which are not within enclosed areas to be constructed used for access to work areas shall be completely cleaned of all debris and made "broom-clean" at the end of each day's work.

B. Dust, which permeates areas of existing facilities because of improperly constructed dust-proof barriers, shall be the responsibility of the Contractor. The Contractor shall employ the services of a professional cleaning company to clean any area outside of the designated construction dust barriers that are contaminated by Contractor's operations. Completely clean all such areas to the satisfaction of the Owner at no additional cost.

END OF SECTION
SECTION 01121 - HAZARDOUS MATERIAL PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:
   A. Drawings and general provisions of the Contract, including General and Supplementary
      Conditions and other Division 1 - Specification sections, apply to work of this section.

1.02 SUMMARY:
   A. Section Includes:
      1. General administrative requirements and procedures for Hazardous Communication
         Program.
   B. Related Sections:
      1. Summary of Work: Section 01010.

1.03 WORK BY OWNER:
   A. Asbestos:
      1. The Owner has completed an Environmental Site Assessment to identify asbestos
         containing materials and other immediate Health and Safety items. Do not begin work
         until Form Exhibit A (copy following the Supplementary General Conditions) has been
         executed. Where asbestos materials or other hazardous conditions are known to exist in
         locations affected by this project, remediation measures will be taken by the Owner under
         separate contract. The Contractor shall coordinate his sequence and schedule with that
         of the environmental remediation work.
      2. In the event that the Contractor encounters any material on the site which is reasonably
         believed hazardous, which has not been rendered harmless, the Contractor shall:
            a. Stop work immediately in affected areas.
            b. Report the condition in writing to the Department of Facilities Management
               Project Administrator.
            c. Report the condition in writing to the Architect.
            d. Resume work only under the provisions of this section.

1.04 SUBMITTALS:
   A. Material Safety Data Sheets (MSDS):
      1. Copies of all material safety data sheets for all applicable products, including but not
         limited to; paint, adhesives, mastics, solvents, and finishes, etc., shall be retained on site
         by the Contractor for all applicable products used during the construction and/or
         remodeling work. Furnish copies of all MSDS's to the Owner and Architect and include in
         the Project Record Document submittal.

1.05 QUALITY ASSURANCE:
   A. Asbestos containing materials may exist within the general project area where such materials are
      not expected to be disturbed during the work. The Contractor shall review the Environmental
      Health and Safety Environmental Site Assessment Form at the project site and become familiar
      with known asbestos and hazardous containing materials in the work areas.
1.06 PROJECT/SITE CONDITIONS:

A. Hazard Communication Requirements:
   1. All Contractors are responsible for compliance with mandatory federal rules and regulations concerning Hazard Communication, including, but not limited to those regulations contained in 29 CFR 1910.1200 Hazard Communication, 1910.146 Confined Space, 1910.147 Lock-out Tag-out, 1910.1101 Asbestos, and 1926.62 Lead. Contractor and all subcontractors working at sites under the control of the Owner shall make available to the Architect, upon request, copies of the Hazard Communication Program used by their firm. In addition to this requirement, all regulations related to Multi-employer workplaces shall be adhered to. These regulations are found in 29 CFR 1910.1200, (e) (2) (i) through (e) (4) specifically:

   (e) (2) Multi-employer workplaces. Employers who produce, use, or store hazardous chemicals at workplace in such a way that employees of other employer(s) may be exposed (for example, employees of a construction Contractor working on site) shall additionally ensure that the hazard communication programs developed and implemented under paragraph (e) include the following:

   (e) (2) (i) The methods the employer will use to provide the other employer(s) with a copy of the material safety data sheet, or to make it available at a central location in the workplace, for each hazardous chemical the other employer(s)’ employees may be exposed to while working;

   (e) (2) (ii) The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace’s normal operating conditions and in foreseeable emergencies; and,

   (e) (2) (iii) The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace

   (e) (3) The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).

   (e) (4) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with requirements of 29 CFR 1910.20 (e).

   The referenced regulations were excerpted from 29 CFR 1910.1200. This excerpt shall not be relied upon for compliance with mandatory federal, state and local regulations. The Contractor shall comply with all such regulations and shall be solely liable for insuring that all requirements under applicable regulations are met.

PART 2 - PRODUCTS (NOT APPLICABLE TO THIS PROJECT)

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Asbestos and Hazardous Materials Discovery:
   1. The Contractor is cautioned to be alert to the possibility that his work may uncover asbestos-containing or hazardous materials. If suspected materials are found, the Contractor shall notify the Owner and stop all work in the area immediately. If the suspected materials prove to contain asbestos or hazardous materials, the Owner will arrange to have the materials abated in a timely manner.

HAZARDOUS MATERIAL PROCEDURES 01121 - 2
3.02 HAZARDOUS MATERIALS/EQUIPMENT REMOVAL:

A. Definition:
   1. Removal of hazardous materials/equipment is extremely dangerous. Hazardous materials/equipment is defined to include, but not limited to the following:
      a. Fume hoods
      b. Hood exhaust duct work
      c. Exhaust fans
      d. Laboratory casework and equipment
      e. PCB ballast’s
      f. Mercury and Sodium Vapor Lights
      g. Adjacent material that could come in contact with workers or public.

B. Protection:
   1. Hazardous materials/equipment removal shall include the protection of personnel, material, environment and safe legal disposal of the equipment; and further includes the following:
      a. Notification of Project Administrator and appropriate Environmental Health and Safety Unit
      b. Proper protective clothing for personnel involved in the removal.
      c. Appropriate emergency and first aid facilities.
      d. Removal procedures shall be accomplished during minimal occupancy of the remainder of the building on the weekends or at night.

C. Disposal:
   1. All equipment related to the use, storage or processing of hazardous materials/equipment shall be removed and properly disposed of under the direct, full-time supervision of a qualified Laboratory Specialist fully conversant with the chemistry and properties of the material/equipment involved. Certification is required. Contractors are responsible for the removal of all hazardous materials/equipment and chemicals from the work site as well as proper disposal of all hazardous waste generated by their project.

   2. Hazardous waste disposal must include prior notification to the Department of Environmental Health and Safety in order to verify that the appropriate procedures and documentation are used. Copies of all paper work for shipping and disposing of these materials (hazardous waste manifests, land disposal restrictions, etc.) will be provided by the Contractor to the Department of Environmental Health & Safety (303) 492-6025. Where appropriate, the Main Campus EPF ID COD007431505 will be used for these shipments.

   3. Hazardous chemicals, waste, and other pollutants may not be discharged to the sanitary or storm sewer systems at anytime. Releases to the environment must be reported to CUPD/EH&S immediately.

3.03 ENVIRONMENTAL RESPONSIBILITIES

A. Environmental and Safety Issues and Practices.

Contractors working on the UCB campus are required to comply with all applicable University, City, State and Federal environmental regulations and safety standards. Hazardous and regulated materials must be managed and disposed of properly. Work sites must control dust, debris and run-off, and pay special attention to preventing any pollutants from entering the storm sewer or surface water collection systems. These systems ultimately drain into our creeks and waterways.
B. Contractor will be required to sign an Environmental Responsibilities form. The Contractor is responsible for notifying all subcontractors of the responsibilities identified on the form. A copy of this form must be posted, throughout the duration of the project, in a visible area for all workers to see.

END OF SECTION
PART 1 - GENERAL

1.01 REQUIREMENTS

A. The types and minimum requirements for project meetings are included but are not necessarily limited to the following categories:

Pre-construction meeting
Progress and Coordination meetings
Specially called meetings

B. The pre-construction meeting will be scheduled within ten days after date of Notice to Proceed, at a central site location designated by the Owner and convenient for all parties.

1. Attendance:
   a. Owner's Representative
   b. Engineer and his sub-Engineers, as applicable
   c. Contractor's Superintendent
   d. Major SubContractor(s)
   e. Others as appropriate

2. Suggested Agenda:
   a. Distribution and discussion of:
      List of major subcontractors and suppliers
      Projected construction schedules
      Critical work sequencing
      Major equipment deliveries and priorities
      Project Coordination
      Designation of responsible personnel
   b. Procedures and processing of:
      Field decisions
      Proposal requests
      Submittals
      Change Orders
      Applications for Payment
   c. Adequacy of Distribution of Contract Documents
   d. Procedure for Maintaining Record Documents
   e. Inspections
   f. Stormwater Management Plan (SWMP)

C. The Contractor will: Record the minutes; including significant proceedings and decisions.

D. The Contractor shall schedule and administer sub-Contractor and vendor pre-construction meetings throughout progress of the work. He/she will:
   1. Prepare agenda for meetings.
   2. Distribute written notice of each meeting four days in advance of meeting date.
   3. Make physical arrangements for meetings.
   4. Preside at meeting.
   5. Record the minutes; including significant proceedings and decisions.
6. Representatives of Contractors, Subcontractors, and Suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

7. Use of Premises:
   Office, work, staging and storage areas
   Owner’s requirements

8. Temporary construction Facilities, Utilities, Controls and Construction Aids

9. Safety, First-aid, Security and Housekeeping Procedures

10. Administrative Procedures and Documents as Required by Owner

1.02 PROGRESS AND COORDINATION MEETING

The Contractor will schedule and administer job progress and coordination meeting at the site.

A. Attendance:
   1. Owner as needed
   2. Engineer and his sub-Engineers as needed
   3. SubContractor as appropriate to the agenda
   4. Suppliers as appropriate to the agenda
   5. Others

B. Suggested Agenda:
   1. Review of work progress since previous meeting.
   2. Field observations, problems and conflicts.
   3. Problems which impede Construction Schedule.
   4. Review of off-site fabrication and delivery schedules.
   5. Corrective measures and procedures to regain projected schedule.
   6. Revisions to Construction Schedule.
   7. Coordination of schedules.
   8. Progress and schedule during succeeding work period.
   9. Review submittal schedules and expedite as required.
   11. Pending changes and substitutions.
   12. Review proposed changes for:
       a. Effect on Construction Schedule and on completion date.
       b. Effect on other contracts of the Project.

END OF SECTION
SECTION 01300 - SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Submit shop drawings, product data and samples as required by various sections of the specifications.

1.02 QUALITY ASSURANCE

A. Shop Drawings:
   1. Drawings shall be presented in a clear and thorough manner.
   2. Details shall be identified by reference to sheet, detail, schedule, or room numbers shown on drawings.

B. Product Data:
   1. Preparation:
      a. Clearly mark each copy to identify pertinent products or models.
      b. Show performance characteristics and capabilities.
      c. Show dimensions and clearances required.
      d. Show wiring or piping diagrams and controls.
   2. Manufacturer's standard schematic drawings and diagrams.
      a. Modify drawings and diagrams to delete information that is not applicable to the work.
      b. Supplement Standard information to provide information specifically applicable to the work.

C. Samples:
   1. Office samples shall be of sufficient size and quantity to clearly illustrate:
      a. Functional characteristics of the product with integrally related parts and attachment devices.
      b. Full range of color, texture and pattern

D. Mock-ups:
   1. Provide complete mock-up of exterior materials to be incorporated into the work.
      a. Mock-up shall include a sample of all materials used in exterior construction, whether specified elsewhere or not in these documents, including but not limited to, masonry, stone, window systems, precast concrete, roof systems, flashing, sealants, masonry paving, paint and other readily visible materials.
      b. Secure Owner approval of mock-ups prior to ordering and placement of materials. Modify mock-ups as directed by the Architect or Owner until acceptable.
      c. Confirm exact mock-up(s) required by Owner prior to fabrication of mock-up(s).
   2. Remove mock-up at the conclusion of the project or when directed by the Architect.
      a. Restore or finish site to finish condition indicated on the Drawings.

E. Responsibilities of the Contractor:
   1. Review shop drawings, product data, samples and project record drawings for specification performance prior to submission.
2. Determine and Verify:
   a. Field measurements
   b. Field construction criteria
   c. Catalog numbers and similar data
   d. Conformance with specifications

3. Coordinate each submittal with requirements of the work and of the Contract Documents.

4. Notify the Engineer in writing, at the time of submission, of any deviations in the submittals for requirements of the Contract Documents.

5. Begin no fabrication or work that requires submittals until return of submittals with Engineer's acceptance.

6. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Engineer's review of submittals.

7. Contractor shall stamp, sign or initial, and date each submittal to show compliance with the Contract Documents prior to submittal to the Engineer.

1.03 SUBMITTALS

A. Make submittals promptly in accordance with approved schedule and in such sequence as to cause no delay in the work.

B. Number of Submittals Required:
   1. Shop Drawings and Product Data: Submit electronically (Adobe pdf format) to Engineer.
   2. Samples: Submit the number stated in each specification section.

C. Submittals shall contain:
   1. Date of the submission and dates of any previous submissions.
   2. Project title and number.
   4. Names of:
      a. Contractor and SubContractor(s), if applicable.
      b. Supplier
      c. Manufacturer
   5. Identification of product with the specification section number.
   6. Field dimensions, clearly identified as such.
   7. Relation to adjacent or critical features of the work or materials.
   8. Applicable standards, such as ASTM or Federal specification numbers.
   10. Identification of revisions on resubmittals.
   11. An 8"x3" blank space in lower right-hand corner for review stamps.

D. Resubmission Requirements:
   1. Make any corrections or changes in the submittals required by the Engineer and resubmit until accepted.

   2. Shop drawings and product data:
      a. Revise initial drawings or data and resubmit as specified for initial submittal.
      b. Indicate any changes that have been made, other than those requested by the Engineer.

   3. Samples: Submit new samples as required for initial submittal.
E. Distribution:
1. Distribute reproductions of approved shop drawings and copies of product data to affected subcontractors and retain one copy for use at the job-site.
2. Distribute approved samples as directed.

F. Schedule of Values and pay applications:
1. Submit typed schedule on State Form SC7.2; Contractor's standard form or media-driven printout will be considered on request.
2. Format: Table of Contents of this Project Manual.
3. Include in each line item a directly proportional amount of Contractor's overhead and profit.

G. Schedule of Submittals: The Contractor shall submit the submittals required by the specifications. The Contractor shall develop a submittal schedule that confirms the submittals and the time frame for review by the Engineers.

H. Construction Schedule:
1. The Contractor shall submit a critical-path method (CPM) construction schedule prior to start of construction activities. The CPM schedule shall include notice to proceed, submittal activities, construction activities, change order work (when applicable), close-out, testing, demonstration, and acceptance. The CPM shall correlate specifically to the schedule of values line items and be cost loaded.

   Float, slack time, or contingency within the schedule (i.e., the difference in time between the project's early completion date and the required contract completion date), and total float within the overall schedule, is not for the exclusive use of either the principal representative or the Contractor, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet contract milestones and the contract completion date.

   The Contractor will be required to submit an as-built progress CPM schedule with each progress billing. This CPM schedule will be the basis for making progress payments. The level of detail and quantity of work activities in the CPM schedule should be negotiated with the principal representative prior to starting construction.

I. Coordination Drawings:
1. The Contractor shall submit coordination drawings with all mechanical, electrical, fire protection, and building monitoring systems prior to the Engineer review of any shop drawings or submittals for work in those trades. Approval of required shops and submittals must be obtained prior to starting work, and must be obtained prior to approval of pay applications of the work. The drawings shall be created to include all trades on a particular level of the building on one drawing. Identify conflicts between the systems or between the systems and architectural elements such as ceiling heights, ceiling types, or walls. Conduit routing for electrical, mechanical, energy management system, and security trades shall be included. Identify potential solutions to the conflicts for the Engineer and Owner to review during the submittal process. Revise the coordination drawings to show any comments made during the submittal review process, and reissue for use by all affected trades, Owner and Engineer.

2. The Coordination drawings shall include sectional coordination documents. Identify elevations of systems A.F.F. (above finish floor) and component dimensions. Show elevations whenever component changes height.
J. Daily Reports
   1. The Contractor shall submit daily reports, due by 5 p.m. the following day. The report should include weather, equipment, manpower count, subcontractors on site, short description of work for that day, inspections, visitors, items that may affect progress or quality of project.

K. Request for Information (RFI):
   1. The Contractor will be responsible for submitting RFIs on the form provided in the Project Manual. The RFI should identify in writing any unclear, inconsistent, or conflicting item in the documents that could not be answered by thorough review by the Contractor or subcontractors. The RFI should include a description of the item and a proposed solution. The RFI should indicate schedule or cost impact, if any. Contractor shall be required to submit cost or schedule impact within seven days of receipt of the RFI response. Each RFI shall be numbered in sequence.

L. Weekly Logs:
   1. The Contractor shall provide an updated RFI, change request, and submittal logs at weekly construction meetings. Contractor shall provide a 2-week detailed construction schedule at the weekly construction meeting.

PART 2 - MATERIALS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION
SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.01 SUPPLEMENTAL TESTING

If required, the following testing shall be performed at the expense of the Contractor installing the material being tested:

A. Material Substitution: Any tests of basic material or fabrication equipment offered as a substitute for specified item on which a test may be required in order to prove its compliance with the specifications.

B. Mechanical/Electrical: Tests on mechanical and electrical systems required to insure their proper installation and operation.

C. Any test that fails shall be paid for by the installing Contractor subject to the following conditions:
   1. Quantity and nature of tests will be determined by the Engineer.
   2. All test shall be done in the presence of the Owner or his representative.
   3. Proof of noncompliance will make the installing Contractor liable for any corrective action which the Owner feels is prudent including complete removal and replacement of defective material.

The Contractor is responsible for Quality Control and Quality Assurance for the Project. Testing performed by representatives or agents of the Owner are solely for the Owner's benefit and shall not relieve the Contractor of his/her responsibilities for constructing the Project in conformance to the Drawings and Specifications. The Contractor shall cause testing to be performed for his/her benefit and at his/her sole expense as he/she deems necessary to ensure that the construction is in accordance with the Drawings and Specifications.

1.02 TEST REPORTS

Reports of all tests made by testing laboratories shall distributed by the testing laboratory as follows:
1 copy - Contractor
1 copy - Applicable supplier or subContractor
1 copy - Owner
1 copy - Engineer
Other copies - as directed

1.03 QUALITY CONTROL SYSTEM

A. General: The Contractor shall establish a quality control system to perform sufficient inspection and tests of all items of work, including that of all subcontractors, to ensure conformance to the Contract Documents for materials, workmanship, construction, finish, functional performance and identification. This control shall be established for all construction except where the Contract Documents provide for specific compliance tests by testing laboratories or Engineers employed by the Owner.

The quality control system is the means by which the Contractor assures that construction complies with the requirements of the Contract Documents. Controls shall be adequate to cover all construction operations and should be keyed to the proposed construction schedule.
B. The Contractor shall designate a quality control representative on staff to review the work to ensure compliance with the contract documents by weekly jobsite visits for observation. The designated employee shall not be involved in the performance of the work. The quality control representative shall review the work and make necessary corrections to bring the work into compliance prior to scheduling the Architect for the final punchlist review.

C. Records: The Contractor shall maintain correct records on an appropriate form for all inspections and tests performed, instruction received from the Owner and actions taken as a result of those instructions. These records shall include evidence that the required inspections or tests have been performed (including type and number of inspections or tests, nature of defects, causes for rejection, etc.) proposed or directed remedial action, and corrective action taken. The Contractor shall document inspections and tests as required by each Section of the Specifications.

1.04 INDEPENDENT TESTING AGENCY SERVICES

A. The Owner will employ and pay for the services of an independent Testing Agency to perform the Inspections, special inspections, tests and other services when required by sections of the specification. Services shall be performed in accordance with requirements of governing authorities and with specified standards.

1. Contractor shall cooperate with Testing Agency personnel and shall furnish tools, sample of materials, design mixes, equipment and assistance as requested.
2. Contractor shall provide and maintain, for the sole use of the Testing Agency, adequate facilities for the safe storage and proper curing of concrete testing cylinders on the project site for the first 24 hours after casting as required by ASTM C 31, Method of Making and Curing Concrete Test Specimens in the field.
3. Contractor shall notify Testing Agency sufficiently in advance of operations to allow for completion of initial tests and proper assignment of inspection personnel.
4. Contractor shall notify the testing agency sufficiently in advance of cancellation of required testing operations. The Contractor shall assume responsibility for costs incurred due to the failure to provide such notice.

END OF SECTION
SECTION 01500 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF REQUIREMENTS

A. This section of the General Requirements outlines the basic requirements for temporary services, utilities, and facilities which will indirectly enable adequate construction progress and processes, and will accommodate other necessary activities at the project site except as otherwise indicated, the costs of providing and using temporary services are included in the Contract Sum.

1.03 QUALITY ASSURANCE

A. Comply with governing regulations and utility company regulations and recommendations for the construction of temporary facilities, including but not necessarily limited to, code compliance, permits, inspections, testing, and health and safety compliance.

1.04 SITE CONDITIONS

A. Provide Temporary facilities and services at the time first needed at the site and maintain, expand, and modify the facilities as needed throughout the construction period and do not remove until no longer needed.

PART 2 - EXECUTION

2.01 GENERAL

A. Use qualified tradesmen for the installation of temporary facilities. Locate facilities where they will serve the total project construction work adequately and result in minimum interference with performance of the work. Relocate, modify, and extend facilities as required during the course of the work to properly accommodate the entire work of the project.

2.02 TEMPORARY FACILITIES

A. Temporary Water: Connect to existing water source as designated by the Owner for construction operations.

B. Temporary Telephone: Provide, maintain and pay for telephone service to the Contractor's superintendent at time of project mobilization. If a mobile phone is designated as the field office phone then it shall be a local number.

C. Sanitary Facilities: Comply with governing regulations, including safety and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install sanitary facilities in available locations which will best serve the needs of personnel at the project site. Toilet rooms in existing buildings or in new construction may not be used without written approval of the Owner.
D. Temporary Heat and Ventilation: Provide such OSHA approved heat and fuel, heating units, equipment as necessary to provide the required environmental conditions and to protect the work from damage due to cold. Maintain equipment in a clean, safe condition.

E. Fire Extinguisher:
   1. Except as otherwise indicated or required, comply with the applicable recommendations of NFPA No. 10 "Portable Fire Extinguisher" for each area of each construction activity whenever combustible materials, flammable liquids, and similar exposures to possible fires are present.
   2. Locate extinguisher where most convenient and effective for the intended purposes. Store combustible materials in recognized fire-safe locations and containers.

F. Protection
   1. Barricades, Warning Signs, and lights: Comply with recognized standards and code requirements for the erection of substantial and structurally adequate barricades wherever needed to prevent accidents and losses. Paint with appropriate colors, graphics and warning signs to inform personnel at the site and the general public where exposure exists of the hazard being protected. Provide lighting where appropriate and needed for the recognition of the facility, including flashing red lights where appropriate.

G. Temporary Enclosure: Wherever required, provide temporary enclosure of materials, equipment, work in progress, and completed portions of work, so as to afford protection for both the work and employees.

H. Miscellaneous Facilities:
   1. Provide ladders, ramps, and temporary stairs for access to all levels of the construction for general access by all trades. Individual Contractors and subcontractors shall furnish their own stepladders, scaffolds, staging, work platforms, and other facilities for use of their workmen and as necessary for safety of all personnel.
SECTION 01500 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF REQUIREMENTS

A. This section of the General Requirements outlines the basic requirements for temporary services, utilities, and facilities which will indirectly enable adequate construction progress and processes, and will accommodate other necessary activities at the project site except as otherwise indicated, the costs of providing and using temporary services are included in the Contract Sum.

1.03 QUALITY ASSURANCE

A. Comply with governing regulations and utility company regulations and recommendations for the construction of temporary facilities, including but not necessarily limited to, code compliance, permits, inspections, testing, and health and safety compliance.

1.04 SITE CONDITIONS

A. Provide Temporary facilities and services at the time first needed at the site and maintain, expand, and modify the facilities as needed throughout the construction period and do not remove until no longer needed.

PART 2 - EXECUTION

2.01 GENERAL

A. Use qualified tradesmen for the installation of temporary facilities. Locate facilities where they will serve the total project construction work adequately and result in minimum interference with performance of the work. Relocate, modify, and extend facilities as required during the course of the work to properly accommodate the entire work of the project.

2.02 TEMPORARY FACILITIES

A. Temporary Water: Connect to existing water source as designated by the Owner for construction operations.

B. Temporary Telephone: Provide, maintain and pay for telephone service to the Contractor’s superintendent at time of project mobilization. If a mobile phone is designated as the field office phone then it shall be a local number.

C. Sanitary Facilities: Comply with governing regulations, including safety and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install sanitary facilities in available locations which will best serve the needs of personnel at the project site. Toilet rooms in existing buildings or in new construction may not be used without written approval of the Owner.
D. Temporary Heat and Ventilation: Provide such OSHA approved heat and fuel, heating units, equipment as necessary to provide the required environmental conditions and to protect the work from damage due to cold. Maintain equipment in a clean, safe condition.

E. Fire Extinguisher:
   1. Except as otherwise indicated or required, comply with the applicable recommendations of NFPA No. 10 "Portable Fire Extinguisher" for each area of each construction activity whenever combustible materials, flammable liquids, and similar exposures to possible fires are present.
   2. Locate extinguisher where most convenient and effective for the intended purposes. Store combustible materials in recognized fire-safe locations and containers.

F. Protection
   1. Barricades, Warning Signs, and lights: Comply with recognized standards and code requirements for the erection of substantial and structurally adequate barricades wherever needed to prevent accidents and losses. Paint with appropriate colors, graphics and warning signs to inform personnel at the site and the general public where exposure exists of the hazard being protected. Provide lighting where appropriate and needed for the recognition of the facility, including flashing red lights where appropriate.

G. Temporary Enclosure: Wherever required, provide temporary enclosure of materials, equipment, work in progress, and completed portions of work, so as to afford protection for both the work and employees.

H. Miscellaneous Facilities:
   1. Provide ladders, ramps, and temporary stairs for access to all levels of the construction for general access by all trades, Individual Contractors and subcontractors shall furnish their own stepladders, scaffolds, staging, work platforms, and other facilities for use of their workmen and as necessary for safety of all personnel.

2.03 OPERATIONS AND TERMINATIONS

A. Supervision: Enforce strict discipline in the use of temporary facilities at the project site. Limit availability of facilities to essential and intended uses, so as to minimize waste and possibility of abuses and the resulting unsanitary and hazardous or dangerous conditions.

B. Maintenance: Operate and maintain temporary facilities in good operating condition through the time of use and until removal is authorized. Protect from damage by freezing temperatures and similar elements at the site.

C. Termination and removal: At the time the need has ended for each temporary facility, or when it has been replaced by authorized use of a permanent facility, or at the time of Substantial completion, promptly remove the facility unless requested by the Engineer to be retained for a longer period of time. Complete or restore permanent work which may have been delayed or otherwise affected by the temporary facility. Replace work which cannot be satisfactorily restored. Except as otherwise indicated, the materials and equipment of temporary facilities remain the property of the Contractors.

END OF SECTION
SECTION 01600 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Products.
   2. Transportation and Handling.
   4. Manufacturer's Instructions.
   5. Product Options.
   6. Products List.
   7. Substitutions.

B. Related Sections:
   1. Section 01400 - Quality Control.
   2. Section 01730 - Operation and Maintenance Data.

1.02 QUALITY ASSURANCE

A. Conform to applicable specifications and standards.

B. Comply with size, make, type and quality specified, or as specifically approved in writing by the Engineer.

C. Manufactured and Fabricated Products:
   1. Two or more items of the same kind shall be identical, by the same manufacturer.
   2. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.

1.03 TRANSPORTATION AND HANDLING

A. Arrange deliveries of products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

1.04 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instruction, with seals and labels intact and legible.

B. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.

1.05 MANUFACTURER'S INSTRUCTIONS

A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including one copy to the Engineer and one copy to the Contractor.
B. Perform work in accord with manufacturer’s instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.06 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards.

B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not specifically named.

C. Engineer will review requests for substitutions with reasonable promptness, and notify, by Addendum, of the decision to accept or reject the requested substitution.

1.07 PRODUCT LIST

A. Within 15 days after signing of agreement, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

1.08 SUBSTITUTIONS

A. Will only be considered prior to bid or in the event that Equipment is not available.

1.09 SYSTEMS DEMONSTRATION

A. Prior to final inspection, demonstrate operation of each system to Engineer and Owner.

B. Instruct Owner’s personnel in operation, adjustment, and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION
SECTION 01700 - CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.01 SUBSTANTIAL COMPLETION AND FINAL INSPECTION

A. The Contractor shall comply with procedures stated in the General Conditions of the Contract for Notice of Completion, Final Inspection, Notice of Substantial Completion and Notice of Acceptance.

B. Should the Architect/Engineer or the Principle Representative determine that the work is not substantially complete, or the punch list items exceed 25, he will immediately notify the Contractor, in writing, stating reasons. After Contractor completes work, he shall resubmit certification and request for final inspection. The Contractor will be responsible for all costs beyond two Architect/Engineer walk-throughs.

C. Owner may occupy designated portions of the Project under provisions stated in the General Conditions of the Contract.

1.02 CLOSE-OUT FORMS

The Architect/Engineer will complete the Notice of Approval of Beneficial Occupancy, Closing-out Checklist and Contract Close-out forms and forward them to the Contractor. Comply with procedures stated in General Conditions of the Contract.

1.03 FINAL SETTLEMENT AND PAYMENT

A. Contractor shall comply with procedures stated in the General Conditions of the Contract before final settlement and payment are made.

B. The Contractor shall also submit the following prior to the final application for payment:
   1. Contractor’s Affidavit of Payment of Debit and Claims: AIA G706.
   2. Contractor’s Affidavit of Release of Liens (claims): AIA G706A, with:
      a. Consent of Surety to final payment: AIA G707
      b. Contractor’s release of waivers of claims.
      c. Separate release of waivers of claims for subcontractors, suppliers and others with claim rights, against property of owner, together with list of those parties.

1.04 GUARANTEE INSPECTION

A. The Contractor shall comply with procedures stated in the General Conditions of the Contract for Guarantee Inspections after completion of the work.

1.05 WARRANTIES AND SPECIAL GUARANTEES

The Contractor shall comply with procedures and criteria outlined in the General Conditions of the Contract for all warranties and special guarantees of the work.

1.06 OPERATING AND MAINTENANCE DATA

A. Refer to Section 01730 - Operating and Maintenance.
1.07 DEMONSTRATIONS

A. Refer to Section 01730 - Operating and Maintenance

1.08 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, and maintenance materials in quantities specified in each Section, in addition to that used for construction of work. Coordinate with Owner, deliver to Project site and obtain receipt prior to final payment.

B. At the completion of the project, all loose keys for hose bibs; adjustment keys and wrenches for door closers and panic hardware; and keys for electric switches, electrical panels, etc., shall be accounted for by the Contractor and turned over to the Owner.

END OF SECTION
SECTION 01710 - CLEANING

PART 1 - GENERAL

1.01 CLEANING

A. Clean-up During Construction: Each Contractor shall keep the building and premises free from all surplus material, waste material, dirt and rubbish caused by his employees or work, and at the completion of his work he shall remove all such surplus material, waste material, dirt and rubbish, as well as his tools, equipment and scaffolding, and shall leave his work clean and spotless, unless more exact requirements are specified. In case of dispute, the owner may remove all such items and charge the cost of such removal to the Contractor.

Each sub-Contractor shall perform his clean-up daily and shall transport his rubbish to an on-site location designated by the Contractor who will arrange for its removal.

B. Cleaners: With the exception of clean-up of the site and cleaning specifically assigned to Contractors under various sections of the specifications, all final clean-up of exterior and interior of the building shall be done by professional cleaners.

C. Final Clean-up:

1. Exterior: In addition to items specified below, any new surfaces on exterior, concrete, metal, etc., shall be carefully and thoroughly cleaned.

2. Hardware: Clean and polish all hardware and leave clean and free from paint, grease, dirt, etc.

E. Completion: The entire work area shall be in clean condition upon completion before being accepted by the Owner.

END OF SECTION
SECTION 01720 - PROJECT RECORD DOCUMENT

PART 1 - GENERAL

1.01 SUMMARY
   A. This section describes the definitions, recording and maintenance requirements and the submittal requirements for record documents.

1.02 DEFINITIONS
   A. The Project Record Documents are intended to indicate all changes and deviations from the original contract documents and permanently record the "as-built" condition of material, equipment and structure. The project record documents shall include the contract drawings, project manual, addenda, change orders, modifications and clarifications, field directives, approved shop drawings, approved product data, manufacturer's certificates and project test results.

1.03 SUBMITTALS
   A. Submit the project record documents in conformance with Section 01700 and prior to the final applications for payment. The final application for payment will not be approved prior to the submittal of record documents.

1.04 QUALITY ASSURANCE
   A. The project record documents shall be updated at a minimum on a weekly basis and shall be readily available for inspection by the owner and Engineers. Maintain a separate set of complete documents for exclusive use of record documents and protect the documents from damage in a clean, dry location. Note: Progress applications for payment will not be approved if record documents are not current.

   B. The record documents shall contain a clear, legible record of all detail and dimensional changes and locate all concealed work including, but not limited to:
      1. Interior and Exterior Utilities
      2. Valves
      3. Dampers
      4. Controls
      5. Junction Boxes
      6. Clean-outs

   C. The project manual (specifications) shall indicate all manufacturers' products complete with catalogue number and trade name of products installed. All changes and corrections to the project manual shall be clearly indicated.

END OF SECTION
SECTION 01730 - OPERATING AND MAINTENANCE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Compile product data and related information appropriate for the University of Colorado's maintenance and operation of products furnished.

B. Prepare operating and maintenance data as specified in this section and as referenced in other pertinent sections of specifications.

C. Instruct the University of Colorado, Facilities Management personnel in the maintenance of PRODUCTS and in the operation of equipment and systems.

1.02 QUALITY ASSURANCE

A. Preparation of data shall be done by personnel:
   1. Trained and experienced in maintenance and operation of the described products.
   2. Completely familiar with requirements of this section.
   3. Skilled as a technical writer to the extent required to communicate essential data.
   4. Skilled as a draftsman competent to prepare required drawings.

1.03 SUBMITTALS

A. Prepare data in the form of an instructional manual for use by the University of Colorado, Facilities Management personnel. Quantities are listed in Part 1.07.

B. Format:
   1. Submit electronically in PDF format as one document, bookmarked according to CSI standards.

   2. Title shall be "OPERATING AND MAINTENANCE INSTRUCTIONS", and shall include:
      a. Name of project and date of completion (month and year).
      b. Project number.
      c. Identify of general subject matter covered in the manual (e.g., Architectural, Mechanical, Electrical and/or Civil).

1.04 CONTENT OF MANUAL

A. An electronically-written table of contents shall be provided for each volume, arranged according to CSI standards.

   Include the following:
   1. Name of responsible installing principal Contractor, address, and telephone number.
   2. A list of each product being included, indexed to the content of the volume.
   3. List with each product, the name, address, and telephone number of:
      a. Maintenance Contractor, as appropriate.
      b. Identity of the area of responsibility of each.
   4. Identify each product by product name and other identifying symbols.
B. Product Data:
   1. Local source of supply for parts and replacement.
   2. Include only those sheets that are pertinent to the specific product, with the following information.
      a. Clearly identify the specific product or part installed.
      b. Clearly identify the data applicable to the installation.
      c. Delete references to inapplicable information.

C. Drawings:
   1. Supplement product data with drawings as necessary to clearly illustrate:
      a. Relations of component parts of equipment and systems.
      b. Control and flow diagrams.
   2. Coordinate drawings with information in project record drawings to ensure correct illustration of completed installation.
   3. Do not use project record drawings as maintenance drawings.

D. Provide written text, as required, to supplement product data for the particular installation:
   1. Organize in a consistent format under separate headings for different procedures.
   2. Provide a logical sequence of instructions for each procedure.

E. Provide a copy of each warranty, bond, and service contract issued. Provide information sheets for the University of Colorado, Facilities Management's personnel and give:
   1. Proper procedures in the event of failure.
   2. Instances that might affect the validity of warranties or bonds.

1.05 MANUAL FOR NON-ARCHITECTURAL EQUIPMENT AND SYSTEMS

A. Submit copies (per schedule) of complete manual in final form.

B. Content for each unit of equipment and system, as appropriate shall contain:
   1. Description of unit and component parts (Engineer-approved submittals).
      a. Function, normal operating characteristics, and limiting conditions.
      b. Performance curves, engineering data, and tests.
      c. Complete nomenclature and Commercial number of all replaceable parts.
   2. Operating Procedures:
      a. Start-up, break-in, routine, and normal operating instructions.
      b. Regulation, control, stopping, shutdown, and emergency instructions.
      c. Summer and winter operating instructions.
      d. Special operating instructions.
   3. Maintenance Procedures:
      a. Routine operations.
      c. Disassembly, repair, and reassembly.
      d. Alignment, adjustment, and checking.
   4. Servicing and Lubrication Schedule, including a list of lubricants required.
   5. Manufacturer's operating and maintenance instructions.
   6. Description of sequence of operation by control manufacturer.
   7. Original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance and replacement.
a. Predicted life of parts subject to wear.
b. Items recommended to be stocked as spare parts.

8. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

C. Content for each electric and electronic system, as appropriate, shall contain:
   1. Description of system and component parts:
      a. Function, normal operating characteristics, and limiting conditions.
      b. Performance curves, engineering data, and tests.
      c. Complete nomenclature and Commercial number of replaceable parts.
   2. Operating Procedures:
      a. Routing and normal operating instructions.
      b. Sequences required.
      c. Special operating instructions.
   3. Maintenance Procedures:
      a. Routing operations.
      c. Disassembly, repair, and reassembly.
      d. Adjustment and checking.
      e. Manufacturer's printed operating and maintenance instructions.
      f. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

D. Prepare and include additional data when the need for such data becomes apparent during instruction of the University of Colorado, Facilities Management's personnel.

1.06 OPERATION & MAINTENANCE MANUAL QUANTITIES / SCHEDULE

A. If not compiled into one CD or DVD, provide one each per discipline:
   Architectural
   Electrical (Including as-built drawings)
   Mechanical & Controls (Including shop drawings)
   Elevators (Including shop drawings)
   Fire Alarms (Including shop drawings)
   Fire Protection (Including shop drawings)

1.07 SUBMITTAL SCHEDULE

A. Submit one electronic copy to the Engineers and one to the University of draft of proposed formats and outlines of contents upon completion of the submittal process. The Engineers and the University staff will review the draft and will submit comments through the Engineers.

B. Submit electronic copies of complete manual(s) in final form 15 days prior to final inspection or acceptance. Comments will be submitted after final inspection.

C. Submit specified number of CDs or DVDs of approved data in final form prior to acceptance.
1.08 INSTRUCTION OF UNIVERSITY OF COLORADO, FACILITIES MANAGEMENT PERSONNEL

A. Fully instruct the University of Colorado, Facilities Management personnel's designated operating and maintenance personnel in the operation, adjustment, and maintenance of all products, equipment, and systems as required elsewhere in the specification.

B. Operating and Maintenance manual may be required as the basis of instruction.

PART 2 - MATERIAL

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION
SECTION 01740 - COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Prepare commissioning process based on the Commissioning Checklists found in the UCB Standards website:

http://fm.colorado.edu/construction/standards/

B. Coordinate the requirements of Project Closeout and Operating and maintenance sections that are part of Division 1.

C. Schedule the required commissioning activities with the University of Colorado Facilities Department and their Engineers at least 72 hours prior to conducting Commissioning activities.

PART 2 - MATERIALS

Not Used.

PART 3 - EXECUTION

NOT USED

END OF SECTION
SECTION 01750 - BASIC SITE MATERIALS & METHODS

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:
   1. Construction Storm Water Requirements
   2. Post-Construction Storm Water Requirements

B. Related Sections
   1. Section 02200 - Earthwork
   2. Section 02221 – Trenching, Backfilling, Compaction

1.02 QUALITY ASSURANCE

A. All construction sites
   1. All construction sites that disturb any land must take appropriate erosion control and
      stormwater detention measures to contain water run-off from site.

B. Construction sites – one acre and larger
   1. All construction sites that are one acre and larger must prepare and submit a Storm
      Water Management Plan (SWMP) for approval before any work begins. The SWMP
      must conform to all the requirements contained herein.

1.03 SUBMITTALS

A. Storm Water Management Plan (SWMP)

Storm Water Management Plan (SWMP): Prior to any construction activity disturbing one acre of
land or more, an approved SWMP and a Stormwater Permit for Construction Activity application
from the Colorado Department of Public Health and Environment (CDPHE) are required. The
SWMP shall be prepared in accordance with the CDPHE requirements for "Contents of the
Stormwater Management Plan" and the UDFCD's Urban Storm Drainage Criteria Manual, Volume
management and erosion control measures are to be constructed and maintained in accordance
with the SWMP and the UDFCD Drainage Criteria Manual.

PART 2 – MATERIALS

2.01 Storm Water Management Plan

A. Preparation Standards: Design of the SWMP and the Storm Water Quality and Erosion Control
   Plan shall include the following elements:
   1. Protection for adjacent properties (including public right-of-way) from erosion and/or
      sediment deposition.
   2. Protection for public streets from the deposit of sediment from run-off or vehicles tracking
      mud at construction access routes.
   3. Stabilization for all disturbed areas as defined in the UDFCD Drainage Criteria Manual.
4. Protection for all storm sewer inlets from the entry of sediment-laden water.
5. Long-term stability of cut and fill slopes and the successful establishment of permanent vegetative cover on exposed soil.
6. The following standard notes:
   a. "All temporary erosion control facilities shall be installed before any construction activities take place".
   b. "Solid waste, industrial waste, yard waste and any other pollutants or waste on any construction site shall be controlled through the use of BMP’s. Waste and/or recycling containers shall be provided and maintained by the owner or Contractor on construction sites where there is the potential for release of waste. Un contained waster that may blow, wash or otherwise be released from the site is prohibited. Sanitary waste facilitates shall be provided and maintained by the owner or Contractor".
   c. "Ready-mixed concrete, or any materials resulting from the cleaning of vehicles or equipment containing or used in transporting or applying it, shall be contained on construction sites for proper disposal. Release of these materials is prohibited".
   d. "Cover shall be applied within 14 days to inactive soil stockpiles, and shall be maintained for stockpiles that are proposed to remain in place longer than 30 calendar days".
   e. "BMP's shall be implemented to prevent the release of sediment from construction sites. Vehicle tracking of mud shall not be allowed to enter the MS4 or waters of the State. Sediment tracked onto public streets shall be removed immediately".
   f. "Techniques shall be used to prevent dust, sediment or debris blowing from the site".
   g. "Stormwater discharges from construction activities shall not cause or threaten to cause pollution, contamination or degradation of waters of the State".
   h. "All earth disturbances shall be designed, constructed and completed to limit the exposed area of any disturbed land to the shortest possible period of time".
   i. "Bulk storage structures for petroleum products and other chemicals shall have adequate protection so as to contain all spills and prevent any spilled material from entering the MS4 or waters of the State".
   j. Any disturbance to temporary and permanent BMP’s resulting from construction activity shall be repaired or replaced within 48 hours.

PART 3 – EXECUTION

3.1 PERMITTING

A. Contractor shall develop the SWMP in accordance with all of the requirements herein and utilizing the most recent SWMP guidance document prepared by the CDPHE and good engineering hydrologic and pollution control practices and submit to the University for approval.

B. Contractor shall apply for and obtain a CDPHE storm water general permit for construction activities. Provide copies of the permit to the University prior to the start of construction operations.
3.2 CONSTRUCTION

A. The Contractor will be required to have the SWMP on site at all times and shall be prepared to respond to maintenance of specific BMP's.

B. The Contractor shall inspect all BMP's at least every 14 days and within 24 hours after any precipitation or snow melt event that causes surface run-off. Inspections of BMP's shall be conducted by an individual who has successfully completed formal training in erosion and sediment control by an organization acceptable to the University. A certification of successful completion of such training shall be provided upon request.

C. The Contractor shall amend the SWMP whenever there is a change in design, construction, operation, or maintenance, which has an effect on the potential for discharge of pollutants to the MS4 or receiving waters, or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activities.

D. Records of inspection are to be maintained on site with the SWMP. Inspection records are to be available at the project site at all times and shall be made available to the University upon request.

E. Prior to commencement of work, all general Contractors, subcontractors and utility agencies shall obtain and comply with the approved, current SWMP for the project.

3.3 POST CONSTRUCTION

At the conclusion of all construction activities and as a part of construction close-out, Contractor shall remove all temporary BMP's and inactivate the stormwater permit.

END OF SECTION
SECTION 02010 – SUBSURFACE EXPLORATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

A. Section Includes:
   1. Archaeological survey procedure.
   2. Examination of site.

1.3 SYSTEM DESCRIPTION:

A. Archaeological Survey:

B. The Owner reserves the right to require an Archaeological Survey under the auspices of the Colorado State Historical Society.

C. Procedure during construction.

1. Procedure during construction.
   1. If any relic, artifact, or object is encountered that may be suspected of being historic or pre-historic value: STOP EXCAVATION OPERATIONS IMMEDIATELY AND NOTIFY THE OWNER.

   2. The Owner will, in turn, notify the State Archaeological and Historical Department, who will conduct a Survey to determine if excavation findings may yield information of historic or pre-historic significance and accordingly become eligible for the National Register.

   3. In any event, the University may further investigate and research the findings.

   4. Construction delay or other costs relating to the Archaeological Survey will be processed in conformance with the Contract Documents.

D. The survey may occur prior, during or after the earthwork operations.

1.4 PROJECT CONDITIONS:

A. The Contractor shall examine the site before submitting Bids to determine for
himself/herself the character of materials to be encountered and all conditions, which will effect work, time and cost.

B. Benchmarks, monuments, and other reference points, shall be as shown on the Drawings and be maintained by the Contractor.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

END OF SECTION 02010
SECTION 02070 - SELECTIVE DEMOLITION

1 PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected site elements.
2. Salvage of existing items to be reused or recycled.
3. Protection of items to remain.

B. Demolition requires the selective removal and subsequent off-site disposal of removed material, except salvaged items or items to be relocated, reinstalled, or reset. The disposal of all debris must be off the UCB campus. Any construction debris placed in University dumpsters will be removed at the Contractor's expense.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged, removed and reinstalled or removed and reset.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.

C. Remove and Reinstall or Remove and Reset: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

D. Existing to Remain or Protect Existing: Existing items of construction that are not to be removed or disturbed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled or reset. All items outside the limits of disturbance as shown on the Drawings unless specifically stated otherwise.
1.4 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, cornerstone stones and their contents, commemorative plaques and tablets, concrete open water trenches, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property and are not to be removed or disturbed without prior approval from the Owner. The Contractor shall carefully remove and salvage each item or object as directed by the Owner in a manner to prevent damage and deliver promptly to Owner.

B. The Contractor shall coordinate with Owner’s designated representative, who will establish special procedures for removal and salvage.

1.5 SUBMITTALS

A. Schedule of Selective Demolition Activities indicating the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity and proposed methods. Ensure Owner’s on-site operations are uninterrupted.

2. Interruption of utility services. Indicate how long utility services will be interrupted.

3. Coordination for shutoff, capping, and continuation of utility services.

4. Locations of proposed dust- and noise-control temporary partitions and means of egress.

5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

B. Predemolition Photographs or Videotapes: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Comply with Division 1 Section "Summary of Work." Submit before Work begins.

C. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

D. Comply with requirements in Division 1 Section "Hazardous Materials Procedures."
1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI A10.6 and NFPA 241.

C. Predemolition Conference: Conduct conference at Project site. Review methods and procedures related to selective demolition including, but not limited to, the following:

1. Inspect and discuss condition of construction to be selectively demolished.

2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

4. Review areas where existing construction is to remain and requires protection.

1.7 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition work in manner that will minimize the need for disruption of normal operations.

B. Comply with requirements specified in Division 1 Section "Summary of Work."

C. Provide minimum of 72 hours advance notice of demolition activities and utility outages. Outages of services require 10 days notice to the Owner for coordination with users.

D. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

E. The Owner assumes no responsibility for actual condition of items or structures to be demolished

F. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
G. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

H. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Owner will remove hazardous materials under a separate contract.

I. Storage or sale of removed items or materials on-site is not permitted.

J. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

K. Coordinate utility outages with Department of Facilities Management, affected utility companies, and affected users.

L. Maintain fire-protection facilities in service during selective demolition operations.

M. Provide temporary barricades, traffic control, and other forms of protection as required. Contractor to comply fully with OSHA requirements.

N. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Clean-up is required daily as work progresses.

O. Use of explosives will not be permitted.

P. Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with the Department of Environmental Health and Safety requirements pertaining to environmental protection. Comply with Colorado Department of Health requirements regarding debris control.

Q. Keep dust and dirt from migrating to occupied building areas.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

2 PART 2 - PRODUCTS

2.1 SALVAGE

A. The Owner reserves first salvage rights including:
1. Items of historic or archaeological significance or value.
2. Construction material and products.
3. Mechanical, electrical equipment and components.

B. The Contractor shall notify the Owner for review of material to be stored or selected for salvage.

C. Items indicated to be removed but of salvageable value to Contractor may be removed in a timely manner from structure as work progresses, if such items are not claimed by the Owner.

D. Transport salvaged items from site as they are removed.

E. Storage or sale of removed items on site will not be permitted.

3 PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled or reset and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Engineer.

E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or videotapes.

F. Comply with requirements specified in Division 1 Section "Summary of Work."

G. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

H. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

C. Owner will arrange to shut off indicated services/systems when requested by Contractor.

D. Arrange to shut off indicated utilities with utility companies.

E. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

F. Request inspection by Department of Facilities Management and applicable utility companies:

   1. When utilities are uncovered.
   2. Prior to covering-up or concealing utilities.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

C. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

D. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

E. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
F. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

G. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

B. Proceed with selective demolition systematically.

C. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

D. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

E. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.

F. Maintain adequate ventilation when using cutting torches.

G. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

H. Dispose of demolished items and materials promptly.

I. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area.
5. Protect items from damage during transport and storage.
J. Removed and Reinstalled or Reset Items:

1. Protect items from damage during transport and storage.
2. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
3. Existing Items to Remain or Protect Existing: Protect construction indicated to remain against damage and soiling during selective demolition.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts. Saw cut sidewalk at existing joints for removal. Leave 6\" undisturbed subgrade lip on each side of trench.

B. Asphalt Pavement: Sawcut existing as shown on the drawings or at least 24-inches from the lip of proposed gutters or concrete pavement. Leave 6\" undisturbed subgrade lip on each side of trench.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, reset, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and off the campus and legally dispose of them in an EPA-approved landfill.

B. Do not allow demolished materials to accumulate on-site.

C. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

D. Under no circumstances should the University's dumpsters be used for disposal of demolished materials.

E. Burning: Do not burn demolished materials.

F. Disposal: Transport demolished materials off Owner's property and legally dispose of them.
3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02070
SECTION 02080 - PIPED UTILITIES - BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Piping joining materials.
2. Transition fittings.
3. Sleeves.
5. Flowable fill.
6. Piped utility demolition.
7. Piping system common requirements.

1.3 DEFINITIONS

A. Exposed Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions.

B. Concealed Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.


D. CPVC: Chlorinated polyvinyl chloride plastic.

E. PE: Polyethylene plastic.

F. PVC: Polyvinyl chloride plastic.
1.4 SUBMITTALS

A. Product Data: For the following:
   1. Transition fittings.
   2. Flowable Fill (Flow Fill)
   3. Grout

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

PART 2 - PRODUCTS

2.1 PIPING JOINING MATERIALS

A. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

B. Solvent Cements for Joining Plastic Piping:
   1. ABS Piping: ASTM D 2235.
   2. CPVC Piping: ASTM F 493.
   3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
   4. PVC to ABS Piping Transition: ASTM D 3138.

2.2 TRANSITION FITTINGS

A. Transition Fittings, General: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.

B. Flexible Transition Couplings for Underground Nonpressure Drainage Piping:
   1. Connections between clay and PVC pipe to be made with Mission Flex-Seal Adjustable Repair Couplings or approved equal.

2.3 SLEEVES

A. PVC Pipe Sleeves shall conform to ASTM D 1785, Schedule 40.
2.4 GROUT

A. Non-Metallic Grout: Where exposed to view or weathering, provide grout complying with ASTM C1107 Class B with a minimum compressive strength of 6000 psi. Provide one of the following:

1. U.S. Grout Corporation "Five Star Grout"
2. Master Builders "Master Flow 928"
3. L&M Chemical Company "Crystex"
4. Euclid Chemical Company "HiFlow"
5. Cormix Construction Chemical Company "Supreme"
6. Metallic Grout: Where covered by earth, concrete or masonry, or otherwise concealed from view:

   1) Master Builders "Embeco 636"
   2) L&M Chemicals "Ferro-Grout"
   3) Euclid Chemical Company "Firmix"

2.5 FLOWABLE FILL

A. Description: Low-strength-concrete (Flow Fill), flowable-slurry mix.

   1. Materials shall conform to the requirements for Structure Backfill (flow-fill) of Section 206 of the "Standard Specifications for Road and Bridge Construction", 2005, published by the Colorado Department of Transportation (CDOT), hereinafter referred to as "SSRBC".
   2. Compaction of flow fill is not required.

PART 3 - EXECUTION

3.1 PIPED UTILITY DEMOLITION

A. Refer to Division 1 Section "Cutting and Patching" and Division 2 Section "Selective Demolition" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove piped utility systems, equipment, and components indicated to be removed.

   1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
   2. Piping to Be Abandoned in Place: Drain piping. Fill abandoned piping with flowable fill, and cap or plug piping with same or compatible piping material.
3.2 PIPING INSTALLATION

A. Install piping according to the following requirements and Division 2 Sections specifying piping systems. Installation requirements specified or referred to in Section 02665 supersede the requirements of this Section.

B. Drawing plans indicate location and arrangement of piping systems. Install piping as indicated unless deviations to layout are approved by the Engineer.

C. Install piping at indicated slopes.

D. Install piping free of sags and bends.

E. Install fittings for changes in direction and branch connections.

3.3 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 2 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

E. Grooved Joints: Assemble joints with grooved-end pipe coupling with coupling housing, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.

F. Plastic Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661
appendixes.
3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
5. PVC Nonpressure Piping: Join according to ASTM D 2855.
6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D 3138 Appendix.

G. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

H. Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

END OF SECTION 02080
SECTION 02221  TRENCHING, BACKFILLING, COMPACTING

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:

1. Trenching, backfilling and compacting in connection with the construction of underground utilities and appurtenances for work outside of building lines including the following:

   a. Water lines.
   b. Sanitary sewer lines.
   c. Storm sewer lines.
   d. Natural gas systems.
   e. Direct-bury steam systems.
   f. Direct-bury chilled water systems.
   g. Direct-bury compressed air systems.
   h. Direct-bury electric lines.
   i. Direct-bury telephone and data lines.
   j. Other utilities as shown in the Contract Documents.
   k. Utility tunnels.

2. Pavement removal and replacement.

B. Related Sections:

1. Section 02010 - Subsurface Exploration.
2. Section 02300 - Earthwork.
3. Section 02513 - Asphaltic Concrete Paving.
4. Section 02751 - Portland Cement Concrete Paving.

1.2 QUALITY ASSURANCE:

A. Requirements of Regulatory Agencies:

1. Perform excavation work in conformance to the requirements herein specified. Refer to the City of Boulder, Colorado Design and Construction Standards, November 16, 2000 edition (City Standards), for work not covered in this specification. In the event of conflicts or discrepancies between these Specifications and the City Standards, these Specifications shall control.

2. Supply, install, and remove all shoring as may be required to comply with all OSHA and EPA safety regulations and to maintain earth banks until backfill is
placed.
3. Backfilling and construction of fills and embankments during freezing weather shall not be done except by permission of the Owner’s Representative. No backfill, fill, or embankment materials shall be installed on frozen surfaces, nor shall frozen materials, snow or ice be placed in any backfill, fill, or embankment.

B. Testing and Inspection:

1. Conform testing and inspection of backfill to the requirements of Section 02200. Make in place density tests at intervals and locations as directed by the Owner’s Representative. Testing and inspection of backfill, if performed by the Owner’s geotechnical consultant, is for the Owner’s use. The Contractor is solely responsible for ensuring that all trench backfill compaction is performed in conformance with the Contract Documents regardless of the results of tests performed by the Owner’s geotechnical consultant.

1.3 SUBMITTALS:

A. Submit six copies of a report from a testing laboratory verifying that material conforms to the specified gradations or characteristics.

B. Submit method of compaction in pipe zone including removal sequence of shoring where used.

1.4 PROJECT/SITE CONDITIONS:

A. Protection:

1. Protect existing utilities, adjacent property, and utility excavations, including hand excavation, in accordance with the requirements of Section 02200.

B. Sleeving:

1. Verify all required utility sleevng is installed and properly located and supported prior to backfilling.

PART 2 - MATERIALS

2.1 GENERAL:

A. All bedding and backfill material shall have the approval of the Owner’s Representative, and shall be free of frozen material, organic material and debris.
B. Bedding materials shall contain no cinders or other material which may cause pipe corrosion.

D. Reuse of on-site material is subject to Owner Representative’s approval.

2.2 BEDDING AND BACKFILL:

A. Fill and Backfill Materials

1. Earth, loam, sandy clay, sand and gravel, soft shale, or other acceptable materials which are free from organic matter and large clods of earth or stone, may be used for fill. Material shall be moistened as required to facilitate backfilling.

2. If the job excavated material proves to be unsuitable for backfill, the contractor may, if approved by Owner’s Representative, use a pit-run material consisting of rocks less than three (3) inches in diameter and a maximum of 20% passing a No. 200 sieve.

B. Select Backfill:

1. Suitable material with no stones greater than 1” diameter for concrete pipe and 0.75” diameter for all other pipe. Excavated material which meets the grading requirement may be used for select backfill.

C. Granular Bedding Materials for Ductile Iron Pipe and PVC Pressure Pipe.

1. This material shall consist of washed chips, nominal size 3/8”, meeting the following gradation:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing By Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2-inch</td>
<td>100</td>
</tr>
<tr>
<td>3/8-inch</td>
<td>85-100</td>
</tr>
<tr>
<td>No. 4</td>
<td>10-30</td>
</tr>
<tr>
<td>No. 8</td>
<td>0-10</td>
</tr>
</tbody>
</table>

D. Granular Bedding Material for PVC and HDPE Sewer Pipe.

1. This material shall be imported, crushed, angular quarry rock and meet the following gradation (ASTM D448, No. 67):
2. Sieve Size Percent Passing By Weight

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4-inch</td>
<td>100</td>
</tr>
<tr>
<td>3/8-inch</td>
<td>20-55</td>
</tr>
<tr>
<td>No. 8</td>
<td>0-10</td>
</tr>
<tr>
<td>No. 200</td>
<td>0-5</td>
</tr>
</tbody>
</table>

E. Granular Bedding Material for RCP Sewer Pipe and Manholes.

1. This material shall be squeegee sand meeting the following gradation:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8-inch</td>
<td>100</td>
</tr>
<tr>
<td>No. 200</td>
<td>0-5</td>
</tr>
</tbody>
</table>

F. Bedding Material Within Building Lines.

1. The pipe shall be carefully bedded in accordance to the above gradations except within building lines where 6” pea gravel shall be used to surround the pipe. Pea gravel shall be rounded gravel, graded with less than 10% passing a N. 200 sieve, less than 50% passing a No. 4 sieve, and having a maximum particle size as follows:

<table>
<thead>
<tr>
<th>Type of Pipe</th>
<th>Max. Particle Size (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ductile iron</td>
<td>3/4</td>
</tr>
<tr>
<td>Concrete or concrete cylinder</td>
<td>3/4</td>
</tr>
<tr>
<td>Fiberglass</td>
<td>3/4</td>
</tr>
<tr>
<td>VCP</td>
<td>3/4</td>
</tr>
<tr>
<td>Steel pipe 3 inches and smaller</td>
<td>1/4</td>
</tr>
<tr>
<td>Steel pipe larger than 3 inches</td>
<td>3/4</td>
</tr>
</tbody>
</table>

G. Stabilization Material.

1. Stabilization material shall be placed on suitably prepared subgrades and compacted by vibration. Stabilization material shall be crushed rock or gravel; shall be free from dust, clay, or trash; and shall be graded 1-1/2 inch to No. 4 as defined in ASTM C33 and shall be compacted to not less than 70% relative density as determined by ASTM D253 and D4254.
H. Flow Fill

1. Low Strength Concrete (LSC) is defined as Flow Fill in these standards.
2. Materials, batching, mixing and delivery shall be in accordance with the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction and shall meet the following specific requirements:

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>POUNDS per CUBIC YARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>50.0</td>
</tr>
<tr>
<td>Coarse Aggregate (AASHTO No. 57 or 67)</td>
<td>1700.0</td>
</tr>
<tr>
<td>Fine Aggregate (AASHTO M 6)</td>
<td>1845.0</td>
</tr>
<tr>
<td>Water (39.0 gallons)</td>
<td>325.0 (or as needed)</td>
</tr>
</tbody>
</table>

4. The amount of water shall be such that the flow fill flows into place properly without excessive segregation. Approximately 29 gallons of water per cubic yard of flow fill is normally needed.

5. The Contractor may use aggregate which does not meet the above specifications if the cement is increased to 100 lbs/CY and the aggregate conforms to the following gradation:

<table>
<thead>
<tr>
<th>SIEVE SIZE</th>
<th>% PASSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch</td>
<td>100</td>
</tr>
<tr>
<td>No. 200</td>
<td>0-10</td>
</tr>
</tbody>
</table>

6. The Contractor may substitute 30 lbs/CY of cement and 30 lbs/CY of fly ash for 50 lbs/CY of cement or may substitute 60 lbs/CY of cement and 60 lbs/CY of fly ash for 100 lbs/CY of cement.

7. The maximum desired 28-day compressive strength is 100 PSI (not a specification requirement).

8. Compaction of flow fill will not be required. The above combination of material or an equivalent, as approved by the Owner’s Representative, may be used to obtain the desired flow fill.

I. Unsuitable Material:

1. Highly organic soil; ASTM D2487 Group PT, topsoil, roots, vegetable matter, trash and debris will not be used for any bedding, backfill or structural fill.
PART 3 - EXECUTION

3.1 SHORING AND BRACING:

A. Provide materials for shoring and bracing, such as sheet piling, up rights, stringers and cross-braces, in good serviceable condition. Provide shoring as required for safety and by governing authorities.

B. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses. Arrange shoring and bracing so as not to place stress on completed work.

C. Exercise care in removal of shoring and bracing to prevent collapse or caving of excavation faces.

D. Any damage to pipes or structures resulting from settlements, heaving, water or earth pressures, slides, caving, or other causes, due to lack of shoring, sheeting, or bracing, or due to failure of shoring, or due to improper shoring, or due to any other negligence on the part of the contractor, shall be repaired at the contractor’s expense.

3.2 DEWATERING:

A. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding areas.

B. Do not allow water to accumulate in excavations. Remove water to prevent softening of trench bottoms, and soil changes detrimental to stability of subgrades and foundations.

C. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

D. Convey water removed from excavations and rainwater directly to storm sewer lines only, subject to approval by owner.

E. Do not use pipe or pipe trench excavations as temporary drainage ditches.

3.3 INSTALLATION OF PIPE BEDDING:

A. Pipe bedding material shall consist of the material as specified in this section. Bedding material shall be placed to the required elevation of the pipe invert. Tamping
equipment shall be used to thoroughly tamp the bedding material. The moisture content of the material shall be within two (2) percent of optimum.

B. After bedding material has been placed and has been approved and after the pipe has been installed and approved the granular bedding material shall be installed to an elevation 12 inches above the top of the pipe. The granular bedding material shall be placed and compacted in distinct, separate lifts not to exceed six inches of loose depth; except that the first loose lift shall not be higher than the pipe centerline (springline). Compaction shall meet the above requirements utilizing T-bars or mechanical tamping equipment.

C. Set all pipe on compacted granular material supporting the lower half of the pipe barrel. Place compacted granular material around and on top of pipe to not less than 12" deep from top of pipe.

3.4 INSTALLATION OF TRENCH BACKFILL:

A. The compaction requirements shall conform to maximum dry density according to ASTM D698, Moisture-Density Relations of Soils (Standard Proctor). When the ASTM D698 test is not applicable, the percentage compaction requirements shall conform to ASTM D2049 Test for Relative Density of Cohesionless Soils.

B. All backfill above the bedding installation shall be carefully placed and compacted. Compaction shall be by mechanical tamping in eight-inch maximum loose lifts using mechanical or hand tampers, suitable for material being compacted, or vibratory rollers. All backfill shall be compacted to 95% of maximum laboratory dry density or 70% relative density. The material shall be within two (2) percent of optimum moisture content.

C. The contractor may request approval of alternate means of compaction. Such request must be submitted to the Owner’s Representative in writing and the approval will be made by the Owner’s Representative in writing. Use of specified or approved compaction methods does not relieve the contractor from providing a complete project meeting the intent of the Design and Construction Standards.

D. When directed by the Owner’s Representative, the contractor shall excavate backfilled trenches for purposes to perform compaction tests at locations and depths determined by the Owner’s Representative. The contractor shall be responsible for reinstalling and compacting the test excavations at no additional cost to the Owner.

E. Do not backfill any pipe trenches until pipe is inspected by University Inspector and owning utilities (if any).
3.5 PLACEMENT OF FLOW FILL

A. Sufficient mixing capacity shall be provided to permit the flow fill to be placed continuously, without interruption.

B. Flow fill shall be thoroughly mixed prior to discharging to ensure a uniform product. Agitation is required during transportation and waiting time to ensure that the material is in suspension when placed.

C. Flow fill shall be discharged from the mixer truck into the trench to be filled, or by other methods approved by the Owner’s Representative.

D. The flow fill shall be placed continuously and brought up uniformly to a point a minimum of 1-inch above adjacent surfaces (trench walls) to ensure proper drainage of bleed water away from the trench.

E. Flow fill shall be vibrated during and after placement to accelerate the bleeding and evaporation of water and to improve consolidation of the material.

F. Flow fill shall not be placed on frozen ground.

G. Flow fill shall be protected from freezing until it has hardened.

H. When the bleed water subsides, the fill material shall be struck off level with the adjacent pavement and the surface finished with a wood float. After the fill material has sufficiently cured to support anticipated traffic loads, the roadway may be temporarily reopened to normal traffic. It shall be the Contractor’s responsibility to maintain the finished surface of the cured fill material in a safe and driveable condition, until such time that the roadway pavement section is permanently replaced. Alternatively, the Contractor may opt to remove the cured fill material to a depth equal to the bottom of the existing pavement, and install a temporary asphalt concrete patch. The foregoing does not preclude permanent pavement restoration immediately after the fill material has sufficiently cured to support anticipated traffic loads, should construction scheduling so permit. Permanent pavement restoration shall be in accordance with these specifications.

I. Flow fill mixing and placement may be started if weather conditions are favorable, when the air temperature in the shade and away from artificial heat is at least 34 degrees Fahrenheit and rising. Mixing and placing shall stop when the air temperature in the shade and away from artificial heat is 38 degrees Fahrenheit or less and falling, and in no case shall flow fill be placed when the air temperature is lower than 34 degrees Fahrenheit.
J. It shall be the Contractor's responsibility to ensure that the backfilled trench is not exposed to vehicular traffic loads until such time that the fill material has sufficiently cured to support the anticipated vehicle loads. Prior to reopening the roadway to normal traffic, the Contractor shall subject the fill material to a vehicular test load that is reasonably representative of the ultimate loading anticipated. When the fill material supports such vehicular test load without apparent deformation, said fill material shall be deemed sufficiently cured to permit reopening of the roadway to normal traffic.

K. Should it be necessary to reopen the roadway to normal vehicular traffic, before the fill material has sufficiently cured to support the anticipated traffic loads, it shall be the Contractor's responsibility to provide and install steel plates to bridge over the trench.

3.6 PAVEMENT REMOVAL AND REPLACEMENT:

A. Asphalt Pavement:

1. Score existing surface with a cutting wheel to create clean break line. Leave 6" undisturbed subgrade lip on each side of trench.

2. Compact aggregate base course to 95% per AASHTO T180. Replace pavement in accordance with permit requirements or minimum thickness specified in Section 02513. Compact asphalt to 95% per ASTM D1559.

B. Concrete Pavement:

1. Sawcut existing concrete. Leave 6" undisturbed subgrade lip on each side of trench.

2. Compact aggregate base course to 95% per AASHTO T180. Replace pavement in accordance with permit requirements or minimum thickness specified in Section 02751.

C. Sidewalk and Curb Removal

1. Cut curbs and sidewalks prior to excavation of the trenches with a pavement saw or pavement cutter. Leave 6" undisturbed subgrade lip on each side of the trench. Haul concrete materials from the site. Do not use for trench backfill.

END OF SECTION 02221
SECTION 02230 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Protecting existing trees shrubs groundcovers plants and grass to remain.
2. Removing existing trees shrubs groundcovers plants and grass.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, abandoning site utilities in place, and removing site utilities.
7. Temporary erosion and sedimentation control measures.

B. Related Sections include the following:

1. Examine all sections related to project work.

1.3 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.
1.5 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

B. Record drawings, according to Division 1 Section "Project Record Documents," identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Engineer.

C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

D. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

F. Use equipment equipped with rubber tires to minimize vibration.

G. Employ noise suppression techniques in order to minimize the impact of normal construction noises on nearby persons and adjacent properties.

H. Jet and video storm sewers where debris may have accumulated.
PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 2 Section "Earthwork."

1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements and historic items to remain from damage during construction.

D. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE PROTECTION

A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.

1. Do not store construction materials, debris, or excavated material within
fenced area.
2. Do not permit vehicles, equipment, or foot traffic within fenced area.
3. Maintain fenced area free of weeds and trash.

B. Do not excavate within tree protection zones, unless otherwise indicated.

C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
1. Cover exposed roots with burlap and water regularly.
2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
3. Backfill with soil as soon as possible.

D. Repair or replace trees and vegetation outside the limits of disturbance as shown on the Drawings that are damaged by construction operations, in a manner approved by Engineer and Owner.

3.4 UTILITIES

A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
1. Arrange with utility companies and Owner to shut off indicated utilities.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
1. Notify Owner not less than 72 hours in advance of proposed utility interruptions. Outages of services require 10 days notice to the Owner for coordination with users.
2. Do not proceed with utility interruptions without Owner’s written permission.

C. Excavate for and remove underground utilities indicated to be removed.

D. Removal of underground utilities is included in Division 2 Sections covering site utilities.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation located within the limits of disturbance as shown on the Drawings to permit installation of new
construction.

1. Do not remove trees, shrubs, and other vegetation outside the limits of disturbance or as indicated to remain or to be relocated.
2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction only with prior approval from the Owner or Engineer.
3. Grind stumps and remove roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
4. Use only hand methods for grubbing within tree protection zone.
5. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass within limits of disturbance as shown on the Drawings before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.
2. Where trees are indicated to be left standing, stop topsoil stripping a sufficient distance to prevent damage to the main root system, but no closer than the drip-line of the tree.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to freely drain surface water.

1. Stockpile topsoil in storage piles at campus location as approved by the Owner.
2. Cover storage piles if required to prevent windblown dust. Comply with environmental regulating authorities regarding control.
3. Should stockpiled topsoil disappear, Contractor will be required replace missing topsoil with topsoil meeting specified requirements. Dispose of extra stockpiled topsoil off the site or as directed by the Owner.
4. Limit height of topsoil stockpiles to 72 inches.
5. Do not stockpile topsoil within tree protection zones.
6. Dispose of excess topsoil as specified for waste material disposal.
7. Stockpile surplus topsoil to allow for re-spreading deeper topsoil.

3.7 SITE IMPROVEMENTS

    A. Remove existing above- and below-grade improvements as indicated in the Drawings.

    B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

        1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically. Saw cut sidewalk at existing joints for removal.
        2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

3.8 DISPOSAL

    A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 02230
SECTION 02231 - TREE PROTECTION AND TRIMMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the protection and trimming of existing trees that interfere with, or are affected by, execution of the Work, whether temporary or permanent construction.

B. Related Sections include the following:

1. 02900 – Landscaping General

1.3 DEFINITIONS

A. Tree Protection Zone: Area surrounding individual trees or groups of trees to remain during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Tree protection method and plan.

1.5 QUALITY ASSURANCE

A. Tree Pruning Standard: Comply with ANSI A300 (Part 1), "Tree, Shrub, and Other Woody Plant Maintenance--Standard Practices (Pruning)."
B. Preinstallation Conference: Conduct conference at Project site.
   
   1. Before tree protection begins, meet with representatives of authorities having jurisdiction, Owner, Engineer, consultants, and other concerned entities to review tree protection procedures and responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of weeds, roots, and toxic and other nonsoil materials.

   1. Obtain topsoil only from well-drained sites where topsoil is 4 inches deep or more; do not obtain from bogs or marshes.


C. Revise paragraph below to specify a more substantial fence if required, or add slats to enhance visibility of fence. Temporary snow fencing is an alternative.

D. Chain-Link Fence: Metallic-coated steel chain-link fence fabric of 0.120-inch diameter wire; a minimum of 48 inches high; with 1.9-inch diameter line posts; 2-3/8-inch diameter terminal and corner posts; 1-5/8-inch diameter top rail; and 0.177-inch diameter bottom tension wire; with tie wires, hog ring ties, and other accessories for a complete fence system.

PART 3 - EXECUTION

3.1 PREPARATION

A. Temporary Fencing: Install temporary fencing around tree protection zones to protect remaining trees and vegetation from construction damage. Maintain temporary fence and remove when construction is complete.

   1. Install chain-link fence according to ASTM F 567 and manufacturer's written instructions.
B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

C. Do not store construction materials, debris, or excavated material inside tree protection zones. Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over root systems.

D. Maintain tree protection zones free of weeds and trash.

E. Do not allow fires within tree protection zones.

F. All trees located outside the specified limits of disturbance shall be protected from damage.

3.2 EXCAVATION

A. Install shoring or other protective support systems to minimize sloping or benching of excavations.

B. Do not excavate within tree protection zones, unless otherwise indicated.

C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks and comb soil to expose roots.

1. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction.

2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

D. Where utility trenches are required within tree protection zones, tunnel under or around roots by drilling, auger boring, pipe jacking, or digging by hand.

1. Root Pruning: Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots with sharp pruning instruments; do not break or chop.
3.3 REGRADING (Not Used)

3.4 TREE PRUNING

A. Prune trees to remain that are affected by temporary and permanent construction only with prior approval from the Owner.

B. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.

C. Pruning Standards: Prune trees according to ANSI A300.

D. Cut branches with sharp pruning instruments; do not break or chop.

E. Chip removed tree branches and dispose of off-site.

3.5 TREE REPAIR AND REPLACEMENT

A. The Contractor shall notify the Owner and Engineer immediately if any trees located outside the specified limits of disturbance are damaged.

B. If trees located outside the specified limits of disturbance are damaged during construction, the Contractor will replace and/or repair the trees or reimburse the Owner for the cost of the tree repair and/or replacement as recommended by the University's arborist at not additional expense to the Owner.

3.6 DISPOSAL OF WASTE MATERIALS

A. Burning is not permitted.

B. Disposal: Remove excess excavated material and displaced trees from Owner's property.

END OF SECTION 02231
SECTION 02240 – DEWATERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 PERFORMANCE REQUIREMENTS

A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control ground-water flow into excavations and permit construction to proceed on dry, stable subgrades if groundwater is encountered.

1. All excavations for concrete structures or trenches which extend down to or below groundwater table shall be dewatered by lowering and keeping the groundwater level beneath such excavations 12 inches or more below the bottom of the excavation.

2. Maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, that excavation does not flood, and that damage to subgrades and permanent structures is prevented.

3. Coordinate with Owner where water is to be discharged.

4. Surface water shall be diverted or otherwise prevented from entering excavated areas or trenches to the greatest extent practicable without causing damage to adjacent property.

5. Accomplish dewatering without damaging existing buildings adjacent to excavation.

6. Remove dewatering system if no longer needed.

1.3 SUBMITTALS

A. Shop Drawings for Information: For dewatering system. Show arrangement, locations, and means of discharge and disposal of water.

B. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by dewatering operations.

C. If applicable, obtain and comply with discharge permit or recommendations from federal and state regulatory authorities, prior to commencing dewatering operations.

1.4 QUALITY ASSURANCE

DEWATERING
A. Regulatory Requirements: Comply with water disposal requirements of authorities having jurisdiction.

1.5 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.

1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site and surrounding area.
2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.
3. Do not use footing or foundation trenches for temporary drainage ditches. Coordinate with Owner where water is to be discharged

B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

3.2 INSTALLATION

A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.

B. Dewatering equipment shall be provided to remove and dispose of all surface water and groundwater entering excavations, trenches or other parts of the work. Each excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built, or the pipe to be installed therein is
completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

C. Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed, or until dewatering is no longer required.

D. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.

1. Do not permit open-ump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.

E. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.

1. Maintain piezometric water level a minimum of 24 inches below surface of excavation.

F. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water in a manner that avoids inconvenience to others. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.

G. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to Owner.

1. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlying construction.

H. Damages: Promptly repair damages to adjacent facilities caused by dewatering operations.

I. The Contractor shall be responsible for the condition of any pipe or conduit used for drainage purposes. All such pipe or conduit shall be left clean and free of sediment and debris.

END OF SECTION 02240
SECTION 02300 – EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for walks, pavements, and lawns and grasses.
2. Soils testing and Field Quality Control.
4. Excavating and backfilling for utility trenches.

B. Related Sections include the following:

1. 02221 – Trenching, Backfilling and Compacting

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Excavation: Removal of material encountered above subgrade elevations and to
lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer.

2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.

3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

F. Fill: Soil materials used to raise existing grades.

G. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footings, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Excavation of Footings, Trenches, and Pits: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch wide, maximum, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,090 lbf and stick-crowd force of not less than 18,650 lbf; measured according to SAE J-1179.

2. Bulk Excavation: Late-model, track-mounted loader; rated at not less than 210-hp flywheel power and developing a minimum of 48,510-lbf breakout force with a general-purpose bare bucket; measured according to SAE J-732.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 3/4 cu. yd. or more in volume that exceed a standard penetration resistance of 100 blows/2 inches when tested by an independent geotechnical testing agency, according to ASTM D 1586.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

K. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 SUBMITTALS

A. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

1. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
2. Laboratory compaction curve according to ASTM D 698 for each on-site and borrow soil material proposed for fill and backfill.

B. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.

C. Submit electronic copies of a report from a testing laboratory verifying that the material conforms to the gradation specified. This includes onsite materials that will be reused.

D. Dewatering plan including disposition of groundwater is required for University review. Also include a copy of any applicable and completed discharge permit, if required.

E. Submit method of compaction in pipe zone including removal sequence of shoring where used.

1.5 QUALITY ASSURANCE

A. Testing and Inspection:

1. All tests required for preliminary review of materials shall be made by an acceptable independent testing laboratory at the expense of the Contractor. Two (2) initial gradation tests shall be made for each type of pipe bedding, fill or backfill material, and one (1) additional gradation test shall be made for each additional 500 tons of each material. Retests of samples failing initial tests shall be at the expense of the contractor. Initial moisture density (Proctor) tests and relative density tests on the materials, and all inplace field density tests shall be made at the expense of the Owner.
2. The following tests will be performed by the Owner's testing laboratory with a copy of test reports furnished to the Contractor and Design Team.
3. Field density reports for fills and backfills.
4. Testing reports on borrow material, including mechanical analysis, moisture-density curve and plasticity index.
5. Verification of each footing subgrade.
6. One optimum moisture-maximum density curve for each type of soil encountered.
7. Report of actual unconfined compressive strength and/or results of bearing tests of each strata tested.

B. Requirements of Regulatory Agencies:

1. Perform excavation work in conformance to the requirements of the most current City of Boulder Standard Specifications except where different or more stringent requirements are herein specified. Supply, install, and remove all shoring as may be required to comply with all OSHA and EPA safety regulations and to maintain earth banks until backfill is placed.

C. Backfilling and construction of fills and embankments during freezing weather shall not be done except by permission of the Owner's Representative. No backfill, fill, or embankment materials shall be installed on frozen surfaces, nor shall frozen materials, snow or ice be placed in any backfill, fill, or embankment.

1.6 PROJECT CONDITIONS

A. Existing Utilities:

1. Before starting any work disturbing, moving or penetrating the ground, call the Utility Notification Center of Colorado, 534-6700 or 1-800-922-1987, to locate, stake and identify depth of all buried utilities within the construction limits or effected by the Work.
2. Locate existing underground utilities in the areas of work. Protect utilities to remain.
3. The existence and location of underground utilities and construction indicated as existing are not guaranteed. Excavate carefully so as not to damage uncharted utilities.
4. Should uncharted, or incorrectly charted, utilities be encountered, notify the University and utility provider immediately for directions.
5. Do not interrupt existing utilities without Utility Owner's consent and approval of affected users at least 72 hours in advance of interruption and ten (10) days notice where directed.
6. Demolish and completely remove from site existing underground utilities.
indicated to be removed unless the utility is indicated to be abandoned. Coordinate with utility companies or University Engineer for shut-off of services if lines are active.

B. Site Information:

1. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings.
2. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn there from by Contractor.
3. Data are made available for the convenience of the Contractor.
4. Additional test borings and other exploratory operations may be made by the Contractor at no cost to the Owner. Coordinate with University representative.

C. Protect structures, utilities, and all other improvements from damage during earthwork operations. If structures, utilities or other improvements are damaged, replace them in the same or better condition.

D. Water-Jet using a truck mounted system and videotape storm sewers where debris may have accumulated. This must be completed prior to acceptance by the University. University fire hydrants are not to be used for flushing purposes.

E. Contractor is required to maintain adjacent sidewalks and streets free of dirt accumulation arising out of work.

F. Verify all required utility sleeving is installed and properly located and supported prior to backfilling.

G. Use of Explosives: The use of explosives is not permitted.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: All soil materials to be used, whether from on or off-site, must be approved by the Soils Engineer as suitable for intended use and specifically for required location or purpose.

B. Bedding materials shall contain no cinders or other material which may cause pipe corrosion.

C. Earth backfill and earth fill shall be excavated material that is free from organic
matter, roots, debris, and rocks larger than 3 inches in the greatest dimension.

D. If sufficient earthwork material to complete the work is not available at the site, the contractor shall secure his own source of material and necessary permits to complete the project requirements.

2.2 CONTROLLED LOW-STRENGTH MATERIAL (FLOWABLE FILL)

A. In accordance with Section 02221 requirements for Flowable Fill.

2.3 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations. Limit disturbance to the limits of disturbance as shown on the Drawings.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 2 Section "Site Clearing," during earthwork operations.
D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

2. Install a dewatering system, specified in Division 2 Section "Dewatering," to keep subgrades dry and convey ground water away from excavations if groundwater is encountered. Maintain until dewatering is no longer required.

3. Coordinate with Owner where water is to be discharged.

4. Do not use footing or foundation trenches for temporary drainage ditches.

3.3 STABILITY OF EXCAVATIONS

A. Slope sides of excavations to comply with local codes, EPA and OSHA requirements, and to limit disturbance as shown on the Drawings. Shore and brace where sloping is not possible.

B. Shoring: Any damage to new or existing pipes or structures resulting from settlements, heaving, water or earth pressures, slides, caving, or other causes, due to lack of shoring, sheeting, or bracing, or due to failure of shoring, or due to improper shoring, or due to any other negligence on the part of the contractor, shall be repaired at the contractor’s expense.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
PR005684: ECON TO HALE WATERLINE

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:

3. 6 inches beneath pipe in trenches, and 24 inches wider than pipe.

B. Do not operate earthmoving equipment within 5 feet of walls of existing structures or newly completed construction. Place and compact fill or backfill adjacent to concrete walls with hand-operated tampers or other equipment that will not damage the structure.

C. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Engineer. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents. Changes in the Contract time may be authorized for rock excavation.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.

2. Intermittent drilling; ram hammering; or ripping of material not classified as rock excavation is earth excavation.

3. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction without exceeding the following dimensions:

4. 6 inches beneath pipe in trenches, and 24 inches wider than pipe.

3.5 EXCAVATION FOR STRUCTURES (Not Used)

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 SUBGRADE INSPECTION

A. Notify Engineer when excavations have reached required subgrade.

B. If Engineer determines that unsatisfactory soil is present, continue excavation and
replace with compacted backfill or fill material as directed.

C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

3.8 UNAUTHORIZED EXCAVATION

A. Undermining or tunneling under walls, footings, slabs on grade, foundations, sidewalks, concrete or bituminous asphalt pavements, or any other surface or subsurface facilities or structures shall not be permitted unless authorized by the Owner’s Representative. If unauthorized tunneling or undermining occurs, the contractor shall pay for all repairs and restorations the Owner’s Representative deems necessary. The repairs and restorations may include removing and replacing part or all of the affected facility or structure.

3.9 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust. Existing landscaping, sod or sidewalks shall be protected from material storage by first placing protective plastic sheeting.

B. Stockpile soil materials away from edge of excavations as shown on the Drawings. Do not store within drip line of remaining trees.

3.10 BACKFILL

A. Place and compact backfill in excavations as promptly as work permits, but not before completing the following:

1. Acceptance of construction below finish grade including, where applicable, damp-proofing, waterproofing, perimeter insulation, and basement and first floor slabs unless foundations are braced to prevent damage and movement.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally
supported walls.
8. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place backfill and fill materials in layers not more than 8" in loose depth for material compacted by heavy compaction equipment, and not more than 4" in loose depth for material compacted by hand-operated tampers.

C. Do not backfill any pipe trenches until pipe is inspected by University Engineer and the appropriate utility provider.

D. To the maximum extent available, excess suitable material obtained from structure and trench excavations shall be used for construction of fills and embankments.

E. All material deposited in fills and embankments shall be free from rocks or stones, brush, stumps, logs, roots, debris, and organic or other objectionable materials, and shall be wetted or dried as required and thoroughly mixed to ensure uniform moisture content.

3.11 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:
   1. Under grass and planted areas, use satisfactory soil material.
   2. Under walks and pavements, use satisfactory soil material.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.12 SOIL MOISTURE CONTROL

A. During the compacting operations, maintain optimum practicable moisture content required for compaction purposes in each lift of the backfill material. Maintain moisture content uniform throughout the lift. Insofar as practicable, add water to the material at the site of excavation. Supplement by sprinkling the backfill material. At the time of compaction, the water content of the material shall be at optimum water content or within 2 percentage points above optimum. Aerate material containing excessive moisture by blading, diskng, or harrowing to hasten the drying process.
3.13 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698 or D1557:

1. Structural Fills Below Footings: Scarify and recompact top 12" of subgrade and each layer of backfill or fill material at 100 percent.
2. Structural Fills Below Interior Slabs: Scarify and recompact top 9" of subgrade and each layer of backfill or fill material at 95 percent.
3. Foundation and Retaining Wall Backfill: Scarify and recompact each layer of backfill material at 95 percent.
4. Exterior Slabs, Steps, Walkways, Pavements: Scarify and recompact top 12" of subgrade and each layer of backfill and fill material to 95 percent.
5. Lawn or Unpaved Areas: Scarify and recompact top 6" of subgrade and each layer of backfill or fill material at 90 percent.
6. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.
7. All Deep Fill Areas (Fills Over 8'-0" in Depth): Comply with above requirements, except compact each layer of backfill or fill material between 98 and 100 percent.

3.14 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
3. Site Grading: Slope grades to direct water away from buildings and to prevent ponding.
3.15 PLACEMENT OF FLOWABLE FILL

A. Sufficient mixing capacity shall be provided to permit the flow fill to be placed continuously, without interruption.

B. Flow fill shall be thoroughly mixed prior to discharging to ensure a uniform product. Agitation is required during transportation and waiting time to ensure that the material is in suspension when placed.

C. Flow fill shall be discharged from the mixer truck into the trench to be filled, or by other methods approved by the Owner’s Representative.

D. The flow fill shall be placed continuously and brought up uniformly to a point a minimum of 1 inch above adjacent surfaces (trench walls) to ensure proper drainage of bleed water away from the trench. Flow fill shall not be placed in lifts exceeding three feet in depth.

E. Flow fill shall be vibrated during and after placement to accelerate the bleeding and evaporation of water and to improve consolidation of the material.

F. Flow fill shall not be placed on frozen ground.

G. Flow fill shall be protected from freezing until it has hardened.

H. When the bleed water subsides, the fill material shall be struck off level with the adjacent pavement and the surface finished with a wood float. After the fill material has sufficiently cured to support anticipated traffic loads, the roadway may be temporarily reopened to normal traffic. It shall be the Contractor’s responsibility to maintain the finished surface of the cured fill material in a safe and driveable condition, until such time that the roadway pavement section is permanently replaced. Alternatively, the Contractor may opt to remove the cured fill material to a depth equal to the bottom of the existing pavement, and install a temporary asphalt concrete patch. The foregoing does not preclude permanent pavement restoration immediately after the fill material has sufficiently cured to support anticipated traffic loads, should construction scheduling so permit. Permanent pavement restoration shall be in accordance with these specifications.

I. Flow fill mixing and placement may be started if weather conditions are favorable, when the air temperature in the shade and away from artificial heat is at least 34 degrees Fahrenheit and rising. Mixing and placing shall stop when the air temperature in the shade and away from artificial heat is 38 degrees Fahrenheit or less and falling, and in no case shall flow fill be placed when the air temperature is lower than 34 degrees Fahrenheit.
J. It shall be the Contractor’s responsibility to ensure that the backfilled trench is not exposed to vehicular traffic loads until such time that the fill material has sufficiently cured to support the anticipated vehicle loads. Prior to reopening the roadway to normal traffic, the Contractor shall subject the fill material to a vehicular test load that is reasonably representative of the ultimate loading anticipated. When the fill material supports such vehicular test load without apparent deformation, said fill material shall be deemed sufficiently cured to permit reopening of the roadway to normal traffic.

K. Should it be necessary to reopen the roadway to normal vehicular traffic, before the fill material has sufficiently cured to support the anticipated traffic loads, it shall be the Contractor’s responsibility to provide and install steel plates to bridge over the trench.

3.16 SUBBASE AND BASE COURSES (Not Used for this Project)

3.17 DRAINAGE COURSE (Not Used for this Project)

3.18 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Trench Backfill: At each compacted backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests per compacted backfill layer.

2. Contractor will schedule the subsequent compaction tests during the course of the work by contacting the soils testing firm and setting the date and time for the testing. Testing frequency shall be determined by the soils engineer, however the frequency shall not exceed more than 150 linear feet in trenching holes.

D. If in the opinion of the Engineer, based on testing service reports and inspections, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional cost to Owner, retesting will
be paid for by the Contractor when the tests fail to meet the requirements of the specifications.

3.19 PROTECTION OF THE WORK

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to original condition where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

   1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.

C. Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), excavate as directed, add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

D. All backfill shall be maintained in a satisfactory condition and all places showing signs of settlement shall be filled and maintained for a period of one (1) year following the date of final acceptance of all work. When the contractor discovers or is notified by the Owner that any backfill is not in compliance with the project standards, the contractor shall correct such conditions. The contractor shall repair any utilities and road surfacing damaged by such settlement to the satisfaction of the Owner. In addition, the contractor shall be responsible for the cost to the Owner of all claims for damages due to settlement of backfilled areas.

3.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

   1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property at the expense of the Contractor.

END OF SECTION 02300
PR005684: ECON TO HALE WATERLINE

SECTION 02513  ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

2 SUMMARY:

A. Section Includes:
   1. Hot-mixed Asphalitic Concrete Pavement.
   2. Field Quality Control.
   3. Weed Control.

B. Related Sections:
   1. Section 02300 - Earthwork.
   2. Section 02580 - Pavement Marking.

1.2 SUBMITTALS:

A. Weed Control Products:
   1. Submit complete manufacturer's data for each product to be used, including:
      a. Manufacturer's safety data sheets.
      b. Method of application.
      c. Location of application.

B. Material Certificates:
   1. Provide 2 copies of materials certificates signed by the material producer and the Contractor, certifying that each material item complies with, or exceeds, specified requirements.

   2. Provide independent testing laboratory reports on aggregates and asphalt for sieve analysis, wear abrasion and other characteristics.

C. Design Mix:

   1. Submit proposed mix design based on laboratory tested mix to determine optimum asphalt content and other properties as specified, using 50 blow Marshall method.
1.3 QUALITY ASSURANCE:

A. Testing and Inspection Service:

1. A testing laboratory to perform quality control testing during asphaltic concrete paving operations shall be employed by the Owner. Any retesting required due to failed test shall be paid by the Contractor.

B. Standards:


PART 2 - PRODUCTS

2.1 AGGREGATES:

A. Base Course Aggregate: Per Section 703.03, Class 6, Colorado Department of Transportation Specifications.

1. Minimum Thickness: As stated on the plans or 7".

B. Asphalt Concrete Aggregate: Per Section 703.04, Gradation S for drives and roadways, and Gradation SX for parking lots and walks, or as stated on the plans, Colorado Department of Transportation Specifications.

1. Minimum Thickness Over Aggregate Base: As stated on the plans or 3".
2. Minimum Thickness for Full Depth Asphalt: As stated on the plans or 5".
3. Minimum Thickness Over Aggregate Base: As stated on the plans or 4" for parking facilities.

C. Mineral Filler: Limestone dust, portland cement, or other inert material complying with ASTM D242 or AASHTO M17.

D. Asphalt Materials:

1. Asphalt Cement: Comply with ASTM D3381 or AASHTO M226 Table 1, Viscosity Grade AC-10 or AC-20, and per Section 702, Colorado Department of Transportation Specifications.

2. Prime Coat: Cut-back asphalt type, ASTM D2027 or AASHTO M82, MC-30, MC-70 or MC-250.

ASPHALTIC CONCRETE PAVING
3. Tack Coat: Emulsified asphalt, ASTM D977, D2397, AASHTO M140 or M208, SS-1, SS-1h, CSS-1 or CSS-1h, diluted with water 1:1.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Proof Rolling:
   1. Require proof rolling of subgrade of paved areas by means to determine soft spots or inadequate compaction. Where soft spots occur, remove loose materials and replace with road base aggregate compacted to level of subgrade.

3.2 WEED CONTROL:

A. If vegetation exists on subgrade, remove surface vegetation within 3 days prior to application of Casoron or apply "Roundup" at rates following manufacturer's instructions.

B. Apply Casoron weed control at rate of 2.4 lbs per 100 sq. yds. for G-10 or 4.0 lbs. for W-50. Apply by methods recommended by manufacturer.

C. Exercise care and be responsible for damage to vegetation outside area to be treated due to careless or improper handling or use of weed control.

D. Conform to State and local requirements for use of agricultural chemicals.

3.3 JOINING TO EXISTING WORK:

A. Cut sides vertically and apply tack coat to exposed asphalt surfaces before placing new pavement. Meet existing thickness of surface and base courses, but not less than specified for new work.

B. Where new work joins existing asphaltic concrete paving on City of Boulder right-of-way, comply with the requirements of City of Boulder authorities for surface and base course thickness.

3.4 FIELD QUALITY CONTROL:

A. Owner will test the in-place asphalt concrete course for compliance with requirements for thickness and surface smoothness.

   1. Owner through project manager to provide Parking and Transportation Services (PTS) with testing results for impacted parking facilities.
B. Repair or remove and replace unacceptable paving as directed by the Engineer.

C. Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness.

1. Base Course: +0.5"
2. Surface Course: +0.25"

D. Owner will check compaction and compliance with design mix by cutting test plugs where directed in accordance with ASTM D1559. Patch core holes. Owner will test for compaction minimum of 95% of Marshall Design, aggregate gradation, voids and percent asphalt.

E. Remove and replace non-conforming work as directed.

F. Surface Smoothness: Owner will test finished surface of each asphaltic concrete course for smoothness, using 10' straightedge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerance for smoothness.

1. Wearing Course Surface: 0.1875-inches.

G. Check surfaced areas at intervals as directed by the Engineer.

END OF SECTION 02513
SECTION 02580 PAVEMENT MARKING

PART 1 - GENERAL

1.1 SUMMARY:
A. Section Includes:
   1. Directional arrows.
   2. Handicapped symbol marking.
   3. Lane marking.
   5. In-laid thermo-plastic markings.

B. Related Sections:
   1. Section 02513 - Asphaltic Concrete Paving.

1.2 QUALITY ASSURANCE:
A. Mock-Up:
   1. Provide samples of the following:
      a. Traffic lane stripe, 10 linear feet.
      b. One parking stall stripe.
      c. Handicapped symbol.
      d. One curved directional arrow.
      e. One straight directional arrow.
   2. Approved samples may remain as part of the final work. Rejected samples shall be removed from the substrate.

1.3 PROJECT CONDITIONS:
A. Do not apply in-laid thermo-plastic marking when surface or air temperature is less than 55° F., or when moisture content of substrate is above manufacturer's recommendations.
B. All pavement markings on disturbed or excavated pavements shall be restored to new condition on the replacement pavement.
PART 2 - PRODUCTS

2.1 MATERIALS:

A. Lane Marking Paint:

1. Opaque White: Matching Federal Standard 585 for white paint and having the daylight directional reflectance specified in FS TT-P-115f, Type I.

2. Yellow: Match color chip No. 13538 of Federal Standard 595A with yellow color within the green and red tolerance limits when compared with the latest Highway Yellow Color Tolerance Chart, PR Color No. 1, U.S. Department of Transportation, Federal Highway Administration.

B. In-Laid Thermo-Plastic Markings:

1. Provide "Cata-Therm" by Cataphote, Inc., 1-800-221-2574, white reflective color, or approved substitute alkyd-based thermo-plastic material complying with AASHTO M249.

2. Provide drop-in glass beads which are skid-resistant and which comply with the City of Boulder standards.

PART 3 - EXECUTION

3.1 APPLICATION:

A. Apply with mechanical equipment to produce a wet film thickness not less than 0.015" and 4" line widths unless otherwise required.

B. Handicap Parking: International symbol for handicap parking (no blue background).

C. In-Laid Thermo-Plastic Markings:

1. Provide for all crosswalks and stop bars.

2. Saw or grind grooves in pavement for application of thermo-plastic material.

3. Prime substrate as required by manufacturer.

4. Install in accordance with manufacturer's instructions. Apply in 250 to 400 mil
thickness. Apply such that cooled material is flush with or slightly above groove lip.


7. Glass Beads: Drop into thermo-plastic material immediately after application.

END OF SECTION 02580
SECTION 02665  WATER SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:

1. Water systems and appurtenances.

B. Related Sections:

1. Section 02300 - Earthwork
2. Section 02221 - Trenching, Backfilling, Compacting.

1.2 INTENT

A. The water systems standards establish minimum standards for providing and maintaining the University’s water utility distribution system.

B. All modifications to the University’s water utility distribution system shall conform to the University’s master plan.

1.3 CODES & STANDARDS

1. The most recent City of Boulder Design & Construction Standards and Standard Details are incorporated by reference into the University’s Standards. When there is a conflict between standards, the more stringent requirement shall apply. The University’s Civil Engineer must approve in writing any deviation from these standards prior to construction.

2. 2006 International Plumbing Code

3. 2006 International Building Code

4. NFPA Compliance: Install fire protection water systems in accordance with NFPA 24 “Standard for the Installation of Private Fire Service Mains and Their Appurtenances.”

5. UL Compliance: Provide fire hydrants that comply with UL 246 "Hydrants for Fire-Protection Service", and are listed by UL.

6. Contractor must obtain a permit to operate valves or hydrants from the University of Colorado at Boulder Utilities and Engineering Division. Where valves or hydrants are owned by a utility other than the University, Contractor must contact
the owning utility and follow that utility’s regulations for operating valves and hydrants.

7. Operation of Water System must at all times remain under the supervision of the University of Colorado at Boulder.

1.4 MATERIALS AND INSTALLATION

1. Construction of water-related public improvements shall be in compliance with these Standards. All pipe shall be of adequate strength to support the trench and AASHTO HS-20 highway loadings. The type of pipe to be installed shall comply with these Standards, and shall be based upon applicable design flows, pressures, site conditions, corrosion protection, and maintenance requirements.

PART 2 – PRODUCTS

2.1 Water Pipe and Fittings:

Comply with the City of Boulder’s Design and Construction Standards, Chapter 9, Utilities Standards.

2.2 Accessories:

A. Water Meters:

1. Refer to UCB Standard 15430, Section 1.03, A.14
2. All water meters shall have the capability to be field calibrated.
3. All meters shall comply with AWWA and ANSI/NSF 61 standards.
4. All meters shall be equipped with automatic meter reading capability.
5. All Other Locations: Provide meter acceptable to the City of Boulder Water Department.

2.3 Gate valves, butterfly valves, and fire hydrants:

A. Comply with the City of Boulder’s Design and Construction Standards, Chapter 9, Utilities Standards.

B. Refer to City of Boulder’s Standard Details. The hydrant must comply with NFPA requirements for minimum distance from a building.

PART 3 - EXECUTION

3.1 Backfill, Trenching, Pipe Bedding, Cleanup and Restoration:

A. Follow requirements as specified in Section 02221
B. Backfill: Place and compact cover material starting at top of pipe bedding extending upwards to a distance of one foot above top of pipe. Place in lifts which achieve a density of 95%, ASTM D1557 at a point 6" above top of pipe.

C. Restore pavements, curbs and gutters, utilities, fences, lawns, vegetation and other improvements to condition equal to or better than before work began and to satisfaction of Owner's Representative.

D. Complete topsoil and reseeding of site, if required.

E. Remove and legally dispose of all excess waste materials off the Owner's property.

3.2 Identification:

A. Underground Line Marker:

1. During backfilling and top-soiling of underground piping, install continuous underground line markers, located at two (2) depths, one foot below grade and two feet above pipe.

2. Manufacturer's standard permanent, bright-colored, continuous-printed tape with metallic core, intended for direct-burial service; not less than 6" wide x 4 mils thick. Furnish blue tape with black printing reading "CAUTION WATER LINE BURIED BELOW".

B. Non-Metallic Piping Label:

1. If non-metallic piping is used:
   ▪ Provide engraved plastic laminate label permanently affixed to main electrical meter panel stating "THIS STRUCTURE HAS A NON-METALLIC WATER SERVICE".
   ▪ Provide tracer wire and test stations.

2.4 Pipe Installation:

A. Comply with the City of Boulder's Design and Construction Standards, Chapter 9, Utilities Standards.

B. Install copper pipe in accordance with CDA Copper Tube Handbook.

C. Care shall be taken to prevent contaminating materials from entering the water mains during construction or repair. Such materials that may accidentally enter the main shall be removed by flushing. This flushing shall be done prior to disinfection unless
tablet method of disinfection used. If, in the opinion of the Owner’s Representative, the contaminated material that has entered cannot be removed by flushing, the interior of the pipe shall be cleaned by mechanical means and then swabbed with one (1) percent hypochlorite solution.

D. Handle pipe carefully to ensure delivery in a sound, undamaged condition. Inspect pipe for cracks, dents, abrasions or other flaws. The Owner’s Representative will reject damaged pipe on site. Contractor shall replace damaged pipe at no additional expense to the Owner. Do not store materials directly on ground.

3.3 Tapping Pipe:

A. Use experienced workers to make direct taps with tools in good repair and proper adapters for size of pipe being tapped. Drilling and/or tapping machines must be acceptable to Owner. Where the pipe to be tapped is owned by a utility other than the University, the Contractor shall contact and follow the regulations of the utility owner.

B. All taps must be made using the wet tap method, unless other methods are approved.

C. All foreign matter shall be removed from the interior prior to installation of tapping valves.

3.4 Field Quality Control:

A. Notify Architect, Owner and governing authorities (if any) at least 8 working hours in advance of pipe being laid in any trench and 16 working hours in advance of testing. Do not cover pipes until observed by Architect and approved by Owner and governing authorities (if any).


1. Pipe shall not be pressure tested until bacteriological testing meets the governing agency requirements. Pipe shall be backfilled prior to pressure and leakage tests.

3.5 Valves & Hydrants

A. Valves and hydrants shall be tagged “out of service” until the water system is operational. It is the responsibility of the contractor to notify the Boulder Fire Department regarding the location of the tagged hydrants.

END OF SECTION 02665
SECTION 02751 – PORTLAND CEMENT CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section. The Colorado Department of Transportation “Standard Specifications for Road and Bridge Construction” 2005 editions, hereinafter referred to as “CDOT Standard Specifications”, also apply.

1.2 SUMMARY

A. This Section includes work for exterior cement concrete pavement for the following:

1. Concrete paving.
2. Curbs and gutters.
3. Walkways and Sidewalks.
4. Drainage pans.

1.3 SUBMITTALS

A. Shop Drawings: Submit sections and details where not fully dimensioned on the drawings.

B. Manufacturer's Data: Submit for proprietary products.

C. Mix Design: Submit mix design for review by the Engineer.

D. Qualification Data: For manufacturer agency.

E. Material Test Reports: From a qualified testing agency indicating and interpreting test results for aggregates.

F. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements:

1. Cementitious materials.
2. Admixtures.
3. Curing compounds.
5. Bonding agent or epoxy adhesive.
1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

   1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."


C. Pre-installation Conference: The Contractor shall conduct conference at Project site to comply with requirements in Division 1 Section "Project Coordination."

   1. Representatives of the Contractor, including the following, of each entity directly concerned with concrete pavement, shall attend conference:
      a. Contractor's superintendent.
      b. Independent testing agency responsible for concrete design mixtures.
      c. Ready-mix concrete producer.
      d. Concrete pavement subcontractor.

   2. The Contractor shall provide and review a schedule of the concrete pavement placement at the Pre-installation Conference.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Fine aggregate shall conform to the requirements of Section 703.01 of the CDOT Standard Specifications.

B. Coarse aggregate shall conform to the requirements of Section 703.02 of the CDOT Standard Specifications. If gravel or limestone Size No. 57 or 67 is selected for use in the overlay concrete, the coarse aggregate incorporated into the concrete shall meet the requirements of Section 703.02 and be tested in accordance with ASTM C 666 Procedure B. The area generated under the curve obtained by plotting the expansions of test specimens versus the number of test cycles shall not exceed 2.05 at 350 or less cycles.

C. Portland cement shall be Type II and conform to the requirements of Section 701.01 of the CDOT Standard Specifications.

D. Fly ash shall conform to the requirements of Section 701.02 of the CDOT Standard Specifications.
E. Water shall conform to the requirements of Section 712.01 of the CDOT Standard Specifications.

F. Air entraining admixtures shall conform to the requirements of Section 711.02 of the CDOT Standard Specifications.

G. Superplasticizing admixtures shall conform to the requirements of ASTM C 494, Type F or G.

H. Joint sealant with Backer Rod shall conform to the requirements of Section 705.01 of the CDOT Standard Specifications.

I. Curing materials shall be white and conform to the requirements of Section 705.01 of the CDOT Standard Specifications.

J. Reinforcing steel shall conform to the requirements of Section 709.01 of the CDOT Standard Specifications.

K. Fibers for concrete shall shall be a polymeric reinforcing fiber equal to Novomesh 950, as manufactured by Propex Concrete Systems Corporation, and shall conform to the requirements of ASTM C116 and produce an Average Residual Strength (ARS) of no less than 209 psi from a test set of 5 beams in accordance with ASTM C 1399 Test Method for determining Average Residual Strength of Fiber Reinforced Concrete.

L. Chemical admixtures shall conform to the requirements of Section 711.03 of the CDOT Standard Specifications.

M. Dowel bars and tie bars shall conform to the requirements of Section 709.03 of the CDOT Standard Specifications.

2.2 EQUIPMENT

A. Mixers: Concrete shall be mixed in a central mixing plant or by a ready mixed concrete truck capable of discharging plasticized concrete having a maximum water-cement ratio of 0.40. Mixing equipment shall meet the requirements of 601.07 of the CDOT Standard Specifications. The admixtures and fibers shall be introduced into the concrete in such a manner that they shall be disbursed throughout the entire load. Batch plants shall meet the requirements of 601.07 of the CDOT Standard Specifications and shall be located such that the maximum time required from start of mixing to completion of discharge of the concrete at the site of work shall not exceed 90 minutes.

B. Superplasticizer Dispenser. The Contractor shall be responsible for furnishing a volumetric dispenser for the superplasticizer. The dispenser shall be capable of dispensing the admixture to within ± 3.0 percent of the desired amount.
C. Finishing Equipment. An approved vibrating screed, paving machine or bridge deck finishing machine shall be used, except where hand finishing is authorized.

D. The placing and finishing equipment shall be designed so that the elapsed time between depositing concrete on the pavement and final finishing shall not exceed 10 minutes.

E. Milling Equipment. Planing equipment shall be self-propelled with sufficient power and stability to consistently and efficiently produce the required results. The cutting element may be of the grinding, sawing, or milling type. Planing cutters shall be mounted rigidly to the carrier and shall be adjustable and controllable as to depth of cut and cross-slope. Longitudinal planing action may be produced either by means of a suitable carrier wheelbase or by means of an automatic control system having an external reference. Cross-slope adjustments or automatic controls shall be capable of producing either a variable or a constant cross-slope as required.

F. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces. Use flexible or curved forms for curves with a radius 100 feet or less.

G. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.3 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete mixture designs for the trial batch method.

B. Proportion mixtures to provide normal-weight concrete with the following properties:

1. Concrete pavements for this project shall be Class “P” concrete in accordance with Section 601 of the CDOT Standard Specifications. Concrete for sidewalks and curbs and gutters shall be Class “B” in accordance with Section 601 of the CDOT Standard Specifications.

2. Additional requirements for Class “P” concrete are: The concrete mix shall consist of a minimum 55 percent AASHTO M 43 size No. 357 or No. 467 coarse aggregate by weight of total aggregate. If all transverse joints are
doweled, the concrete mix shall consist of a minimum 55 percent AASHTO M 43 sizes No. 57, No. 6, No. 67, No. 357, or No. 467 coarse aggregate by weight of total aggregate. The laboratory trial mix shall produce a minimum average 28 day flexural strength of 650 psi. Class P concrete shall contain a minimum of 10 percent pozzolan by weight of total cementitious. If acceptance is based on flexural strength, the total weight of cementitious shall not be less than 520 pounds per cubic yard. Mixing for Class P concrete shall conform to subsection 601.07 of the CDOT Standard Specifications.

3. Additional requirements for Class “B” concrete are: Class D, H or P concrete may be substituted for Class B concrete. Additional requirements are: The coarse aggregate shall have a nominal maximum size of 1½ inches or smaller.

PART 3 - EXECUTION

3.1 PLACING, CONSOLIDATING AND FINISHING

A. Concrete Sidewalks and Curbs and Gutters shall be constructed in accordance with Sections 608.03 and 609.03, respectively, of the CDOT Standard Specifications.

B. Preparation of Existing Surface for Concrete Pavements: Subgrade preparation shall be in accordance with Section 412.08 of the CDOT Standard Specifications.

Placing, Consolidating and Finishing: Class “P” concrete shall be placed, consolidated and finished in accordance with Section 412 of the CDOT Standard Specifications.

3.2 JOINTS

A. Type “P” Concrete: Joints for Type “P” concrete shall be in conformance with Section 412.13 of the CDOT Standard Specifications. Joint sealing shall be in conformance with Section 412.18 of the CDOT Standard Specifications.

B. Joints for concrete sidewalks and curbs and gutters shall be constructed in conformance with Sections 608.03 (e) and 609.03 (e), respectively, of the CDOT Standard Specifications.

3.3 LIMITATIONS ON PLACING OPERATIONS

A. Limitations on the placing of concrete shall conform to subsections 601.12 (b) and 412.15 of the CDOT Standard Specifications

3.4 CURING

A. Curing of concrete pavements shall be in conformance with Section 412.14 of the
CDOT Standard Specifications.

B. Curing of concrete sidewalks and curbs and gutters shall be in conformance with Sections 608.03 (f) and 609.03 (f), respectively, of the CDOT Standard Specifications.

3.5 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and ACI 330.1 as follows:

1. Elevation: 1/4 inch.
3. Surface: Gap below 10-foot long, unleveled straightedge not to exceed 1/4 inch.
4. Joint Spacing: 3 inches.
5. Contraction Joint Depth: Plus 1/4 inch, no minus.

3.6 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Drill test cores, where directed by Engineer, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland Cement concrete bonded to pavement with epoxy adhesive.

C. Protect concrete from damage. Traffic shall be excluded from pavement for at least seven days after placement unless high-early strength concrete is used. Use of high-early strength concrete shall be at the discretion and cost of the Contractor unless specified in the plans. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 02751
SECTION 02810 – IRRIGATION SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. WORK INCLUDED - Work of this Section generally includes provisions for the installation of an underground irrigation system including the following:

C. Static pressure verification and coordination of irrigation system installation with landscape material installation.

D. Trenching, stockpiling excavation materials, refilling and compacting trenches.

E. Complete irrigation system including but not limited to piping, valves, fittings, heads, controllers and wiring, and final adjustments to insure complete coverage.

F. Water connections.

G. Replacement of unsatisfactory materials.

H. Clean-up, inspections, and approval.

I. Tests.

1.2 RELATED SECTIONS

A. Section 02900 – Landscaping, General

1.3 REFERENCES

A. Perform work in accordance with requirements of Conditions of the Contract and Division 01 - General requirements as well as provisions of all applicable laws, codes, ordinances, rules, and regulations.

B. Conform to requirements of reference information listed below except where more stringent requirements are shown or specified in Contract Documents.

1. American Society for Testing and Materials (ASTM) - Specifications and Test Methods specifically referenced in this Section.

2. Underwriters Laboratories (UL) - UL Wires and Cables.
1.4 QUALITY ASSURANCE

A. Installer Qualifications - Installer shall have had considerable experience and demonstrate ability in the installation of irrigation system(s) of specific type(s) in a neat orderly, and responsible manner in accordance with recognized standards of workmanship. To demonstrate ability and experience necessary for this Project, and financial stability, submit if requested by Consultant, prior to contract award the following:

1. List of 3 projects completed in the last 2 years of similar complexity to this Project. Description of projects shall include:
   a. Name of project.
   b. Location.
   c. Owner.
   d. Brief description of work and project budget.

2. Current company financial statement.

3. Special Requirements:
   a. Work involving substantial plumbing for installation of copper piping, backflow preventer(s), and related Work shall be executed by licensed and bonded plumber(s). Secure a permit at least 48 hours prior to start of installation.
   b. Tolerances - Specified depths of mains and laterals and pitch of pipes are minimums. Settlement of trenches is cause for removal of finish grade treatment, refilling, compaction, and repair of finish grade treatment.
   c. Coordination With Other Contractors - Protect, maintain, and coordinate Work with Work under other Sections.
   d. Damage To Other Improvements - Contractor shall replace or repair damage to grading, soil preparation, seeding, sodding, or planting done under other Sections during Work associated with installation of irrigation system at no additional cost to Owner.
   e. Pre-Construction Conference - Contractor shall schedule and conduct a conference to review in detail quality control and construction requirements for equipment, materials, and systems used to perform the Work. Conference shall be scheduled not less than 10 days prior to commencement of Work. All parties required to be in attendance shall be notified no later than 7 days prior to date of conference. Contractor shall notify qualified representatives of each party concerned with that portion of Work to attend conference, including but not limited to Architect, Consultant, Contractor's Superintendent, and Installer.
   f. Minutes of conference shall be recorded and distributed by Contractor to all parties in attendance within five days of conference.
4. SUBMITTALS - Prepare and make submittals in accordance with conditions of the Contract.

5. Shop Drawings - Submit Shop Drawings if noted on construction drawings, include a complete materials list indicating manufacturer, model number, and description of all materials and equipment to be used. Show appropriate dimensions and adequate detail to accurately portray intent of construction.

B. Record Drawings (As-Builts):

1. At onset of irrigation installation secure mylar sepias of original irrigation design from Owner. At the end of every day, revise prints for Work accomplished that day in red ink. As-built sepias shall be brought up-to-date at the close of the working day every Friday by a qualified draftsperson. A print of record plan(s) shall be available at Project Site. Indicate zoning changes on weekly as-built drawings. Indicate non-pressure piping changes on as-builts. Upon completion of Project, submit for review, prior to final acceptance, final set of as-built mylar sepias. Dimensions, from two permanent points of reference (building corners, sidewalk, road intersections or permanent structures), location of following items:

   a) Connection to existing water lines.
   b) Routing of sprinkler pressure lines (dimension maximum 100 feet along routing).
   c) Sprinkler control valves.
   d) Quick coupling valves.
   e) Drain valves.
   f) Control wire routing if not with pressure mainline.
   g) All gate valves.
   h) Other related equipment as directed. Owners Representative will not certify any pay request submitted by the Contractor if the as-built drawings are not current, and processing of pay request will not occur until as-builts are up-dated.

C. Operation Instructions - Submit 3 written operating instructions including winterization procedures and start-up, with cut sheets of products, and coordinate controller/watering operation instruction with Owner maintenance personnel.

D. Controller Charts:

   a. Do not prepare charts until record (as-built) drawings have been reviewed by Consultant.
   b. Provide one controller chart for each automatic controller installed.
   c. Chart may be reproduction of record drawing, if scale permits fitting of
controller door. If photo reduction prints are required, keep reduction to maximum size possible to retain full legibility.
d. Chart shall be blueline print of actual "as-built" system, showing area covered by that controller.
e. Identify area of coverage of each remote control valve, using a distinctly different pastel color drawing over entire area of coverage.
f. Following review of charts by Consultant, they shall be hermetically sealed between two layers of 20 mm thick plastic sheet
g. Charts shall be completed and reviewed prior to final review of irrigation system.

E. DELIVERY, STORAGE, AND HANDLING - Deliver, unload, store, and handle materials, packaging, bundling, products in dry, weatherproof, condition in manner to prevent damage, breakage, deterioration, intrusion, ignition, and vandalism. Deliver in original unopened packaging containers prominently displaying manufacturer's name, volume, quantity, contents, instructions, and conformance to local, state, and federal law. Remove and replace cracked, broken, or contaminated items or elements prematurely exposed to moisture, inclement weather, snow, ice, temperature extremes, fire, or jobsite damage.

F. Handling of PVC Pipe - Exercise care in handling, loading and storing, of PVC pipe. All PVC pipe shall be transported in a vehicle, which allows length of pipe to lie flat so as not to subject it to undue bending or concentrated external loads. All sections of pipe that have been dented or damaged shall be discarded, and if installed, shall be replaced with new piping.

1.5 JOBSITE CONDITIONS:

A. Protection of Property:

1. Preserve and protect all trees, plants, monuments, structures, and paved areas from damage due to Work of this Section. In the event damage does occur, all damage to inanimate items shall be completely repaired or replaced to satisfaction of Owner, and all injury to living plants shall be repaired by Owner. All costs of such repairs shall be charged to and paid by Contractor.

2. Protect buildings, walks, walls, and other property from damage. Flare and barricade open ditches. Damage caused to asphalt, concrete, or other building material surfaces shall be repaired or replaced at no cost to Owner. Restore disturbed areas to original condition.

B. Existing Trees:

1. All trenching or other Work under limb spread of any and all evergreens or
low branching deciduous material shall be done by hand or by other methods so as to prevent damage to limbs or branches.

2. Where it is necessary to excavate adjacent to existing trees use all possible care to avoid injury to trees and tree roots. Excavation, in areas where 2 inch and larger roots occur, shall be done by hand. Roots 2 inches or larger in diameter, except directly in the path of pipe of conduit, shall be tunneled under and shall be heavily wrapped with burlap to prevent scarring or excessive drying. Where a trenching machine is operated close to trees having roots smaller than 2 inches in diameter, wall of trench adjacent to tree shall be hand trimmed, making clean cuts through roots. Trenches adjacent to trees shall be closed within 24 hours, and when this is not possible, side of trench adjacent to tree shall be kept shaded with moistened burlap or canvas.

C. Protection and Repair of Underground Lines:

1. Request proper utility company to stake exact location (including depth) of all underground electric, gas, or telephone lines. Take whatever precautions are necessary to protect these underground line from damage. If damage does occur, all damage shall be repaired by Utility Owner. All costs of such repairs shall be paid by Contractor unless other arrangements have been made.

2. Request Owner, in writing, to locate all private utilities (i.e., electrical service to outside lighting) before proceeding with excavation. If, after such request and necessary staking, private utilities which were not staked are encountered and damaged by Installer, they shall be repaired by Owner at no cost to Installer. If Contractor damages staked or located utilities, they shall be repaired by Utility Owner at Contractor's expense unless other arrangements have been made.

D. Replacement of Paving and Curbs - Where trenches and lines cross existing roadways, paths, curbing, etc., damage to these shall be kept to a minimum and shall be restored to original condition.

E. WARRANTY/GUARANTY: - Manufacturer shall warrant materials against defects for a period of one year from date of Substantial Completion. Installer(s) shall guaranty workmanship for similar period.

F. Settling of backfilled trenches which may occur during guaranty period shall be repaired at no expense to Owner, including complete restoration of damaged property.

G. Expenses due to vandalism before substantial completion shall be borne by Contractor.
H. Owner will maintain turf and planting areas during warranty period, so as not to hamper proper operation of irrigation system.

1.6 MAINTENANCE:

A. NOT USED FOR THIS PROJECT

B. EXTRA STOCK - In addition to installed system furnish the following items to Owner:

C. 10 Pop-up spray heads with nozzles of each type used.

D. 4 Rotor heads of each type used.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. General Piping:

1. Pressure Supply Lines (downstream of backflow prevention units) - Class 200 PVC BE (1" - 2 1/2") and Class 160 PVC RT (3" and larger).

2. Non-pressure Lines - Class 200 PVC BE.

3. PVC Sleevings - Class 160 PVC.

B. Copper Pipe and Fittings:

1. Copper Pipe - Type K, hard tempered.

2. Fittings - Wrought copper, solder joint type.

3. Joints - Soldered with solder, 45% silver, 15% copper, 16% zinc, and 24% cadmium and solidus at 1125~F and liquids at 1145~F.

C. Brass Pipe and Fittings:

1. Brass Pipe - 85% red brass, ANSI Schedule 40 screwed pipe.

2. Fittings - Medium brass, screwed 125 pound class.

D. Plastic Pipe and Fittings:

1. Identification Markings:
   a. Identify all pipe with following indelible markings: Manufacturer's name.
   b. Nominal pipe size.
   c. Schedule of class.
   d. Pressure rating.
   e. NSF (National Sanitation Foundation) seal of approval.
   f. Date of extrusion.
2. Solvent Weld Pipe - Manufactured from virgin polyvinyl chloride (PVC) compound in accordance with ASTM D2241 and ASTM D1784; cell classification 12454-B, Type 1, Grade 1.

3. Fittings - Standard wright, Schedule 40, injection molder PVC; complying with ASTM D1784 and D2466, cell classification 12454-B.

4. Threads - Injection molded type (where required).

5. Tees and ells - Side gated.


7. Joint Cement and Primer - Type as recommended by manufacturer of pipe and fittings.

8. Gasketed End Pipe - Manufactured from virgin Polyvinyl Chloride compound in accordance with ASTM D2241 and ASTM D1784; cell classification 1254-B, Type 1, Grade 1.

9. Fittings (3" and larger) - Ductile iron, grade 70-55-05 in accordance with ASTM A-536. Fittings shall have deep bell push-on joints with gaskets meeting ASTM F-477.

10. Gaskets - Factory installed in pipe and fittings, having a metal or plastic support within gasket or a plastic retainer ring for gasket.

11. Lubricant - As recommended by manufacturer of pipe fittings.

E. Gate Valves:

1. Gate Valves for 3/4 inch through 2-1/2 Inch Pipe - Brass construction; solid wedge, IPS threads, and non-rising stem with wheel operating handle.

2. Gate Valves for 3 Inch and Larger Pipe - Iron body, brass or bronze mounted AWWA gate valves with a clear waterway equal to full nominal diameter of valve; rubber gasket or mechanical joint-type only. Valves shall be able to withstand a continuous working pressure of 150 psi and be equipped with a square operating nut.

F. Quick Coupling Valves - Brass two-piece body designed for working pressure of 150 PSI; operable with quick coupler. Equip quick coupler with locking rubber cover. Key size and type as shown on Drawing.

G. Valve Boxes:
1. Gate Valves, Drip Line Blow-out Stubs, and Wire Stub Box - Carson #910-12, Brooks #1100, box as detailed.
2. 3/4 inch through 2 inch Control Valves - Carson #1419-13B, Brooks #1419 box.
3. Drip Valve Assemblies - Carson #1320-13B as detailed.

H. Electrical Control Wiring:

1. Low Voltage:
   a. Electrical Control Wire - AWG UFUL approved No. 14 direct burial copper wire or larger, if required to operate system as designed.

2. Wire Colors:
   a. Control Wires - Red.
   c. Master Valve Wires - Blue.
   d. Spare Control Wires - Black.
   e. Spare Common Wires - Yellow.

3. If multiple controllers are utilized, and wire paths of different controllers cross each other, both common and control wires from each controller shall be different colors approved by Consultant.

4. Control Wire connections and splices shall be made with 3M direct bury splice, Rain Bird Pentite connectors, or similar dry splice method.

5. High Voltage - Type required by local codes and ordinances, of proper size to accommodate needs of equipment serviced.

I. Automatic Controller - Size and type shown on Drawings; mounted as detailed.

J. Electric Control Valves - Size and type shown on Drawings having manual flow adjustment (except drip valves) and manual bleed nut.

K. Sprinkler Heads - As indicated on Drawings. Fabricated riser units in accordance with details on Drawings - with riser nipples of same size as riser opening in sprinkler body.

L. Backflow Preventer - Existing.

PART 3 - EXECUTION

3.1 LANDSCAPE PLAN REVIEW AND COORDINATION - Contractor will be held responsible for coordination between landscape and irrigation system installation. Landscape material locations shown on the Landscape Plan shall take precedence over...
the irrigation system equipment locations. If irrigation equipment is installed in conflict with the landscape material locations shown on the Landscape Plan, the Contractor will be required to relocate the irrigation equipment, as necessary, at Contractor's expense.

3.2 STATIC PRESSURE VERIFICATION - Contractor shall field verify the static pressure at the project site, prior to commencing work or ordering irrigation materials, and submit findings, in writing, to Consultant. If Contractor fails to verify static water pressure prior to commencing work or ordering irrigation materials, Contractor shall assume responsibility for all costs required to make system operational and the costs required to replace any damaged landscape material. Damage shall include all required material costs, design costs and plant replacement costs.

3.3 INSPECTION: - Examine areas and conditions under which Work of this Section is to be performed. Do not proceed with Work until unsatisfactory conditions have been corrected.

A. Grading operations, with the exception of final grading, shall be completed and approved by Owner before staking or installation of any irrigation system begins.

3.4 PREPARATION:

A. Staking shall Occur as Follows:

1. Mark, with powdered lime, routing of pressure supply line and flag heads for first few zones. Contact Consultant 48 hours in advance and request review of staking. Consultant will advise installer as to the amount of staking to be prepared. Consultant will review staking and direct changes if required. Review does not relieve installer from coverage problems due to improper placement of heads after staking.

2. If Project has significant topography, freeform planting beds, or other amenities which could require alteration of irrigation equipment layout as deemed necessary by Consultant, do not install irrigation equipment in these areas until Consultant has reviewed equipment staking.

B. Install sleeving under asphalt paving and concrete walks, prior to concreting and paving operations, to accommodate piping and wiring. Compact backfill around sleeves to 95% Modified Proctor Density within 2% of optimum moisture content in accordance with STM D1557.

C. Trenching - Trench excavation shall follow, as much as possible, layout shown on Drawing. Dig trenches straight and support pipe continuously on bottom of trench. Trench bottom shall be clean and smooth with all rock and organic debris removed.

1. Clearances:
   a. Piping 3 Inches and Larger - Make trenches of sufficient width (14 inches
minimum) to properly assemble and position pipe in trench. Minimum clearance of piping 3 inches or larger shall be 5 inches horizontally on both sides of the trench.

b. Piping Smaller than 3 Inches - Trenches shall have a minimum width of 7 inches.

c. Line Clearance - Provide not less than 6 inches of clearance between each line, and not less than 12 inches of clearance between lines of other trades.

2. Pipe and Wire Depth:
   a. Pressure Supply Piping - 24 inches from top of pipe.
   b. PVC Sleeving - 18 inches from top of pipe.
   c. Non-pressure Piping (rotor) - 18 inches from top of pipe.
   d. Non-pressure Piping (pop-up) - 12 inches from top of pipe.
   e. Control Wiring - Side of pressure main.
   f. Drip Tubing - 12 inches from top of pipe.
   g. Emitter Tubing (Micro-tubing) - 8 inches from top of pipe.

3. Boring will be permitted only where pipe must pass under obstruction(s) which cannot be removed. In backfilling bore, final density of backfill shall match that of surrounding soil. It is acceptable to use sleeves of suitable diameter installed first by jacking or boring, and pipe laid through sleeves. Observe same precautions as though pipe were installed in open trench.

D. INSTALLATION - Locate other equipment as near as possible to locations designated. Deviations shall be reviewed by Consultant prior to installation.

E. PVC Piping - Snake pipe in trench as much as possible to allow for expansion and contraction. Do not install pipe when air temperature is below 40~F. Place manual drain valves at low points and dead ends of pressure supply piping to insure complete drainage of system. When pipe laying is not in progress, or at end of each day, close pipe ends with tight plug or cap. Perform Work in accordance with good practices prevailing in piping trades.

F. Solvent Weld PVC Pipe - Lay pipe and make all plastic to plastic joints in accordance with manufacturer's recommendations.

G. Gasketed End Pipes:

   1. a. Lay pipe and make pipe to fitting or pipe to pipe joint, following OR70 recommendations (Johns-Manville Guide for Installation of Ring-Tite Pipe), or pipe manufacturer's recommendations.

H. Construct thrust blocks behind all gasketed fittings, tees, bends, reducers, line valves, and caps in accordance with pipe manufacturer's recommendations. Contact Consultant prior to placing thrust blocks, for observation of thrust block excavation and initial placement. Size thrust blocks based on tables below:
THRUST BLOCK SIZING GUIDE:

Thrust developed per 100 PSI pressure (lbs. force) for various fitting configurations.

<table>
<thead>
<tr>
<th>Pipe Size (in)</th>
<th>Fitting 90 deg. Elbow</th>
<th>Fitting 45 deg. Elbow</th>
<th>Valves, Tees Dead Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1,000</td>
<td>600</td>
<td>800</td>
</tr>
<tr>
<td>4</td>
<td>1,800</td>
<td>1,100</td>
<td>1,300</td>
</tr>
</tbody>
</table>

Approximate bearing strength of typical soils:

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Lbs/ft 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mulch, Peat, etc.</td>
<td>0</td>
</tr>
<tr>
<td>Soft Clay</td>
<td>500</td>
</tr>
<tr>
<td>Sand</td>
<td>1,000</td>
</tr>
<tr>
<td>Sand and Gravel</td>
<td>1,500</td>
</tr>
<tr>
<td>Sand and Gravel with Clay</td>
<td>2,000</td>
</tr>
<tr>
<td>Sand and Gravel Cemented with Clay</td>
<td>4,000</td>
</tr>
<tr>
<td>Hard Pan</td>
<td>5,000</td>
</tr>
</tbody>
</table>

I. Control Wiring:

1. Low Voltage Wiring:
   a. Bury control wiring between controller and electric valves in pressure supply line trenches, strung as close as possible to main pipe lines with such wires to be consistently located below and to one side of pipe, or in separate trenches.
   b. Bundle all 24 volt wires at 10 foot intervals and lay with pressure supply line pipe to one side of the trench.
   c. Provide an expansion loop at every pressure pipe angle fitting, every electric control valve location (in valve box), and every 500 feet. Form expansion loop by wrapping wire at least 8 times around a 3/4 inch pipe and withdrawing pipe.
   d. Make all splices and E.C.V. connections using Rain Bird Pentite connectors or similar dry splice method.
   e. Install all control wire splices not occurring at control valve in a separate splice valve box.
   f. Install one control wire for each control valve.
   g. Run two spare #14 AWG UFUL control wires and one common wire from controller pedestal to the end of each and every leg of mainline. Label spare wires at controller and wire stub box.

2. High Voltage Wiring for Automatic Controller:
   a. Provide 120 volt power connection to automatic controller.
   b. All electric work shall conform to local codes, ordinances, and authorities
having jurisdiction. All high voltage electrical work shall be performed by licensed electrician.

J. Automatic Controller:

1. Install controller in accordance with manufacturer's instructions as detailed and where shown on Drawings.
2. Connect remote control valves to controller in numerical sequence as shown on Drawings.
3. Final location of controller shall be approved by Consultant prior to installation.
4. Each controller shall be a dedicated separate ground wire and grounding rod as detailed.
5. All above ground conduit shall be rigid galvanized with appropriate fittings. All below ground conduit shall be schedule 40 PVC.

K. Electric Control Valves - Install cross-handle 3 inches below finished grade where shown on Drawings as detailed. When grouped together, allow at least 12 inches between valve box sides. Install each remote control valve in a separate valve box. Install individual valve box flush with grade.

L. Quick Coupling Valves - Install quick couplers on double swing-joint assemblies of Schedule 80 PVC pipe; plumb and flush to grade. Angled nipple relative to pressure supply line shall be no more than 45 degrees and no less than 10 degrees. Install quick coupling valves as detailed.

M. Drain Valves - Install manual drain valves at all low points in pressure supply line as detailed. Provide a three cubic foot drainage sump for each drain valve installed.

N. Valve Boxes:

1. Install one valve box for each type of valve installed as detailed. Valve box extensions are not acceptable except for master valves. Install gravel sump after compaction of all trenches. Place final portion of gravel inside valve box after valve box is backfilled and compacted.
2. Brand controller letter and station number on lid of each valve box. Letter and number size shall be no smaller than 1 inch and no greater in size than 1 1/2 inches. Depth of branding shall be no more than 1/8 inch into valve box lid.

O. Gate Valves - Install where shown on Drawings as detailed.

P. Sprinkler Heads - Install sprinkler heads where designated on Drawings or where staked. Set to finish as detailed. Spacing of heads shall not exceed the maximum indicated on Drawing unless re-staked as directed by Consultant.
In no case shall the spacing exceed maximum recommended by manufacturer. Install heads on double swing-joint risers of schedule 40 PVC pipe. Angled nipple relative to non-pressure line shall be no more than 45 degrees or less than 10 degrees. Adjust part circle heads for proper coverage. Adjust heads to correct height after sod is installed. Plant placement shall not interfere with intended sprinkler head coverage, piping, or other equipment. Consultant may request nozzle changes or adjustments without additional cost to the Owner.

Q. Backflow Preventer - Existing.

R. Backfilling - Do not begin backfilling operations until required system tests have been completed. Backfill shall not be done in freezing weather except with review by Consultant. Leave trenches slightly mounded to allow for settlement after backfilling is completed. Trenches shall be finish graded prior to walk-through of system by Consultant.

1. Materials - Excavated material is generally considered satisfactory for backfill purposes. Backfill material shall be free of rubbish, vegetable matter, frozen materials, and stones larger than 1 inch in maximum dimension. Do not mix subsoil with topsoil. Material not suitable for backfill shall be hauled away. Contractor shall be responsible for providing suitable backfill if excavated material is unacceptable or not sufficient to meet backfill, compaction, and final grade requirements.

2. Do not leave trenches open for a period of more than 48 hours. Open excavations shall be protected in accordance with OSHA regulations.

3. Compact backfill to 90% maximum density, determined in accordance with ASTM D155-7 utilizing the following methods:

   a. Mechanical tamping.

   b. Puddling or ponding. Puddling or ponding and/or jetting is prohibited within 20'-0" of building or foundation walls.

S. Piping Under Paving:

1. Provide for a minimum cover of 18 inches between the top of the pipe and the bottom of the aggregate base for all pressure and non-pressure piping installed under asphaltic concrete or concrete paving.

2. Piping located under areas where asphalt or concrete paving will be installed shall be bedded with sand (a layer 6" below pipe and 6" above pipe).

3. Compact backfill material in 6" lifts at 90% maximum density determined in accordance with ASTM D155-7 using manual or mechanical tamping devices.

4. Set in place, cap, and pressure test all piping under paving, in presence of Owner prior to backfilling and paving operations.

5. Piping under existing walks or concrete pavement shall be done by jacking, boring, or hydraulic driving, but where cutting or breaking of
walks and/or concrete is necessary, it shall be done and replaced at no cost to Owner. Obtain permission to cut or break walks and/or concrete from Owner.

T. Water Supply and Point of Connection - Water supply shall be extended as shown from water supply lines.

3.5 FIELD QUALITY CONTROL:

A. Flushing - After piping, risers, and valves are in place and connected, but prior to installation of sprinkler heads, quick coupler assemblies, and hose valves, thoroughly flush piping system under full head of water pressure from dead end fittings. Maintain flushing for 5 minutes through furthestmost valves. Cap risers after flushing.

B. Testing - Conduct tests in presence of Consultant. Arrange for presence of Consultant 48 hours in advance of testing. Supply force pump and all other test equipment.

1. After backfilling, and installation of all control valves, fill pressure supply line with water, and pressurize to 40 PSI over the designated static pressure or 120 PSI, whichever is greater, for a period of 2 hours.
2. Leakage, Pressure Loss - Test is acceptable if no loss of pressure is evident during the test period.
3. Leaks - Detect and repair leaks.
4. Retest system until test pressure can be maintained for duration of test.
5. Before final acceptance, pressure supply line shall remain under pressure for a period of 48 hours.

C. Walk-Through for Substantial Completion:

1. Arrange for Consultant's presence 48 hours in advance of walk-through.
2. Entire system shall be completely installed and operational prior to scheduling of walk-through.
3. Operate each zone in its entirety for Consultant at time of walk-through and additionally, open all valve boxes if directed.
4. Generate a list of items to be corrected prior to Final Completion.
5. Furnish all materials and perform all work required to correct all inadequacies of coverage due to deviations from Contract Documents.

D. Walk-Through for Final Completion:

1. Arrange for Architect/Engineer's presence 48 hours in advance of walk-through.
2. Show evidence to Architect/Engineer that Owner has received all
accessories, charts, record drawings, and equipment as required before Final Completion walk-through is scheduled.

3. Operate each zone, in its entirety for Architect/Engineer at time of walk-through to insure correction of all incomplete items.

4. Items deemed not acceptable by Architect/Engineer shall be reworked to complete satisfaction of Architect/Engineer.

5. If after request to Architect/Engineer for walk-through for Final Completion of irrigation system, Architect/Engineer finds items during walk-through which have not been properly adjusted, reworked, or replaced as indicated on list of incompleted items from previous walk-through, Contractor shall be charged for all subsequent walk-throughs. Funds will be withheld from final payment and/or retainage to Contractor, in amount equal to additional time and expenses required by Architect/Engineer to conduct and document further walk-throughs as deemed necessary to insure compliance with Contract Documents.

E. ADJUSTING - Upon completion of installation, "fine-tune" entire system by regulating valves, adjusting patterns and break-up arms, and setting pressure-reducing valves at pro-per and similar pressure to provide optimum and efficient coverage. Flush and adjust all sprinkler heads for optimum performance and to prevent overspray onto walks, roadways, and buildings as much as possible. Heads of same type shall be operating at same pressure +/- 7%.

F. If it is determined that irrigation adjustments will provide proper coverage, and improved water distribution as determined by Architect/Engineer, contractor shall make such adjustments prior to Final Acceptance, as directed, at no additional cost to Owner. Adjustments may also include changes in nozzle sizes, degrees of arc, and control valve throttling.

G. All sprinkler heads shall be set perpendicular to finish grade unless otherwise designated.

H. Areas which do not conform to designated operation requirements due to unauthorized changes or poor installation practices shall be immediately corrected at no additional cost to the Owner.

I. CLEANING - Maintain continuous cleaning operation throughout duration of work. Dispose of, off-site at not additional cost to Owner, all trash or debris generated by installation of irrigation system.

IRRIGATION EQUIPMENT SPECIFICATIONS

Pop-up Spray Head

Rainbird 1804-SAM-PRS
<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Model Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pop-up Spray Nozzle</td>
<td>Rainbird 1800 Brass Nozzle</td>
</tr>
<tr>
<td>Shrub Spray Head</td>
<td>Rainbird 1812-SAM-PRS</td>
</tr>
<tr>
<td>Gear Driven Rotor</td>
<td>Hunter I-25-ADS (35 to 45 feet)</td>
</tr>
<tr>
<td></td>
<td>Hunter I-40 (Greater than 45 feet)</td>
</tr>
<tr>
<td>Control Valve</td>
<td>Hardie 700 Series</td>
</tr>
<tr>
<td>Controller</td>
<td>Toro Network 8000 Satellite</td>
</tr>
<tr>
<td></td>
<td>Model 132-76-08</td>
</tr>
<tr>
<td>Quick Coupler Valve</td>
<td>Rainbird 44NP</td>
</tr>
<tr>
<td>Control Valve Boxes</td>
<td>Carson #1419-13B</td>
</tr>
<tr>
<td>Gate Valve Boxes</td>
<td>Carson #910-12</td>
</tr>
<tr>
<td>Wire Splice Boxes</td>
<td>Carson #910-12</td>
</tr>
<tr>
<td>Drip Valve Boxes</td>
<td>Carson #1320-13B</td>
</tr>
<tr>
<td>Communication Cable</td>
<td>Paige P7162DA</td>
</tr>
</tbody>
</table>

No substitutions will be allowed for the above equipment and all equipment shall be installed according to detail sheets.

END OF SECTION 02810
SECTION 02900 – LANDSCAPING, GENERAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

A. Section includes:

1. Landscaping general requirements.
2. Landscaping accessories.

B. Related Sections:

1. 02920 – Soil Preparation
2. 02930 – Bluegrass Seeding
3. 02931 – Native Grasses Seeding
4. 02932 – Bluegrass Sodding
5. 02950 – Trees, Plants and Ground Covers

1.3 REFERENCES:

A. Uniform Federal Accessibility Standards (UFAS).

C. University of Colorado, Boulder Campus Office of Facilities Planning:

D. Campus traditions restrictions.

E. Formal policy.

F. Various planning documents appropriate to project-specific requirements.

G. Campus Master Plan.

H. Norlin Quadrangle Historical District Micro Master Plan.

I. Individual project input.

1.4 DEFINITIONS:

A. The terms listed below have been used in this section and throughout the UCB Standards. Definitions are provided for each.
B. Landscape: Every single item on the campus floor except buildings occupied by people, materials storage, or equipment.

C. Operations: The series of actions taken to establish procedures and various controls that keep the campus functioning a high level of efficiency. These include: Planning, scheduling, budgeting, coordinating, supervising, improving, and maintaining the campus landscape.

D. Maintenance: The constant and continuing upkeep of campus facilities and plant material.

E. Development: The physical evolvement of the campus landscape through the enhancement of existing facilities and the creation of new facilities where none existed before.

F. Facilities: The physical objects that are built, installed, or established that serve a particular purpose in the campus landscape, such as buildings, walks, streets, parking lots, benches, lighting, and all other man-made items in the campus landscape -- but not plant material.

G. Plant Material: Lawns, trees, shrubs, vines, flowering plants, and other growing things.

1.5 SUBMITTALS:

A. Materials List:

B. Plant material including source and location.

C. Ground covers, mulches.

D. Amendments.

E. Accessories including edging, stake-guy system.

F. Test Reports:

G. Certified laboratory analyses where specified.

H. Submit Shop Drawing Indicating:

I. Species locations.

J. Seeding and sodding locations.

K. Manufacturers Data, Including:

L. Catalog cuts and brochures.
1.6 QUALITY ASSURANCE:

A. Pre-Planting Inspection:

B. The Owner and Landscape Architect/Engineer will inspect all trees at the nursery before planting commences.

C. All plant fertilizers, backfill mixes, mulches and soil amendments will be accepted by the Owner prior to planting operations.

D. Planting Inspections:

E. The Owner or Landscape Architect/Engineer will inspect the staked location of all trees prior to planting.

F. The Owner or Landscape Architect/Engineer will inspect the staked locations of container stock prior to planting. Contractor to report any variance of quantity on unit price contracts.

G. Pre-Maintenance Inspection:

H. The Owner or Landscape Architect/Engineer will inspect at the completion of all planting operations.

I. Final Inspection:

J. Final acceptance of the Owner and Landscape Architect/Engineer will not be given until all deficiencies are corrected.

PART 2 - PRODUCTS

2.1 SOIL AMENDMENTS AND FERTILIZERS:

A. Type, analysis and application shall be determined by the Landscape Architect/Engineer based upon type of planting and the results of specific project soil analysis.

B. Submit specific product analysis for approval.

2.2 MULCHES:

A. Bark Mulch:

1. Aspen Mulch: Chips or other angular bark chips are not acceptable.
2. Bark mulch shall be used at base of trees in lawn areas.

B. Aspen Humus:
1. Finely ground Aspen Humus, for use in soil preparation.
2. Partially decomposed mixture containing not less than 60% organic matter by weight.
3. Submit analysis for approval.

C. Gravel Mulch:
1. 3/4" crushed mountain rock, for use in shrub beds. Color as selected.
2. Submit sample for acceptance. Depth shall be 3" minimum.

2.3 ACCESSORIES:

A. Soil Separator Fabric:
1. oz. per square yard polypropylene fabric, water permeable, and unaffected by U.V. light, freezing and thawing.
2. Approved substitute fabrics. Provide below bark beds, gravel beds, and rock or cobble beds.

B. Pre-Emergent Herbicide:
3. Apply beneath all mulch layers and soil separator fabric. Apply at manufacturer's specified rate. Comply with EPA requirements regarding application and use of product.
4. Submit manufacturer's data for approval.

C. Steel Edger:
1. 1/3" gage x 4" steel edger with 16' minimum lengths.
2. Edger shall have 16" -18" stakes at a maximum of one stake per 2-1/2 lineal feet.

D. Rock:
1. Moss Rock Boulders:
2. Weathered sandstone with a sculptured appearance.
3. Obtain approval of rock prior to installation.

E. Cobbles:
1. 4" to 6" diameter washed river rock cobble.
2. Set on a sand setting bed over soil separator fabric.

PART 3 - EXECUTION
3.1 PREPARATION:

A. After receiving approval of staked locations, and prior to digging, the Contractor shall request and verify locations of all utilities within the planting area.

END OF SECTION 02900
SECTION 02920 – SOIL PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Ripping
2. Fertilizer
3. Soil Conditioner
4. Fine Grading

B. Related Sections:

1. 02900 – Landscaping, General
2. 02930 – Bluegrass Seeding
3. 02931 – Native Grasses Seeding
4. 02932 – Bluegrass Sodding
5. 02950 – Trees, Plants and Ground Covers

1.3 SUBMITTALS

A. Quality Control Submittals:

1. Certificates: State, federal and other inspection certificates shall accompany invoice for materials showing source or origin. Submit to Owner prior to acceptance of material.

1.4 DELIVERY, STORAGE AND HANDLING

A. General: Comply with Section 01600

B. Fertilizer: Deliver inorganic or chemical fertilizer to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark and conformance to state law, bearing name and warranty of producer.

C. Notify Owner of delivery schedule in advance so material can be inspected upon arrival at project site. Immediately remove unacceptable material from project site.
1.5 PROJECT/SITE CONDITIONS

A. General: Do not perform work when climate and existing site conditions will not provide satisfactory results.

B. Vehicular accessibility on site shall be as directed by the University Landscape Architect. Repair damage to prepared ground and surface caused by vehicular movement during work under this section to original condition at no additional cost to the Owner. Coordinate access with the University of Colorado Project Manager.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Topsoil: Strip, existing 4" of topsoil in all proposed sod areas. Stockpile on-site for future distribution in new sod areas 4" deep.

B. Soil Conditioner: "EKO" compost as provided by Pioneer Sand & Gravel, or equal to be aged organic matter, meeting the following minimum requirements:

1. Minimum Requirements:
   a. Organic matter: 45% minimum.
   b. Salt content: 4.0 mmhos/cm maximum.
   c. pH range: 4.3 - 7.5.

2. Organic material may be:
   a. Aged sawdust or other nitrogen-treated, decomposing wood products
   b. Dried, pulverized poultry manure
   c. Humus
   d. Compost
   e. Aged, treated, pulverized manure
   f. Treated sewage sludge
   g. Other organic material as approved by the Project Manager

3. Aspen humus will not be accepted.

4. Mountain Peat shall not be allowed as a soil improvement.

C. First Application Fertilizer to all landscape areas: Inorganic mixture with the following chemical composition: Before sodding, incorporate 4 lbs. of diammonium phosphate (18-46-0) per 1000 sq. ft. tilled into a depth of 6 inches.
PART 3 - EXECUTION

3.1 EXAMINATION

A. General: Verify that existing site conditions are as specified and indicated before beginning work under this Section.

1. Grades: Inspect to verify rough grading is within +0.1 foot of grades indicated and specified.
2. Damaged Earth: Inspect to verify that earth rendered unfit to receive planting due to concrete, water, mortar, limewater or any other contaminant dumped on it has been removed and replaced with clean earth from a source approved by the University Landscape Architect.

B. Unsatisfactory Conditions: Report in writing to General Contractor with copy to Owner.

C. Acceptance: Beginning of installation means acceptance of existing conditions by installer.

3.2 PREPARATION

A. Protection:

1. Locate sewer, water, irrigation, gas, electric, phone and other pipelines or conduits and equipment prior to commencing work.

2. Be responsible for proper repair to landscape, utilities, walls, pavements and other site improvements damaged by operations under this section.

B. Weed Control: Remove annual weeds by tilling. Remove perennial weeds by applying herbicide 1 week before soil preparation and as needed, but no sooner than two weeks before soil preparation is to begin.

C. Surface Grade: Remove weeds, debris, clods and rocks larger than 1/2". Dispose of accumulated debris at direction of University Landscape Architect.

D. Runoff: Take measures and furnish equipment and labor necessary to control the flow, drainage, and accumulation of water. Insure that all water will run off the grades.

E. Erosion Control: Take measures and furnish equipment and labor necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited material on the site throughout duration of work.
3.3 INSTALLATION

A. Soil Amendment:

1. Evenly distribute aged organic matter, and first application of fertilizer in landscaped areas at the following rates:
   a. Aged organic matter at the rate of 2 cu. yds. per 1,000 sq. ft. to sod and seed areas. Aspen humus will not be accepted.
   b. Fertilizer Application:

   1) First application is specified under Section 02920, 2.01 C.

2. After applying soil conditioner and fertilizer, thoroughly till area to depth of 6" minimum by plowing, harrowing, or disk ing until soil is well pulverized and thoroughly mixed.

B. Fine Grading in all Landscape Areas:

1. Do fine grading for areas prior to planting.
2. For ground surface areas surrounding buildings to be landscaped, maintain required positive drainage away from buildings.
3. Establish finish grades to within 0.04 foot of grades indicated.


4. Noxious weeds or parts thereof shall not be present in the surface grade prior to landscaping.
5. Prior to acceptance of grades, hand rake to smooth, even surface free of debris, clods, rocks, and vegetable matter greater than 1/2".

3.4 NOTIFICATION AND INSPECTION

A. Inspection: Provide notice to University Landscape Architect requesting inspection at least 7 days prior to anticipated date of completion.

B. Deficiencies: University Landscape Architect will specify deficiencies to Contractor who shall make satisfactory adjustments and shall again notify University Landscape Architect for final inspection.

3.5 CLEANING

A. General: Remove debris and excess materials from site. Clean out drainage inlet structures. Clean paved and finished surfaces soiled as a result of work under this
Section, in accordance with direction given by University Landscape Architect.

3.6 PROTECTION

A. General: Provide and install barriers as required and as directed by University Landscape Architect to protect completed areas against damage from pedestrian and vehicular traffic until acceptance by Owner. Contractor is not responsible for malicious destruction caused by Others.

END OF SECTION 02920
SECTION 02930 – BLUEGRASS SEEDING

PART 1 - GENERAL
1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION

A. Provide seeded lawns as shown and specified. Renovated lawn area refer to existing lawn areas disturbed by construction.
   1. Soil Preparation
   2. Seeding lawns, athletic fields, and other indicated areas
   3. Maintenance

B. Related Sections:
   1. 02900 – Landscaping, General
   2. 02920 – Soil Preparation
   3. 02931 – Native Grasses Seeding
   4. 02932 – Bluegrass Sodding
   5. 02950 – Trees, Plants and Ground Covers

1.3 QUALITY ASSURANCE

A. Comply with Section 02900 requirements.

1.4 SUBMITTAL

A. Submit seed vendor's certification for required grass seed mixture, indicating percentage by weight, and percentages of purity, germination, and weed seed for each grass species.
   1. Specified bluegrass seed mix - indicated areas

B. Submit the following material samples:
   1. Kentucky Bluegrass Seed (100%)
      a. Three (3) improved varieties - 1/2 lb.
C. Warranty for Bluegrass Seed Areas: At completion of work, furnish written warranty to Owner based upon requirements as specified.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver seed and fertilizer materials in original unopened containers, showing weight, analysis, and name of manufacturer. Store in a manner to prevent wetting and deterioration.

1.6 PROJECT CONDITIONS

A. Work notification: Notify owner's authorized representative at least seven (7) working days prior to start of seeding operations.

B. Protect existing utilities, paving, and other facilities from damage caused by seeding operations.

C. Perform seeding work only after planting and other work affecting ground surface has been completed.

D. Restrict traffic from lawn areas until grass is established. Erect signs and barriers as required.

E. Provide hose and lawn watering equipment as required.

F. The irrigation system will be installed prior to seeding. Locate, protect, and maintain the irrigation system during seeding operations. Repair irrigation system components during seeding operations at Contractor's expense.

1.7 WARRANTY

A. Provide a uniform stand of grass by watering, mowing, and maintaining seeded areas until final acceptance. Reseed areas, with specified materials, which fail to provide a uniform stand of grass until all affected areas are accepted by the Architect/Engineer and the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Lawn seed:
1. Fresh, clean, and new crop mixture mixed by an approved method.

2. Blend: Kentucky bluegrass (100%).
   a. Included at least three (3) varieties of improved Kentucky bluegrass. Submit list of proposed varieties a minimum of ten (10) days prior to seeding for approval by the Project Manager.
   b. Application rate: eighty (80) lbs. pure live seed (P.L.S.) per acre.

B. Water: Free of substance harmful to seed growth. Hoses or other methods of transportation furnished by Contractor.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine finish surfaces, grades and depth. Do not start seeding work until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Limit preparation to areas which are ready to be seeded immediately.

B. The contractor shall prepare the subgrade to all areas to be seeded by discing or rototilling the soil to a depth of six (6) inches. No organic amendments will be applied to dryland seed grass area.

C. Prior to the second tilage, the fertilizer shall be applied to the surface of the rough subgrade of the areas to be seeded and tilled during the second operation. When completed, the soil shall be firmed by rolling and float drag, followed by steel raking, to provide for the proper seeded surface. The seed bed shall be totally free from rock or clay clods over one (1) inch in diameter.

3.3 INSTALLATION

A. Seeding:

1. Seed immediately after preparation of bed. Seed irrigated seed areas between April 1 - August 15 and dryland areas between October 1 - April 15 or at such other times acceptable to the owner.

2. Seed indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.
3. Bluegrass Seed:
   a. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage. Deliver seed to the job site in the original unopened containers and present certified labels to the Architect/Engineer prior to opening containers.
   b. Seeding shall be done by means of broadcast seeding. Seeds shall be uniformly sown and raked to a depth of approximately 1/4".

3.4 MAINTENANCE, GUARANTEE, AND ACCEPTANCE

A. Maintenance Period and Guarantee:

1. The maintenance and warranty period shall begin immediately after each area is seeded until final acceptance of the project. During this time, the contractor shall be responsible for watering, if needed, mowing, spraying, weeding, and all related work and costs as necessary to insure that seeded areas are in a vigorous growing condition until final acceptance. The University Landscape Architect will direct the contractor on what seeded areas need to be replaced at the final walk-through.

2. The contractor shall, for a period of one (1) year, monitor his work once every two months to verify that major settlement has not taken place and that no seeded area has become waterlogged in settled swales or other areas. Should settlement occur, the contractor shall repair damage according to these specifications.

3. The contractor shall maintain the seeded areas until all work on the contract has been completed and accepted. Maintenance shall consist of, in addition to watering, mowing, weed control, and protection from vandalism, the repair of areas damaged by erosion protection from vandalism, the repair of areas damaged by erosion or wind.

Such areas shall be repaired during the maintenance period at no expense to the Owner to re-establish the condition and grade of the soil prior to application of the mulch and shall be re-fertilized, reseeded, and remulched as directed. Major repair of areas due to the work or failure of other contractor's systems or work shall be by that contractor who damaged the work, provided that during this maintenance period the lawn contractor notifies the Owner's authorized representative in writing of such damage within ten (10) days of the occurrence. Major damage due to vandalism (major damage is defined as damaged costing over $5,000.00 in time and materials) in any one incident shall be borne by the Owner, again provided that notification was made within ten (10) days as specified herein. After receiving final acceptance, maintenance shall become the responsibility of
the Owner.

4. The seeded areas shall be accepted on the basis of having a uniform plant growth over the entire seeded area. Two (2) months after seeding, the areas seeded shall be reviewed by the University Landscape Architect and the Contractor. Any areas (as determined by the University Landscape Architect) where the seed has failed to germinate shall be reseeded and raked to cover the seed. Any area where the seed has failed to grow, reseeding shall be at the Contractor's expense until grass is established and accepted. Acceptable uniform plant growth shall be defined as when the scattered bare spots, not greater than 4 square inches, do not exceed 5% of the seeded area.

3.5 CLEANING

   A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.

END OF SECTION 02930
SECTION 02931 – NATIVE GRASSES SEEDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Soil Preparation
2. Seeding of all vegetated areas disturbed by the work
3. Soil Retention Blankets
4. Maintenance

B. Related Sections:

1. 02900 – Landscaping, General
2. 02920 – Soil Preparation
3. 02930 – Bluegrass Seeding
4. 02932 – Bluegrass Sodding
5. 02950 – Trees, Plants and Ground Covers

1.3 QUALITY ASSURANCE

A. Comply with requirements of Section 02920.

1.4 SUBMITTALS

A. Submit seed vendor's certification for required grass seed mixture, indicating percentage by weight, and percentages of purity, germination, and weed seed for each grass species.

1. Specified native seed mix

B. Product data for Soil Retention Blankets.

C. Submit the following material samples:

1. Custom native seed mix
2. Soil Retention Blankets
D. Warranty for Native Seed Areas: At completion of work, furnish written warranty to Owner based upon requirements as specified.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver seed and fertilizer materials in original unopened containers, showing weight, analysis, and name of manufacturer. Store in a manner to prevent wetting and deterioration.

1.6 PROJECT/SITE CONDITIONS

A. Work notification: Notify owner's authorized representative at least seven (7) working days prior to start of seeding operations.

B. Protect existing utilities, paving, and other facilities from damage caused by seeding operations.

C. Perform seeding work only after planting and other work affecting ground surface has been completed.

D. Restrict traffic from lawn areas until grass is established. Erect signs and barriers as required.

E. Provide hose and lawn watering equipment as required.

F. The irrigation system will be installed prior to seeding. Locate, protect, and maintain the irrigation system during seeding operations. Repair irrigation system components during seeding operations at Contractor's expense.

1.7 WARRANTY

A. Provide a uniform stand of grass by watering, mowing, and maintaining seeded areas until final acceptance. Reseed areas, with specified materials, which fail to provide a uniform stand of grass until all affected areas are accepted by the Engineer and the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Native Seed:
   1. Fresh, clean, and new crop mixture mixed by an approved method.
   2. All irrigated seed areas are to be the following custom blended native seed mix:
      30% Blue grama – Bouteloua gracilis
20% Western Wheatgrass – Agropyron smithii
20% Sand Dropseed – Sporobolus cryptandrus
15% Hairy Grama – Bouteloua hirsute
10% Galleta – Hilaria jamesii
5% Wildflower Seed Mix consisting of at least four species at not more than 25% each of the following acceptable perennial wildflowers:
  - Golden Aster – Heterotheca villosa
  - Desert Four O’clock – Mirabilis multiflora
  - Scarlet Globemallow – Sphaeralcea coccinea
  - Blazing Star – Menizelia oligosperma
  - Western Wallflower – Eysimum asperum
  - Fireweed – Liatris angustifolium
  - Gayfeather – Liatris punctata
  - Blanket Flower – Gallardia aristata
  - Blue Flax – Linum perenne lewisii

3. Variations to seed mix will be acceptable based on topsoil analysis and if approved by the Engineer and Owner.
4. Seeding Rate: 40 lbs/acre for Hydroseeding. Other seeding methods to be reviewed and approved by Engineer and Owner.

B Soil Retention Blankets: Soil Retention Blanket (Excelsior) shall conform to the requirements of Section 216 of the “Standard Specifications for Road and Bridge Construction”, 2005, published by the Colorado Department of Transportation (CDOT).

C. Water: Free of substance harmful to seed growth. Hoses or other methods of transportation furnished by Contractor.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine finish surfaces, grades and depth. Do not start seeding work until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Limit preparation to areas which are ready to be seeded immediately.

B. The contractor shall prepare the subgrade to all areas to be seeded by discing or rototilling the soil to a depth of six (6) inches. No organic amendments will be applied to dryland seed grass area.

C. Prior to the second tilage, the fertilizer shall be applied to the surface of the rough
subgrade of the areas to be seeded and tilled during the second operation. When completed, the soil shall be firmed by rolling and float drag, followed by steel raking, to provide for the proper seeded surface. The seed bed shall be totally free from rock or clay clods over one (1) inch in diameter.

3.3 INSTALLATION

A. Seeding:

1. Seed immediately after preparation of bed. Seed irrigated seed areas between April 1 - August 15 and dryland areas between October 1 - April 15 or at such other times acceptable to the Engineer and Owner.

3. Seed indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.

4. Native Seed:
   a. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage. Deliver seed to the job site in the original unopened containers and present certified labels to the Architect/Engineer prior to opening containers.
   b. Seeding shall be done by means of broadcast seeding. Seeds shall be uniformly sown and raked to a depth of approximately 1/4".

B. Soil Retention Blanket (Excelsior):

1. Soil retention blankets shall be installed and secured over all native seeded areas in accordance with the requirements of Section 216 of the “Standard Specifications for Road and Bridge Construction”, 2005, published by the Colorado Department of Transportation (CDOT).

3.4 MAINTENANCE, GUARANTEE, AND ACCEPTANCE

A. Maintenance Period and Guarantee:

1. The maintenance and warranty period shall begin immediately after each area is seeded until final acceptance of the project. During this time, the Contractor shall be responsible for watering, if needed, mowing, spraying, weeding, and all related work and costs as necessary to insure that seeded areas are in a vigorous growing condition until final acceptance. The Engineer will direct the contractor on what seeded areas need to be replaced at the final walk-through.

2. The Contractor shall, for a period of one (1) year, monitor his work once every two months to verify that major settlement has not taken place and that no seeded area has become waterlogged in settled swales or other
areas. Should settlement occur, the contractor shall repair damage according to these specifications.

3. The Contractor shall maintain the seeded areas until all work on the contract has been completed and accepted. Maintenance shall consist of, in addition to watering, mowing, weed control, and protection from vandalism, the repair of areas damaged by erosion protection from vandalism, the repair of areas damaged by erosion or wind. Such areas shall be repaired during the maintenance period at no expense to the Owner to re-establish the condition and grade of the soil prior to application of the mulch and shall be refertilized, reseeded, and remulched as directed. Major repair of areas due to the work or failure of other contractor's systems or work shall be by that contractor who damaged the work, provided that during this maintenance period the lawn Contractor notifies the Owner's authorized representative in writing of such damage within ten (10) days of the occurrence. Major damage due to vandalism (major damage is defined as damaged costing over $5,000.00 in time and materials) in any one incident shall be borne by the Owner, again provided that notification was made within ten (10) days as specified herein. After receiving final acceptance, maintenance shall become the responsibility of the Owner.

4. The seeded areas shall be accepted on the basis of having a uniform plant growth over the entire seeded area. Two (2) months after seeding, the areas seeded shall be reviewed by the Engineer and the Contractor. Any areas (as determined by the Engineer) where the seed has failed to germinate shall be reseeded and raked to cover the seed. Any area where the seed has failed to grow, reseeding shall be at the Contractor's expense until grass is established and accepted. Acceptable uniform plant growth shall be defined as when the scattered bare spots, not greater than 4 square inches, do not exceed 5% of the seeded area.

3.5 CLEANING

A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.

END OF SECTION 02931
SECTION 02932 – BLUEGRASS SODDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Fertilizer.
2. Sod.

B. Related Sections:

1. 02900 – Landscaping, General
2. 02920 – Soil Preparation
3. 02930 – Bluegrass Seeding
4. 02950 – Trees, Plants and Ground Covers

1.3 REFERENCES


1.4 SUBMITTALS

A. Quality Control Submittals:

1. Certificates: State, Federal and other inspection certificates shall accompany the invoice for materials showing source or origin. Submit to Engineer prior to acceptance of material.

B. Contract Closeout Submittals:

1. Warranty: At completion of work, furnish written warranty to Owner based upon requirements as specified.
1.5 QUALITY ASSURANCE

A. Source Quality Control:

1. Sod Materials: Subject to inspection and acceptance. University Landscape Architect reserves the right to reject at any time or place prior to acceptance, any work and sod which in the University Landscape Architect's opinion fails to meet these specification requirements.

2. Inspection: Primarily for quality; however, other requirements are not waived even though visual inspection results in acceptance. Notify University Landscape Architect of intended sod farm prior to cutting for inspection. Inspection at growth site shall not preclude the right of rejection at project site.

3. Promptly remove rejected sod from site.

4. Inspection will be made periodically during sodding, at completion and at end of warranty period by University Landscape Architect.

B. Sod Standards:

1. General: Healthy, thick turf having undergone a program of regular fertilization, mowing and weed control; free of objectionable weeds; uniform in green color, leaf texture and density; healthy, vigorous root system; inspected and found free of disease, nematodes, pests and pest larvae by the entomologist of the State Department of Agriculture.

2. Each piece of Sod: Sandy-loam soil base that will not break, crumble or tear during sod installation.

3. Thickness: 3/4" thick, excluding top growth and thatch.

4. Thatch: Not to exceed 1/4" uncompressed.

5. Size: Cut in strips 18" wide no more than 24 hours prior to delivery.

1.6 DELIVERY, STORAGE AND HANDLING

A. General: Comply with Section 01600.

B. Sod: Deliver on pallets properly loaded on vehicles and with root system protected from exposure to sun, wind, and heat in accordance with standard practice and labeled with botanical and common name of each grass species in
accordance with Federal Seed Act.

1. Protect from dehydration, contamination and heating at all times. Keep stored sod moist and under shade or covered with moistened burlap.
2. Do not drop sod rolls from carts, trucks or pallets.
3. Do not deliver more sod than can be installed within 24 hours.
4. Do not stack sod more than 2 feet deep.

C. Fertilizer: Deliver inorganic or chemical fertilizer to site in original unopened container bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark, warranty and conformance to state law.

1. Material shall be inspected upon arrival at job site.
2. Immediately remove unacceptable material from job site.

1.7 PROJECT/SITE CONDITIONS

A. Existing Conditions:

1. Import and place any fill material required to adjust the fine grade to meet drainage requirements or to match hard surface fine grades.
2. Vehicular accessibility on site shall be as directed by University Landscape Architect. Repair damage to prepared grounds and surfaces caused by vehicular movement during work under this section to original condition at no additional cost to Owner.

B. Environmental Requirements:

1. If possible install sod between spring and fall: April 1 - October 1 or anytime irrigation is available daily for one month and once a week for several months (especially for fall/winter sodding).
2. Do not install sod on saturated or frozen soil.

1.8 WARRANTY

A. Sod: Warrant sod for a period of one year from date of Substantial Completion be in a healthy, vigorous growing condition.

1. During the original warranty period, replace at once sod areas that die due to natural causes, etc., or which in University Landscape Architect's opinions are unhealthy.
2. Replacement will not be required in any season definitely unfavorable for sodding.
3. Install replacements as originally specified and warranted.
1.9 MAINTENANCE

A. General: The maintenance period shall begin immediately after each area is sodded and continue until final acceptance of entire project. During this time, be responsible for watering, mowing, spraying, weeding, aerating, fertilizing, and all related work as necessary to ensure that sodded areas are in a vigorous growing condition. Furnish all supervision, labor, material and equipment to maintain turf areas.

B. Materials: Conform to specification or otherwise be acceptable to Owner.

C. Watering: Initially water sod upon completion of convenient work areas until installation is complete and the irrigation system can be operated under full control. Water sod sufficiently to moisten subsoil at least 4" deep in a manner not to cause erosion or damage to adjacent finished surfaces. Water shall be free of substances harmful to plant growth. Be responsible for furnishing water from underground sprinkler system, quick couplers or other source.

D. Fertilizing: If work has not received final acceptance within 45 days after initial fertilizer application to sodded areas, repeat fertilizer application to maintain optimal sod vigor.

E. Mowing and Trimming:
   1. Mow and Trim around trees (keeping mulch in saucers and beds), walls, fences, etc., maintaining turf at 2½-2 3/4" height. Do not remove more than 33% of grass leaf in single mowing. Remove grass clippings from pavement areas.

F. Resodding: Resod spots larger than 1 sq. ft. not having healthy, uniform stand of grass.

G. Weed Control: As required, using selective herbicides approved by Owner.

H. Insect and Disease Control: As required, using insecticides and fungicides approved by Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Sod: Colorado grown Kentucky Bluegrass blend having a healthy, vigorous root system. Blend shall contain a minimum of 3 improved varieties. Submit proposed
blend to University Landscape Architect for review and approval prior to application.

B. Water: Free of substances harmful to plant growth. Be responsible for furnishing water from underground sprinkler system, quick couplers or other source.

C. Fertilizer: Inorganic mixture with following chemical composition:

1. First Application: Under Section 92920, 2.01 C.

PART 3 - EXECUTION

3.1 EXAMINATION

A. General - Verify that existing site conditions are as specified and indicated before beginning work under this section.

1. Layout: Verify layout of sodded areas as indicated prior to starting operations.
2. Grades: Verify that grades are within 0.04 ft. of grades indicated and specified.

B. Unsatisfactory Conditions: Report in writing to General Contractor with copy to University Landscape Architect.

C. Beginning of installation means acceptance of existing conditions by this Contractor.

3.2 PREPARATION

A. Protection:

1. Pay for repairs made by contractors designated by Owner.
2. Identify prepared sod areas requiring protection and erect barriers for proper protection and traffic control.

B. Sodding Areas: Remove weeds, debris and rocks larger than ½" which may hinder sodding. Dispose of accumulated debris at direction of University Landscape Architect.

C. Adjustment: Adjust irrigation heads to proper watering height according to depth of sod material but lower than compacted blade height to enable lawn mowers to cut grass freely without damage to the sprinkler system.
D. Fine Grading: Perform as required to maintain positive drainage, prevent ponding and direct run-off into catch basins, drainage structures, etc., and as required to provide smooth well-contoured surface prior to proceeding. Tolerance: ± 0.04 foot.

3.3 FERTILIZING

A. First Application to newly sodded areas: Under Section 02920 2.01C.

3.4 SODDING

A. Sodding:

1. Soil on which sod is laid: Slightly moist.
2. Lay with longest dimension parallel to contours and in continuous rows.
3. Tightly butt ends and sides of sod together. Stagger and compact vertical joints between sod strips by rolling so sod will be incorporated with the ground surface, insuring tight joints between adjacent pieces.

B. Rolling: When soil and sod are moist, roll sod lightly as soon as possible after it is laid. Delay rolling until just before the second watering.

C. Topsoil: Add along exposed edges to match adjacent grade. Feather topsoil out approximately 1 ft. from edge of sod.

D. Drainage: Assure finished areas of sod are such that positive drainage of storm and irrigation water will occur and ponding of water will be minimized.

3.5 REPAIR OF EXISTING SOD AREAS DISTURBED BY RENOVATION

A. Repair existing sod areas disturbed by renovation work (utilities, paving, etc.), as indicated, in accordance with specifications of this section.

3.6 NOTIFICATION OF INSPECTION

A. Notification: Give notice requesting inspection by University Landscape Architect at least 7 days prior to the anticipated date of completion. All sod must be alive and healthy in order to be considered complete.

B. Deficiencies: If deficiencies exist, University Landscape Architect shall specify such deficiencies to the Contractor who shall make satisfactory adjustments and will again notify the University Landscape Architect for final inspection.
3.7 CLEANING

A. Cleaning: Remove pallets, unused sod, and other debris from site. Clean paved and finished surfaces soiled as a result of work under this Section in accordance with directions given by University Landscape Architect. Clean out drainage inlet structures.

3.8 PROTECTION

A. General: Provide and install barriers as required and as directed by University Landscape Architect to protect sodded areas against damage form pedestrian and vehicular traffic until acceptance by Owner. Contractor is not responsible for malicious destruction of sodding caused by others.

END OF SECTION 02932
SECTION 02950 – TREES, PLANTS AND GROUND COVERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

A. Section Includes:

1. Trees.
2. Plants and shrubs.
4. Non-plant materials required to complete installation of planting.

B. Related Sections:

1. 02900 – Landscaping, General
2. 02920 – Soil Preparation
3. 02930 – Bluegrass Seeding
4. 02931 – Native Grasses Seeding
5. 02932 – Bluegrass Sodding

1.3 REFERENCES:

A. Standards:

1. Plants shall be first-class representatives of the specified species or variety, in healthy condition with normal well-developed branch and root systems, free of objectionable features, and shall conform to requirements as follows:

a. USDA Standards for Nursery Stock.
b. AAN Standardized Specifications.
c. American Joint Committee on Horticulture (AJCH) (plant names shall meet standards of AJCH).

1.4 SUBMITTALS:
A. Certificates of Inspection for Materials:

1. State, Federal, or other inspection certificates shall accompany invoice for materials showing source or origin.

B. Plant List:

1. Submit list of plants. Refer to Section 01300;
2. Indicate which plants have special watering requirements.

C. Maintenance Instructions:

1. At completion of work, furnish three copies of written maintenance instructions to Owner for maintenance and care of installed plants through a full growing season.
2. Maintenance shall be the responsibility of Landscaping Subcontractor for 30 days after final acceptance of project.
3. The Owner shall be notified 14 days in advance of the date that maintenance operations will be discontinued.

1.5 QUALITY ASSURANCE:

A. Inspection and Approval: The Owner reserves the right to reject, at any time or place prior to final acceptance, of the installation, any materials and plants which in the Owner's opinion fails to meet specified standards requirements.

B. Inspection of plants is primarily for quality; size and variety, however, other requirements are not waived even though visual inspection results in approval.

C. Plants may be inspected where growing, but inspection at place of growth shall not preclude the right of rejection at site.

D. Rejected plants and other materials will be promptly removed from site.

1.6 DELIVERY, STORAGE AND HANDLING:

A. Fertilizer:

1. Deliver to site in original unopened container bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark and conformance to Local, State and Federal law.

B. Protection:

1. Plants shall be containerized with limbs bound, properly pruned and prepared
for shipping.

2. Root system shall be kept moist and plants shall be protected from adverse conditions.

C. Identification:

1. Each plant shall be identified by means of grower's label affixed to plant.
2. Grower's label will give data necessary to indicate conformance to specifications.
3. Use durable waterproof labels with water resistant ink which will remain legible for at least 60 days.

1.7 SITE CONDITIONS:

A. Repair of lawn watering system, other underground pipe, electrical wiring, concrete walkways, sodded areas or other appurtenances damaged by operations under this Section at no additional cost to the Owner.

1.8 PLANT WARRANTY:

A. For a period of one (1) full growing season after Final Acceptance of Landscape work and at no additional cost to the Owner, the Contractor shall replace any trees, shrubs or ground cover that are dead, or that are, in the opinion of the Owner, in unhealthy, or unsightly condition, or that have lost their natural shape due to dead branches or excessive pruning of dead branches.

B. Replacement of planting shall be in accordance with the original specifications and its cost shall be included.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL:

A. Plant List:

1. Refer to "Schedule" at the end of this Section.

B. Size:

1. Minimum acceptable sizes of plants measured before pruning with branches in normal position.

C. Source:

1. Hardiness Zones:
a. Shrubs grown in Hardiness Zones 2, 3, 4 and 5 only will be accepted. Hardiness Zones are defined in U.S. Department of Agriculture publications.

2. Nursery Grown:
   a. Plants shall be nursery grown. The term "nursery grown" will include gathered native plants and imported plants that have been growing in a nursery for a minimum of one growing season.

2.2 BACKFILL MATERIAL:
   A. Planting mix shall be existing topsoils.
   B. Topsoils:
      1. Use top soils stockpiled on site, free from toxic substances, sticks, debris, vegetation and stones over 1" (2.5cm) in maximum dimension.
      2. In the event that no suitable topsoil exists after site clearing, the Contractor shall provide adequate topsoil at no additional cost.
      3. The Design Architect/Engineer shall specify suitable import topsoil material.

2.3 TREE WRAPPING MATERIALS:
   A. Will be first quality 4" wide Bituminous impregnated tape, corrugated or crepe paper, brown in color, specifically manufactured for tree wrapping and having qualities to resist insect infestation.

2.4 STAKING AND GUYING MATERIAL:
   A. Stakes will be standard metal "T" 8' high painted green.
   B. Protective loops will be nylon, of a composition durable enough to last two years.

PART 3 - EXECUTION

3.1 INSTALLATION:
   A. Positioning:
      1. Shrubs and trees will be placed in position prior to planting, for final acceptance to location by the Owner or Landscape Architect/Engineer.
   B. Placing Plants:
      1. Planting will be done in accord with good horticultural practice or region.
   C. Excavation of Planting Pit:
1. After preparation of soil, the plant pit, centered on the location stake, shall be excavated in a cylindrical shape with vertical sides and flat or saucer-shaped bottom. Diameter of plant pit will be at least twice the spread of ball or container.

D. Root Care:
   1. Do not remove protective wrapping of root ball or bare roots until plant is positioned accurately in planting pit. When positioned, remove wire mesh and burlap prior to backfilling.
   2. Score root balls of containerized shrubs just prior to planting.

E. Pruning and Watering:
   1. Plant material will be pruned only to remove dead, injured or lower branches.

F. Guying and Staking:
   1. Guy and stake in accordance with the standard detail following this section.

3.2 PRE-EMERGENT HERBICIDE:
   A. Apply as per manufacturer’s specification.

3.3 MULCHING:
   A. Organic Mulch:
      1. Mulch planting saucers, beds and areas within two days after planting.

3.4 PRUNING:
   A. New Plant Material:
      1. Prune minimum necessary to remove injured twigs and branches, deadwood and suckers.

3.5 PLANT MAINTENANCE AND ACCEPTANCE:
   A. Maintenance period will begin immediately after plant material is installed until final acceptance of landscape work.
   B. Maintenance shall include watering, weeding, cultivating, mulching removal of dead branches, restoring plants to proper grade or upright position and other necessary operations.
3.6 SCHEDULE:

A. Climatological factors directly influence and limit in many ways the possible choices available to the designers of Boulder Campus landscaping.

B. Using several references and direct experience, the following list of plants is presented as an inventory available and suitable for use on the Boulder Campuses.

C. The Owner reserves the right to remove any of the following specimens for any reason.

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deciduous Trees</strong></td>
<td></td>
</tr>
<tr>
<td>Acer ginnala</td>
<td>Amur Maple</td>
</tr>
<tr>
<td>Acer ryorum</td>
<td>Red Maple</td>
</tr>
<tr>
<td>Acer saccharum</td>
<td>Sugar Maple</td>
</tr>
<tr>
<td>Acer plantanoides</td>
<td>Norway Maple</td>
</tr>
<tr>
<td>Acer schwedleri</td>
<td>Schwedler Maple</td>
</tr>
<tr>
<td>Aesculus glabra</td>
<td>Ohio Buckeye</td>
</tr>
<tr>
<td>Catalpa speciosa</td>
<td>Northern Catalpa</td>
</tr>
<tr>
<td>Celtis occidentalis</td>
<td>Common Hackberry</td>
</tr>
<tr>
<td>Cercis canadensis</td>
<td>Eastern Redbud</td>
</tr>
<tr>
<td>Crataegus mollis</td>
<td>Downy Hawthorne</td>
</tr>
<tr>
<td>Crataegus (cordata) phaenopyrum</td>
<td>Washington Hawthorne</td>
</tr>
<tr>
<td>Fraxinus americana</td>
<td>White Ash</td>
</tr>
<tr>
<td>Fraxinus pennsylviana lanceolate</td>
<td>Green Ash, &quot;Marshall Seedless&quot;</td>
</tr>
<tr>
<td>Gleditsia triacanthos inermis</td>
<td>Honeylocust, Thornless</td>
</tr>
<tr>
<td>Gleditsia triacanthos moraine</td>
<td>Honeylocust, Moraine</td>
</tr>
<tr>
<td>Gymnocladus dioicus</td>
<td>Kentucky Coffeetree</td>
</tr>
<tr>
<td>Juglans nigra</td>
<td>Black Walnut</td>
</tr>
<tr>
<td>Liquidambar styraciflua</td>
<td>American Sweetgum</td>
</tr>
<tr>
<td>Malus dolga</td>
<td>Dolga Flowering Crabapple</td>
</tr>
<tr>
<td>Malus ioensis bechtel</td>
<td>Bechtel Flowering Crabapple</td>
</tr>
<tr>
<td>Malus radiant</td>
<td>Radiant Crabapple</td>
</tr>
<tr>
<td>Malus red silver</td>
<td>Red Silver Flowering Crabapple</td>
</tr>
<tr>
<td>Malus strathmore</td>
<td>Strathmore Flowering Crabapple</td>
</tr>
<tr>
<td>Populus sargentii</td>
<td>Broadleaf Cottonwood (Plains Poplar)</td>
</tr>
<tr>
<td>Prunus americana</td>
<td>American Plum</td>
</tr>
<tr>
<td>Prunus americana (newport)</td>
<td>Purple Leaf Plum</td>
</tr>
<tr>
<td>Quercus borealis</td>
<td>Northern Red Oak</td>
</tr>
<tr>
<td>Quercus macrocarpa</td>
<td>Burr Oak</td>
</tr>
<tr>
<td>Quercus palustris</td>
<td>Pin Oak</td>
</tr>
<tr>
<td>Sorbus americana</td>
<td>Mountainash</td>
</tr>
</tbody>
</table>
Sorbus aucuparia  European Mountainash
Tilia americana  American Linden
Tilia cordata  Littleleaf Linden

**Evergreen Trees**

Abies concolor  White Fir
Pseudotsuga douglasi  Douglas Fir
Juniperus scopulorum  Rocky Mountain Juniper
Juniperus virginiana canaerti  Canaert Redcedar Juniper
Picea pungens glauca  Colorado Blue Spruce
Picea pungens  Colorado Spruce
Pinus aristata  Foxtail or Bristlecone Pine
Pinus cembroides edulis  Colorado Pinyon Pine
Pinus flexilis  Limber Pine
Pinus mughus  Mugho Pine
Pinus contorta latifolia  Lodgepole Pine
Pinus nigra  Austrian Pine

**Shrubs**

Acer ginnala  Ginnala Maple (Dwarf)
Amelanchier canadenses  Shadblow Serviceberry
Amorpha fruticosa  Indigo
Berberis mentorensis  Barberry Mentor
Berberis thunbergii atropurpurea  Thunberg's or Japanese Redleaf Barberry
Caragana aborescens  Siberian Peashrub
Caragana microphylla  Littleleaf Peashrub
Caragana pygmaea  Pygmy Peashrub
Caryopteris clandonensis  Bluebeard
Chamaenerion japonica  Japanese Floweringquince
Chamaenerion lagenaria  Common Floweringquince
Chrysanthemeum morifolium  Amelia Cushion Chrysanthemum (Dwarf)
Cornus Stolonifera coloradensis  Colorado Redosier Dogwood
Cornus stolonifera flaviramea  Yellowtwig Dogwood
Cotinus americanus  American Smoketree
Cotoneaster acutifolia  Peking Cotoneaster
Cotoneaster apiculata  Cranberry Cotoneaster
Cotoneaster integerrima  European Cotoneaster
Euonymus alatus  Winged Euonymus
Euonymus alatus campactus  Dwarf Winged Euonymus
Euonymus atropurpureus  Eastern Wahoo
Euonymus (radicans) vegetus  Bigleaf Wintercreeper Euonymus
Forestiera neomexicana  New Mexico Forestiera
Forsythia fortunei  Fortune Weeping Forsythia
Forsythia intermedia
Forsythia (spectabilis) intermedia
Hibiscus syriacus
Dydrangea arborescens
Juniperus chinensis pfitzerana
Juniperus chinensis pfitzerana Compacta
Juniperus horizontalis plumosa
Juniperus monosperma
Juniperus sabina tamariscifolia
Kolkwitzia amabilis
Ligustrum (lota) vicari
Ligustrum volgare
Lonicera Tatarica
Lonicera morrowi
Mahonia aquifolium compacta
Philadelphus coronarius
Philadelphus minnesota snowflake
Physocarpus opulifolius (nanus)
Potentilla fruiticosa gold drop
Prunus besseyi
Prunus persica
Prunus padus
Prunus cistena
Prunus tomentosa
Prunus triloba
Prunus virginiana demissa
Rhamnus cathartica
Rhamnus frangula columnaris
Rhodotypos scandens
Rhus typhina
Rhus trilobata
Rhus (glabra) laciniata
Ribes alpinum
Ribes diacanthum
Ribes aureum
Rosa rugosa
Salix discolor
Salix irrorata
Sambucus nigra
Shepherdia argentea
Border Forsythia
Showy Forsythia
Shrubalthea
Smooth Hydrangea
Pfitzer Juniper
Compact Pfitzer Juniper
Andorra Juniper
Oneseed Juniper
Taxarix Juniper
Beautybush
Golden Privet
European Privet
Tatarian Honeysuckle
Morrow Honeysuckle
Oregongrape Mahonia
Sweet Mockorange
Minnesota Snowflake Mockorange
Dwarf Ninebark
Gold Drop Bush Cinquefoil
Bessey Cherry
Red Flowering Peach
European Birdcherry
Hansen Purple Plum
Nanking Cherry (Manchu)
Flowering Almond
Western Choke Cherry
Common Buckthorn
Tallhedge Buckthorn
Black Jetbead
Staghorn Sumac
Skunkbush Sumac
Cutleaf Sumac
Alpine Currant
Siberian Currant
Golden Currant
Hardy Shrub Rose
Pussy Willow
Bluestem Willow
European Elderberry
Silver Buffaloberry

1** Note: Many varieties of Junipers are available and acceptable for campus planting.
Spirea arguta
Spirea billardi
Spirea froebeli
Spirea vanhouttei
Symphoricarpus albus (racemosus)
Symphoricarpus chenaultii
Symphoricarpus orbiculatus
Syringa chenensis
Syringa meyeri
Syringa velutina
Syringa persica
Syringa villosa
Syringa vulgaris
Tamarix hispida
Viburnum trilobum
Viburnum dentatum
Viburnum lantana
Viburnum lentago
Viburnum opulus
Weigela bristol ruby
Weigela (wagneri) eva rathke
Yucca glauca

Garland Spirea
Billiard Spirea
Forebel Spirea
Vanhoutte Spirea
Common Snowberry
Chenault Coralberry
Indiancurrant Coralberry
Chinese Lilac
Meyer's Lilac (Dwarf Korean Lilac)
Miss Kim Lilac
Persian Lilac
Late Lilac
Common Lilac
Kashgar Tamarisk
American Cranberrybush
Arrowwood Viburnum
Wayfaringtree Viburnum
Nannyberry Viburnum
European Viburnum
Bristol Ruby Weigela
Eva Rathke Weigela
Soapweek (small)

Vines and Ground Covers

Ajuga reptans
Clematis jackmanni
Euonymus fortunei radicans
Hedera helix
Lonicera japonica chinensis
Lonicera Halliana
Mahonia repens
Parthenocissus englemeni
Parthenocissus quinquisfolia
Parthenocissus tricuspidata
Polyopnum
Vinea minor

Bugleweed
Jackman Clematis
Wintercreeper Euonymus
English Ivy
Purple Japanese Honeysuckle
Halls Japanese Honeysuckle
Creeping Mahonia
Engleman Ivy
St. Paul Ivy
Boston Ivy
Fleece Vine
Common Periwinkle

END OF SECTION 02950