

CITY OF LOUISVILLE, COLORADO

**PARK IRRIGATION MAINLINE REPLACEMENTS
PROJECT**

PROJECT MANUAL

Bid Opening, May 12, 2021 at 10:00 a.m.

**PREPARED BY:
CITY OF LOUISVILLE
PARKS, RECREATION AND OPEN SPACE DEPARTMENT**

PROJECT MANUAL

for

PARK IRRIGATION MAINLINE REPLACEMENTS PROJECT

Project Numbers: 208538-630101

**LOUISVILLE CITY SERVICES
PARKS DIVISON
739 S. 104th St.
LOUISVILLE, COLORADO 80027**

INVITATION TO BID

TABLE OF CONTENTS – Park Irrigation Mainline Replacements Project

SECTION	PAGE
INVITATION TO BID	
Invitation to Bid	1-3
INSTRUCTIONS TO BIDDERS	
1. Defined Terms	4
2. Copies of Bidding Documents	4
3. Qualification of Bidders	4
4. Examination of Contract Documents and Site	4
5. Availability of Lands for Work, Etc.	6
6. Interpretations and Addenda	7
7. Bid Security	7
8. Contract Time	8
9. Liquidated Damages	8
10. Substitute and Or-equal Terms	8
11. Subcontractors, Suppliers and Others	8
12. Bid Form	8
13. Submission of Bids	9
14. Modification and Withdrawal of Bids	10
15. Opening of Bids	10
16. Bid to Remain Open Subject to Acceptance	10
17. Award of Contract	10
18. Contract Security	13
19. Signing of Agreement	13
20. Special Legal Requirements	13
21. Sales and Use Taxes	13
22. Retainage	13
23. Mistakes in Bidding Instructions	13
BID FORM	
Bid Form	15
Schedule of Unit Prices	17
Bid Bond	20
Schedule of Subcontractors	22
Anti-Collusion Affidavit	23
Certificate of EEO Compliance	24
Prohibition Against Employing Illegal Aliens	25
Contractor's Pre-Contract Certification	26
<i>(Pages 27-35 omitted from project manual)</i>	
AGREEMENT	
Article 1 Work	36
Article 2 Contract Times	36
Article 3 Contract Price	36

TABLE OF CONTENTS – Park Irrigation Mainline Replacements Project

SECTION	PAGE
Article 4 Payment Procedures	37
Article 5 Contractor's Representations	37
Article 6 Contract Documents	38
Article 7 Miscellaneous	40
Article 8 Other Provisions	40
Performance Bond	42
Labor and Material Payment Bond	44
Notice of Award.....	46
Notice to Proceed.....	47
Change Order Form	48
Field Order Form	49
Work Change Directive Instructions	50
Work Change Directive Form.....	51
Application for Payment Form	52
Contractor's Proposal Request Form.....	53
Contractor's Overtime Request Form	54
Claim Release Form.....	55
Certificate of Substantial Completion Form	56
Final Inspection Report Form	57
Certificate of Final Completion Form.....	59
Guarantee Period Inspection Report Form	60
<i>(Pages 61-76 omitted from project manual)</i>	

GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS.....	77-81
Abnormal Weather.....	77
Addenda	77
Agreement.....	77
Application for Payment	77
Asbestos	77
Bid.....	77
Bidding Documents	77
Bidding Requirements	77
Bonds	77
Change Order	77
Contract Day	77
Contract Documents.....	77
Contract Price.....	78
Contract Times.....	78
CONTRACTOR	78
Defective	78
Drawings	78
Effective Date of the Agreement	78
OWNER'S REPRESENTATIVE.....	78

TABLE OF CONTENTS – Park Irrigation Mainline Replacements Project

SECTION	PAGE
OWNER'S Consultant.....	78
Field Order.....	78
General Requirements.....	78
Hazardous Waste	78
Laws and Regulation: Laws or Regulations	79
Liens.....	79
Milestone.....	79
Notice of Award.....	79
Notice to Proceed.....	79
OWNER.....	79
Partial Utilization.....	79
PCBs	79
Petroleum	79
Plans.....	79
Product	79
Project	79
Provide	79
Radioactive Material.....	79
Resident Project Representative	80
Samples	80
Shop Drawings.....	80
Specifications.....	80
Subcontractor	80
Substantial Completion.....	80
Supplementary Conditions.....	80
Supplier	80
Underground Facilities.....	80
Unit Price Work	80
Work	80
Work Change Directive	81
Written Amendment.....	81
ARTICLE 2 - PRELIMINARY MATTERS	81-83
Delivery of Bonds.....	81
Copies of Documents.....	81
Commencement of Contract Times; Notice to Proceed	81
Proposed Project Schedule.....	81
Starting the Work.....	82
Before Starting Construction	82
Preconstruction Conference	82
Initially Acceptable Schedules.....	82

TABLE OF CONTENTS – Park Irrigation Mainline Replacements Project

SECTION	PAGE
ARTICLE 3 - CONTRACT DOCUMENTS:	
INTENT, AMENDING, REUSE	83-85
Intent	83
Reference to Standards & Specifications of Technical Societies; Reporting and Resolving Discrepancies	83
Amending and Supplementing Contract Documents.....	84
Reuse of Documents	85
ARTICLE 4 - AVAILABILITY OF LANDS: SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS	85-90
Availability of Lands	85
Subsurface and Physical Conditions.....	85
Reports and Drawings.....	86
Sub Surface Conditions.....	87
Limited Reliance by CONTRACTOR authorized; Technical Data	87
Physical Conditions - Underground Facilities	87
Shown or Indicated	88
Not Shown or Indicated	88
Reference Points	88
Asbestos, PCB's, Petroleum, Hazardous Waste or Radioactive Material.....	89
ARTICLE 5 - BONDS AND INSURANCE.....	90-93
Performance, Payment and Other Bonds	90
Licensed Sureties and Insurers; Certificates of Insurance	90
CONTRACTOR's Liability Insurance.....	91
OWNER's Liability Insurance	92
Property Insurance	92
ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES	93 - 105
Supervision and Superintendence	93
Labor, Materials and Equipment.....	93
Progress Schedule	94
Substitutes and Or-Equal Items	94
Or-Equal.....	94
Substitute Items.....	94
CONTRACTOR's Expense.....	95
Substitute Construction Methods or Procedures.....	95
Owner's Representatives Evaluation	96
Concerning Subcontractors, Suppliers and Others	96
Patent Fees and Royalties	97
Permits	98
Laws and Regulations	98

TABLE OF CONTENTS – Park Irrigation Mainline Replacements Project

SECTION	PAGE
Taxes	99
Use of Premises.....	99
Record Documents.....	100
Safety and Protection	100
Safety Representative.....	101
Hazard Communication Programs	101
Emergencies	101
Shop Drawings and Samples	101
Submittal Procedures	102
Continuing the Work.....	103
CONTRACTOR's General Warranty and Guarantee	103
Indemnification	104
Survival of Obligations	105
ARTICLE 7 - OTHER WORK	105-106
Related Work at Site	105
Coordination	106
ARTICLE 8 - OWNER'S RESPONSIBILITIES	106-107
ARTICLE 9 – PROJECT MANAGER'S STATUS DURING CONSTRUCTION.....	107-114
OWNER's Representative.....	107
Visits to Site.....	107
Project Representative	108
Duties and Responsibilities.....	108
Schedules	108
Conferences and Meetings	108
Liaison.....	109
Shop Drawings and Samples	109
Review of Work, Rejection of Defective Work, Inspections and Tests	109
Interpretation of Contract Documents	109
Modifications	110
Records	110
Reports	110
Payment Requests	110
Certificates, Maintenance and Operations Manuals	111
Completion.....	111
Limitation of Authority.....	111
Clarifications and Interpretations.....	112
Authorized Variations in Work.....	112
Rejecting Defective Work.....	112
Shop Drawings, Change Orders and Payments	112
Determinations for Unit Prices	112
Decisions on Disputes.....	112

TABLE OF CONTENTS – Park Irrigation Mainline Replacements Project

SECTION	PAGE
Limitations on OWNERS's Authority and Responsibilities	113
ARTICLE 10 - CHANGES IN THE WORK	114-115
ARTICLE 11 - CHANGE OF CONTRACT PRICE.....	115-121
Cost of the Work.....	115
Cash Allowances.....	120
Unit Price Work	120
ARTICLE 12 - CHANGE OF CONTRACT TIMES	122-123
ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK.....	123-127
Notice of Defects	123
Access to Work	123
Tests and Inspections	123
Uncovering Work.....	124
OWNER May Stop the Work	126
Correction or Removal of Defective Work.....	126
Correction Period.....	126
Acceptance of Defective Work.....	126
OWNER May Correct Defective Work.....	127
ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION	127-133
Schedule of Values	127
Application for Progress Payment	128
CONTRACTOR's Warranty of Title	128
Review of Applications for Progress Payment	128
Substantial Completion.....	130
Partial Utilization.....	131
Final Inspection.....	132
Final Application for Payment.....	132
Final Payment and Acceptance	133
Waiver of Claims	133
ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION	134-135
OWNER May Suspend Work.....	134
OWNER May Terminate	134
CONTRACTOR May Stop Work or Terminate	135

TABLE OF CONTENTS – Park Irrigation Mainline Replacements Project

SECTION	PAGE
ARTICLE 16 - MISCELLANEOUS	135
Giving Notice.....	135
Computation of Times	136
Notice of Claim.....	136
Cumulative Remedies	136
Professional Fees and Court Costs Included.....	136
Interest.....	136
Third Parties.....	136
Severability	137
Equal Opportunity Employer.....	137
SUPPLEMENTARY CONDITIONS	SC 1-2
TECHNICAL SPECIFICATIONS	TS 1-52
CONSTRUCTION DRAWINGS	
<i>SPORTS COMPLEX AS-BUILT UTILITY PLAN</i>	

INVITATION TO BID

Sealed Bids will be received by the

CITY OF LOUISVILLE, STATE OF COLORADO

Hereinafter referred to as OWNER, at the Louisville City Services, 739 S. 104th Street, Louisville, Colorado 80027, until **10:00 a.m.**, Mountain Daylight Time, May 12, 2021 for the

PARK IRRIGATION MAINLINE REPLACEMENTS PROJECT

Bids received after said closing time of 10:00 a.m., Mountain Daylight Time will not be accepted and be returned unopened. Bids shall be in a sealed envelope plainly marked with the Project Name and Date and addressed:

Louisville City Services
Parks Division
739 S. 104th St.
Louisville, Colorado 80027

All Bids that have been duly received will be publicly opened and read aloud. The Bid Opening will be held on May 12 at 10:00 a.m. at Louisville City Services, 739 S. 104th St., Louisville, CO 80027, in the conference room. If needed due to COVID restrictions, the bid opening will be held virtual at the same date and time, at which a virtual meeting link will be sent out in advance to all interested parties on the plan holders list.

The bid documents which include the project manual, material and finish specifications, and the construction drawings are available on the City website, <https://www.louisvilleco.gov/doing-business/bidding-opportunities-requests-for-proposals> under the heading, "Bidding Opportunities / Requests for Proposals".

The work for which the Bid is requested consists of the replacement of three existing irrigation mainlines from PVC to HDPE pipe and additional irrigation components as necessary. The sites in which the work is to occur will be the Louisville Sports Complex (1200 Courtesy Road), the City of Louisville Cemetery (Highway 42 and Empire Rd) and within the McCaslin Boulevard right-of-way.

Bids will be received on a lump sum price basis as described in the Bidding Documents. Please submit the Bid Form from the Project Manual.

All bidders must be on the plan holders list for bids to be accepted. In order to be placed on the plan holders list you must notify Dean Johnson at deanj@louisvilleco.gov.

For questions pertaining to this Bid, please contact Dean Johnson, Parks Superintendent at deanj@louisvilleco.gov. Questions may be submitted up to May 5th at 5:00 p.m. Afterwards an addenda will be posted on the City website.

Each Bid shall contain evidence of BIDDER'S qualification to do business in the state of Colorado or covenant to obtain such qualification. When a BIDDER submits a Bid, that Bid shall include the Schedule of Subcontractors, which shall identify each element of the work to be subcontracted.

Each Bid must be accompanied by a Bid security consisting of a properly Certified Check, Cashier's Check, or Bid Bond, in the amount of five (5) percent of BIDDER'S Total Bid Price, without conditions, payable to the City of Louisville. Bid security will be retained by the City until the seventh day after the Effective Date of the Agreement whereupon Bid security furnished by such Bidder's will be returned. Bid security with Bids, which are not competitive, will be returned within fourteen days after the Bid opening. No Bid will be considered unless accompanied by such Bid security.

The successful BIDDER will be required to furnish a performance bond and a labor and material payment bond to the City of Louisville guaranteeing faithful performance and the payment of all bills and obligations arising from the performance of the Contract.

No Bid may be withdrawn within a period of sixty (60) days after the date fixed for opening Bids.

The City of Louisville reserves the right to award the contract by sections, to reject any or all Bids, and to waive any informalities and irregularities therein.

The City of Louisville assumes no responsibility for payment of any expenses incurred by any respondent to this Invitation to Bid.

Preference is hereby given to materials, supplies, and provisions produced, manufactured, or grown in Colorado, quality and price being equal to articles offered by competitors outside of the State.

The City of Louisville is an Equal Opportunity Employer.

City of Louisville, Colorado
Parks and Recreation Department

1st Publication: April 20, 2021
2nd Publication: April 27, 2021

INSTRUCTIONS

TO

BIDDERS

INSTRUCTIONS TO BIDDERS

1. DEFINED TERMS

Terms used in these Instructions to BIDDERS, which are defined in the General Conditions of this Manual have the meanings assigned to them in the General Conditions.

Certain additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof.

- 1.1 The term "BIDDER" means one who submits a Bid directly to OWNER, as distinct from a sub-bidder, who submits a bid to a BIDDER.
- 1.2 The term "ISSUING OFFICE" means the office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- 1.3 The term "SUCCESSFUL BIDDER" means the lowest, qualified, responsible and responsive BIDDER to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.
- 1.4 The term "Bidding Documents" includes the Invitation to Bid, Instructions to Bidders, the Bid Form, and the Contract Documents (including all Addenda issued prior to receipt of Bids).

2. COPIES OF BIDDING DOCUMENTS

- 2.1 ~~Complete sets of Bidding Documents stated in the Invitation to Bid may be obtained from the Issuing Office. No partial sets will be issued. The Bidding Documents may be examined at the locations identified in the Invitation to Bid.~~
- 2.2 Complete sets of Bidding Documents shall be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.3 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

3. QUALIFICATION OF BIDDERS

- 3.1 **Bids will only be accepted from qualified BIDDER's who are recorded by the OWNER as having received the Bidding Documents.**
- 3.2 Each Bid shall contain evidence of BIDDER's qualification to do business in the state of Colorado or covenant to obtain such qualification.
- 3.3 The apparent low BIDDER shall be required to show that he has handled former work of similar type and that no just claims are pending against such work. No Bid will be awarded to a BIDDER who is engaged on any other work, which would impair his ability to perform or finance this Work.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- 4.1 It is the responsibility of each BIDDER before submitting a Bid:

- 4.1.1 To examine thoroughly the Contract Documents and related data identified in the Bidding Documents;
 - 4.1.2 To visit the site to become familiar with and satisfy BIDDER as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work;
 - 4.1.3 To consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
 - 4.1.4 To study and carefully correlate BIDDER's knowledge and observations with the Contract Documents and other related data; and
 - 4.1.5 **To promptly notify OWNER of all conflicts, errors, ambiguities or discrepancies, which Bidder has discovered in or between the Contract Documents and such other related documents.**
- 4.2 BIDDERS are responsible for examining and determining for themselves the location and nature of the proposed Work, the amount and character of the labor and materials required therefor, and the difficulties, which may be encountered. BIDDERS may not rely on oral or written representations made by the OWNER, including any reports and drawings identified pursuant to paragraph 4.2.1 and subparagraphs thereof of the General Conditions, unless the OWNER has guaranteed in writing that such representation is factually accurate, and by submitting a Bid, each Bidder waives all liability for any error in any representation made by the OWNER to the BIDDER. BIDDERS shall, at BIDDER'S own expense, inspect the site and its surroundings and conduct such supplementary examinations, investigations, and tests concerning conditions at or contiguous to the site (including surface, and subsurface) which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto for performing the Work in accordance with the Contract Documents. By failing to make such an inspection, the BIDDER waives all rights to claim extra payment or time extensions due to unexpected conditions, which could have been determined had the site been reasonably inspected. If concealed or unknown conditions differ materially from those ordinarily encountered and generally recognized as inherent in the Work, or differ materially from the conditions indicated in the Contract Documents, then an equitable adjustment in the Contract Price or in the Contract Time will be allowed by change order as provided in Article 11 or Article 12 respectively of the General Conditions. By submitting a Bid, the BIDDER represents that the BIDDER'S observations at the site are not inconsistent with the requirements of the proposed Contract Documents, unless otherwise noted by the BIDDER.
- 4.2.1 Refer to General Conditions for identification of those reports of explorations and tests of subsurface conditions at or contiguous to the site, which have been utilized by ENGINEER in preparation of the Contract Documents. BIDDER may not rely upon the general accuracy of the "technical data" contained in such reports or upon non-technical data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purposes of bidding or construction unless OWNER has guaranteed in writing that such data or representations are accurate.
 - 4.2.2 Refer to General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface conditions (except

Underground Facilities) which are at or contiguous to the site that have been utilized by ENGINEER in preparation of the Contract Documents. BIDDER may not rely upon the general accuracy of the "technical data" contained in such drawings or upon other data, interpretations, opinions or information shown or indicated in such drawings or otherwise relating to such structures, nor upon the completeness thereof for the purposes of bidding or construction unless OWNER has guaranteed in writing that such data or representations are accurate.

Copies of such reports and drawings will be made available by OWNER to any BIDDER on request. Those reports and drawings are not part of the Contract Documents, but the technical data contained therein, upon which BIDDER is entitled to rely upon as factually accurate as provided in Paragraphs 4.2.1 of the General Conditions. BIDDER is responsible for any interpretation or conclusion drawn from any "technical data" or any such data, interpretations, opinions or information.

- 4.3 Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information and data furnished to OWNER by OWNERS of such Underground Facilities or others, and OWNER and ENGINEER do not assume responsibility for the accuracy or completeness thereof.
- 4.4 On request in advance, OWNER will provide each BIDDER access to the site to conduct such examinations, investigations, explorations, tests and studies as each BIDDER deems necessary for submission of a Bid. BIDDER shall fill all holes, clean up and restore the site to its former conditions upon completion of such explorations, investigations, tests and studies.
- 4.5 Reference is made to the General Conditions for the identification of the general nature of work that is to be performed at the site by OWNER or others (such as utilities and other prime contractors) that relates to work for which a Bid is to be submitted. On request, OWNER will provide to each BIDDER for examination access to or copies of Contract Documents (other than portions thereof related to price) for such work.
- 4.6 The submission of a Bid will constitute an incontrovertible representation by BIDDER that BIDDER has complied with every requirement of this Article 4, that the BIDDER warrants that it is familiar with all provisions of the Contract Documents, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures of construction that may be shown or indicated in or expressly required by the Contract Documents, **that BIDDER has given OWNER written notice of all conflicts, errors, ambiguities and discrepancies that BIDDER has discovered in the Contract Documents and the written resolutions thereof by OWNER is acceptable to BIDDER**, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing of the Work.
- 4.7 The provisions of 4.1 through 4.7 of this section, inclusive, do not apply to Asbestos, Polychlorinated biphenyl's (PCB's), Petroleum, Hazardous Waste or Radioactive Material covered by paragraph 4.5 of the General Conditions.

5. AVAILABILITY OF LANDS FOR WORK, ETC.

5.1 The lands upon which the Work is to be performed be at the Louisville Sports Complex (1200 Courtesy Road), the City of Louisville Cemetery (Highway 42 and Empire Rd) and within the McCaslin Boulevard right-of-way. All additional lands and access thereto required for temporary

construction facilities or storage of materials and equipment are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Contract Documents.

6. INTERPRETATIONS AND ADDENDA

- 6.1 All questions about the meaning or intent of the Bidding Documents are to be submitted in writing to the OWNER. Interpretation or clarifications considered necessary by OWNER in response to such questions will be issued only by Addenda mailed or delivered to all parties recorded by OWNER as having received Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. **Oral and other interpretations or clarifications will be without legal effect.**
- 6.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by OWNER.

7. BID SECURITY

- 7.1 Each Bid must be accompanied by a Bid Security consisting of a properly Certified Check, Cashier's Check, or Bid Bond on the form enclosed herewith, in the amount of five (5) percent of BIDDER's Total Bid Price, without conditions, payable to the City of Louisville, Colorado. The Bid Bond must be executed by a surety meeting the requirements of Paragraph 5.3 of the General Conditions. The cost of the Bid Security shall be included in the bid. The submission of the Bid and Bid Security is a pledge by the BIDDER that he will enter into an Agreement with the Owner on the terms stated in his Bid and will, if required, furnish required insurance certificates and bonds, covering the faithful performance of the Agreement and the payment of all obligations arising thereunder.
- 7.2 The Bid Security of the Successful BIDDER will be retained until such BIDDER has executed the Agreement, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid Security will be returned. If the successful BIDDER fails to execute, enter into or deliver an Agreement in accordance with an accepted bid proposal, or fails to furnish the required bonds or certificates, within ten (10) days from the mailing of the Notice of Award, or if the BIDDER has been guilty of collusion with other BIDDERS in submitting the Bid, the OWNER may annul the Notice of Award and the Bid Security shall be forfeited to and retained by the OWNER as liquidated damages and not as a penalty. By submitting the Bid security with the bid proposal, the BIDDER agrees to liquidated damages in the event the BIDDER fails to enter into the Agreement with the OWNER. The OWNER shall not have to prove actual damages suffered in order to retain the Bid Security as liquidated damages. The OWNER and the BIDDER agree that liquidated damages are appropriate because the anticipated actual damages are uncertain in amount and difficult to forecast accurately. The OWNER and the BIDDER agree that the amount of the Bid Security is a reasonable estimate of damages and not disproportionate to the anticipated loss or injury. The Bid Security of other BIDDER'S whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the seventh day after the Effective Date of the Agreement whereupon Bid Security furnished by such BIDDER'S will be returned. Bid Security with Bids that are not competitive will be returned within fourteen days after the Bid opening.

8. CONTRACT TIME

- 8.1 The number of days within which, or the dates by which, the Work is to be completed (the Contract Time) is set forth in the Agreement.

9. LIQUIDATED DAMAGES

- 9.1 Provisions for liquidated damages, if any, are set forth in the Agreement and General Conditions.

10. SUBSTITUTE AND "OR-EQUAL" ITEMS

- 10.1 The Contract, if awarded, will be on the basis of materials and equipment described on the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated on the Drawings or specified in the Specifications that a substitute or "or - equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to OWNER, application for such acceptance will not be considered by OWNER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by OWNER is set forth in paragraphs 6.7.1, 6.7.2 and 6.7.3 of the General Conditions and may be supplemented in the General Requirements.

11. SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 11.1 **When a BIDDER submits a Bid, that Bid shall include the Schedule of Subcontractors, which shall identify each element of the Work to be subcontracted.**
- 11.2 If OWNER, who after due investigation has reasonable objection to any proposed Subcontractor, other person or organization, may before the Notice of Award is given, request the apparent Successful BIDDER to submit a substitute Subcontractor acceptable to the City without an increase in Bid price. If the apparent Successful BIDDER declines to make any such substitution, OWNER may award the contract to the next lowest BIDDER that proposes to use acceptable Subcontractors and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Bid security of any BIDDER. Any Subcontractor or other person or organization listed and to whom OWNER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.8.2. of the General Conditions.
- 11.3 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, other person or organization against whom CONTRACTOR has reasonable objection.
- 11.4 The Contract Documents will take precedence over any nonconforming data submitted. Any Bid specifically conditioned upon furnishing equipment or materials, which are not responsive to the Contract Documents, will not be considered.

12. BID FORM

- 12.1 The Bid Form is included in the Contract Documents.

- 12.2 All blanks on the Bid Form must be completed by printing in ink or by typewriter. All unit prices including lump sums in the unit price schedule are to be expressed in numerals only.
- 12.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The state of incorporation shall be shown below the corporate name.
- 12.4 Bids by partnerships must be executed in the partnership name and signed by a duly authorized general partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature. A partnership shall give the full names and addresses of all partners and their interest and role in the partnership business.
- 12.5 All names must be typed or printed in ink below the signature.
- 12.6 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).
- 12.7 The BIDDER's business address and telephone number for communications regarding the Bid must be shown.
- 12.8 Each Bid shall contain evidence of BIDDER's qualification to do business in the state of Colorado or covenant to obtain such qualification.
- 12.9 No alterations in Bids, or in the printed forms therefor, by erasures, interpolations, or otherwise will be accepted unless each such alteration is signed or initialed by the BIDDER; if initialed, OWNER may require the BIDDER to identify any alteration so initialed.
- 12.10 Bids will be based on a combination of unit price and lump sum schedules including alternatives. Unit price schedules shall be bid as provided in Paragraph 12.10.1 below. Lump sum schedules shall be bid as provided in paragraph 12.10.2 below.
- 12.10.1 Bids for unit price schedules shall be based on a unit price basis. The Total Bid Price will be determined as the sum of the products of the estimated quantity of each item and the unit price set forth in the Schedule of Unit Prices. The final Contract Price will be subject to adjustment according to final measured, used or delivered quantities as provided in the Specifications and the unit prices in the Bid Form will apply to such final quantities except that unit prices may be subject to change by Change Order if quantities vary more than 25 percent.
- 12.10.2 Bids for lump sum schedules shall be based on a lump sum basis for each lump sum item.

13. SUBMISSION OF BIDS

- 13.1 Bids shall be submitted at the time and place indicated in the Advertisement of Invitation to Bid and shall be enclosed in an opaque sealed envelope, marked with the Project Title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and name and address of the BIDDER, and addressed to the City of Louisville as indicated in the Advertisement of Invitation to Bid accompanied by the Bid Security and other required documents. If the Bid is sent through the mail or other

delivery system the sealed Bid shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of the separate sealed envelope.

13.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids indicated in the Invitation to Bid, or any extension thereof made by Addendum. Bids received after the time and date for receipt of Bids will be returned unopened. BIDDER shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

13.3 Oral, telephonic, or telegraphic Bids are invalid and will not receive consideration.

13.4 No BIDDER may submit more than one Bid. Multiple Bids under different names will not be accepted from one firm or association.

14. MODIFICATION AND WITHDRAWAL OF BIDS

14.1 Bids may be modified or withdrawn by an appropriate document duly executed (in a manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

14.2 Bids may also be modified or withdrawn in person by the BIDDER or an authorized representative provided he can prove his identity and authority.

14.3 Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to BIDDERS.

14.4 If, within twenty-four hours after Bids are opened, any BIDDER files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that BIDDER may withdraw its Bid and the Bid security will be returned. Thereafter, that BIDDER will be disqualified from further bidding on the Work to be provided under the Contract Documents.

15. OPENING OF BIDS

15.1 Bids will be opened and (unless obviously non-responsive) read aloud publicly as indicated in the Invitation to Bid. An abstract of the amounts of the base Bids and major alternates (if any) will be made available to BIDDERS.

16. BIDS TO REMAIN OPEN SUBJECT TO ACCEPTANCE

16.1 All Bids shall remain open for sixty (60) days after the day of the Bid opening, but OWNER may, in its sole discretion, release any Bid and return the Bid Security prior to that date.

17. AWARD OF CONTRACT

17.1 OWNER reserves the right to reject any or all Bids, including without limitation the rights to reject any or all irregular, nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any BIDDER if OWNER believes that it would not be in the best interest of the Project to make an award to that BIDDER, whether because the Bid is not responsive or the BIDDER is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any

column of figures and the correct sum thereof will be resolved in favor of the correct sum.

- 17.2 In evaluating Bids, OWNER will consider the qualifications of the BIDDERS, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 17.3 OWNER will consider the qualifications and experience of Subcontractors and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors and other persons and organizations must be submitted. OWNER also will consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.
- 17.4 OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the BIDDER, proposed Subcontractors and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to OWNER's satisfaction within the prescribed time.
- 17.5 If the contract is to be awarded, it will be awarded to the lowest responsible BIDDER based on the combination of Bid Schedules as determined by OWNER and whose evaluation by OWNER indicates to OWNER that the award will be in the best interest of the Project.
- 17.6 If the contract is to be awarded, OWNER will accept the Bid within sixty days after the Bid opening and will give the Successful BIDDER a Notice of Award within sixty-five days after the day of the Bid opening. The OWNER's acceptance of the Bid proposal shall bind the successful BIDDER to sign the Contract Documents within ten (10) days after the date of the receipt by the BIDDER of the Notice of Award. The rights and obligations set forth in the Contract Documents shall become effective only with the signature of the **MAYOR** on behalf of the City.
- 17.7 It is the OWNER'S intention to award the entire contract as bid. The OWNER reserves the right to award a contract that is in the best interest of the OWNER and within the amount budgeted. The OWNER has or will have prior to award appropriated monies at least equal to the contract amount. The Total Bid Price, subject to the other considerations herein, shall be the basis of award. Quantities may be reduced in order to reach budget amount, in that case the unit prices shall govern to determine the lowest Total Bid Price, which shall then determine the basis of award. If quantity reductions are required, quantities may be reduced from any item. Bid may be awarded by adding (or subtracting) the base bid plus any add alternatives, at the OWNER'S sole discretion.

The BIDDER acknowledges that the OWNER has the right to delete any item of the Schedule of Units Prices or change quantities and locations in any item at OWNER'S sole discretion without affecting the contract prices of any item of the Contract so long as the deletion or change does not exceed twenty-five percent (25%) of the Total Bid Price. Notwithstanding the foregoing, if a reduction is made in Unit Price items or quantities, the lump sum cost for traffic control shall be reduced by the same percentage as the percentage change made from the original unit price cost/quantity to the reduced original unit price cost/quantity.

Quantities listed in the Schedule of Unit Prices are approximate and are for the

purpose of comparing bids. These quantities have been estimated and are for the general information of the BIDDER. Quantities are not guaranteed.

17.8 In addition to Paragraph 17.1 of the Instructions to Bidders, in evaluating Bids, the OWNER will consider Bids irregular, and intends to reject Bids, for any of the following substantial reasons:

17.8.1 Unsigned Bid Form;

17.8.2 Bid Forms which have items omitted by the BIDDER;

17.8.3 Altering a Bid as to specified time of commencement of completion of Work;

17.8.4 Bid Forms not accompanied by a Bid Security of character indicated or of an amount less than indicated;

17.8.5 If the Bid Form is on a form other than that provided in Contract Documents, or if the Bid Form is altered;

17.8.6 If there are unauthorized additions, conditional or alternate Bids, or discrepancies of any nature that make the Bid Form incomplete, indefinite, or ambiguous as to its meaning;

17.8.7 If the BIDDER adds any provisions reserving the right to accept or reject an award, or to enter into a Contract pursuant to an award;

17.8.8 If the Schedule of Unit Prices in the Bid Form does not contain a unit price for each item number listed; or,

17.8.9 Submitting more than one Bid, where there is evidence that any BIDDER has an interest in more than one Bid for the same work, or where there is evidence of collusion or other illegal activities between BIDDERS. In addition to any other remedies the OWNER may have, the OWNER may retain as liquidated damages for the disruption of the bidding process the Bid Security of all bidders involved in collusion or other illegal activities. The BIDDER and the OWNER agree that the amount of the Bid Security is a reasonable estimate of damages for collusion and other illegal activities on the part of the BIDDER and not disproportionate to the anticipated loss or injury. A person or entity, which has quoted prices to a BIDDER, is not hereby disqualified from quoting prices to other BIDDERS or from submitting a direct bid on its own behalf.

17.9.0 In evaluating Bids, the OWNER may consider Bids informal, and may, in its sole discretion, elect to waive informalities for the following minor reasons:

17.9.1 Omission of dates when signed, or title of person signing;

17.9.2 Failure to acknowledge an addendum, which does not affect quantity, quality, time, or price;

17.9.3 Submission of a Bid in an unsealed envelope;

17.9.4 Unit price Bids which include reconcilable arithmetic errors may be corrected if it does not change the unit price; or,

- 17.9.5 Unit price Bids which include reconcilable arithmetic errors may be corrected, if it does not change the amount on which the award will be based.

18. CONTRACT SECURITY

- 18.1 Paragraph 5.1 of the General Conditions set forth OWNER's requirements as to performance and payment Bonds. When the Successful BIDDER delivers the executed Agreement to OWNER it shall be accompanied by the required performance and payment Bonds.

19. SIGNING OF AGREEMENT

- 19.1 When OWNER gives a Notice of Award to the Successful BIDDER, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within ten (10) days after CONTRACTOR's receipt of the Notice of Award, CONTRACTOR shall sign and have notarized the required number of counterparts of the Agreement and attached documents and return them to the OWNER along with the required Bonds, insurance certificates and power of attorney authorizations.

20. SPECIAL LEGAL REQUIREMENTS

- 20.1 OWNER's Finances. OWNER has made adequate financial arrangements for the completion of all Work required by the Contract Documents and welcomes inquiries from prospective BIDDERS on the prime contract.

21. SALES AND USE TAXES

- 21.1 OWNER is exempt from Colorado State Sales and Use Taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Contract Price. Refer to General Conditions 6.15 for additional information.

22. RETAINAGE

- 22.1 Provisions concerning retainage and CONTRACTORS' rights to deposit securities in lieu of retainage are set forth in the Agreement.

23. MISTAKES IN BIDDING INSTRUCTIONS

- 23.1 If the OWNER makes a mistake in drafting the Instructions to Bidders or any other Contract Documents, the OWNER reserves the right to reject any or all Bids, or to require that BIDDERS submit an alternate bid proposal with adjustments made to correct the error(s). Such errors will be set forth in an addendum. If the CONTRACTOR has already been selected and has started performing work under the contract, and the OWNER then discovers a mistake in the Contract Documents for which the OWNER is responsible, the OWNER may opt to reform the contract. If the mistake causes the Contractor to receive compensation for materials not used in the Work or for labor, which would not be required for the Work, the Contract Price shall be decreased proportionally. If the mistake causes the CONTRACTOR to fail to bid on work, which must be performed in order to properly complete the contract, the OWNER may increase the Contract Price to equal the proportionate increase in the cost of required materials and labor caused to the CONTRACTOR. In the alternative, the OWNER may solicit bids for such additional work, or the OWNER may reassign such additional work to another CONTRACTOR, as the OWNER deems appropriate. Nothing in this provision shall apply to mistakes made by the CONTRACTOR in completing the Bid Form or in performing the contract.

BID FORM

BID FORM

PROJECT: Park Irrigation Mainline Replacements Project
PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

THIS BID IS SUBMITTED TO: THE CITY OF LOUISVILLE, COLORADO

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. BIDDER accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid Security. This Bid will remain subject to acceptance for sixty days after the day of Bid opening. BIDDER will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within ten days after the date of OWNER's Notice of Award.
3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

- (a) BIDDER has examined copies of all the Bidding Documents and of the following Addenda receipt of all which is hereby acknowledged: (List Addenda by Addendum Number and Date):

Date	Number
_____	_____
_____	_____

- (b) BIDDER has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
 - (c) BIDDER has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the General Conditions as provided in paragraph 4.2, and accepts the determination set forth in paragraph 4.2 of the General Conditions. BIDDER has inspected the site and has obtained conducted and carefully studied (or assumes responsibility for obtaining and carefully studying) all examinations, investigations, explorations, tests and studies which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as BIDDER considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by BIDDER for such purpose.
 - (d) BIDDER has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by BIDDER in order to perform and furnish the Work at the Contract Price, within the Contract Time and in

accordance with the other terms and conditions of Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.

- (e) BIDDER has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
 - (f) BIDDER has given OWNER written notice of all conflicts, errors, ambiguities or discrepancies that BIDDER has discovered in the Contract Documents and the written resolution thereof by OWNER is acceptable to BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.
 - (g) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other Bidder or over OWNER.
4. BIDDER will complete the Work in accordance with Contract Documents for the following price(s):

SCHEDULE OF UNIT PRICES

PROJECT: Park Irrigation Mainline Replacements Project
OWNERS PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

Louisville Sports Complex Mainline Replacement Project, Lump Sum Price \$ _____

Cemetery Mainline Replacement Project, Lump Sum Price \$ _____

McCaslin Boulevard Mainline Replacement Project, Lump Sum Price \$ _____
(If awarded, contractor will be asked to supply unit cost measurements for work)

Total for All Three Mainline Replacement Projects \$ _____

Unit Prices have been computed in accordance with paragraph 11.9.2 of the General Conditions.

BIDDER acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

5. BIDDER agrees that the Work;

will be substantially complete and completed and ready for final payment in accordance with paragraph 14.13 of the General Conditions on or before the dates or within the number of Contract Days indicated in the Agreement.

BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

6. The following documents are attached to and made a condition of this Bid:

- (a) Required Bid Security;
- (b) A list of Subcontractors and other persons and organizations proposed to perform the Work are required to be identified on the Schedule of Subcontractors and submitted in this Bid;
- (c) Anti-Collusion Affidavit; and
- (d) If BIDDER is a partnership, a list of all partners, their addresses, and their interest and role in the partnership business.

7. Communications concerning this Bid shall be addressed to:
The address of BIDDER indicated below.

8. Terms used in this Bid, which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents, have the meanings assigned to them in the General Conditions.

SUBMITTED on _____, 2021.

If BIDDER is:

An Individual

By _____
(Individual's Name)

(SEAL)

doing business as _____

Business address: _____

Phone No.: _____

A Partnership

By _____
(Firm Name)

(SEAL)

(General Partner)

Business address: _____

Phone No.: _____

A Corporation

By _____
(Corporation Name)

(State of incorporation)

By _____
(Name of person authorized to sign)

(Title)

(CORPORATE SEAL)

Attest _____
(Secretary)

Business address: _____

Phone No.: _____

Date of Qualification to do business: _____

A Joint Venture

By _____
(Name)

(Address)

By _____
(Name)

(Address)

Phone Number and Address for receipt of official communications

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

BID BOND

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

BID:

BID DUE DATE: _____
PROJECT (Brief Description Including Location): _____

BOND:

BOND NUMBER: _____
DATE: (Not later than Bid Due Date): _____
PENAL SUM: _____

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

_____(Seal)
Bidder's Name and Corporate Seal

By: _____
Signature and Title

Attest: _____
Signature and Title

SURETY

_____(Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Note: (1) Above addresses are to be used for giving requiring notice.
(2) Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents the properly executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents.
3. This obligation shall be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents, or
 - 3.2. All bids are rejected by Owner, or
 - 3.3. Owner fails to issue a notice of award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within thirty (30) calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by Owner and Bidder, provided that the time for issuing notice of award including extensions shall not in the aggregate exceed 120 days from Bid Due Date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to thirty (30) calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety, and in no case later than one year after Bid Due Date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notice required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirements of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "bid" as used herein includes a bid, offer or proposal as applicable.

SCHEDULE OF SUBCONTRACTORS

PROJECT: Park Irrigation Mainline Replacements Project
OWNER'S PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

This Bid is based on subcontracting certain portions of the work to subcontractors as listed below.

Name: _____ Telephone No. _____
Address: _____
City: _____ State: _____ Zip Code: _____
Services/equipment to be provided: _____

Name: _____ Telephone No. _____
Address: _____
City: _____ State: _____ Zip Code: _____
Services/equipment to be provided: _____

Name: _____ Telephone No. _____
Address: _____
City: _____ State: _____ Zip Code: _____
Services/equipment to be provided: _____

Name: _____ Telephone No. _____
Address: _____
City: _____ State: _____ Zip Code: _____
Services/equipment to be provided: _____

Name: _____ Telephone No. _____
Address: _____
City: _____ State: _____ Zip Code: _____
Services/equipment to be provided: _____

Name: _____ Telephone No. _____
Address: _____
City: _____ State: _____ Zip Code: _____
Services/equipment to be provided: _____

ANTI-COLLUSION AFFIDAVIT

PROJECT: Park Irrigation Mainline Replacements Project
OWNER'S PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

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

I further attest that:

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

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

CONTRACTOR'S FIRM OR COMPANY NAME		SECOND CONTRACTOR'S FIRM OR COMPANY NAME (IF JOINT VENTURE)	
BY: _____		BY: _____	
TITLE: _____		TITLE: _____	
DATE: _____		DATE: _____	

SWORN BEFORE ME THIS _____ DAY OF, _____, 2015

NOTARY PUBLIC: _____ MY COMMISSION EXPIRES: _____

CERTIFICATION OF EEO COMPLIANCE

PROJECT: Park Irrigation Mainline Replacements Project
OWNER'S PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

Instructions: BIDDER's and Subcontractors must complete and submit this form with the Bid Form. This is required by the Equal Employment Opportunity Regulations 41 CFR 1.7 (b) (1).

- | | |
|---|---|
| 1. ☐ Yes ☐ No | I have developed and have on file at each establishment an affirmative action program as required by 41 CFR Chapter 60, Part 60-2. |
| 2. ☐ Yes ☐ No | I have participated in a previous contract/subcontract subject to the equal opportunity clause. |
| 3. ☐ Yes ☐ No | I have filed with the Joint Reporting Committee, the Director, or the Equal Employment Opportunity Commission all reports due under the applicable filing requirements. |
-

I declare under penalty of perjury in the second degree and any other applicable state or federal laws that the statements made in this document are true and complete to the best of my knowledge.

CONTRACTOR
☐ **BIDDER** ☐ **PROPOSED SUBCONTRACTOR**

BY: _____

TITLE: _____

DATE: _____

Prohibition Against Employing Illegal Aliens

PROJECT: Park Irrigation Mainline Replacements Project

OWNER'S PROJECT NUMBER: 208538-630101

OWNER: CITY OF LOUISVILLE, COLORADO

Consultant shall not knowingly employ or contract with an illegal alien to perform work under this contract. Consultant shall not enter into a contract with a subcontractor that fails to certify to the Consultant that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this contract.

Contract has verified or attempted to verify through participating in the basic pilot program as defined in C.R.S. Section 8-17.5-101(1) ("Program") that Consultant does not employ any illegal aliens and, if Consultant is not accepted into the Program prior to entering into this contract, that Consultant shall apply to participate in the Program every three months until Consultant is accepted or the contract has been completed, whichever is earlier. This provision shall not be required or effective if the Program is discontinued. Consultant is prohibited from using the Program procedures to undertake pre-employment screening of job applicants while this contract is being performed.

If Consultant obtains actual knowledge that a subcontractor performing work under this contract for services knowingly employs or contracts with an illegal alien, Consultant shall:

- a. Notify the subcontractor and the City within three days that the Consultant has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and
- b. Terminate the subcontract with the subcontractor if within three days of receiving the notice required pursuant to this paragraph the subcontractor does not stop employing or contracting with the illegal alien; except that the Consultant shall not terminate the contract with the subcontractor if during such three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

Consultant shall comply with any reasonable request by the Department of Labor and Employment made in the course of an investigation that the Department is undertaking pursuant to the authority established in C.R.S. Section 8-17.5-102(5).

If Consultant violates a provision of this Contract required pursuant to C.R.S. Section 8-17.5-102, the City may terminate the contract for breach of contract. If the contract is so terminated, the Consultant shall be liable for actual and consequential damages to the City.

**Contractor's Pre-Contract Certification
Regarding Employing Illegal Aliens**

PROJECT: Park Irrigation Mainline Replacements Project
OWNER'S PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

The proposer of public services to the City of Louisville identified below (hereafter "the Proposer"), hereby certifies as follows:

That at the time of providing this certification, Proposer does not knowingly employ or contract with an illegal alien; and that Proposer has participated in or attempted to participate in the Basic Pilot Program administered by the United States Department of Homeland Security in order to verify that it does not employ any illegal aliens.

Dated this _____ day of _____, 20____.

Proposer: _____

By: _____

Title: _____

AGREEMENT

AGREEMENT

THIS AGREEMENT is made and entered into this _____ day of _____ in the year 2021 by and between:

CITY OF LOUISVILLE, COLORADO
(hereinafter called OWNER)

and

(hereinafter called CONTRACTOR)

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows.

ARTICLE 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

PROJECT: Park Irrigation Mainline Replacements Project
PROJECT NUMBER: 208538-630101

ARTICLE 2. CONTRACT TIMES

- 2.1 The CONTRACTOR shall substantially complete all work by, **December 1, 2021** and within ~~_____ Consecutive Contract Days~~ after the date when the Contract Time commences to run. The Work shall be completed and ready for final payment in accordance with paragraph 14.13 of the General Conditions within ~~_____ Consecutive Contract Days~~ after the date when the Contract Times commence to run. The Contract Times shall commence to run on the day indicated in the Notice to Proceed.
- 2.2 LIQUIDATED DAMAGES. The OWNER and the CONTRACTOR agree and recognize that time is of the essence in this contract and that the OWNER will suffer financial loss if the Work is not substantially complete by the date specified in paragraph 2.1 above, plus any extensions thereof allowed in accordance with the Article 12 of the General Conditions. OWNER and CONTRACTOR also agree that such damages are uncertain in amount and difficult to measure accurately. Accordingly, the OWNER and CONTRACTOR agree that as liquidated damages, and not as a penalty, for delay in performance the CONTRACTOR shall pay the OWNER **TWO HUNDRED FIFTY DOLLARS (\$250)** for each and every **Contract Day** and portion thereof that expires after the time specified above for substantial completion of the Work until the same is finally complete and ready for final payment. The liquidated damages herein specified shall only apply to the CONTRACTOR's delay in performance, and shall not include litigation or attorneys' fees incurred by the OWNER, or other incidental or consequential damages suffered by the OWNER due to the CONTRACTOR's performance. If the OWNER charges liquidated damages to the CONTRACTOR, this shall not preclude the OWNER from commencing an action against the CONTRACTOR for other actual harm resulting from the CONTRACTOR's performance, which is not due to the CONTRACTOR's delay in performance.

ARTICLE 3. CONTRACT PRICE

- 3.1 The OWNER shall pay in current funds, and the CONTRACTOR agrees to accept in full payment for performance of the Work, subject to additions and deductions from extra and/or

omitted work and determinations of actual quantities as provided in the Contract Documents, the Contract Price of _____ (\$_____) as set forth in the Bid Form of the CONTRACTOR dated _____, 2021.

As provided in paragraph 11.9 of the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by OWNER'S REPRESENTATIVE as provided in paragraph 9.10 of the General Conditions. Unit prices have been computed as provided in paragraph 11.9 of the General Conditions.

ARTICLE 4. PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by OWNER as provided in the General Conditions.

4.1 PROGRESS PAYMENTS. OWNER shall make progress payments on the basis of CONTRACTOR's Applications for Payment as recommended by OWNER'S REPRESENTATIVE, on or about the third Wednesday of each month during construction as provided below. All progress payments will be on the basis of the progress of the Unit Price Work based on the number of units completed as provided in the General Conditions.

4.1.1.1 Prior to Substantial Completion, progress payments will be made in the amount equal to 90 percent of the completed Work, and/or 90 percent of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in 14.2 of the General Conditions), but in each case, less the aggregate of payments previously made and such less amounts as OWNER'S REPRESENTATIVE shall determine, or OWNER may withhold, in accordance with paragraph 14.7 of the General Conditions.

If Work has been 50 percent completed as determined by OWNER'S REPRESENTATIVE, and if the character and progress of the Work have been satisfactory to OWNER, OWNER may determine that as long as the character and progress of the Work remain satisfactory to them and no claims have been made by Subcontractors or material suppliers for unpaid work or materials, there will be no additional retainage on account of Work completed in which case the remaining progress payments prior to Substantial Completion may be in an amount equal to 100 percent of the Work completed.

Nothing contained in this provision shall preclude the OWNER and CONTRACTOR from making other arrangements consistent with C.R.S. 24-91-105 prior to contract award.

4.2 FINAL PAYMENT. Upon final completion and acceptance of the Work in accordance with paragraph 14.13 of the General Conditions, OWNER shall pay the remainder of the Contract Price as provided in said paragraph 14.13 of the General Conditions.

ARTICLE 5. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

5.1 CONTRACTOR has examined and carefully studied the Contract Documents, (including the Addenda listed in paragraph 6.10) and the other related data identified in the Bidding Documents including "technical".

- 5.2 CONTRACTOR has inspected the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.
- 5.3 CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and furnishing of the Work.
- 5.4 CONTRACTOR has carefully studied all reports of exploration and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions relating to surface or subsurface structures at or contiguous to the site (Except Underground facilities) which have been identified in the General Conditions as provided in paragraph 4.2.1 of the General Conditions. CONTRACTOR accepts the determination set forth in paragraph 4.2 of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and OWNER'S REPRESENTATIVE do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to such reports, drawings or to Underground Facilities at or contiguous to the site. CONTRACTOR has conducted, obtained and carefully studied (or assume responsibility for having done so) all necessary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.
- 5.5 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.
- 5.6 CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.
- 5.7 CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests studies and data with the Contract Documents.
- 5.8 CONTRACTOR has given OWNER'S REPRESENTATIVE written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by OWNER'S REPRESENTATIVE is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing the Work.

ARTICLE 6. CONTRACT DOCUMENTS

The Contract Documents, which constitute the entire agreement between OWNER and CONTRACTOR concerning the Work, are all written documents, which define the Work and the obligations of the Contractor in performing the Work and the OWNER in providing compensation for the Work. The Contract Documents include the following:

- 6.1 Invitation to Bid.
- 6.2 Instruction to Bidders.
- 6.3 Bid Form.
- 6.4 This Agreement.
- 6.5 General Conditions.
- 6.6 Supplementary Conditions.
- 6.7 General Requirements.
- 6.8 Technical Specifications.
- 6.9 Drawings
- 6.10 Change Orders, Addenda and other documents which may be required or specified including:
 - 6.10.1 Addenda No. __ to __ exclusive
 - 6.10.2 Documentation submitted by CONTRACTOR prior to Notice of Award.
 - 6.10.3 Schedule of Subcontractors
 - 6.10.4 Anti-Collusion Affidavit
 - 6.10.5 Certification of EEO Compliance
 - 6.10.6 Notice of Award
 - 6.10.7 Performance Bond
 - 6.10.8 Labor and Material Payment Bond
 - 6.10.9 Certificates of Insurance
 - 6.10.10 Notice to Proceed
 - 6.10.11 Contractor's Proposal Request
 - 6.10.12 Contractor's Overtime Request
 - 6.10.13 Field Order
 - 6.10.14 Work Change Directive
 - 6.10.15 Change Order
 - 6.10.16 Application for Payment
 - 6.10.17 Certificate of Substantial Completion
 - 6.10.18 Claim Release
 - 6.10.19 Final Inspection Report
 - 6.10.20 Certificate of Final Completion
 - 6.10.21 Guarantee Period Inspection Report
- 6.11 The following which may be delivered or issued after the Effective Date of the Agreement and are attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to paragraphs 3.5 and 3.6 of the General Conditions.
- 6.12 In the event of conflict between the above documents, the prevailing document shall be as follows:

1. Permits from other agencies as may be required.
2. Special Provisions and Detail Drawings.
3. Technical Specifications and Drawings. Drawings and Technical Specifications are intended to be complementary. Anything shown or called for in one and omitted in another is binding as if called for or shown by both.
4. Supplementary Conditions.
5. General Conditions.
6. City of Louisville Design and Construction Standards.
7. Reference Specifications.

In case of conflict between prevailing references above, the one having the more stringent requirements shall govern.

There are no Contract Documents other than those listed above in this Article 6. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.5 and 3.6 of the General Conditions.

ARTICLE 7. MISCELLANEOUS

- 7.1 Terms used in this Agreement, which are defined in Article 1 of the General Conditions, shall have the meanings indicated in the General Conditions.
- 7.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge that assignor from any duty or responsibility under the Contract Documents.
- 7.3 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

ARTICLE 8. OTHER PROVISIONS

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR.

This Agreement will be effective on _____, 2021.

**OWNER: CITY OF LOUISVILLE,
COLORADO**

CONTRACTOR: _____

By: _____

By: _____

Ashley Stolzmann, Mayor

(CORPORATE SEAL)

(CORPORATE SEAL)

Attest: _____
Meredyth Muth, City Clerk

Attest: _____

Address for giving notices:

City Services Facility
739 S. 104th St.
Louisville, CO 80027

Attention: Dean Johnson, Jr.

Address for giving notices:

PERFORMANCE BOND

_____, as Principal, hereinafter called the Contractor,
and

_____, as Surety, with general offices
in

_____ a Corporation organized under the laws of the State of _____, and authorized to transact business in the State of Colorado, are hereby bound unto the City of Louisville, Colorado, as Obligee, hereinafter called the City, in the penal sum of _____ (\$ _____) in the United States currency, for the payment of which sum the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, the Contractor has entered into a written contract with the City dated _____, 2021, for _____ in accordance with plans and specifications contained in the Contract, a copy of which Contract is attached hereto and made a part hereof and is hereinafter referred to as the Contract;

NOW, THEREFORE, the conditions of this performance bond are such that, if the Contractor shall satisfactorily perform the Contract, then this bond shall be null and void; otherwise, the Surety shall 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 completing the contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the City elects, upon determination by the City and the Surety jointly of the lowest responsible bidder, arrange for a Contract between such Bidder and the City, 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 costs of completion plus liquidated damages additional costs pursuant to Section 12.2 of the General Conditions of the Contract less the balance of the contract price, but not exceeding the amount set forth in the first paragraph hereof. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by the City to the Contractor under the Contract and any amendments thereto, less the amount paid by the City to Contractor.

In addition, if the Contractor or a subcontractor shall fail to duly pay for any labor, materials, team hire, sustenance, provisions, provender, or other supplies used or consumed by such Contractor or subcontractor in performance of the Contract, or shall fail to duly pay any person who supplies rental machinery, tools, or equipment, all amounts due as the result of the use of such machinery, tools or equipment in the prosecution of the Work, then the Surety shall pay the same in the amount not exceeding the sum specified in the bond together with interest at a rate of eight percent per annum.

In addition to the other conditions hereof, this bond shall include all provisions set forth in Section 38-26-106, C.R.S.

THE UNDERSIGNED SURETY for value received hereby agrees that no extension of time, change in, addition to, or other modification of the terms of the Contract of Work to be performed thereunder or the specifications of the Contract Documents shall in any way affect its obligation on this bond and the Surety does hereby waive notice of any such extension of time, change, addition, or modifications.

SIGNED AND SEALED this _____ day of _____, 2021.

(Contractor)

By: _____
(President)

(Surety Company)

Address: _____

(Attest)

By: _____
(Attorney-in-fact)

LABOR AND MATERIAL PAYMENT BOND

BOND NUMBER:

KNOW ALL MEN BY THESE PRESENCES: that

(Firm) _____

(Address) _____

(an Individual), (a Partnership), (a Corporation), hereinafter referred to as "the Principal", and

(Firm) _____

(Address) _____

hereinafter referred to as "the Surety", are held and firmly bound unto the
CITY OF LOUISVILLE, 749 MAIN STREET, LOUISVILLE, COLORADO a Municipal Corporation,
hereinafter referred to as "the Owner", in the penal sum of

_____ Dollars
(\$ _____) in lawful money of the United States, for the payment of which sum
well and truly to be made, we bind ourselves, successors and assigns, jointly and severally, firmly by
these presents.

THE CONDITIONS OF THIS OBLIGATION are such that whereas the Principal entered into a
certain Agreement with the Owner, dated the _____ day of _____, 2021, a
copy of which is hereto attached and made a part hereof for the performance of

NOW, THEREFORE, if the Principal shall make payment to all persons, firms, subcontractors and
corporations furnishing materials for or performing labor in the prosecution of the Work provided for
in such Agreement, and any authorized extension or modification thereof, including all amounts due
for materials, lubricants, repairs on machinery, equipment and tools, consumed, rented or used in
connection with the construction of such work, and all insurance premiums on said Work, and for all
labor, performed in such Work whether by Subcontractor or otherwise, then this obligation shall be
void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received, hereby stipulates and agrees that
no change, extension of time, alteration or addition to the terms of the Agreement or to the Work to
be performed thereunder or the specifications accompanying the same shall in any way affect its
obligation on this Bond; and it does hereby waive notice of any such change, extension of time,
alteration or addition to the terms of the Agreement or to the Work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall
abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

In addition to the other conditions hereof, this bond shall include all provisions set forth in Section
38-26-105, C.R.S.

IN WITNESS WHEREOF, this instrument is executed in (3) counterparts, each one of which shall be
deemed an original, this _____ day of _____, 2021.

IN THE PRESENCE OF:

PRINCIPAL:

BY: _____

(Title)

(Corporate Seal)

Addresses:

IN THE PRESENCE OF:

OTHER PARTNERS:

By: _____

By: _____

IN THE PRESENCE OF:

SURETY:

By: _____
(Attorney-in fact)

(Surety Seal)

Address:

NOTE: Date of Bond must not be prior to date of Agreement.
If Contractor is a Partnership, all partners must execute Bond.

IMPORTANT: Surety Company must be authorized to transact business in the state of Colorado and be acceptable to the Owner.

NOTICE OF AWARD

DATED: _____

TO: _____

PROJECT: Park Irrigation Mainline Replacements Project
OWNER'S PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

Please be advised that on _____, 2021, the City of Louisville, Colorado City Council awarded the 2021 Park Irrigation Mainline Replacements project to your company in the amount of \$_____ per your low unit price bid. In accordance with the Contract Documents, you are required to execute two copies of the Agreement and return both copies with the required bonds and certificates of insurance within **10 days** of the date of this Notice of Award by _____, 2021.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

CITY OF LOUISVILLE, COLORADO

ACCEPTANCE OF NOTICE

By: _____
Dean Johnson, Jr.

By: _____

Title: Owner's Representative _____

Title: _____

NOTICE TO PROCEED

DATED: _____

TO: _____

PROJECT: Park Irrigation Mainline Replacements Project
OWNER'S PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

You are hereby notified that the Contract Time under the above Contract will commence to run on _____, **2021**. On that date, you are to begin performing the Work in accordance with the Contract Documents and you are to complete the Work within **10 Contract Days** thereafter. The date of substantial completion of all Work is therefore _____, **2021**.

CITY OF LOUISVILLE, COLORADO

By: _____
Dean Johnson, Jr.

Title: Owner's Representative

ACKNOWLEDGEMENT

Receipt of the above Notice to Proceed is hereby acknowledged.

CONTRACTOR: _____

By: _____

Title: _____

Date: _____

CHANGE ORDER NO. _____

DATED: _____, 2021

PROJECT: Park Irrigation Mainline Replacements Project

AGREEMENT DATE: _____, 2021

PROJECT NUMBER: 208538-630101

OWNER: CITY OF LOUISVILLE, COLORADO

The following changes are hereby made to the Contract Documents:

Description: _____

Purpose: _____

Attachments: _____

ADJUSTMENT TO CONTRACT PRICE:

Original contract price \$ _____

Set change previous Change Orders No. __ to __ \$ _____

Contract price prior to this Change Order \$ _____

Net adjustment resulting from this Change Order (+/-) \$ _____

Current contract price including this Change Order \$ _____

ADJUSTMENT TO CONTRACT TIME:

Original contract time (days or date) _____

Net change previous Change Orders No. __ to __ (days) _____

Contract time prior to this Change Order (days or date) _____

Net Adjustment Resulting from this Change Order (days) _____

Current contract time including this Change Order (days or date) _____

Recommended:

Approved:

Accepted:

OWNER'S REPRESENTATIVE

CITY OF LOUISVILLE, COLORADO
OWNER

CONTRACTOR

By: _____

By: _____

By: _____

Date: _____

Date: _____

Date: _____

FIELD ORDER

No. _____

TO: _____

PROJECT: Park Irrigation Mainline Replacements Project
PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

DATE ISSUED: _____

You are hereby directed and instructed to execute promptly minor variations in the Work by this Field Order as follows:

Attachments:

This form shall be used to authorize minor variations in the Work from the requirements of the Contract Documents, which do not include an adjustment in the Contract Price or the Contract Times.

CITY OF LOUISVILLE

BY: _____
TITLE: _____
DATE: _____

ACCEPTED BY CONTRACTOR

BY: _____
TITLE: _____
DATE: _____

WORK CHANGE DIRECTIVE INSTRUCTIONS

A. GENERAL INFORMATION

This document was developed for use in situations involving changes in the Work that, if not processed expeditiously, might delay the Project. These changes are often initiated in the field and may affect the Contract Price or the Contract Times. This is not a Change Order, but only a directive to proceed with Work that may be included in a subsequent Change Order.

For supplemental instructions and minor changes not involving a possible change in the Contract Price or the contract Times a Field Order may be used.

B. COMPLETING THE WORK CHANGE DIRECTIVE FORM

Owner's Representative initiates the form, including a description of the items involved and attachments.

Based on conversations between Owner's Representative and Contractor, Owner's Representative completes the following:

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT PRICE. Mark the method to be used in determining the final cost of Work involved and the estimated net effect on the Contract Price. If the change involves an increase in the Contract Price and the estimated amount is approached before the additional or changed Work is completed, another Work Change Directive must be issued to change the estimated price or Contractor may stop the changed Work when the estimated price is reached. If the Work Change Directive is not likely to change the Contract Price, the space for estimated increase (decrease) should be marked "Not Applicable."

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT TIMES: Mark the method to be used in determining the change in Contract Times and the estimated increase or decrease in Contract Times. If the change involves an increase in the Contract Times and the estimated times are approached before the additional or changed Work is completed, another Work Change Directive must be issued to change the times or Contractor may stop the changed Work when the estimated times are reached. If the Work Change Directive is not likely to change the Contract Times, the space for estimated increase (decrease) should be marked "Not Applicable".

Once authorized by OWNER'S REPRESENTATIVE a copy will be sent to Contractor. Price and Times may only be changed by Change Order signed by Owner and Contractor.

Once the Work covered by this directive is completed or final cost and times are determined, Contractor should submit documentation for inclusion in a Change Order.

THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIMES. A CHANGE ORDER, IF ANY, SHOULD BE CONSIDERED PROMPTLY.

WORK CHANGE DIRECTIVE

No. _____

PROJECT: Park Irrigation Mainline Replacements Project
PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

DATE ISSUED: _____

EFFECTIVE DATE: _____

You are directed to proceed promptly with the following change(s):

Description:

Purpose of Work Change Directive:

Attachments (List documents supporting change):

If a claim is made that the above change(s) have affected Contract Price of Contract Times any claim for a Change Order based thereon will involve one or more of the following methods of determining the effect of the change(s).

Method of determining change in
Contract Price:

____ Unit Prices
____ Lump Sum
____ Other _____

Method of determining change in
Contract Times:

____ Contractor's Records
____ Owner's Representative's
____ Records
____ Other _____

Estimated increase (decrease) in Contract Price:

\$ _____
If the change involves an increase, the estimated amount
is not to be exceeded without further authorization.

Estimated increase (decrease) in Contract Times

Substantial Completion: _____ days;
Ready for final payment: _____ days.
If the change involves an increase, the estimated
times are not to be exceeded without further
authorization.

RECOMMENDED:

OWNER'S REPRESENTATIVE

BY: _____

ACCEPTED:

CONTRACTOR

BY: _____

APPLICATION FOR PAYMENT

PROGRESS PAYMENT NO. _____ FOR WORK THROUGH THE DATE OF: _____, 2015

PROJECT: Park Irrigation Mainline Replacements Project

PROJECT NUMBER: 208538-630101

DATE SUBMITTED: _____, 2015

OWNER: CITY OF LOUISVILLE

749 MAIN STREET

LOUISVILLE, CO 80027

CONTRACTOR: _____

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE	QTY. PREVIOUS PERIOD	QTY. THIS PERIOD	QTY. TOTAL TO DATE	PREVIOUS PAYMENT	THIS PAYMENT	TOTAL PAYMENT	PERCENT (%) COMPLETE
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	
				\$ _____	\$ _____				\$ _____	\$ _____	\$ _____	

TOTAL BID PRICE \$ _____

TOTAL AMOUNT TO DATE

AMOUNT PREVIOUS PAYMENT(S)

RETAINAGE TO DATE

PROGRESS PAYMENT NO. _____ AMOUNT TO CONTRACTOR THIS INVOICE

\$ _____

\$ _____

\$ _____

\$ _____

CONTRACTOR'S CERTIFICATION:

The undersigned CONTRACTOR certifies that:

1. All previous progress payments received from OWNER on account of Work completed under the Contract referred to above have been applied to discharge in full all obligations of CONTRACTOR incurred in connection with Work covered by prior Applications for Payment numbered 1 through _____ Inclusive.
2. Title to all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all liens, claims, security interest and encumbrances (except such as are covered by Bond acceptable to OWNER indemnifying OWNER against any such claim, security interest or encumbrance).
3. Work covered by this Application for Payment is in accordance with the Contract Documents and not DEFECTIVE as that term is defined in the Contract Documents.

OWNER: CITY OF LOUISVILLE

APPROVED FOR PAYMENT

CONTRACTOR: _____

TOTAL AMOUNT ACCEPTED FOR COMPLETED WORK DESCRIBED ABOVE

NAME: _____ DATE: _____

NAME: _____ DATE: _____

TITLE: _____

TITLE: _____

CONTRACTOR'S PROPOSAL REQUEST
(Not a Change Order)

Date Submitted: _____, 2021

No. _____

TO: _____

PROJECT: Park Irrigation Mainline Replacements Project
PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

We hereby request the cost of the following proposed change in the Contract. A breakdown of the proposed cost is attached.

Description of the proposed change:

All work shall be in accordance with the terms, stipulations, and conditions of the Contract Documents. If the Work herein requested is approved by Change Order, the time of completion will be (increased), (decreased), (unchanged) by _____ calendar days.

New Substantial Completion Date: _____, 2021

This change will:

☐ Increase the Contract by \$ _____
☐ Decrease the Contract by \$ _____
☐ No change in the Contract

SUBMITTED BY CONTRACTOR

BY: _____

DATE: _____

DATE: _____

CITY OF LOUISVILLE

☐ Contractors Proposal Request Accepted

☐ Contractors Proposal Request Not Accepted

BY: _____

DATE: _____

TITLE: _____

CONTRACTOR'S OVERTIME REQUEST

Date Submitted: _____, 2021

TO: _____

PROJECT: Park Irrigation Mainline Replacements Project
PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

We hereby request to perform work on overtime in accordance with the terms, stipulations, and conditions of the Contract Documents.

Requested date of overtime work: _____, 2021

Requested hours of overtime work: _____ (a. m./p. m.) to _____ (a. m./p. m.)

Description of proposed overtime work:

No extra payment will be paid to the CONTRACTOR by the OWNER due to labor overtime or other increased costs of performing the Work. The CONTRACTOR shall submit a written request to the OWNER'S REPRESENTATIVE 24 hours prior. If approval is given by OWNER'S REPRESENTATIVE to CONTRACTOR for authorized overtime work, OWNER'S REPRESENTATIVES and OWNER'S REPRESENTATIVE's authorized personnel will charge overtime and other incidental administrative expenses necessary for performing inspections on Friday afternoons, Saturdays, or at night between the hours of 5:00 p. m. and 8:00 p.m., Monday-Thursday and 3:30 p.m. to 8:00 p.m. Friday, and 8:00 a.m. to 4:00 p.m. on Saturdays the CONTRACTOR will be responsible to pay for all such rates and charges, and shall not be granted a Contract Price increase for such charges.

No Hours of overtime work shall only be allowed on Saturdays and Sunday.

SUBMITTED BY CONTRACTOR

BY: _____

DATE: _____

DATE: _____

CITY OF LOUISVILLE

____ Contractors Proposal Request Accepted

____ Contractors Proposal Request Not Accepted

BY: _____

DATE: _____

TITLE: _____

CLAIM RELEASE

PROJECT: Park Irrigation Mainline Replacements Project
PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

Application for Payment Number: _____
Application for Payment Amount: _____
Application for Payment Date: _____

For valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned hereby releases the City of Louisville, Colorado, and waives all rights of the undersigned to file a claim for material, equipment, tools, machinery or services heretofore furnished for use in and for labor heretofore performed upon the construction, alteration, addition to or repair of the structure or improvements described in the Contract Documents as:

Project: City of Louisville _____

Description of Property: _____

Owner: City of Louisville, Colorado

We acknowledge that the foregoing is an adequate description of the real property and improvement inasmuch as the foregoing description is the description given in the Contract Documents, which govern the performance of the Work for which consideration has been received.

In executing this release, we certify that all claims for labor or materials, or both, furnished or performed by the undersigned or on our behalf by our material suppliers or subcontractors have been paid or that satisfactory arrangements for payment have been made.

In further consideration of the payment made or to be made to the undersigned and to induce said payment, we agree to defend and indemnify the City of Louisville from any claim or claims on the part of our material suppliers, laborers, employees, servants, and agents, or subcontractors arising from our work on this project, and we further agree to fully satisfy any such claim brought against the City of Louisville and reimburse the City of Louisville for any and all costs, including reasonable attorney fees, which it may incur as a result of such claims.

SUPPLIER OR SUBCONTRACTOR

By: _____
President

Date: _____

CONTRACTOR

By: _____
President

Date: _____

CERTIFICATE OF SUBSTANTIAL COMPLETION

TO: _____

PROJECT: Park Irrigation Mainline Replacements Project

PROJECT NUMBER: 208538-630101

OWNER: CITY OF LOUISVILLE, COLORADO

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in the list does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within **five (5)** days of the issuance of this Certificate of Substantial Completion.

CONTRACTOR shall maintain all contractual responsibilities until Final Acceptance.

The following documents are attached to and made a part of this Certificate of Substantial Completion:

Attachments:

(For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by the Contract Documents.)

This certificate does not constitute an acceptance of Work or start of the guarantee period nor its release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents. Issuance of Substantial Completion does not commence the guarantee period with this certificate.

CITY OF LOUISVILLE, COLORADO

ACCEPTED BY CONTRACTOR

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____

FINAL INSPECTION REPORT

DATE: _____, 2021

TO: _____

PROJECT: Park Irrigation Mainline Replacements Project

PROJECT NUMBER: 208538-630101

OWNER: CITY OF LOUISVILLE, COLORADO

The OWNER'S REPRESENTATIVE has performed final inspection of the Work, and accepts the Work subject to the Contractor's performance and completion of the following repairs, corrections and/or replacements:

The OWNER'S REPRESENTATIVE does/does not (circle) hereby finally accept the work, and hereby certifies that the Contractor is eligible to receive final payment of the Work.

CITY OF LOUISVILLE, COLORADO

BY: _____

TITLE: _____

DATE: _____

CONTRACTOR

BY: _____

TITLE: _____

DATE: _____

CERTIFICATE OF FINAL COMPLETION

DATE: _____, 2021

TO: _____
PROJECT: Park Irrigation Mainline Replacements Project
PROJECT NUMBER: 208538-630101
OWNER: CITY OF LOUISVILLE, COLORADO

This Certificate of Final Completion applies to all Work under the Contract Documents, or to the following specified parts thereof:

(specify) _____

The Work to which this Certificate applies has been inspected by authorized representatives of the OWNER'S REPRESENTATIVE and the Work is hereby declared to be complete in accordance with the Contract Documents on

DATE OF FINAL COMPLETION

In consideration therefor, the OWNER agrees to make Final Payment to Contractor of all amounts retained by OWNER, except such amounts that are subject to verified claims pursuant to Section 38-26-107, C.R.S, if any.

CITY OF LOUISVILLE, COLORADO

CONTRACTOR

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____

GUARANTEE PERIOD INSPECTION REPORT

DATE: _____, 2021

TO: _____

PROJECT: Park Irrigation Mainline Replacements Project

PROJECT NUMBER: 208538-630101

OWNER: CITY OF LOUISVILLE, COLORADO

The OWNER'S REPRESENTATIVE's authorized representative performed the guarantee period inspection on _____, 20 ____, which guarantee was originally due to expire on _____, 20__.

The OWNER'S REPRESENTATIVE hereby determines that the project has ____/ has not ____ satisfactorily met the conditions required to pass the guarantee period inspection.

The identified following items of Work are defective and must be repaired, corrected and/or replaced:

The guarantee period shall be extended for the items listed above until the following date:

_____, 2021

CITY OF LOUISVILLE, COLORADO

CONTRACTOR

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____

GENERAL CONDITIONS

GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

- 1.0 Abnormal Weather** - Snowfall, rainfall, freezing temperatures, or wind conditions, in excess of those encountered in the project area of Boulder County during the past 10 years that necessitates cessation of Work and causes consequence to the project.
- 1.1 Addenda** - Written or graphic instruments issued prior to the opening of Bids, which clarify, correct or change the Bidding Requirements or the Contract Documents.
- 1.2 Agreement** - The written contract between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.
- 1.3 Application for Payment** - The form accepted by OWNER'S REPRESENTATIVE which is to be used by CONTRACTOR in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
- 1.4 Asbestos** - Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
- 1.5 Bid** - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
- 1.6 Bidding Documents** - The advertisement or invitation to Bid, instructions to Bidders, the Bid form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).
- 1.7 Bidding Requirements** - The advertisement or invitation to Bid, instructions to bidders, and the Bid form.
- 1.8 Bonds** - Performance and Payment bonds and other instruments of security.
- 1.9 Change Order** - A document recommended by OWNER'S REPRESENTATIVE, which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
- 1.9.1 Contract Day** - A Contract Day specifies that construction will be completed Monday through Sunday, excluding OWNER-observed holidays and Abnormal Weather days.
- 1.10 Contract Documents** - The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are

more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders and OWNER'S REPRESENTATIVE's written interpretations and clarifications issued pursuant to paragraphs 3.5, 3.6.1, and 3.6.3 on or after the Effective Date of the Agreement. Shop Drawing submittals approved pursuant to paragraphs 6.26 and 6.27 and the reports and drawings referred to in paragraphs 4.2.1.1 and 4.2.2.2 are not Contract Documents.

- 1.11 Contract Price** - The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).
- 1.12 Contract Times** - The numbers of days or the dates stated in the Agreement: (i) to achieve Substantial Completion, and (ii) to complete the Work so that it is ready for final payment as evidenced by OWNER'S REPRESENTATIVE's written recommendation of final payment in accordance with paragraph 14.13.
- 1.13 CONTRACTOR** - The person, firm or corporation with whom OWNER has entered into the Agreement.
- 1.14 Defective** - An adjective which when modifying the work refers to Work that is unsatisfactory, faulty or deficient, in that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to OWNER'S REPRESENTATIVE's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.8 or 14.10).
- 1.15 Drawings** - The drawings that show the scope, extent and character of the Work to be furnished and performed by CONTRACTOR and which have been prepared or approved by OWNER'S REPRESENTATIVE and are referred to in the Contract Documents. Shop drawings are not Drawings as so defined.
- 1.16 Effective Date of the Agreement** - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
- 1.17 OWNER'S REPRESENTATIVE** - The word "OWNER'S REPRESENTATIVE" refers to the City of Louisville, authorized representative, designated by the OWNER as its representative.
- 1.18 OWNER'S Consultant** - A person, firm or corporation having a contract with OWNER to furnish services as OWNER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.
- 1.19 Field Order** - A written order issued by OWNER'S REPRESENTATIVE which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Times.
- 1.20 General Requirements** - Sections of Division 1 of the Specifications.
- 1.21 Hazardous Waste** - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

- 1.22 Laws and Regulation: Laws or Regulations** - Any and all applicable laws, rules, regulations, ordinances, codes and orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.
- 1.23 Liens** - Liens, charges, security interests or encumbrances upon real property or personal property.
- 1.24 Milestone** - A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
- 1.25 Notice of Award** - The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.
- 1.26 Notice to Proceed** - A written notice given by OWNER to CONTRACTOR (with a copy to OWNER'S REPRESENTATIVE) fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR's obligations under the Contract Documents.
- 1.27 OWNER** - The public body or authority, corporation, association, firm or person with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.
- 1.28 Partial Utilization** - Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.
- 1.29 PCBs** - Polychlorinated biphenyls.
- 1.30 Petroleum** - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.
- 1.31 Plans** - The term plans as used in these Contract Documents shall have the same meaning as Drawings.
- 1.32 Product** - Includes materials, equipment and systems.
- 1.33 Project** - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.
- 1.34 Provide** - Furnish and install specified materials and equipment, unless the context requires otherwise.
- 1.35 Radioactive Material** - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

- 1.36 Resident Project Representative** - The authorized representative of OWNER'S REPRESENTATIVE who may be assigned to the site or any part thereof.
- 1.37 Samples** - Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
- 1.38 Shop Drawings** - All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.
- 1.39 Specifications** - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.
- 1.40 Subcontractor** - An individual, firm or corporation having a contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.
- 1.41 Substantial Completion** - The Work (or a specified part thereof) has progressed to the point where, in the opinion of OWNER'S REPRESENTATIVE as evidenced by OWNER'S REPRESENTATIVE's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if no such certificate is issued, when the Work is complete and ready for final payment as evidenced by OWNER'S REPRESENTATIVE's written recommendation of final payment in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.
- 1.42 Supplementary Conditions** - The part of the Contract Documents, which amends or supplements these General Conditions.
- 1.43 Supplier** - A manufacturer, fabricator, supplier, distributor, material man or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.
- 1.44 Underground Facilities** - All pipeline, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.
- 1.45 Unit Price Work** - Work to be paid for on the basis of unit prices.
- 1.46 Work** - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

- 1.47 Work Change Directive** - A written directive to CONTRACTOR, issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by OWNER'S REPRESENTATIVE, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or emergencies under paragraph 6.23. A Work Change Directive will not change the Contract Price or the Contract Times, but is evidence that the parties expect that the change directed or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times as provided in paragraph 10.2.
- 1.48 Written Amendment** - A written amendment of the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the non-OWNER'S REPRESENTATIVEing or non-technical rather than strictly construction-related aspects of the Contract Documents.

ARTICLE 2 - PRELIMINARY MATTERS

Delivery of Bonds:

- 2.1 When CONTRACTOR delivers the executed Agreement to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds and Certificates of Insurance as CONTRACTOR may be required to furnish in accordance with Article 5.

Copies of Documents:

- 2.2 OWNER shall furnish to CONTRACTOR up to four copies of the contract documents for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

Commencement of Contract Times; Notice to Proceed:

- 2.3 The Contract Times will commence to run on the day indicated in the Notice to Proceed. Timing and completion of the **Park Irrigation Mainline Replacements Project** is required on or prior to **December 1, 2021**. The OWNER has set the proposed project schedule and plans to implement the following schedule for this project. The CONTRACTOR shall be required to start construction on or before the start date listed below:

PROPOSED PROJECT SCHEDULE:

Advertisement.....	April 20 and 27, 2021
Bid Opening	May 12, 2021
Contract Award by City Council	June 1, 2021
Notice of Award Issued.....	June 2, 2021
Bonds & Insurance Certificates due.....	June 7, 2021
Contract Agreement Executed.....	June 9, 2021
Pre-Construction Conference	June 11, 2021

Notice to Proceed Issued..... June 14, 2021
Substantial Completion.....December 1, 2021

Starting the Work:

- 2.4 **CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run at the Cemetery and McCaslin Blvd. Due to programed activities, work cannot begin at the Sports Complex until July 15th.** No Work shall be done at the sites prior to the date on which the Contract Times commence to run.

Before Starting Construction:

- 2.5 Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to OWNER'S REPRESENTATIVE any conflict, error, ambiguity or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from OWNER'S REPRESENTATIVE before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or OWNER'S REPRESENTATIVE for failure to report any conflict, error, ambiguity or discrepancy in the Contract Documents, unless CONTRACTOR knew or reasonably should have known thereof.
- 2.6 Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to OWNER'S REPRESENTATIVE for review:
- 2.6.1 a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestone specified in the Contract Documents;
- 2.6.2 a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing and processing such submittal.

Preconstruction Conference:

- 2.7 Before any Work at the site is started, a conference attended by CONTRACTOR, OWNER'S REPRESENTATIVE and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.6, procedures for handling Shop Drawings and other submittal, processing Applications for Payment and maintaining required records.

Initially Acceptable Schedules:

- 2.8 Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, OWNER'S REPRESENTATIVE and others as appropriate will be held

to review the Application for Payment for acceptability to OWNER'S REPRESENTATIVE. No progress payment shall be made to CONTRACTOR until the schedules are submitted to and acceptable to OWNER'S REPRESENTATIVE as provided below. The progress schedule will be acceptable to OWNER'S REPRESENTATIVE as providing an orderly progression of the Work to completion within any specified Milestones and the Contract Times, but such acceptance will neither impose on OWNER'S REPRESENTATIVE responsibility for the sequencing, scheduling or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor. CONTRACTOR's schedule of Shop Drawing and Sample submissions will be acceptable to OWNER'S REPRESENTATIVE as providing a workable arrangement for reviewing and processing the required submittals.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

Intent:

- 3.1 The Contract Documents comprise the entire agreement OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.
- 3.2 It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for. When words or phrases, which have a well-known technical or construction industry or trade meaning, are used to describe Work, materials or equipment, such words or phrases shall be interpreted in accordance with that meaning. Clarifications and interpretations of the Contract Documents shall be issued by OWNER'S REPRESENTATIVE as provided in paragraph 9.4.
- 3.3 **Reference to Standards & Specifications of Technical Societies; Reporting and Resolving Discrepancies:**
 - 3.3.1. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 3.3.2 If, during the performance of the Work, CONTRACTOR discovers any conflict, error ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the Work or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, CONTRACTOR shall report it to OWNER'S REPRESENTATIVE in writing at once, and, CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as authorized by paragraph 6.23) until an amendment

or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.5 or 3.6; provided, however, that CONTRACTOR shall not be liable to OWNER or OWNER'S REPRESENTATIVE for failure to report any such conflict, error, ambiguity or discrepancy unless CONTRACTOR knew or reasonably should have known thereof. Upon notification to the OWNER'S REPRESENTATIVE, the CONTRACTOR shall proceed with other parts of the Work not affected by the conflict, error, ambiguity or discrepancy.

3.3.3 Except as otherwise specifically stated in the Contract Documents or as may be provided by amendment or supplement thereto issued by one of the methods indicated in paragraph 3.5 or 3.6, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and:

3.3.3.1 the provisions of any such standard, specification, manual, code or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

3.3.3.2 the provisions of any such Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

No provision of any such standard, specification, manual, code or instruction shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or OWNER'S REPRESENTATIVE, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to OWNER, OWNER'S REPRESENTATIVE or any of OWNER'S REPRESENTATIVE's Consultants, agents or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of paragraph 9.13 or any other provision of the Contract Documents.

3.4 Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of OWNER'S REPRESENTATIVE as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to OWNER'S REPRESENTATIVE any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.13 or any other provision of the Contract Documents.

Amending and Supplementing Contract Documents:

- 3.5 The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:
- 3.5.1 a formal Written Amendment,
 - 3.5.2 a Change Order (pursuant to paragraph 10.4), or
 - 3.5.3 a Work Change Directive (pursuant to paragraph 10.1)
- 3.6 In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:
- 3.6.1 a Field Order (pursuant to paragraph 9.5)
 - 3.6.2 OWNER'S REPRESENTATIVE's approval of a Shop Drawing or Sample (pursuant to paragraphs 6.26 and 6.27), or
 - 3.6.3 OWNER'S REPRESENTATIVE's written interpretation or clarification (pursuant to paragraph 9.4).

Reuse of Documents:

- 3.7 CONTRACTOR, and any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of OWNER'S REPRESENTATIVE or OWNER'S REPRESENTATIVE's Consultant, and (ii) shall not reuse any of such Drawings, Specifications, other documents or copies on extensions of the Project or any other project without written consent of OWNER and OWNER'S REPRESENTATIVE and specific written verification or adaption by OWNER'S REPRESENTATIVE.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

Availability of Lands:

- 4.1 OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. OWNER shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which CONTRACTOR will have to comply in performing the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR and OWNER are unable to agree on entitlement to or the amount or extent of any adjustments in the Contract Price or the Contract Times as a result of any delay in OWNER's furnishing these lands, rights-of-way or easements, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Subsurface and Physical Conditions:

4.2 BIDDER'S are responsible for examining and determining for themselves the location and nature of the proposed Work, the amount and character of the labor and materials required therefor, and the difficulties, which may be encountered. BIDDER's may not rely on oral or written representations made by the OWNER, including reports and drawings identified pursuant to 4.2.1 and subparagraphs thereof, unless the OWNER has guaranteed in writing that such representation is factually accurate, and by submitting a Bid, each BIDDER waives all liability for any error in any representation made by the OWNER to the BIDDER. BIDDER's shall inspect the site and its surroundings and conduct such supplementary examinations, investigations, and tests concerning conditions at or contiguous to the site (including surface, and subsurface) which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto for performing the Work in accordance with the Contract Documents. By failing to make such an inspection, the BIDDER waives all rights to claim extra payment or time extensions due to unexpected conditions, which could have been determined had the site been reasonably inspected. If concealed or unknown conditions differ materially from those ordinarily encountered and generally recognized as inherent in the Work, or differ materially from the conditions indicated in the Contract Documents, then an equitable adjustment in the Contract Price or in the Contract Time will be allowed by change order as provided in Article 11 or Article 12 respectively. By submitting a Bid, the BIDDER represents that the BIDDER's observations at the site are not inconsistent with the requirements of the proposed Contract Documents, unless otherwise noted by the BIDDER.

4.2.1 **Reports and Drawings:** Reference is made to the Supplementary Conditions for identification of:

The following reports of explorations and tests of subsurface conditions at the site of the Work:

4.2.1.1 **Subsurface Conditions:** Those reports of explorations and tests of subsurface conditions at or contiguous to the site that have been utilized by the Engineer in preparing the Contract Documents; and

Report dated **N/A** , **N/A**, prepared by **N/A**
entitled: **N/A** . The technical data contained in
such report upon which CONTRACTOR may rely is **N/A**
.

Copies of these reports that are not included with Bidding Documents may be examined at OWNER'S REPRESENTATIVE's office during regular business hours. Please call for appointment. Copies of such reports are not available for distribution. These reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which CONTRACTOR is entitled to rely as provided in GC-4.2 and as identified and established above are incorporated therein by reference.

4.2.1.2 **Physical Conditions:** Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground

Facilities) that have been utilized by OWNER'S REPRESENTATIVE in preparing the Contract Documents.

4.2.2 Limited Reliance by CONTRACTOR authorized; Technical Data: Reports and drawings identified pursuant to paragraph 4.2 are not Contract Documents. Unless otherwise set forth in the Contract Documents or OWNER has otherwise guaranteed in writing that such representation is factually accurate, CONTRACTOR may not rely upon or make any claim against the OWNER, OWNER'S REPRESENTATIVE or OWNER'S REPRESENTATIVE's consultants with respect to the accuracy of any "technical data" contained in reports and drawings and CONTRACTOR may not rely upon or make any claim against the OWNER, OWNER'S REPRESENTATIVE or OWNER'S REPRESENTATIVE's consultants with respect to:

4.2.2.1 The completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto, or

4.2.2.2 other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings, or

4.2.2.3 any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such data, interpretations, opinions or information.

4.2.3 CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Times if:

4.2.3.1 CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a bid or becoming bound under a negotiated contract; or

4.2.3.2 the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test or study of the site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment.

If OWNER and CONTRACTOR are unable to agree on entitlement to or as to the amount or length of any such equitable adjustment in the Contract Price or Contract Times, a claim may be made therefor as provided in Articles 11 and 12. However, OWNER, OWNER'S REPRESENTATIVE and OWNER'S REPRESENTATIVE's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses or damages sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.3 Physical Conditions - Underground Facilities:

4.3.1 **Shown or Indicated:** The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or OWNER'S REPRESENTATIVE by the owners of such Underground Facilities or by others.

4.3.1.1 OWNER and OWNER'S REPRESENTATIVE shall not be responsible for the accuracy or completeness of any such information or data; and

4.3.1.2 The cost of all of the following will be included in the Contract Price and CONTRACTOR shall have full responsibility for: (i) reviewing and checking all such information and data, (ii) locating all Underground Facilities shown or indicated in the Contract Documents, (iii) coordination of the Work with the owners of such Underground Facilities during construction, and (iv) the safety and protection of all such Underground Facilities as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work.

4.3.2 **Not Shown or Indicated:** If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.23), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and OWNER'S REPRESENTATIVE. CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or the amount or length of any such adjustment in Contract Price or Contract Times, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12. However, OWNER, OWNER'S REPRESENTATIVE and OWNER'S REPRESENTATIVE's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses or damages incurred or sustained by CONTRACTOR on or in connection with any other project or anticipated project.

Reference Points:

4.4 ~~OWNER shall provide Engineering surveys to establish baseline and benchmarks for construction, which in OWNER'S REPRESENTATIVE's judgment are necessary to enable CONTRACTOR to proceed with the Work.~~ CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER, CONTRACTOR shall report to OWNER'S REPRESENTATIVE whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

~~OWNER shall provide survey reference points for the CONTRACTOR to locate construction stakes, lines and grades required for the completion of the work specified in the specifications, on the plans, or in the Special Conditions. Additional staking required will be at the CONTRACTOR'S expense. When the CONTRACTOR requires staking review, he shall notify the OWNER in a reasonable length of time in advance of starting work. Under no circumstances, shall a notice of less than 2 contract days be considered a reasonable length of time. Failure of the CONTRACTOR to provide 2 contract days notice to the OWNER of his staking requests shall relieve the OWNER from any responsibility for additional costs or delays caused by such failure. The CONTRACTOR shall carefully preserve all stakes. When stakes are destroyed or damaged, the CONTRACTOR will be charged for the cost of necessary replacement or restoration of stakes.~~

4.5 Asbestos, PCB's Petroleum, Hazardous Waste or Radioactive Material:

- 4.5.1 OWNER shall be responsible for any Asbestos, PCB's, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. OWNER shall not be responsible for any such materials brought to the site by CONTRACTOR, Subcontractor, Suppliers or anyone else for whom CONTRACTOR is responsible.
- 4.5.2 CONTRACTOR shall immediately: (i) stop all Work in connection with such hazardous condition and in any area affected thereby (except in an emergency as required by paragraph 6.23), and (ii) notify OWNER and OWNER'S REPRESENTATIVE (and thereafter confirm such notice in writing). OWNER shall promptly consult with OWNER'S REPRESENTATIVE concerning the necessity for OWNER to retain a qualified expert to evaluate such hazardous condition or take corrective action, if any. CONTRACTOR shall not be required to resume Work in connection with such hazardous condition or in any such affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR special written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of such Work stoppage or such special conditions under which Work is agreed by CONTRACTOR to be resumed, either party may make a claim therefor as provided Articles 11 and 12.
- 4.5.3 If after receipt of such special written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order such portion of the Work that is in connection with such hazardous condition or in such affected area to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a claim therefor as provided in Articles 11 and 12. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

- 4.5.4 The provisions of paragraphs 4.2 and 4.3 are not intended to apply to Asbestos, PCB's, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site.

ARTICLE 5 - BONDS AND INSURANCE

Performance, Payment and Other Bonds:

- 5.1 CONTRACTOR shall furnish Performance and Payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act. The CONTRACTOR shall furnish the performance and payment bond in the form provided in the Contract Documents or approved by the OWNER; the earlier of ten (10) days after the OWNER has issued the notice of award or delivery of the executed Agreement. The OWNER reserves the right to exclude any Surety Company on any ground it deems appropriate. The cost of the bonds shall be included in the bid.
- 5.2 If the surety on any Bond furnished by CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.1, CONTRACTOR shall within ten days thereafter substitute another Bond and surety, both of which must be acceptable to OWNER.

5.3 Licensed Sureties and Insurers; Certificates of Insurance:

- 5.3.1 All Bonds and insurance required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety or insurance companies acceptable to OWNER that are duly licensed to transact business in the State of Colorado and to issue Bonds or insurance policies for the limits and coverage so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.
- 5.3.2 CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain accordance with paragraph 5.4. The certificates shall be reviewed and approved by OWNER prior to execution of the Agreement. The OWNER shall have the right to request and obtain copies of any insurance policies required under paragraph 5.4 of the General Conditions. The completed certificates of insurance shall be sent to: City of Louisville, 739 S. 104th St., Louisville, Colorado 80027, attention: CITY OWNER'S REPRESENTATIVE.

CONTRACTOR's Liability Insurance:

- 5.4 (a) The CONTRACTOR agrees to procure and maintain, at its own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by the CONTRACTOR pursuant to paragraphs 6.12, 6.16, 6.31, 6.32 and 6.33, and 6.5 in addition to any other insurance requirements imposed by the Contract Documents or by law. The CONTRACTOR shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to paragraphs 6.12, 6.16, 6.31, and 6.33 by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types.
- (b) CONTRACTOR shall procure and maintain, and shall cause any Subcontractor or Supplier of the CONTRACTOR to procure and maintain or insure the activity of his Subcontractors and Suppliers in his own policy, the minimum insurance coverages listed below. Such coverages shall be procured and maintained with forms and insurers acceptable to the OWNER. All coverages shall be continuously maintained from the date of commencement of the Work to cover all liability, claims, demands, and other obligations assumed by the CONTRACTOR pursuant to paragraphs 6.31 and 6.33. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage.
- (1) Workers' Compensation insurance to cover obligations imposed by the Workers' Compensation Act of Colorado and any other applicable laws for any employee engaged in the performance of Work under this contract, and Employers' Liability insurance with minimum limits of FIVE HUNDRED THOUSAND DOLLARS (\$500,000) each accident, FIVE HUNDRED THOUSAND DOLLARS (\$500,000) disease - policy limit, and FIVE HUNDRED THOUSAND DOLLARS (\$500,000) disease - each employee. Evidence of qualified self-insured status may be substituted for the Workers' Compensation requirements of this paragraph.
 - (2) Comprehensive General Liability insurance with minimum combined single limits of ONE MILLION DOLLARS (\$1,000,000) each occurrence and TWO MILLION DOLLARS (\$2,000,000) aggregate. The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage (including completed operations), personal injury (including coverage for contractual and employee acts), blanket contractual, independent contractors, products, and completed operations. The policy shall include coverage for explosion, collapse, and underground hazards. The policy shall contain a severability of interests' provision.
 - (3) Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than ONE MILLION DOLLARS (\$1,000,000) each occurrence and ONE MILLION DOLLARS (\$1,000,000) aggregate with respect to each of CONTRACTOR's owned, hired or non-owned vehicles assigned to or used in performance of the services. The policy shall contain a severability of interests' provision.

- (4) ~~The CONTRACTOR shall provide and maintain builder's risk insurance upon the entire project equal to one hundred percent (100%) of the insurable value thereof. Such insurance shall cover any and all physical damage including, without limitation, damage caused by fire, vandalism, malicious mischief, blasting, excessive surface runoff or storm water, high winds and other occurrences covered in a standard extended coverage endorsement. The policy shall remain in effect until the Work is accepted as substantially complete.~~
- (c) The policy required by paragraph (2) above, by paragraph (3) and by (4) above shall be endorsed to include the OWNER, the OWNER'S REPRESENTATIVE and its consultants, and each of their officers, agents and employees as additional insureds. Every policy required above shall be primary insurance, and any insurance carried by the OWNER, its officers, or its employees, shall be excess and not contributory insurance to that provided by CONTRACTOR. No additional insured endorsement to the policy required by paragraph (1) above shall contain any exclusion for bodily injury or property damage arising from completed operations. The CONTRACTOR shall be solely responsible for any deductible losses under any policy required above.
- (d) The certificate of insurance provided to OWNER shall be completed by the CONTRACTOR's insurance agent as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall be reviewed and approved by the OWNER prior to commencement of the contract.
- (e) Failure on the part of the CONTRACTOR to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of contract upon which the OWNER may immediately terminate this contract, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the OWNER shall be repaid by CONTRACTOR to the OWNER upon demand, or the OWNER may offset the cost of the premiums against any monies due to CONTRACTOR from the Owner.
- (f) The OWNER reserves the right to request and receive a certified copy of any policy and any endorsement thereto.
- (g) The parties hereto understand and agree that the OWNER, the City of Louisville, is relying on, and does not waive or intend to waive by any provision of this contract, the monetary limitations (presently \$150,000 per person and \$600,000 per occurrence) or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, § 24-10-101 et seq., 10 C.R.S., as from time to time amended, or otherwise available to the City of Louisville, its officers, or its employees.

OWNER's Liability Insurance:

- 5.5 In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.4, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

Property Insurance:

5.6 The OWNER shall be responsible for maintaining its own property insurance and, at its option, may maintain such insurance as will protect it against claims which may arise from operations under the Contract Documents.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

Supervision and Superintendence:

- 6.1 CONTRACTOR shall supervise, inspect and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or specification of a specific means, method, technique, sequence or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.
- 6.2 CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and OWNER'S REPRESENTATIVE except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications to the superintendent shall be as binding as if given to CONTRACTOR.

Labor, Materials and Equipment:

- 6.3 CONTRACTOR shall provide competent, suitably qualified personnel to survey, layout and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except as otherwise required for the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER's written consent given after prior written notice to OWNER'S REPRESENTATIVE. No extra payment will be paid to the CONTRACTOR by the OWNER due to labor overtime or other increased costs of performing the Work on Saturdays, Sundays, OWNER- observed holidays, or at night. Should the CONTRACTOR desire to work on Saturdays, Sundays, OWNER-observed holidays, or at night between the hours of 5:00 p.m. and 7:00 a.m. on **Contract Days** the CONTRACTOR shall submit a written request to the OWNER'S REPRESENTATIVE 24 hours prior. If approval is given by OWNER'S REPRESENTATIVE to CONTRACTOR for authorized overtime work, OWNER'S REPRESENTATIVE's and OWNER'S REPRESENTATIVE's authorized personnel will charge overtime and other incidental administrative expenses necessary for performing inspections on Saturdays, Sundays, OWNER-observed holidays, or at night between the hours of 5:00 p. m. and 7:00 a. m., the CONTRACTOR will be responsible to pay for all such rates and charges, and shall not be granted a Contract Price increase for such charges.
- 6.4 Unless otherwise specified in the General Requirements, CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat,

telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

- 6.5 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by OWNER'S REPRESENTATIVE, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

Progress Schedule:

- 6.6 CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.8 as it may be adjusted from time to time as provided below:
- 6.6.1 CONTRACTOR shall submit to OWNER'S REPRESENTATIVE for acceptance (to the extent indicated in paragraph 2.8) proposed adjustments in the progress schedule that will not change the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.
- 6.6.2 Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of paragraph 12.1. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.7 Substitutes and "Or-Equal" Items:

- 6.7.1 Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment of other Suppliers may be accepted by OWNER'S REPRESENTATIVE under the following circumstances:

6.7.1.1 **"Or-Equal":** If in OWNER'S REPRESENTATIVE's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by OWNER'S REPRESENTATIVE as an "or-equal" item, in which case review and approval of the proposed item may, in OWNER'S REPRESENTATIVE's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.

6.7.1.2 **Substitute Items:** If in OWNER'S REPRESENTATIVE's sole discretion an item of material or equipment proposed by

CONTRACTOR does not qualify as an "or-equal" item under subparagraph 6.7.1.1, it will be considered a proposed substitute item. CONTRACTOR shall submit sufficient information as provided below to allow OWNER'S REPRESENTATIVE to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by the OWNER'S REPRESENTATIVE will include the following as supplemented in the General Requirements and as OWNER'S REPRESENTATIVE may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by OWNER'S REPRESENTATIVE from anyone other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute items of material or equipment, CONTRACTOR shall first make written application to OWNER'S REPRESENTATIVE for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by OWNER'S REPRESENTATIVE in evaluating the proposed substitute. OWNER'S REPRESENTATIVE may require CONTRACTOR to furnish additional data about the proposed substitute.

6.7.1.3 CONTRACTOR's Expense: All data to be provided by CONTRACTOR in support of any proposed "or-equal" or substitute item will be at CONTRACTOR's expense.

6.7.2 Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to OWNER'S REPRESENTATIVE. CONTRACTOR shall submit sufficient information to allow OWNER'S REPRESENTATIVE, in OWNER'S REPRESENTATIVE's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents.

The procedure for review by OWNER'S REPRESENTATIVE will be similar to that provided in subparagraph 6.7.1.2.

- 6.7.3 **OWNER'S REPRESENTATIVE's Evaluation:** OWNER'S REPRESENTATIVE will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.7.1.2 and 6.7.2. OWNER'S REPRESENTATIVE will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized without OWNER'S REPRESENTATIVE's prior written acceptance, which will be evidenced, by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any "or-equal" or substitute. OWNER'S REPRESENTATIVE will record time required by OWNER'S REPRESENTATIVE and OWNER'S REPRESENTATIVE's Consultants in evaluating substitutes proposed or submitted by CONTRACTOR pursuant to paragraphs 6.7.1.2 and 6.7.2 and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not OWNER'S REPRESENTATIVE accepts a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of OWNER'S REPRESENTATIVE and OWNER'S REPRESENTATIVE's Consultants for evaluating each such proposed substitute item.

6.8 Concerning Subcontractors, Suppliers and Others:

- 6.8.1 CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization, whether initially or as a substitute, against whom OWNER or OWNER'S REPRESENTATIVE may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.
- 6.8.2 The Contract Documents require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials or equipment) to be submitted to OWNER with the Bid in the Bid Form prior to the Effective Date of the Agreement for acceptance by OWNER and OWNER'S REPRESENTATIVE, and if CONTRACTOR has submitted a list thereof in accordance with the Contract Documents, OWNER'S or OWNER'S REPRESENTATIVE's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in Contract Documents) of any such Subcontractor, Supplier, or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute. No acceptance by OWNER or OWNER'S REPRESENTATIVE of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or OWNER'S REPRESENTATIVE to reject defective Work.
- 6.8.3 Subletting of Contract. The Contractor shall not sublet, sell, transfer, assign, or dispose of the Contract or Contracts, or any portion thereof without written consent of the OWNER'S REPRESENTATIVE. The Contractor will be permitted to sublet a portion of the Contract, however, the Contractor's organization shall perform work amounting to not less than 50 percent of the total contract cost.

The calculation of the percentage of subcontracted work shall be based on the prime contract unit prices rather than subcontract unit prices. Proportional value for a subcontracted partial contract item shall be verified by the OWNER'S REPRESENTATIVE. For the purpose of calculating the value of subcontracted work, the cost of procuring materials and manufactured products can be included in either the prime contract or subcontract. However, when a firm both sells material to a prime contractor and performs the work of incorporating the materials into the project, these two phases shall be considered in combination and as constituting a single subcontract.

Subcontracts, or transfer of Contract shall not release the Contractor of liability under the Contract and bonds.

- 6.9.1 CONTRACTOR shall be fully responsible to OWNER and OWNER'S REPRESENTATIVE for all acts and omissions of the Subcontractors. Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. OWNER or OWNER'S REPRESENTATIVE may furnish to any such Subcontractor, Supplier or other person or organization, to the extent practicable, evidence of amounts paid to CONTRACTOR in accordance with CONTRACTOR's Applications for Payment. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier or other person or organization any contractual relationship between OWNER or OWNER'S REPRESENTATIVE and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or OWNER'S REPRESENTATIVE to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.
- 6.9.2 CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR. CONTRACTOR shall require all Subcontractors, Suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with the OWNER'S REPRESENTATIVE through CONTRACTOR.
- 6.10 The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- 6.11 All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier, which specifically binds the Subcontractor or Supplier to the applicable terms and, conditions of the Contract Documents for the benefit of OWNER and OWNER'S REPRESENTATIVE.

Patent Fees and Royalties:

- 6.12 CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held

by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or OWNER'S REPRESENTATIVE its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, OWNER'S REPRESENTATIVE, OWNER'S REPRESENTATIVE's Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents.

Permits:

6.13 Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

6.13.1 Prior to the commencement date for the Work set forth in the Notice to Proceed, The CONTRACTOR and all subcontractors shall be or shall become a CONTRACTOR licensed in accordance with the applicable ordinance of the City of Louisville, Colorado.

6.13.2 If water is required for the project, CONTRACTOR shall obtain a bulk water permit from the City of Louisville, Public Works Department in accordance with the permit requirements.

6.13.3 CONTRACTOR shall obtain a Right-of-Way Permit from the City of Louisville, Public Works Department for all Work to be completed within the City right-of-way.

6.13.4 CONTRACTOR shall obtain and pay for all other necessary construction permits and licenses.

Laws and Regulations:

6.14.1 CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor OWNER'S REPRESENTATIVE shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

6.14.2 If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses and damages caused by, arising out of or resulting therefrom: however, it shall not be CONTRACTOR's primary responsibility to make certain that the

Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.3.2.

Taxes:

- 6.15 CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project, which are applicable during the performance of the Work. City of Louisville municipal taxes shall be waived upon application for and acceptance of "tax exemption."

The CONTRACTOR shall apply for and receive a Certificate of Exemption from the Colorado Department of Revenue for construction materials to be physically incorporated into the Work. This Certificate of Exemption provides that the CONTRACTOR shall neither pay nor include in his bid prices Sales and Use Taxes collected by the State of Colorado on those building and construction materials physically incorporated into the Work. Sales and Use Taxes of the State of Colorado, RTD and the County are collected by the State of Colorado. All applicable Sales and Use Taxes (including State collected taxes) on any items other than construction and building materials physically incorporated into the Work are to be paid by the Contractor and are to be included in the appropriate bid items. CONTRACTOR and any Subcontractor assume all liability for the nonpayment of taxes, or the payment of exempt taxes resulting from a failure to use the Certificate of Exemption required by this paragraph.

Use of Premises:

- 6.16 CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless OWNER, OWNER'S REPRESENTATIVE, OWNER'S REPRESENTATIVE's Consultant and anyone directly or indirectly employed by any of them from and against all claims, costs, losses and damages arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, OWNER'S REPRESENTATIVE, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.
- 6.17 During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials. CONTRACTOR shall leave the site clean and ready for occupancy by OWNER at Substantial Completion of the Work. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

- 6.18 CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

Record Documents:

- 6.19 CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to OWNER'S REPRESENTATIVE for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings will be delivered to OWNER'S REPRESENTATIVE for OWNER.

Safety and Protection:

- 6.20 CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.20.1 all persons on the Work site or who may be affected by the Work:

6.20.2 all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.20.3 other property at the site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures, fences, gates, ditches, utilities, and underground facilities not designated for removal, relocation, or replacement in and during the course of construction.

6.20.4 The CONTRACTOR shall take all measures necessary to mitigate the impact of weather so that the project may continue on schedule. In no event shall OWNER be liable for extra costs incurred on materials and any part of the Work due to CONTRACTOR's failing to take all measures necessary protect the Work from weather and CONTRACTOR shall not be entitled to such claims. Also, no extension of the Contract Time shall be allowed if the CONTRACTOR is able, notwithstanding the weather, to proceed with other Work of the Contract.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR. CONTRACTOR's duties and responsibilities for safety and for protection of the work shall continue until such time as all

the Work is completed and OWNER'S REPRESENTATIVE has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

Safety Representative:

- 6.21 CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

Hazard Communication Programs:

- 6.22 CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the site in accordance with Laws or Regulations.

Emergencies:

- 6.23 In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from OWNER or OWNER'S REPRESENTATIVE, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give OWNER'S REPRESENTATIVE prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If OWNER'S REPRESENTATIVE determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change directive or Change order will be issued to document the consequences of such action.

6.24 Shop Drawings and Samples:

- 6.24.1 After checking and verifying all field measurements, CONTRACTOR shall submit to OWNER'S REPRESENTATIVE for review and approval in accordance with the accepted schedule of shop drawings and sample submittal (see paragraph 2.8), three copies (or at OWNER'S REPRESENTATIVES option, one reproducible copy) of all shop drawings, which shall have been checked and approved by the CONTRACTOR. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to show OWNER'S REPRESENTATIVE the materials and equipment CONTRACTOR proposes to provide and to enable OWNER'S REPRESENTATIVE to review the information for the limited purposes required by paragraph 6.26.

- 6.24.2 CONTRACTOR shall also submit Samples to OWNER'S REPRESENTATIVE for review and approval in accordance with said accepted schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended and otherwise as OWNER'S REPRESENTATIVE may require to enable OWNER'S REPRESENTATIVE to review the submittal for the limited purposes required by paragraph 6.26. The numbers of each Sample to be submitted will be as specified in the Specifications.

6.26 Submittal Procedures:

6.25.1 Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

- 6.25.1.1 all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto,
- 6.25.1.2 all materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the Work, and
- 6.25.1.3 all information relative to CONTRACTOR's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto.

CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

6.25.2 Each submittal will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

6.25.3 At the time of each submission, CONTRACTOR shall give OWNER'S REPRESENTATIVE specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to OWNER'S REPRESENTATIVE for review and approval of each such variation.

6.26 OWNER'S REPRESENTATIVE will review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals accepted by OWNER'S REPRESENTATIVE as required by paragraph 2.8. OWNER'S REPRESENTATIVE's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. OWNER'S REPRESENTATIVE's review and approval will not extend to means, methods, techniques, sequences or procedures of construction (except where a particular means, method, technique, sequence or procedure of construction is specifically and expressly called for by the Contract documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by OWNER'S REPRESENTATIVE, and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by OWNER'S

REPRESENTATIVE on previous submittals.

- 6.27 OWNER'S REPRESENTATIVE's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called OWNER'S REPRESENTATIVE's attention to each such variation at the time of submission as required by paragraph 6.25.3 and OWNER'S REPRESENTATIVE has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by OWNER'S REPRESENTATIVE relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.25.1.
- 6.28 Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submissions accepted by OWNER'S REPRESENTATIVE as required by paragraph 2.8, any related Work performed prior to OWNER'S REPRESENTATIVE's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

Continuing the Work:

- 6.29 CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.30 CONTRACTOR's General Warranty and Guarantee:

6.30.1 CONTRACTOR warrants and guarantees to OWNER, OWNER'S REPRESENTATIVE and OWNER'S REPRESENTATIVE's Consultants that all Work will be in accordance with the Contract Documents and will not be **defective**. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

6.30.1.1 abuse, modification or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors or Suppliers; or

6.30.1.2 normal wear and tear under normal usage.

6.30.2 CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the work in accordance with the Contract Documents:

6.30.2.1 observations by OWNER'S REPRESENTATIVE;

6.30.2.2 recommendation of any progress or final payment by OWNER'S REPRESENTATIVE;

6.30.2.3 the issuance of a certificate of Substantial Completion or any payment by OWNER to CONTRACTOR under the Contract Documents;

- 6.30.2.4 use or occupancy of the Work or any part thereof by OWNER;
- 6.30.2.5 any acceptance by OWNER or any failure to do so;
- 6.30.2.6 any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by OWNER'S REPRESENTATIVE pursuant to paragraph 14.13;
- 6.30.2.7 any inspection, test or approval by others; or
- 6.30.2.8 any correction of **defective** Work by OWNER.

6.30.3 The CONTRACTOR warrants that, unless otherwise specified in the Contract Documents, the materials and equipment installed in the Work will be new, merchantable, and fit for the purpose for which they are intended, and that the Work will be performed in a workmanlike manner. The CONTRACTOR also warrants the workers who perform the Work will be sufficiently skilled to produce a high quality product which is free of blemishes, (surface defects) and flaws (internal defects).

The CONTRACTOR is under a continuing duty to warn the OWNER and OWNER'S REPRESENTATIVE of any possible defect in the design of the Work and materials incorporated in the Work and against potentially unsafe uses of products incorporated in the Work which may cause personal injury or property damage, as soon as the CONTRACTOR discovers the possible defect or has notice that the product may be unsafe. The CONTRACTOR's duty under this paragraph shall be continuing, and shall not expire when the OWNER accepts the Work or when the CONTRACTOR's guarantee expires. If the CONTRACTOR fails to warn the Owner of a design or product defect of which the CONTRACTOR is aware, and if personal or property damage thereafter results from such design or product defect, the CONTRACTOR shall be liable jointly and severally with any other party responsible at law for all damages resulting from such defect.

6.31 Indemnification:

The CONTRACTOR agrees to indemnify and hold harmless the OWNER (City of Louisville), OWNER'S REPRESENTATIVE, OWNER'S REPRESENTATIVE's consultants, and their officers, employees, agents and insurers, from and against all liability, claims, and demands, on account of injury, loss, or damage, including without limitation claims arising from bodily injury, personal injury, sickness, disease, death, property loss or damage, or any other loss of any kind whatsoever, which arise out of or are in any manner connected with this contract, if such injury, loss, or damage is caused in whole or in part by, or is claimed to be caused in whole or in part by, the act, omission, error, professional error, mistake, negligence, or other fault of the CONTRACTOR, any Subcontractor of the CONTRACTOR, or any officer, employee, representative, or agent of the CONTRACTOR or of any Subcontractor of the CONTRACTOR, or which arise out of any workers' compensation claim of any employee of the CONTRACTOR or of any employee of any subcontractor of the CONTRACTOR. The CONTRACTOR agrees to investigate, handle, respond to, and to provide defense for and defend against, any such liability, claims or demands at the sole expense of the CONTRACTOR. The CONTRACTOR also agrees to bear all other costs and expenses related thereto,

including court costs and attorney fees, whether or not any such liability, claims, or demands alleged are groundless, false, or fraudulent.

- 6.32 In any and all claims against OWNER or OWNER'S REPRESENTATIVE or any of their respective consultants, agents, officers, directors or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.31 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.

Survival of Obligations:

- 6.33 All representations, indemnifications, warranties and guarantees made in, required by or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the work and termination or completion of the Agreement.

ARTICLE 7 - OTHER WORK

Related Work at Site:

- 7.1 OWNER may perform other work related to the Project at the site by OWNER's own forces, or let other direct contracts therefor which shall contain General Conditions similar to these, or have other work performed by utility owners. If the fact that such other work is to be performed was not noted in the Contract Documents, then: (i) written notice thereof will be given to CONTRACTOR prior to starting any such other work, and (ii) CONTRACTOR may make a claim therefor as provided in Articles 11 and 12 if CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the amount or extent thereof.
- 7.2 CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the additional work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of OWNER'S REPRESENTATIVE and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

- 7.3 If the proper execution or results of any part of CONTRACTOR's work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to OWNER'S REPRESENTATIVE in writing any delays, defects or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure so to report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in such other work.

Coordination:

- 7.4 Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility in respect of such coordination.

Should CONTRACTOR cause damage to the Work or property of any separate CONTRACTOR at the site, or should any claim arising out of CONTRACTOR's performance of the Work at the site be made by any separate contractor against CONTRACTOR, OWNER, OWNER'S REPRESENTATIVE, or any other person, CONTRACTOR shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws, and Regulations, indemnify and hold OWNER and OWNER'S REPRESENTATIVE harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of OWNER'S REPRESENTATIVES, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against OWNER or OWNER'S REPRESENTATIVE to the extent based on a claim arising out of CONTRACTOR's performance of the Work. Should a separate contractor cause damage to the Work or property of CONTRACTOR or should the performance of Work by any separate CONTRACTOR at the site give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER or OWNER'S REPRESENTATIVE or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from OWNER or OWNER'S REPRESENTATIVE on account of any such damage or claim. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and OWNER and CONTRACTOR are unable to agree as to the extent of any adjustment in Contract Time attributable thereto, CONTRACTOR may make a claim for an extension of time in accordance with Article 12. An extension of the Contract Time shall be CONTRACTOR's exclusive remedy with respect to OWNER and OWNER'S REPRESENTATIVE for any delay, disruption, interference or hindrance cause by any separate contractor. This paragraph does not prevent recovery from OWNER or OWNER'S REPRESENTATIVE for activities that are their respective responsibilities.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

- 8.1 Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through OWNER'S REPRESENTATIVE.
- 8.2 In case of termination of the employment of OWNER'S REPRESENTATIVE, OWNER shall appoint an OWNER'S REPRESENTATIVE whose status under the Contract Documents shall be that of the former OWNER'S REPRESENTATIVE.

- 8.3 OWNER shall furnish the data required of OWNER under the Contract documents promptly and shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.4 and 14.13.
- 8.4 OWNER's duties in respect of providing lands and easements and providing OWNER'S REPRESENTATIVEing surveys to establish reference points are set forth in paragraphs 4.1 and 4.4.
- 8.5 OWNER is obligated to execute Change Orders as indicated in paragraph 10.4.
- 8.6 OWNER's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.4.
- 8.7 In connection with OWNER's right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with OWNER's right to terminate services of CONTRACTOR under certain circumstances.
- 8.8 The OWNER shall not supervise, direct or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences or procedures of construction or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.
- 8.9 OWNER's responsibility in respect of undisclosed Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Materials uncovered or revealed at the site is set forth in paragraph 4.5.
- 8.10 If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - OWNER'S REPRESENTATIVE'S STATUS DURING CONSTRUCTION

OWNER's Representative:

- 9.1 OWNER'S REPRESENTATIVE will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of OWNER'S REPRESENTATIVE as OWNER's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and OWNER'S REPRESENTATIVE.

Visits to Site:

- 9.2 OWNER'S REPRESENTATIVE will make visits to the site at intervals appropriate to the various stages of construction as OWNER'S REPRESENTATIVE deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, OWNER'S

REPRESENTATIVE will endeavor for the benefit of OWNER to determine, in general, if the Work is proceeding in accordance with the Contract Documents. OWNER'S REPRESENTATIVE will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. OWNER'S REPRESENTATIVE's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and on-site observations, OWNER'S REPRESENTATIVE will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against **defective** Work. OWNER'S REPRESENTATIVE's visits and on-site observations are subject to all the limitations on OWNER'S REPRESENTATIVE's authority and responsibility set forth in paragraph 9.13 and particularly, but without limitation, during or as a result of OWNER'S REPRESENTATIVE's on-site visits or observations of CONTRACTOR's Work. OWNER'S REPRESENTATIVE will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work.

Project Representative:

9.3 OWNER'S REPRESENTATIVE will furnish a Resident Project Representative, assistants and other field staff to assist OWNER'S REPRESENTATIVE in observing the performance of the Work of the CONTRACTOR. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.13 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the site who is not OWNER'S REPRESENTATIVE's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other person will be as provided in the Supplementary Conditions.

9.3.1 Resident Project Representative is OWNER'S REPRESENTATIVE's Agent and will act as directed by and under the supervision of OWNER'S REPRESENTATIVE, and will confer with OWNER'S REPRESENTATIVE regarding his actions. His dealings in matters pertaining to the on-site Work will in general be with OWNER'S REPRESENTATIVE and CONTRACTOR keeping the OWNER'S REPRESENTATIVE advised as necessary. His dealings with Subcontractors will only be through or with the full knowledge and approval of CONTRACTOR.

Duties and Responsibilities:

Resident Project Representative will:

Schedules:

Review the progress schedule, schedule of Shop Drawing submittal, schedule of values and other schedules prepared by CONTRACTOR and consult with OWNER'S REPRESENTATIVE concerning acceptability.

Conferences and Meetings:

Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings and other job conferences and other project related meetings.

Liaison:

Serve as OWNER'S REPRESENTATIVE's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist him in understanding the intent of the Contract Documents. Assist OWNER'S REPRESENTATIVE in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's on-site operations.

Assist in obtaining from OWNER'S REPRESENTATIVE additional details or information, when required for proper execution of the Work.

Shop Drawings and Samples:

Record date of receipt of Shop Drawings and samples.

Receive samples, which are furnished at the site by CONTRACTOR for OWNER'S REPRESENTATIVE's review, and notify OWNER'S REPRESENTATIVE of their availability for examination.

Advise OWNER'S REPRESENTATIVE and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample submission if the submission has not been approved by OWNER'S REPRESENTATIVE.

Review of Work, Rejection of Defective Work, Inspections and Tests:

Conduct on-site observations of the Work in progress to assist OWNER'S REPRESENTATIVE in determining that the Work is proceeding in accordance with the Contract Documents.

Report to OWNER'S REPRESENTATIVE whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspections, tests or approvals required to be made; and advise OWNER'S REPRESENTATIVE when he believes Work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

Verify that tests, equipment and systems startups and operating and maintenance training are conducted in presence of the appropriate personnel, and that CONTRACTOR maintains adequate records thereof; observe, record and report to OWNER'S REPRESENTATIVE appropriate details relative to the test procedures and start-ups.

Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to OWNER'S REPRESENTATIVE.

Interpretation of Contract Documents:

Report to OWNER'S REPRESENTATIVE when clarifications and interpretations of the Contract Documents are needed and Transmit to CONTRACTOR

clarification and interpretation of the Contract Documents as issued by OWNER'S REPRESENTATIVE.

Modifications:

Consider and evaluate CONTRACTOR's suggestions for modification in Drawings or Specifications and report with his recommendations to OWNER'S REPRESENTATIVE. Transmit to CONTRACTOR decisions issued by OWNER'S REPRESENTATIVE.

Records:

Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions or original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Agreement, OWNER'S REPRESENTATIVE's clarifications and interpretations of the Contract Documents, progress reports and other Project related documents.

Keep a diary, daily report form, or log book, recording hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders, or changed conditions, list of job site visitors, daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures.

Record names, addresses and telephone numbers of all CONTRACTOR's, subcontractors and major suppliers of equipment and materials.

Reports:

Furnish OWNER'S REPRESENTATIVE periodic reports as required of progress of the Work and of CONTRACTOR's compliance with the progress schedule and schedule of Shop Drawings and sample submittal.

Consult with OWNER'S REPRESENTATIVE in advance of scheduled major tests, inspections or start of important phases of the Work.

Draft proposed Change Orders and Work Directive Changes, obtaining backup material from CONTRACTOR and recommend to OWNER'S REPRESENTATIVE Change Orders, Work Directive Changes, and Field Orders.

Report immediately to OWNER'S REPRESENTATIVE upon the occurrence of any accident.

Payment Requests:

Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with his recommendations to OWNER'S REPRESENTATIVE, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

Certificates, Maintenance and Operations Manuals:

During the Course of Work verify that certifications, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to OWNER'S REPRESENTATIVE for review and forwarding to OWNER prior to final payment of the Work.

Completion:

Before OWNER'S REPRESENTATIVE issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring correction or completion.

Conduct final inspection in the company of OWNER'S REPRESENTATIVE and CONTRACTOR and prepare a final list of items to be corrected or completed.

Observe that all items on final list have been corrected or completed and make recommendations to OWNER'S REPRESENTATIVE concerning acceptance.

Limitation of Authority:

Resident Project Representative shall not:

Authorize any deviations from the Contract Documents or accept any substitute materials or equipment, unless authorized by OWNER'S REPRESENTATIVE.

Exceed limitations of OWNER'S REPRESENTATIVE's authority as set forth in the Contract Documents.

Undertake any of the responsibilities of CONTRACTOR, Subcontractors, or CONTRACTOR's superintendent.

Advise on, or issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures for construction unless such is specifically called for in the Contract Documents.

Advise on or issue directions regarding or assume control over safety precautions and programs in connection with the Work.

Shall not accept Shop Drawings or sample submittals from anyone other than CONTRACTOR.

Authorize OWNER to occupy the Work in whole or in part.

Participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by OWNER'S REPRESENTATIVE.

Clarifications and Interpretations:

- 9.4 OWNER'S REPRESENTATIVE will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as OWNER'S REPRESENTATIVE may determine necessary, which shall be consistent with the intent of and reasonably inferable from Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER or CONTRACTOR believes that a written clarification or interpretation justifies an adjustment in the Contract Price or the Contract Times and the parties are unable to agree to the amount or extent thereof, if any, OWNER or CONTRACTOR may make a written claim therefor as provided in Article 11 or Article 12.

Authorized Variations in Work:

- 9.5 OWNER'S REPRESENTATIVE may authorize minor variations in the work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR who shall perform the Work involved promptly.

Rejecting Defective Work:

- 9.6 OWNER'S REPRESENTATIVE will have authority to disapprove or reject Work which OWNER'S REPRESENTATIVE believes to be **defective**, or that OWNER'S REPRESENTATIVE believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. OWNER'S REPRESENTATIVE will also have authority to require special inspection or testing of the work as provided in paragraph 13.9, whether or not the work is fabricated, installed or completed.

Shop Drawings, Change Orders and Payments:

- 9.7 In connection with OWNER'S REPRESENTATIVE's authority as to Shop Drawings and Samples, see paragraphs 6.24 through 6.28 inclusive.
- 9.8 In connection with OWNER'S REPRESENTATIVE's authority as to Change Orders, see Articles 10, 11, and 12.
- 9.9 In connection with OWNER'S REPRESENTATIVE's authority as to Applications for Payment, see Article 14.

Determinations for Unit Prices:

- 9.10 OWNER'S REPRESENTATIVE will have authority to determine the actual quantities and classifications of items of Unit Price Work performed by CONTRACTOR, and the written decisions of OWNER'S REPRESENTATIVE on such matters will be final, binding on OWNER and CONTRACTOR and not subject to appeal (except as modified by OWNER'S REPRESENTATIVE to reflect changed factual conditions).

Decisions on Disputes:

- 9.11 OWNER'S REPRESENTATIVE will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and Claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Times will be referred initially to OWNER'S REPRESENTATIVE in writing with a request for a formal decision in accordance with this paragraph. Written notice of each such claim, dispute or other matter will be delivered by the claimant to OWNER'S REPRESENTATIVE and the other party to the Agreement promptly (but in no event later than fifteen days) after the start of the occurrence or event giving rise thereto, and written supporting data will be submitted to OWNER'S REPRESENTATIVE and the other party within thirty days after the start of such occurrence or event unless OWNER'S REPRESENTATIVE allows an additional period of time for the submission of additional or more accurate data in support of such claim, dispute or other matter. The opposing party shall submit any response to OWNER'S REPRESENTATIVE and the claimant within thirty days after receipt of the claimant's last submittal (unless OWNER'S REPRESENTATIVE allows additional time). OWNER'S REPRESENTATIVE will render a formal decision in writing within thirty days after receipt of the opposing party's submittal, if any, in accordance with this paragraph. OWNER'S REPRESENTATIVE's written decision on such claim, dispute or other matter will be final and binding upon OWNER and CONTRACTOR.
- 9.12 When functioning under paragraphs 9.10 and 9.11, OWNER'S REPRESENTATIVE will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by OWNER'S REPRESENTATIVE pursuant to paragraphs 9.10 or 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.15) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations.
- 9.13 Limitations on OWNER'S REPRESENTATIVE's Authority and Responsibilities:**
- 9.13.1 Neither OWNER'S REPRESENTATIVE's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by OWNER'S REPRESENTATIVE in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise or performance of any authority or responsibility by OWNER'S REPRESENTATIVE shall create, impose or give rise to any duty owed by OWNER'S REPRESENTATIVE to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them.
- 9.13.2 OWNER'S REPRESENTATIVE will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work. OWNER'S REPRESENTATIVE will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

9.13.3 OWNER'S REPRESENTATIVE will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

9.13.4 OWNER'S REPRESENTATIVE's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests and approvals and other documentation required to be delivered by paragraph 14.12 will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests and approvals that the results certified indicate compliance with, the Contract Documents.

9.13.5 The limitations upon authority and responsibility set forth in this paragraph 9.13 shall also apply to OWNER'S REPRESENTATIVE's Consultants, Resident Project Representative and Assistants.

ARTICLE 10 - CHANGES IN THE WORK

10.1 Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work. A Written Amendment, a Change Order, or a Work Change Directive will authorize such additions, deletions or revisions. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved, which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

10.2 If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an adjustment in the Contract Price or an adjustment of the Contract Times that should be allowed as a result of a Work Change Directive, a claim may be made therefor as provided in Article 11 or Article 12.

10.3 CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.5 and 3.6 except in the case of an emergency as provided in paragraph 6.23 or in the case of uncovering Work as provided in paragraph 13.9.

10.4 OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by OWNER'S REPRESENTATIVE (or Written Amendments) covering:

10.4.1 changes in the Work which are (i) ordered by OWNER pursuant to paragraph 10.1., (ii) required because of acceptance of **defective** Work under paragraph 13.13 or correcting **defective** Work under paragraph 13.14, or (iii) agreed to by the parties:

10.4.2 changes in the Contract Price or Contract Times which are agreed to by the parties; and

10.4.3 changes in the Contract Price or Contract Times, which embody the substance of any written decision rendered by OWNER'S REPRESENTATIVE pursuant to paragraph 9.11;

- 10.5 If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

ARTICLE 11 - CHANGE OF CONTRACT PRICE

- 11.1 The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at CONTRACTOR's expense without change in the Contract Price.
- 11.2 The Contract Price may only be changed by a Change Order or by a Written Amendment. Any claim for an adjustment in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to OWNER'S REPRESENTATIVE promptly (but in no event later than fifteen days) after the start of the occurrence or event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within thirty days after the start of such occurrence or event (unless OWNER'S REPRESENTATIVE allows additional time for claimant to submit additional or more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the adjustment claimed covers all known amounts to which the claimant is entitled as a result of said occurrence or event. OWNER'S REPRESENTATIVE shall determine all claims for adjustment in the Contract Price in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.
- 11.3 The value of any Work covered by a Change Order or of any claim for an adjustment in the Contract Price will be determined as follows:
- 11.3.1 where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1 through 11.9.3 inclusive);
 - 11.3.2 where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.6.2);
 - 11.3.3 where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 11.3.2, on the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 11.6).

Cost of the Work:

- 11.4 The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those

prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

- 11.4.1 Certified payroll record costs for employees in the direct employment of CONTRACTOR in the performance of the Work under schedules of job classifications shall be submitted to the OWNER'S REPRESENTATIVE with the claim. Such employees shall include without limitation superintendents, foremen and other personnel employed full-time at the site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by OWNER.
- 11.4.2 Invoices for cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith shall be submitted to the OWNER'S REPRESENTATIVE with the claim. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall be in accordance with the State Department of Highways, Division of Highways, and State of Colorado Standard Specifications for Road and Bridge Construction 1991 Edition. If the materials used in performing the extra Work are taken from the CONTRACTOR's stock, then in lieu of invoices the CONTRACTOR shall furnish an affidavit, certifying that such materials were taken from its stock, that the quantity claimed was actually used in the Work, and that the price and transportation claimed represent the actual cost to the CONTRACTOR shall be submitted to the OWNER'S REPRESENTATIVE with the claim.
- 11.4.3 Payments made by CONTRACTOR to the Subcontractors for Work performed or furnished by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of OWNER'S REPRESENTATIVE, which bids, if any, will be accepted. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in paragraphs 11.4, 11.5, 11.6 and 11.7. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.
- 11.4.4 Costs of special consultants (including but not limited to OWNER'S REPRESENTATIVES, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.
- 11.4.5 Supplemental costs including the following:

- 11.4.5.1 The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.
- 11.4.5.2 Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.
- 11.4.5.3 Rentals rates of all construction equipment and machinery and the parts thereof which has been authorized by the OWNER'S REPRESENTATIVE, the CONTRACTOR will be paid for the use of equipment in the manner hereinafter specified. Rental rates will be from the current edition of the Rental Rate Blue Book for Construction Equipment and will be determined as follows:

Hourly rate: $RR = (ADJ\ BB/176)(RF)(SAF) + EOC$

Where:

- RR = Hourly rental rate
- ADJ BB/176 = Blue Book Monthly Rate adjusted for year of manufacture/176
- RF = Regional Factor of 1.06
- SAF = State Adjustment Factor of 1.05
- EOC = Estimated Hourly Operating Costs from Blue Book

With each claim, the CONTRACTOR shall submit the rental rate calculations including copies of the appropriate pages of the Blue Book for each piece of equipment listed in the claim.

Rental of equipment not owned by the CONTRACTOR will be paid for by invoice cost plus operating cost (EOC). Copies of the applicable pages of the Rental Rate Blue Book for Construction Equipment shall be submitted to the OWNER'S REPRESENTATIVE with the claim.

The costs of transportation, loading, unloading, installation, dismantling, and removal thereof all in accordance with the terms of said rental agreements. If equipment is used intermittently and when not in use could be returned to its rental source at less expense to the OWNER than holding it at the Work site, it shall be returned unless the CONTRACTOR elects to keep it at the Work site at no expense to the OWNER. The rental of any such equipment, machinery or parts shall cease when the use of the equipment is no longer necessary for the Work. No payment will be made for the use of tools, which have a replacement value of \$200.00 or less. Operators will be paid for separately as provided in paragraph 11.4.1. Certified invoices for rental cost of all construction equipment and machinery incorporated in the Work shall be submitted to the OWNER'S REPRESENTATIVE with the claim.

- 11.4.5.4 Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.
- 11.4.5.5 Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable.
- 11.4.5.6 Losses and damages (and related expenses) caused by damage to the work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance and furnishing of the Work, (except losses and damages within the deductible amounts of property insurance established by OWNER in accordance with paragraph 5.9), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.
- 11.4.5.7 The cost of utilities, fuel and sanitary facilities at the site.
- 11.4.5.8 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.5 The term Cost of the Work shall not include any of the following:

- 11.5.1 Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, OWNER'S REPRESENTATIVES, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered by paragraph 11.4.4--all of which are to be considered administrative costs covered by the CONTRACTOR's fee.
- 11.5.2 Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.
- 11.5.3 Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

11.5.4 Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same. (except for the cost of premiums covered by subparagraph 11.4.5.9 above).

11.5.5 Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of **defective** Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

11.6 The CONTRACTOR's fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1 a mutually acceptable fixed fee; or

11.6.2 if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the work:

11.6.2.1 for costs incurred under paragraphs 11.4.1 and 11.4.2, the CONTRACTOR's fee shall be fifteen percent;

11.6.2.2 for costs incurred under paragraph 11.4.3, the CONTRACTOR's fee shall be five percent;

11.6.2.3 where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraphs 11.4.1, 11.4.2, 11.4.3 and 11.6.2 is that the Subcontractor who actually performs or furnishes the Work, at whatever tier, will be paid a fee of fifteen percent of the costs incurred by such Subcontractor under paragraphs 11.4.1 and 11.4.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

11.6.2.4 no fee shall be payable on the basis of costs itemized under paragraphs 11.4.4, 11.4.5 and 11.5;

11.6.2.5 the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

11.6.2.6 when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 11.6.2.1 through 11.6.2.5, inclusive.

11.7 Whenever the cost of any Work is to be determined pursuant to paragraphs 11.4 and 11.5, CONTRACTOR will establish and maintain records thereof in accordance with

generally accepted accounting practices and submit in form acceptable to OWNER'S REPRESENTATIVE an itemized cost breakdown together with supporting data.

Cash Allowances:

11.8 It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be furnished and performed for such sums as may be acceptable to OWNER and OWNER'S REPRESENTATIVE. CONTRACTOR agrees that:

11.8.1 the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

11.8.2 CONTRACTOR's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances and no demand for additional payment on account of any of the foregoing will be valid.

Prior to final payment, an appropriate Change Order will be issued as recommended by OWNER'S REPRESENTATIVE to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.9 Unit Price Work:

11.9.1 Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by OWNER'S REPRESENTATIVE in accordance with paragraph 9.10.

11.9.2 Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

11.9.3 OWNER or CONTRACTOR may make a claim for an adjustment in the contract Price in accordance with Article 11 if:

11.9.3.1 the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

11.9.3.2 there is no corresponding adjustment with respect to any other item of Work; and

11.9.3.3 if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense of, OWNER believes that OWNER is entitled to a

decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

11.9.4 In no event shall a claim be made or an adjustment of Unit Price allowed if a variation in actual quantities used does not equal or exceed 25 percent (25%) of the total Bid Price.

ARTICLE 12 - CHANGE OF CONTRACT TIMES

- 12.1 The Contract Times (or Milestones) may only be changed by a Change Order or a Written Amendment. Any claim for an adjustment of the Contract Times (or Milestones) shall be based on written notice delivered by the party making the claim to the other party and to OWNER'S REPRESENTATIVE promptly (but in no event later than fifteen days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within thirty days after such occurrence (unless OWNER'S REPRESENTATIVE allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Times (or Milestones) shall be determined by OWNER'S REPRESENTATIVE in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Times (or Milestones) will be valid if not submitted in accordance with the requirements of this paragraph 12.1.
- 12.2 Liquidated damages. The OWNER and the CONTRACTOR agree and recognize that time is of the essence for every time period set forth in the Contract Documents and that the OWNER will suffer financial loss if the Work is not substantially complete within the time set forth in the Contract Documents, plus any extensions thereof allowed in accordance with this Article 12 of the General Conditions. If the CONTRACTOR fails to perform the Work within the specified time set forth in the Contract Documents as adjusted pursuant to Article 12, the OWNER and CONTRACTOR agree that as liquidated damages, and not as a penalty, for delay in performance the Contractor shall pay OWNER in the amount stipulated below for each and every contract day that expires after the time set forth in the Contract Documents for Substantial Completion of the Work until the same is finally complete and ready for Final Payment. The OWNER shall have the right to deduct liquidated damages from any amount due or that may become due to the CONTRACTOR, or to collect such liquidated damages from the CONTRACTOR or the Surety. The OWNER has the option to enforce liquidated damages or to waive such damages. The liquidated damages herein specified shall only apply to the CONTRACTOR's delay in performance. Liquidated damages are intended only to compensate the OWNER for additional OWNER personnel efforts in administering the Contract after normally scheduled completion dates, and for City governmental and citizen inconvenience, lost opportunities, and lost confidence in government and morale of government when work is not completed on time. Such damages are uncertain in amount and difficult to measure and prove accurately. By executing this contract, the CONTRACTOR agrees that the liquidated damages specified in the Contract Documents are reasonable in amount and are not disproportionate to actual anticipated damages. Liquidated damages do not include any sums of money to reimburse the OWNER for extra costs which the OWNER may become obligated to pay on other contracts which are delayed or extended because of CONTRACTOR's failure to complete the Work within the time periods set forth in the Contract Documents. Liquidated damages are not intended to include litigation or attorneys' fees incurred by the OWNER, or other incidental or consequential damages suffered by the OWNER due to the Contractor's performance. If the OWNER charges liquidated damages to the CONTRACTOR, this shall not preclude the Owner from commencing an action against the CONTRACTOR for other actual harm resulting from the CONTRACTOR's performance, which is not due to the CONTRACTOR's delay in performance. In order to recover liquidated damages, OWNER is under no obligation to prove the actual

damages sustained by OWNER due to the CONTRACTOR's delay in performance. In no event shall the CONTRACTOR be assessed liquidated damages if the contract is suspended or terminated for events beyond the control of the CONTRACTOR for which a time extension beyond the original schedule of performance could be granted under 12.3.

The parties agree that liquidated damages shall be in the amount set forth in Article 2 of the Agreement.

- 12.3 Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.
- 12.4 The CONTRACTOR specifically waives any and all claims against the OWNER for damages resulting from any hindrance or delay caused by circumstances beyond the control of CONTRACTOR that prevents completing any part of the Work within the Contract Times (or Milestones), whether or not caused by the OWNER. The CONTRACTOR may instead be granted an extension of the Contract Times for which the OWNER will not claim liquidated damages, provided that the hindrance or delay is beyond the control of the CONTRACTOR. An extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall OWNER be liable to CONTRACTOR, any subcontractor, any supplier, any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from delays caused by or within the control of Contractor, or delays beyond the control of CONTRACTOR whether or not caused by the OWNER.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

- 13.1 **Notice of Defects:** Prompt notice of all **defective** Work of which OWNER or OWNER'S REPRESENTATIVE has actual knowledge will be given to CONTRACTOR. All **defective** Work may be rejected, corrected or accepted as provided in this Article 13.

Access to Work:

- 13.2 OWNER, OWNER'S REPRESENTATIVE, OWNER'S REPRESENTATIVE's Consultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

Tests and Inspections:

- 13.3 CONTRACTOR shall give OWNER'S REPRESENTATIVE timely notice of readiness of the Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- 13.4 OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
- 13.4.1 for inspections, tests or approvals covered by paragraph 13.5 below:
- 13.4.2 that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.9 below shall be paid as provided in said paragraph 13.9; and
- 13.4.3 as otherwise specifically provided in the Contract Documents.
- 13.4.4 any and all retesting of soil necessitated by the CONTRACTOR's operations or inability to obtain specified density test results on the first attempt shall be the sole responsibility and costs of the CONTRACTOR to achieve required passing test results. Retesting required because of non-conformance to specified requirements shall be performed by the independent firm employed by the OWNER. Payment for retesting will be charged to the CONTRACTOR by deducting inspection, testing and administrative charges from the Contract Price.
- 13.5 If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith, and furnish OWNER'S REPRESENTATIVE the required certificates of inspection, or approval. CONTRACTOR shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for OWNER's and OWNER'S REPRESENTATIVE's acceptance of materials or equipment to be incorporated in the Work, or of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work.
- 13.6 If any Work (or the work of others) that is to be inspected, tested or approved is covered by CONTRACTOR without written concurrence of OWNER'S REPRESENTATIVE, it must, if requested by OWNER'S REPRESENTATIVE, be uncovered for observation.
- 13.7 Uncovering Work as provided in paragraph 13.6 shall be at CONTRACTOR's expense unless CONTRACTOR has given OWNER'S REPRESENTATIVE timely notice of CONTRACTOR's intention to cover the same and OWNER'S REPRESENTATIVE has not acted with reasonable promptness in response to such notice.

Uncovering Work:

- 13.8 If any Work is covered contrary to the written request of OWNER'S REPRESENTATIVE, it must, if requested by OWNER'S REPRESENTATIVE, be uncovered for OWNER'S REPRESENTATIVE's observation and replaced at CONTRACTOR's expense.
- 13.9 If OWNER'S REPRESENTATIVE considers it necessary or advisable that covered Work be observed by OWNER'S REPRESENTATIVE or inspected or tested by others, CONTRACTOR, at OWNER'S REPRESENTATIVE's request, shall uncover, expose or otherwise make available for observation, inspection or testing as OWNER'S

REPRESENTATIVE may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is **defective**, CONTRACTOR shall pay all claims, costs, losses and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefor as provided in Article 11.

OWNER May Stop the Work:

- 13.10 If the Work is **defective**, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any surety or other party.

Correction or Removal of Defective Work:

- 13.11 If required by OWNER'S REPRESENTATIVE, CONTRACTOR shall promptly, as directed, either correct all **defective** Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by OWNER'S REPRESENTATIVE, remove it from the site and replace it with Work that is not **defective**. CONTRACTOR shall pay all claims, costs, losses and damages caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.12 Correction Period:

- 13.12.1 If within one year after the date of Final Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, CONTRACTOR shall within seven calendar days after receiving notice from OWNER, without cost to OWNER and in accordance with OWNER's written instructions: (i) correct such defective Work, or if its has been rejected by OWNER, remove it from the site and replace it with WORK that is not defective, and (ii) satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If CONTRACTOR does not within seven calendar days after receiving notice from OWNER comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all claims, costs, losses and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.
- 13.12.2 In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.
- 13.12.3 Where **defective** Work (and damage to other Work resulting therefrom) has been corrected, removed or replaced under this paragraph 13.12, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

Acceptance of Defective Work:

13.13 If, instead of requiring correction or removal and replacement of **defective** Work, OWNER (and, prior to OWNER'S REPRESENTATIVE's recommendation of final payment, also OWNER'S REPRESENTATIVE) prefers to accept it, OWNER may do so. CONTRACTOR shall play all claims, costs, losses and damages attributable to OWNER's evaluation of and determination to accept such **defective** Work (such costs to be approved by OWNER'S REPRESENTATIVE as to reasonableness). If any such acceptance occurs prior to OWNER'S REPRESENTATIVE's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. If the acceptance occurs after such recommendation, CONTRACTOR will pay an appropriate amount to OWNER.

OWNER May Correct Defective Work:

13.14 If CONTRACTOR fails within a reasonable time after written notice from OWNER'S REPRESENTATIVE to correct **defective** Work or to remove and replace rejected Work as required by OWNER'S REPRESENTATIVE in accordance with paragraph 13.11, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors and OWNER'S REPRESENTATIVE and OWNER'S REPRESENTATIVE's Consultants access to the site to enable OWNER to exercise the rights and remedies under this paragraph. All claims, costs, losses and damages incurred or sustained by OWNER in exercising such rights and remedies will be charged against CONTRACTOR and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. Such claims, costs, losses and damages will include but not be limited to all costs of repair or replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's **defective** Work. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies hereunder.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

Schedule of Values:

14.1 Progress payments on account of Unit Price Work will be based on the number of units completed.

Application for Progress Payment:

- 14.2 At least twenty days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to OWNER'S REPRESENTATIVE for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens, claims, security interests, or encumbrances and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER's interest therein, all of which will be satisfactory to OWNER. The amount of retainage with respect to progress payments will be as stipulated in the Agreement. With each application for payment the CONTRACTOR shall submit a notarized waiver(s) of claim signed by the CONTRACTOR acceptable in form to the OWNER'S REPRESENTATIVE. The waiver of claim for payment for the work of the CONTRACTOR shall equal the amount of the previous payment distributed to the CONTRACTOR for work of the CONTRACTOR and the amount of the total previous payment distributed to the CONTRACTOR.

CONTRACTOR's Warranty of Title:

- 14.3 CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

Review of Applications for Progress Payment:

- 14.4 OWNER'S REPRESENTATIVE will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER, or return the Application to CONTRACTOR indicating in writing OWNER'S REPRESENTATIVE's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Ten days after presentation of the Application for Payment to OWNER with OWNER'S REPRESENTATIVE's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by OWNER to CONTRACTOR.
- 14.5 OWNER'S REPRESENTATIVE's recommendation of any payment requested in an Application for Payment will constitute a representation by OWNER'S REPRESENTATIVE to OWNER, based on OWNER'S REPRESENTATIVE's on-site observations of the executed Work as an experienced and qualified design professional and on OWNER'S REPRESENTATIVE's review of the Application for Payment and the accompanying data and schedules, that to the best of OWNER'S REPRESENTATIVE's knowledge, information and belief:
- 14.5.1 the Work has progressed to the point indicated.
- 14.5.2 the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon

Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.10 and to any other qualifications stated in the recommendation), and

- 14.5.3 the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled insofar as it is OWNER'S REPRESENTATIVE's responsibility to observe the Work.

However, by recommending any such payment OWNER'S REPRESENTATIVE will not thereby be deemed to have represented that: (i) exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to OWNER'S REPRESENTATIVE in the Contract Documents or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

- 14.6 OWNER'S REPRESENTATIVE's recommendation of any payment, including final payment, shall not mean that OWNER'S REPRESENTATIVE is responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of Work, or for any failure of CONTRACTOR to perform or furnish Work in accordance with the Contract Documents.

- 14.7 OWNER'S REPRESENTATIVE may refuse to recommend the whole or any part of any payment if, in OWNER'S REPRESENTATIVE's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.5. OWNER'S REPRESENTATIVE may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in OWNER'S REPRESENTATIVE's opinion to protect OWNER from loss because:

14.7.1 the Work is **defective**, or completed Work has been damaged requiring correction or replacement,

14.7.2 the Contract Price has been reduced by Written Amendment or Change Order,

14.7.3 OWNER has been required to correct **defective** Work or complete Work in accordance with paragraph 13.14, or

14.7.4 OWNER'S REPRESENTATIVE has actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.3 inclusive.

In addition to the retainages set forth in the Contract Documents, the Owner may retain one hundred percent (100%) of all progress payments for any unsatisfactory performance of the Work and any payment recommended by the OWNER'S REPRESENTATIVE, including without limitation:

Defective work or failure to repair or replace defective work;

Claims filed against the CONTRACTOR, or reasonable evidence indicating probable filing of such claims;

Failure of the CONTRACTOR to make adequate or proper payments to subcontractors or suppliers for materials, equipment or labor;

Failure to obtain necessary permits or licenses, or to comply with applicable laws, ordinances, codes, or regulations, unless such noncompliance is due to reasons beyond the control of the CONTRACTOR, or due to act of the OWNER or and OWNER'S REPRESENTATIVE hired by the OWNER, or agents or employees thereof;

Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price then unpaid;

Reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;

Persistent failure to carry out the Work in accordance with the Contract Documents;

As a set off for amounts due the Owner on other items;

Collusion with other bidders in preparing the bid;

Actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.7.1 through 14.7.3 or paragraphs 15.2.1 through 15.2.3 inclusive.

When the above reasons for withholding payment are removed and corrected to the OWNER's satisfaction, OWNER shall make payment to the CONTRACTOR of the sums withheld pursuant to this paragraph, subject to the amounts required to be retained by the Contract Documents.

Progress Payments to Suppliers and Subcontractors. The CONTRACTOR shall make partial payments of the amount due to each of the CONTRACTOR's suppliers and subcontractors in the same manner as the OWNER is required to pay the CONTRACTOR under Article 4 of the Agreement and Article 14 of the General Conditions, provided that the suppliers and subcontractors are performing to the CONTRACTOR's satisfaction. If the OWNER is notified that the CONTRACTOR is in arrears in payments to the CONTRACTOR's suppliers or subcontractors, the OWNER shall notify the CONTRACTOR and determine why such funds are being withheld. If the OWNER determines that no legitimate basis exists for the CONTRACTOR's withholding of such payments, the OWNER may, five (5) days after the mailing of written notice to the CONTRACTOR, make such payments directly to the CONTRACTOR's suppliers or subcontractors from funds which otherwise would be due the CONTRACTOR.

Substantial Completion:

- 14.8 When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and OWNER'S REPRESENTATIVE in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that OWNER'S REPRESENTATIVE issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR and OWNER'S REPRESENTATIVE shall make an inspection of the Work to determine the status of completion. If OWNER'S REPRESENTATIVE does not consider the Work substantially complete, OWNER'S REPRESENTATIVE will notify CONTRACTOR in

writing giving the reasons therefor. If OWNER'S REPRESENTATIVE considers the Work substantially complete, OWNER'S REPRESENTATIVE will prepare and deliver to OWNER a tentative certificate of Substantial Completion, which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to OWNER'S REPRESENTATIVE as to any provisions of the certificate or attached list. If, after considering such objections, OWNER'S REPRESENTATIVE concludes that the Work is not substantially complete, OWNER'S REPRESENTATIVE will within fourteen days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, OWNER'S REPRESENTATIVE considers the Work substantially complete, OWNER'S REPRESENTATIVE will within said fourteen days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as OWNER'S REPRESENTATIVE believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion, OWNER'S REPRESENTATIVE will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform OWNER'S REPRESENTATIVE in writing prior to OWNER'S REPRESENTATIVE's issuing the definitive certificate of Substantial Completion. OWNER'S REPRESENTATIVE's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

- 14.9 OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

Partial Utilization:

- 14.10 Use by OWNER at OWNER's option of any substantially completed part of the Work which: (i) has specifically been identified in the Contract Documents, or (ii) OWNER, OWNER'S REPRESENTATIVE, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

- 14.10.1 OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and OWNER'S REPRESENTATIVE that such part of the Work is substantially complete and request OWNER'S REPRESENTATIVE to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and OWNER'S REPRESENTATIVE in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request OWNER'S REPRESENTATIVE to issue a certificate of Substantial Completion for that part of the Work.

Within a reasonable time after either such request, OWNER, CONTRACTOR and OWNER'S REPRESENTATIVE shall make an inspection of that part of the Work to determine its status of completion. If OWNER'S REPRESENTATIVE does not consider that part of the Work to be substantially complete, OWNER'S REPRESENTATIVE will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If OWNER'S REPRESENTATIVE considers that part of the Work to be substantially complete, the provisions of paragraphs 14.8 and 14.9 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

Final Inspection:

- 14.11 Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, OWNER'S REPRESENTATIVE will make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or **defective**. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

Final Application for Payment:

- 14.12 After CONTRACTOR has completed all such corrections to the satisfaction of OWNER'S REPRESENTATIVE and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance required by paragraph 5.4, certificates of inspection, marked-up record documents (as provided in paragraph 6.19) and other documents. CONTRACTOR may make application for final payment following the procedure for progress payments. The final application for payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence satisfactory to the OWNER of the continuation of completed operations insurance and any insurance coverage written on a claims-made basis at final payment and one year thereafter; (ii) the consent of surety to final payment and that the performance bond shall remain in effect throughout the guarantee period; (iii) complete and legally effective claim releases signed by all suppliers and subcontractors in the form provided in the Contract Documents certifying that all outstanding claims for payment have been paid. The CONTRACTOR shall not receive final payment due under the Agreement until the CONTRACTOR obtains and files the foregoing items (i), (ii), and (iii).

- 14.12.1 LIENS. Colorado Statutes do not provide for any right of lien against public buildings. In lieu thereof, §38-26-107, Colorado Revised Statutes, as amended, 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 of such pending payment and given opportunity to stop payment to the CONTRACTOR in the amount of such claims. Pursuant to §38-26-107, C.R.S., any supplier may bring a suit and file a notice of lis pendens against the OWNER within ninety (90) days after the date set for final settlement. If any such supplier or person files any such claim and notice of lis pendens, the OWNER shall withhold retained amounts from

final payments to the CONTRACTOR as are necessary to satisfy fully such claims. References to liens appearing in Article 14 shall be deemed as references to claims made pursuant to C.R.S. §38-26-101 et seq. unless the context requires otherwise.

Final Payment and Acceptance:

- 14.13 If, on the basis of OWNER'S REPRESENTATIVE's observation of the Work during construction and final inspection, and OWNER'S REPRESENTATIVE's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, OWNER'S REPRESENTATIVE is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, OWNER'S REPRESENTATIVE will, within ten days after receipt of the final Application for Payment, indicate in writing OWNER'S REPRESENTATIVE's recommendation of payment and present the Application to OWNER for payment. At the same time OWNER'S REPRESENTATIVE will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.15. Otherwise, OWNER'S REPRESENTATIVE will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application. Upon receipt of the OWNER'S REPRESENTATIVE's recommendation for payment and the final Application for Payment, OWNER shall order the publication of Notice of Final Payment as required by C.R.S. §38-26-107(1) and shall make final payment in accordance with C.R.S. 38-26-107(3).
- 14.14 If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if OWNER'S REPRESENTATIVE so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of OWNER'S REPRESENTATIVE, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to OWNER'S REPRESENTATIVE with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

Waiver of Claims:

- 14.15 The making and acceptance of final payment will constitute:

- 14.15.1 a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from **defective** Work appearing after final inspection pursuant to paragraph 14.11, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and
- 14.15.2 a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

OWNER May Suspend Work:

- 15.1 At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and OWNER'S REPRESENTATIVE, which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

OWNER May Terminate:

- 15.2 Upon the occurrence of any one or more of the following events:
- 15.2.1 if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.8 as adjusted from time to time pursuant to paragraph 6.6);
 - 15.2.2 if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;
 - 15.2.3 if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety, if any,) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses and damages sustained by OWNER arising out of or resulting from completing the Work such excess will be paid to CONTRACTOR. If such claims, costs, losses and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses and damages incurred by OWNER will be reviewed by OWNER'S REPRESENTATIVE as to their reasonableness and when so approved by OWNER'S REPRESENTATIVE incorporated in a Change Order, provided that when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

- 15.3 Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.
- 15.4 Upon seven days' written notice to CONTRACTOR and OWNER'S REPRESENTATIVE, OWNER may, without cause and without prejudice to any other right or remedy of

OWNER, elect to terminate the Agreement. In such case, CONTRACTOR shall be paid (without duplication of any items):

15.4.1 for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

15.4.2 for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

15.4.3 for all claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and

15.4.4 for reasonable expenses directly attributable to termination.

CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

CONTRACTOR May Stop Work or Terminate:

15.5 If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or OWNER'S REPRESENTATIVE fails to act on any Application for Payment within thirty days after it is submitted or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER and OWNER'S REPRESENTATIVE, and provided OWNER or OWNER'S REPRESENTATIVE do not remedy such suspension or failure within that time, terminate the Agreement and recover from OWNER payment on the same terms as provided in paragraph 15.4. In lieu of terminating the Agreement and without prejudice to any other right or remedy, if OWNER'S REPRESENTATIVE has failed to act on an Application for Payment within thirty days after it is submitted, or OWNER has failed for thirty days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may upon seven days' written notice to OWNER and OWNER'S REPRESENTATIVE stop the Work until payment of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.5 are not intended to preclude CONTRACTOR from making claim under Articles 11 and 12 for an increase in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping Work as permitted by this paragraph.

ARTICLE 16 - MISCELLANEOUS

Giving Notice:

16.1 Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

Computation of Times:

16.2.1 When any period of time is referred to in the Contract Documents by days, it will be computed to include the first and the last day of such period.

Notice of Claim:

16.3 Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 16.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

Cumulative Remedies:

16.4 The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 6.12, 6.16, 6.30, 6.31, 6.32, 13.1, 13.12, 13.14, 14.3 and 15.2 and all of the rights and remedies available to OWNER and OWNER'S REPRESENTATIVE thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

Professional Fees and Court Costs Included:

16.5 Whenever reference is made to "claims, costs, losses and damages," it shall include in each case, but not be limited to, all fees and charges of OWNER'S REPRESENTATIVES, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs.

Interest:

16.6 In the event that any payment of interest is to be made pursuant to any provision of the Contract Documents, excluding any bid bond, labor and materials bond or performance bond entered into by the CONTRACTOR, interest shall be paid at the average rate earned by the City of Louisville on its invested funds during the quarterly fiscal period prior to the period during which the interest was accrued.

Third Parties:

16.7 The contract is not intended to create any right in or for the public or any member thereof, any subcontractor or supplier, or any other third party, or to authorize anyone not a party to the contract to maintain a suit to enforce its terms. The duties, obligations, and responsibilities of the parties to the contract, with respect to third parties, shall remain as imposed by law. This paragraph shall not apply to any surety to the extent it is acting under any labor and materials bond or performance bond entered into by the CONTRACTOR.

Severability:

- 16.8 To the extent that the performance of the parties' obligations may be accomplished within the intent of the contract, the terms of the contract are severable, and should any term or provision of the contract be declared invalid or become inoperative for any reason, such invalidity or failure shall not affect the validity of any other contract term or provision.

Equal Opportunity Employer:

- 16.9 The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, religion, age, sex, disability or national origin. The CONTRACTOR will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard for their race, color, religion, age, sex, disability or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided by an agency of the federal government, setting forth the provisions of the Equal Opportunity Laws.

The CONTRACTOR shall be in compliance with the appropriate areas of the Americans with Disabilities Act of 1990 as enacted and from time to time amended and any other applicable federal regulation. A signed, written certificate stating compliance with the Americans with Disabilities Act may be requested at any time during the life of any contract and with any contract entered by the OWNER.

SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

CONDITIONS OF THE CONTRACT

These Supplementary Conditions amend or supplement the General Conditions of the Project Manual as indicated below. All provisions, which are not so amended or supplemented, remain in full force and effect.

1. GC-4 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS

- A. Section 4.4, **REFERENCE POINTS**, of Article 4 of the General Conditions, delete the second paragraph in its entirety and add the following language:
The OWNER shall not provide survey reference points, construction stakes, lines and grade for the work unless otherwise noted.

5. GC-12 CHANGES OF CONTRACT TIMES

- A. Add the following language to Article 12 of the General Conditions:

12.4 EXTENSIONS OF TIME

- a. The OWNER and CONTRACTOR are both aware that variable weather conditions are typical for the site of the work.
- b. The CONTRACTOR expressly agrees that the Contract Price is based on completion of the work within the times specified in the Agreement and under weather conditions typically encountered during the contemplated construction period at the site of the work.
- c. For purposes of evaluating requests for extensions of time due to abnormal weather conditions, the following conditions, and no others, will be considered unusually severe:
 - 1) Precipitation volume exceeding the historical mean for the months of the construction period by more than one standard deviation.
 - 2) Isolated abnormal weather occurrences of a severely destructive nature, which in fact, cause such destruction at the site of the work.
- d. For the purpose of determining mean conditions, all available data contained in the records of the National Weather Service for reporting from Denver, as well as data available from the State Climatologist for the same areas.

- e. The CONTRACTOR further agrees that should a request for time extension due to abnormal weather conditions, the CONTRACTOR shall submit all necessary historical and detailed daily data during the construction period to support the claim.

6. GC-13 TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

- A. Section 13.4, under **TESTS AND INSPECTIONS**, of Article 13 of the General Conditions, delete Section 13.4 in its entirety and add the following language:
The CONTRACTOR shall provide all specified tests and inspections as required by the Contract Documents.

- B. Section 13.11, **CORRECTION OR REMOVAL OF DEFECTIVE WORK** of Article 13 of the General Conditions, add the following language:

Failure or neglect on the part of the OWNER'S REPRESENTATIVE to condemn unsatisfactory material or reject inferior workmanship will in no way release the CONTRACTOR, nor shall it be construed to mean the acceptance of such work, nor shall Final Acceptance bar the OWNER from recovering damages in case fraud was practiced, or for defective work resulting from the CONTRACTOR'S dishonesty.

Work done contrary to or regardless of the instructions of the PROJECT MANAGER, work done without lines, grade and/or cross section stakes and grades shown on the Plans or as given by the OWNER'S REPRESENTATIVE, or any deviation made from the Plans and Specifications without written authority will be considered unauthorized and at the expense of the CONTRACTOR, and will not be measured or paid for by the OWNER. Any and all work so done may be ordered, removed, and replaced immediately at the CONTRACTOR'S expense.

- END OF SECTION -

TECHNICAL SPECIFICATIONS

SECTION 328400

IRRIGATION SYSTEM RENOVATION FOR SPORTS COMPLEX

PART 1 - GENERAL

1.01 WORK INCLUDED - Work of this Section generally includes provisions for the renovation and installation of an underground landscape irrigation system including the following:

- A. Static pressure verification and coordination of irrigation system installation with landscape material installation.
- B. Trenching, stockpiling excavation materials, refilling and compacting trenches.
- C. Irrigation system renovation including but not limited to replacement of PVC mainline with HDPE DR11, replacement of all control valves, control wires, quick couplers and isolation gate valves; new connections to existing lateral pipes and installation of new steel discharge pipe from the pump house to the Miner's Field connection, reinstallation of a 2" water meter with steel pipe connection to the new HDPE mainline.
- D. Installation of new control wires and common wires to serve all replaced control valves and installation of spare wires and commons as shown on the plans
- E. This is a reclaimed water system and equipment: valve box lids, piping and valve handles shall be purple as required by the local reclaimed water purveyor.
- F. Securing of the job site and tree protection as required by the City of Louisville.
- G. Excavation and salvage of all existing control valves, quick couplers and isolation gate valves and turn-over of this equipment to the City of Louisville.
- H. The Contractor is responsible for coordination of public and private utility locates.
- I. The Contractor shall obtain all required permits.
- J. Replacement of unsatisfactory materials.
- K. Clean-up, Consultant Reviews, and Project Acceptance.
- L. Tests.

1.02 REFERENCES

- A. Perform Work in accordance with requirements of these Specifications, Irrigation

Drawings and Details, and the City of Louisville's Project Manual for the Park Irrigation Mainline Replacements Project - 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.

1.03 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) with HDPE piping, 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. Proof of certification for HDPE DR11 butt fusion, electrofusion, and underground HDPE pipe installation.
 - 2. List of 3 projects completed in the last 2 years of similar complexity, with HDPE DR11 installation, to this Project. Description of projects shall include:
 - a. Name of project.
 - b. Location.
 - c. Owner.
 - d. Brief description of work and project budget.
- B. Special Requirements:
 - 1. 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.
 - 2. 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.
 - 3. Coordination with Other Contractors - Protect, maintain, and coordinate Work with Work under other Section.
 - 4. 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.
 - 5. Experience and certification using butt fusion and electrofusion equipment, and handling of HDPE DR11 piping for underground installation.
- C. 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.

1. Minutes of conference shall be recorded and distributed by Contractor to all parties in attendance within five days of conference.

1.04 SUBMITTALS - Prepare and make submittals in accordance with conditions of the Contract.

- A. Materials List - Submit six copies of 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 Autocad files of original irrigation design from Hydrosystems-KDI. At the end of every day, revise as-built prints for work accomplished that day in red ink. As-built field prints shall be brought up-to-date at the close of the working day every Friday by a qualified draftsman. 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-built. Upon completion of Project, but prior to scheduling of substantial acceptance walk-through, submit for review a final set of as-built mylars and an Autocad disk copy. 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 and drip control valves and zone number.
 - d. Quick coupling valves.
 - e. Control wire routing if not with pressure mainline.
 - f. Gate valves.
 - g. Control wire and communication cable splices
 - h. Water meters
 - i. Locations of all sleeving including size, quantity and depth of sleeve
 2. Owner's 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.

1.05 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.

- A. Handling of HDPE/PVC Pipe - Exercise care in handling, loading and storing, of HDPE/PVC pipe. All HDPE/PVC pipe shall be transported in a vehicle that 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.

1.06 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 or 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. Contractor shall 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 lines from damage. If damage does occur, Utility Owner shall repair all damage. Contractor shall pay all costs of such repairs unless other arrangements have been made.
- 2. Contractor shall subcontract utility locate firm 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 that were not

staked are encountered and damaged by Installer, Installer shall repair them at no cost to the Owner. If Contractor damages staked or located utilities, they shall also be repaired 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.

1.07 WARRANTY/GUARANTY: - Installer/Manufacturer shall warrant materials against defects for a period of one year from date of Final Completion. Installer shall guaranty workmanship for one year.

- A. Settling of backfilled trenches that may occur during guaranty period shall be repaired at no expense to Owner, including complete restoration of damaged property.
- B. Expenses due to vandalism before substantial completion shall be borne by Contractor.
- C. Owner will maintain turf and planting areas during warranty period, so as not to hamper proper operation of irrigation system.

1.08 MAINTENANCE:

- A. Furnish the following maintenance items to Owner prior to final Acceptance:
 - 1. Two Sets of special tools required for removing, disassembling, and adjusting each type of valve supplied on this Project.
 - 2. Two six foot valve keys for operation of gate valves.
 - 3. Two quick coupler keys and two matching hose swivels for each type of quick coupling valve installed.
- B. Winterization – Contractor shall provide oversight and support to City Personnel during the winterization procedure.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. General Piping:
 - 1. Pump Discharge Pipe (from point of connection to Miner's Field Connection and to new HDPE DR11 mainline) – Epoxy Coated Schedule 40 Steel (3" and larger).
 - 2. Pressure Supply Mainline – HDPE DR11 (3" – 4").
 - 3. Non-pressure Lines – Class 200 PVC, 1" minimum size allowed.
 - 4. PVC Sleeving – Schedule 40 PVC.

B. Plastic Pipe and Fittings:

1. Identification Markings:
 - a. Identify all pipe with following indelible markings:
 - 1) Manufacturer's name.
 - 2) Nominal pipe size.
 - 3) Schedule of class.
 - 4) Pressure rating.
 - 5) NSF (National Sanitation Foundation) seal of approval.
 - 6) Date of extrusion.
2. HDPE Pipe - Pipe shall be manufactured from a pipe resin which meets ASTM D 3350-05 with a minimum cell classification of 445474C. Pipe shall be manufactured to the dimensions of ASTM F-714. The service factor to determine the pressure rating shall be 0.63. Pipe shall have a minimum pressure ratings of: DR 11, 200 psi. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material.

HDPE FITTINGS:

- a. Butt Fusion Fittings - Fittings shall be made from HDPE pipe resin meeting ASTM D 3350-05 with a minimum cell classification of 445474C, Molded Butt Fusion Fittings shall have a manufacturing standard of ASTM D-3261. Molded & fabricated fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans. Fabricated fittings must have the same pressure rating as the pipe; a DR less than the pipe shall be used. Fabricated fittings are to be manufactured using a Data Logger to record temperature, fusion pressure, and a graphic representation of the fusion cycle shall be part of the Quality Control records.
- b. Electrofusion Fittings - Fittings shall be made from resin or pipe meeting ASTM D 3350-05 with a minimum cell classification of 445474C.; Electrofusion Fittings shall meet the manufacturing standard of ASTM F-1055. Fittings shall have the same pressure rating as the pipe or higher unless otherwise specified on the plans.
- c. Flanged and Mechanical Joint Adapters - Flanged and Mechanical Joint Adapters shall be made from materials containing resin that meets ASTM D 3350-05 with a minimum cell classification of 445474C.
- d. Transitional Fittings- steel pipe to HDPE shall be per details and irrigation equipment schedule. Any substitutions must be approved by the project Engineer or City Personnel.

C. Gate Valves:

1. 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 200 psi and be equipped with a

square operating nut and resilient wedge. Provide pipe restraints on gate valves 3 inches or larger as detailed.

- D. 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.
- E. Valve Boxes:
 - 1. Gate Valves, Quick Coupling Valves, Drain Valves, Drip Line Blow-out Stubs, and Wire Splice or Stub Box – Carson/Oldcastle #910-10, box as detailed, with purple lid
 - 2. 1 inch through 2 inch Control Valves – Carson/Oldcastle #1730-12 box as detailed with purple lid.
 - 3. Drip Valve Assemblies and Flow Sensors – Carson/Oldcastle #1730-12 box as detailed with purple lid.
 - 4. Owner shall provide traffic rated valve boxes if deemed necessary by the City of Louisville
- F. 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.
 - b. Electrical Common Wire - AWG UFUL approved No. 14 direct burial copper wire or larger, if required to operate system as designed.
 - c. Wire Colors:
 - 1) Control Wires - Red.
 - 2) Common Wires - White.
 - 3) Master Valve Wires - Blue.
 - 4) Drawing Spare Control Wires - Black.
 - 5) Drawing Spare Common Wires - Yellow.
 - d. 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.
 - e. Control Wire connections and splices shall be made with 3M DBY direct bury splice.
 - 2. High Voltage - Type required by local codes and ordinances, of proper size to accommodate needs of equipment serviced.
- G. Electric Control Valves - Size and type shown on Drawings having manual flow adjustment and manual bleed nut. All female threaded fittings shall be Spears SR stainless steel reinforced schedule 80 fittings.

PART 3 - EXECUTION

3.01 SITE CONDITIONS AND COORDINATION

- A. Contractor is responsible for demolition, salvage of equipment, removal of equipment if in conflict with new installations and new equipment routing and

locations as coordinated and approved by the City of Louisville, the Contractor will be required to relocate the irrigation equipment, as necessary, at Contractor's expense.

- B. Contractor is responsible to notify Consultant of any field conditions that vary from the conditions shown on the Irrigation Construction Documents. If Contractor fails to notify Consultant of these conditions, Contractor will be held responsible for all costs associated with system adjustments required due to the change in field conditions.

3.03 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.
- B. Underground Utilities shall be installed prior to installation of irrigation system. If irrigation installation takes place prior to utility installation, Contractor shall notify Owner of this condition in writing prior to commencement of irrigation installation.

3.04 PREPARATION:

- A. Staking shall Occur as Follows:
 - 1. Mark, with powdered lime, routing of pressure supply line. Contact Consultant 48 hours in advance and request review of staking. Proposed locations of all trees shall be field staked by Contractor and approved by Owner prior to Consultant review of irrigation 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. Contractor shall contact Consultant if field spacing varies by +/- 10% of the spacing shown on the irrigation plans. If Contractor fails to notify Consultant of variances exceeding 10%, Contractor assumes full responsibility for the costs associated with any required system modifications deemed necessary by the Consultant or Owner.
- 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 – To match depth of sleeved material.
 - 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/Communication Cable - Side of pressure main or at 18 inch depth if installed in a separate trench with no mainline piping..
 - f. Drip Tubing - 12 inches from top of pipe.

3.05 INSTALLATION - Locate other equipment as near as possible to locations designated. Consultant shall review deviations prior to installation.

A. HDPE/POLY 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 degrees F. When pipe installation 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.

- 1. HDPE Pipe - Lay pipe and make all plastic to plastic, fusion joints in accordance with manufacturer's recommendations.
 - a. FUSION:

Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe supplier's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe supplier. The butt fusion joining will produce a joint weld strength equal to or greater than the tensile strength of the pipe itself. All field welds shall be made with fusion equipment equipped with a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the Quality Control records.
 - b. Mechanical joining may be used where the butt fusion method can not be used. Mechanical joining will be accomplished by either using a HDPE flange adapter or a substitute method as approved by the Consultant.
 - c. Hot gas fusion, threading, solvents, and epoxies will not be used to join HDPE pipe.

B. 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 3M DBY 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. Maintenance spare wires - In addition to spare wires labeled on drawings, extend two spare #14 AWG UFUL control wires and one spare #14 AWG UFUL common wire from controller pedestal to the end of each and every leg of mainline. Label maintenance spare wires at controller and wire stub box.
- C. Electric Control Valves - Install cross-handle four inches below finished grade where shown on Drawings as detailed. When grouped together, allow minimum of 12 inches between valve box sides. Install each remote control valve in a separate valve box. Install valve box flush with grade or when present flush with surfacing material (rock mulch). When parallel to roadway, sidewalk or other permanent element or structure, control valve and box to be installed perpendicular to element or structure, spaced equally.
- D. Quick Coupling Valves - Install quick couplers on swing-joint assemblies as indicated on construction details; 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.
- E. 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 and flow sensors. 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.
- F. Gate Valves - Install where shown on Drawings as detailed.
- G. 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.

H. 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 not cost to Owner. Obtain permission to cut or break walks and/or concrete from Owner.

- I. Water Supply and Point of Connection - Water supply shall be extended as shown from water supply lines.

3.06 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. Conduct tests in presence of Owners Representative. Arrange for presence of Owners Representative 48 hours in advance of testing. Supply force pump and all other testing equipment.
1. After backfilling and installation of all control valves, temporarily cap / isolate new mainline sections fill new pressure supply line with water, and pressurize to 120 PSI.
 2. Leakage, Pressure Loss - Test is acceptable if pressure stabilizes for four (4) hours during the eight (8) hour testing duration and no water has passed the water meter during the eight (8) hour testing duration.
 3. Leaks - Detect and repair leaks. Using caulk or pipe sealant is not an

- approved method for repairing leaks
- 4. Retest system until test pressure can be maintained for four (4) hours.
- 5. Before final acceptance, pressure supply line shall remain under pressure for a period of 48 hours.
- 6. Pressure test shall be scheduled and passed prior to scheduling of Substantial Completion Walk-through.

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.
- 6. During walk-through, expose all drip emitters under operations for observation by Consultant to demonstrate that they are performing and installed as designed, prior to placing of all mulch material. Schedule separate walk-through if necessary.
- 7. Supply Consultant with prints of irrigation as-builts prior to scheduling substantial completion walk-through.

D. Walk-Through for Final Completion:

- 1. Arrange for Consultant's presence 48 hours in advance of walk-through.
- 2. Show evidence to Consultant 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 Consultant at time of walk-through to insure correction of all incomplete items.
- 4. Items deemed not acceptable by Consultant shall be reworked to complete satisfaction of Consultant.
- 5. If after request to Consultant for walk-through for Final Completion of irrigation system, Consultant finds items during walk-through which have not been properly adjusted, reworked, or replaced as indicated on list of incomplete 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 Consultant to conduct and document further walk-throughs as deemed necessary to insure compliance with Contract Documents.

3.07 ADJUSTING - Upon completion of installation, fine-tune entire system by adjusting patterns and break-up pins, and setting pressure reducing valves at proper and similar pressure to provide optimum and efficient coverage. Coordinate flow control and zone pressure adjustments with City of Louisville.

- 3.08 CLEANING** - Maintain continuous cleaning operation throughout duration of work. Dispose of, off-site at no additional cost to Owner, all trash or debris generated by installation of irrigation system.

END OF SECTION

TECHNICAL SPECIFICATIONS

SECTION 328400

IRRIGATION SYSTEM RENOVATION FOR LOUISVILLE CEMETARY

PART 1 - GENERAL

1.01 WORK INCLUDED - Work of this Section generally includes provisions for the renovation and installation of an underground landscape irrigation system including the following:

- A. Static pressure verification and coordination of irrigation system installation with landscape material installation.
- B. Trenching, stockpiling excavation materials, refilling and compacting trenches.
- C. Irrigation system renovation including but not limited to replacement of PVC mainline with HDPE DR11 mainline as shown on plans and new HDPE connections to existing mainline, installation of new control valves and connections to existing lateral pipes.
- D. Replacement of control wires as shown on the plans and connection to existing wires as verified with the City of Louisville
- E. Securing of the job site and tree protection as required by the City of Louisville.
- F. Excavation and salvage of all existing control valves, quick couplers and isolation gate valves and turn over of this equipment to the City of Louisville.
- G. The Contractor is responsible for coordination of public and private utility locates.
- H. The Contractor shall obtain the required permits.
- I. Replacement of unsatisfactory materials.
- J. Clean-up, Consultant Reviews, and Project Acceptance.
- K. Tests.

1.02 REFERENCES

- A. Perform Work in accordance with requirements of these Specifications, Irrigation Drawings and Details, and City of Louisville's Project Manual for the Park Irrigation Mainline Replacements Project - 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.

1.03 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) with HDPE piping, 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. Proof of certification for HDPE DR11 butt fusion, electrofusion, and underground HDPE pipe installation.
 - 2. List of 3 projects completed in the last 2 years of similar complexity, with HDPE DR11 installation, to this Project. Description of projects shall include:
 - a. Name of project.
 - b. Location.
 - c. Owner.
 - d. Brief description of work and project budget.
- B. Special Requirements:
 - 1. 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.
 - 2. 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.
 - 3. Coordination with Other Contractors - Protect, maintain, and coordinate Work with Work under other Section.
 - 4. 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.
 - 5. Experience and certification using butt fusion and electrofusion equipment, and handling of HDPE DR11 piping for underground installation.
- C. 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.

1. Minutes of conference shall be recorded and distributed by Contractor to all parties in attendance within five days of conference.

1.04 SUBMITTALS - Prepare and make submittals in accordance with conditions of the Contract.

- A. Materials List - Submit six copies of 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-Built):
 1. At onset of irrigation installation secure Autocad files of original irrigation design from Hydrosystems-KDI. At the end of every day, revise as-built prints for work accomplished that day in red ink. As-built field prints shall be brought up-to-date at the close of the working day every Friday by a qualified draftsman. 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-built. Upon completion of Project, but prior to scheduling of substantial acceptance walk-through, submit for review a final set of as-built mylars and an Autocadd disk copy. 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 valves and zone number.
 - d. Quick coupling valves.
 - e. Control wire routing if not with pressure mainline.
 - f. Control wire and communication cable splices
 - g. Water meters
 - h. Locations of all sleeving including size, quantity and depth of sleeve
 2. Owner's 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.

1.05 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.

- A. Handling of HDPE/PVC Pipe - Exercise care in handling, loading and storing, of HDPE/PVC pipe. All HDPE/PVC pipe shall be transported in a vehicle that 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.

1.06 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 or 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. Contractor shall 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 lines from damage. If damage does occur, Utility Owner shall repair all damage. Contractor shall pay all costs of such repairs unless other arrangements have been made.
2. Contractor shall subcontract utility locate firm 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 that were not staked are encountered and damaged by Installer, Installer shall repair them at no cost to the Owner. If Contractor damages staked or located utilities, they shall also be repaired 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.

1.07 WARRANTY/GUARANTY: - Installer/Manufacturer shall warrant materials against defects for a period of one year from date of Final Completion. Installer shall guaranty workmanship for one year.

- A. Settling of backfilled trenches that may occur during guaranty period shall be repaired at no expense to Owner, including complete restoration of damaged property.
- B. Expenses due to vandalism before substantial completion shall be borne by Contractor.
- C. Owner will maintain turf and planting areas during warranty period, so as not to hamper proper operation of irrigation system.

1.08 MAINTENANCE:

- A. Furnish the following maintenance items to Owner prior to final Acceptance:
 - 1. Two Sets of special tools required for removing, disassembling, and adjusting each type of valve supplied on this Project.
 - 2. Two six foot valve keys for operation of gate valves.
 - 3. Two quick coupler keys and two matching hose swivels for each type of quick coupling valve installed.
- B. Winterization – Contractor shall provide oversight and support to City Personnel during the winterization procedure.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. General Piping:
 - 1. Pressure Supply Mainline – HDPE DR11 (2" and 3").
 - 2. Non-pressure Lines – Class 200 PVC, 1" minimum size allowed.
 - 3. PVC Sleeving if Required– Schedule 40 PVC.
- B. Plastic Pipe and Fittings:
 - 1. Identification Markings:
 - a. Identify all pipe with following indelible markings:
 - 1) Manufacturer's name.
 - 2) Nominal pipe size.
 - 3) Schedule of class.
 - 4) Pressure rating.

- 5) NSF (National Sanitation Foundation) seal of approval.
 - 6) Date of extrusion.
2. HDPE Pipe - Pipe shall be manufactured from a pipe resin which meets ASTM D 3350-05 with a minimum cell classification of 445474C. Pipe shall be manufactured to the dimensions of ASTM F-714. The service factor to determine the pressure rating shall be 0.63. Pipe shall have a minimum pressure ratings of: DR 11, 200 psi. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material.
- HDPE FITTINGS:
- a. Butt Fusion Fittings - Fittings shall be made from HDPE pipe resin meeting ASTM D 3350-05 with a minimum cell classification of 445474C, Molded Butt Fusion Fittings shall have a manufacturing standard of ASTM D-3261. Molded & fabricated fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans. Fabricated fittings must have the same pressure rating as the pipe; a DR less than the pipe shall be used. Fabricated fittings are to be manufactured using a Data Logger to record temperature, fusion pressure, and a graphic representation of the fusion cycle shall be part of the Quality Control records.
 - b. Electrofusion Fittings - Fittings shall be made from resin or pipe meeting ASTM D 3350-05 with a minimum cell classification of 445474C.; Electrofusion Fittings shall meet the manufacturing standard of ASTM F-1055. Fittings shall have the same pressure rating as the pipe or higher unless otherwise specified on the plans.
 - c. Flanged and Mechanical Joint Adapters - Flanged and Mechanical Joint Adapters shall be made from materials containing resin that meets ASTM D 3350-05 with a minimum cell classification of 445474C.
 - d. Transitional Fittings- steel pipe to HDPE shall be per details and irrigation equipment schedule. Any substitutions must be approved by the project Engineer or City Personnel.
- C. 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.
- D. Valve Boxes:
1. Gate Valves, Quick Coupling Valves, Drain Valves, Drip Line Blow-out Stubs, and Wire Splice or Stub Box – Carson/Oldcastle #910-10, box as detailed, with purple lid
 2. 1 inch through 2 inch Control Valves – Carson/Oldcastle #1730-12 box as detailed with purple lid.
 3. Drip Valve Assemblies and Flow Sensors – Carson/Oldcastle #1730-12 box as detailed with purple lid.
 4. Owner shall provide traffic rated valve boxes if deemed necessary by the City of Louisville

- E. 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.
 - b. Electrical Common Wire - AWG UFUL approved No. 14 direct burial copper wire or larger, if required to operate system as designed.
 - c. Wire Colors:
 - 1) Control Wires - Red.
 - 2) Common Wires - White.
 - 3) Master Valve Wires - Blue.
 - 4) Drawing Spare Control Wires - Black.
 - 5) Drawing Spare Common Wires - Yellow.
 - d. 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.
 - e. Control Wire connections and splices shall be made with 3M DBY direct bury splice.
 - 2. High Voltage - Type required by local codes and ordinances, of proper size to accommodate needs of equipment serviced.
- F. Electric Control Valves - Size and type shown on Drawings having manual flow adjustment and manual bleed nut. All female threaded fittings shall be Spears SR stainless steel reinforced schedule 80 fittings.

PART 3 - EXECUTION

3.01 SITE CONDITIONS AND COORDINATION

- A. Contractor is responsible for demolition, salvage of equipment, removal of equipment if in conflict with new installations and new equipment routing and locations as coordinated and approved by the City of Louisville, the Contractor will be required to relocate the irrigation equipment, as necessary, at Contractor's expense.
- B. Contractor is responsible to notify Consultant of any field conditions that vary from the conditions shown on the Irrigation Construction Documents. If Contractor fails to notify Consultant of these conditions, Contractor will be held responsible for all costs associated with system adjustments required due to the change in field conditions.

3.03 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.
- B. Underground Utilities shall be installed prior to installation of irrigation system. If

irrigation installation takes place prior to utility installation, Contractor shall notify Owner of this condition in writing prior to commencement of irrigation installation.

3.04 PREPARATION:

A. Staking shall Occur as Follows:

1. Mark, with powdered lime, routing of pressure supply line. Contact Consultant 48 hours in advance and request review of staking. Proposed locations of all trees shall be field staked by Contractor and approved by Owner prior to Consultant review of irrigation 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. Contractor shall contact Consultant if field spacing varies by +/- 10% of the spacing shown on the irrigation plans. If Contractor fails to notify Consultant of variances exceeding 10%, Contractor assumes full responsibility for the costs associated with any required system modifications deemed necessary by the Consultant or Owner.

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 – To match depth of sleeved material.
- 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/Communication Cable - Side of pressure main or at 18 inch depth if installed in a separate trench with no mainline piping..
- f. Drip Tubing - 12 inches from top of pipe.

3.05 INSTALLATION - Locate other equipment as near as possible to locations designated. Consultant shall review deviations prior to installation.

- A. HDPE/POLY 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 degrees F. When pipe installation 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.
 - 1. HDPE Pipe - Lay pipe and make all plastic to plastic, fusion joints in accordance with manufacturer's recommendations.
 - a. FUSION:
Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe supplier's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe supplier. The butt fusion joining will produce a joint weld strength equal to or greater than the tensile strength of the pipe itself. All field welds shall be made with fusion equipment equipped with a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the Quality Control records.
 - b. Mechanical joining may be used where the butt fusion method can not be used. Mechanical joining will be accomplished by either using a HDPE flange adapter or a substitute method as approved by the Consultant.
 - c. Hot gas fusion, threading, solvents, and epoxies will not be used to join HDPE pipe.
- B. 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 3M DBY 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. Maintenance spare wires - In addition to spare wires labeled on drawings, extend two spare #14 AWG UFUL control wires and one spare #14 AWG UFUL common wire from controller pedestal to the end of each and every leg of mainline. Label maintenance spare wires at controller and wire stub box.

- C. Electric Control Valves - Install cross-handle four inches below finished grade where shown on Drawings as detailed. When grouped together, allow minimum of 12 inches between valve box sides. Install each remote control valve in a separate valve box. Install valve box flush with grade or when present flush with surfacing material (rock mulch). When parallel to roadway, sidewalk or other permanent element or structure, control valve and box to be installed perpendicular to element or structure, spaced equally.
- D. Quick Coupling Valves - Install quick couplers on swing-joint assemblies as indicated on construction details; 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.
- E. 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 and flow sensors. 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.
- D. 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.
- F. 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 not cost to Owner. Obtain permission to cut or break walks and/or concrete from Owner.
- G. Water Supply and Point of Connection - Water supply shall be extended as shown from water supply lines.

3.06 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. Conduct tests in presence of Owners Representative. Arrange for presence of Owners Representative 48 hours in advance of testing. Supply force pump and all other testing equipment.
1. After backfilling and installation of all control valves, temporarily cap / isolate new mainline sections fill new pressure supply line with water, and pressurize to 120 PSI.
 2. Leakage, Pressure Loss - Test is acceptable if pressure stabilizes for four (4) hours during the eight (8) hour testing duration and no water has passed the water meter during the eight (8) hour testing duration.
 3. Leaks - Detect and repair leaks. Using caulk or pipe sealant is not an approved method for repairing leaks
 4. Retest system until test pressure can be maintained for four (4) hours.
 5. Before final acceptance, pressure supply line shall remain under pressure for a period of 48 hours.
 6. Pressure test shall be scheduled and passed prior to scheduling of Substantial Completion Walk-through.
- 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.
 6. During walk-through, expose all drip emitters under operations for

observation by Consultant to demonstrate that they are performing and installed as designed, prior to placing of all mulch material. Schedule separate walk-through if necessary.

7. Supply Consultant with prints of irrigation as-builts prior to scheduling substantial completion walk-through.

D. Walk-Through for Final Completion:

1. Arrange for Consultant's presence 48 hours in advance of walk-through.
2. Show evidence to Consultant 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 Consultant at time of walk-through to insure correction of all incomplete items.
4. Items deemed not acceptable by Consultant shall be reworked to complete satisfaction of Consultant.
5. If after request to Consultant for walk-through for Final Completion of irrigation system, Consultant finds items during walk-through which have not been properly adjusted, reworked, or replaced as indicated on list of incomplete 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 Consultant to conduct and document further walk-throughs as deemed necessary to insure compliance with Contract Documents.

3.07 ADJUSTING - Upon completion of installation, fine-tune entire system by adjusting patterns and break-up pins, and setting pressure reducing valves at proper and similar pressure to provide optimum and efficient coverage. Coordinate flow control and zone pressure adjustments with City of Louisville.

3.08 CLEANING - Maintain continuous cleaning operation throughout duration of work. Dispose of, off-site at no additional cost to Owner, all trash or debris generated by installation of irrigation system.

END OF SECTION

TECHNICAL SPECIFICATIONS

SECTION 328400

IRRIGATION SYSTEM RENOVATION FOR MCCASLIN BOULEVARD

PART 1 - GENERAL

1.01 WORK INCLUDED - Work of this Section generally includes provisions for the renovation and installation of an underground landscape irrigation system including the following:

- A. Static pressure verification and coordination of irrigation system installation with landscape material installation.
- B. Trenching, stockpiling excavation materials, refilling and compacting trenches.
- C. Irrigation system renovation including but not limited to replacement of PVC mainline with HDPE DR11 and control wires in an existing 4" sleeve as shown on the plans.
- E. Securing of the job site and tree protection as required by the City of Louisville.
- F. Excavation and salvage of all existing control valves, quick couplers and isolation gate valves and turn of this equipment to the City of Louisville.
- G. The Contractor is responsible for coordination of public and private utility locates.
- H. The Contractor shall obtain all required permits including but not limited to ROW permits and building permits.
- I. Replacement of unsatisfactory materials.
- J. Clean-up, Consultant Reviews, and Project Acceptance.
- K. Tests.

1.02 REFERENCES

- A. Perform Work in accordance with requirements of these Specifications, Irrigation Drawings and Details, and City of Louisville's Project Manual for the Park Irrigation Mainline Replacements Project - 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.

1.03 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) with HDPE piping, 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. Proof of certification for HDPE DR11 butt fusion, electrofusion, and underground HDPE pipe installation.
 2. List of 3 projects completed in the last 2 years of similar complexity, with HDPE DR11 installation, to this Project. Description of projects shall include:
 - a. Name of project.
 - b. Location.
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 1. 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.
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 1. Minutes of conference shall be recorded and distributed by Contractor to all parties in attendance within five days of conference.

1.04 SUBMITTALS - Prepare and make submittals in accordance with conditions of the Contract.

- A. Materials List - Submit six copies of 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.
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 - a. Connection to existing water lines.
 - b. Routing of sprinkler pressure lines (dimension maximum 100 feet along routing).
 - c. Sprinkler and drip control valves and zone number.
 - d. Control wire routing if not with pressure mainline.
 - e. Control wire and communication cable splices
 - f. Water meters
 - g. Locations of all sleeving including size, quantity and depth of sleeve
 - 2. Owner's 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.

1.05 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.

- A. Handling of HDPE/PVC Pipe - Exercise care in handling, loading and storing, of HDPE/PVC pipe. All HDPE/PVC pipe shall be transported in a vehicle that 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.

1.06 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 or 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 lines from damage. If damage does occur, Utility Owner shall repair all damage. Contractor shall pay all costs of such repairs unless other arrangements have been made.
2. Contractor shall subcontract utility locate firm 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 that were not staked are encountered and damaged by Installer, Installer shall repair them at no cost to the Owner. If Contractor damages staked or located utilities, they shall also be repaired 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.

1.07 WARRANTY/GUARANTY: - Manufacturer shall warrant materials against defects for a period of one year from date of Final Completion. Installer(s) shall guaranty workmanship for similar period.

- A. Settling of backfilled trenches that may occur during guaranty period shall be repaired at no expense to Owner, including complete restoration of damaged property.
- B. Expenses due to vandalism before substantial completion shall be borne by Contractor.
- C. Owner will maintain turf and planting areas during warranty period, so as not to hamper proper operation of irrigation system.

1.08 MAINTENANCE:

- A. Furnish the following maintenance items to Owner prior to final Acceptance:
 - 1. Two Sets of special tools required for removing, disassembling, and adjusting each type of valve supplied on this Project.
 - 2. Two six foot valve keys for operation of gate valves.
 - 3. Two quick coupler keys and two matching hose swivels for each type of quick coupling valve installed.
- B. Winterization – Contractor shall provide oversight and support to City Personnel during the winterization procedure.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. General Piping:
 - 1. Pressure Supply Mainline – HDPE DR11 (2”).
 - 2. Non-pressure Lines – Class 200 PVC, 1” minimum size allowed.
 - 3. PVC Sleeving if Required – Schedule 40 PVC.
- B. Plastic Pipe and Fittings:
 - 1. Identification Markings:
 - a. Identify all pipe with following indelible markings:
 - 1) Manufacturer's name.
 - 2) Nominal pipe size.
 - 3) Schedule of class.
 - 4) Pressure rating.
 - 5) NSF (National Sanitation Foundation) seal of approval.
 - 6) Date of extrusion.

2. HDPE Pipe - Pipe shall be manufactured from a pipe resin which meets ASTM D 3350-05 with a minimum cell classification of 445474C. Pipe shall be manufactured to the dimensions of ASTM F-714. The service factor to determine the pressure rating shall be 0.63. Pipe shall have a minimum pressure ratings of: DR 11, 200 psi. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material.

HDPE FITTINGS:

- a. Butt Fusion Fittings - Fittings shall be made from HDPE pipe resin meeting ASTM D 3350-05 with a minimum cell classification of 445474C, Molded Butt Fusion Fittings shall have a manufacturing standard of ASTM D-3261. Molded & fabricated fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans. Fabricated fittings must have the same pressure rating as the pipe; a DR less than the pipe shall be used. Fabricated fittings are to be manufactured using a Data Logger to record temperature, fusion pressure, and a graphic representation of the fusion cycle shall be part of the Quality Control records.
- b. Electrofusion Fittings - Fittings shall be made from resin or pipe meeting ASTM D 3350-05 with a minimum cell classification of 445474C.; Electrofusion Fittings shall meet the manufacturing standard of ASTM F-1055. Fittings shall have the same pressure rating as the pipe or higher unless otherwise specified on the plans.
- c. Flanged and Mechanical Joint Adapters - Flanged and Mechanical Joint Adapters shall be made from materials containing resin that meets ASTM D 3350-05 with a minimum cell classification of 445474C.
- d. Transitional Fittings- steel pipe to HDPE shall be per details and irrigation equipment schedule. Any substitutions must be approved by the project Engineer or City Personnel.

C. Valve Boxes:

1. Gate Valves, Quick Coupling Valves, Drain Valves, Drip Line Blow-out Stubs, and Wire Splice or Stub Box – Carson/Oldcastle #910-10, box as detailed, with purple lid
2. 1 inch through 2 inch Control Valves – Carson/Oldcastle #1730-12 box as detailed with purple lid.

D. 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.
 - b. Electrical Common Wire - AWG UFUL approved No. 14 direct burial copper wire or larger, if required to operate system as designed.
 - c. Wire Colors:
 - 1) Control Wires - Red.

- 2) Common Wires - White.
 - 3) Master Valve Wires - Blue.
 - 4) Drawing Spare Control Wires - Black.
 - 5) Drawing Spare Common Wires - Yellow.
 - d. 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.
 - e. Control Wire connections and splices shall be made with 3M DBY direct bury splice.
- E. Electric Control Valves - Size and type shown on Drawings having manual flow adjustment and manual bleed nut. All female threaded fittings shall be Spears SR stainless steel reinforced schedule 80 fittings.

PART 3 - EXECUTION

3.01 SITE CONDITIONS AND COORDINATION

- A. Contractor is responsible for demolition, salvage of equipment and new equipment routing and locations as coordinated and approved by the City of Louisville, the Contractor will be required to relocate the irrigation equipment, as necessary, at Contractor's expense.
- B. Contractor is responsible to notify Consultant of any field conditions that vary from the conditions shown on the Irrigation Construction Documents. If Contractor fails to notify Consultant of these conditions, Contractor will be held responsible for all costs associated with system adjustments required due to the change in field conditions.

3.03 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.
- B. Underground Utilities shall be installed prior to installation of irrigation system. If irrigation installation takes place prior to utility installation, Contractor shall notify Owner of this condition in writing prior to commencement of irrigation installation.

3.04 PREPARATION:

- A. Staking shall Occur as Follows:
 - 1. Mark, with powdered lime, routing of pressure supply line. Contact Consultant 48 hours in advance and request review of staking. Proposed locations of all trees shall be field staked by Contractor and approved by Owner prior to Consultant review of irrigation 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. Contractor shall contact Consultant if field spacing varies by +/- 10% of the spacing shown on the irrigation plans. If Contractor fails to notify Consultant of variances exceeding 10%, Contractor assumes full responsibility for the costs associated with any required system modifications deemed necessary by the Consultant or Owner.
- 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 – To match depth of sleeved material.
 - 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/Communication Cable - Side of pressure main or at 18 inch depth if installed in a separate trench with no mainline piping..
 - f. Drip Tubing - 12 inches from top of pipe.

3.05 CONSTRUCTION ZONE TRAFFIC CONTROL:

PART 1 - GENERAL

1.1 DESCRIPTION

Construction zone traffic control shall apply to any and all construction and related construction on the Project to complete the work.

This work consist of furnishing, installing, moving, maintaining and removing temporary traffic signs, advance warning arrow panels, barricades, channelizing devices and flagging as required by the Manual on Uniform traffic Control Devices.

PART 2 - EXECUTION

2.1 METHOD OF HANDLING TRAFFIC

A copy of the Right of Way Permit and the approved MHT shall be available at the project site in order that City personnel may verify compliance with the specified traffic control requirements.

Approval of the proposed MHT does not relieve the Contractor of liability specifically assigned to him under the contract. The Contractor shall erect and maintain warning lights, signs, barricades, and sufficient safeguards around all excavations, embankments, and obstructions.

The Contractor shall coordinate and cooperate fully with agents of the City of Louisville, utility owners, and other contractors. He shall also coordinate and cooperate fully with agents of other entities to assure adequate and proper traffic control is provided.

The Contractor is advised that other significant construction might be occurring in the area and that he shall cooperate fully with the City of Louisville and all other contractors occupying public right-of-way in terms of work location, work schedule and traffic control requirements.

All traffic control devices supplied by the contractor must be maintained in good and clear condition and meet minimum national standards for reflectivity. Devices shall comply with minimum size and shape as specified in the MUTCD. **No bent, broken, damaged, defaced, dented, dirty, discolored, faded, non-conforming traffic control devices and/or supports shall be used in this project.**

All traffic control devices shall bear the name, address, and phone number of the barricade company that owns them. The phone number shall be a 24-hour a day dispatched hotline in the event an emergency situation occurs where additional devices are needed or existing devices must be removed.

The Contractor shall install construction traffic control devices in locations that do not block or impede sidewalks for pedestrians, or bicyclists or other existing traffic control devices.

All existing traffic control devices, including traffic signs that are compatible with the construction zone traffic control shall remain visible and fully operational. If any devices are incompatible with the temporary construction traffic control devices, they shall be covered, relocated or removed.

The Contractor shall not be allowed to begin operations, which require traffic control until the setup of traffic control devices is completed. Also, the Contractor shall clear his operations allowing 30 minutes for removals of traffic control devices in accordance with the designated hours of work and roadway closures.

During non-working hours, the roadways shall be restored to safe pre-construction travel conditions for the free flow of traffic.

Any existing traffic signs removed or relocated during construction as part of the approved traffic control plan are the responsibility of the Contractor to reset upon completion of construction, unless noted otherwise in the plans or specifications. Existing signs may not be removed without prior approval of the Engineer.

The Contractor shall not have construction equipment or materials in the lanes open to traffic at any time. Brief lane closures (of 5 minutes or less), as approved by the Engineer, may be permitted for moving construction equipment. Flaggers will be required for such operations. All personal vehicles and construction equipment parking will be prohibited where it conflicts with safety, access, or flow of traffic.

During non-construction periods (evenings, weekends, holidays, etc.) all work shall be adequately protected to ensure the safety of vehicular and pedestrian traffic, using materials meeting the approval of the Engineer.

Lane widths in work zones shall be 12 feet, minimum.

Any portable device that requires weight to prevent overturning shall be weighted with appropriate sized sand bags. Rocks, asphalt, or any other debris will not be permitted.

PART 3 - MEASUREMENT AND PAYMENT

3.1 CONSTRUCTION ZONE TRAFFIC CONTROL

Construction Zone Traffic Control shall not be paid for separately but shall be included in the work.

Traffic Control Supervisor will not be paid for separately, but shall be included in the work.

Preparation of the MHT will not be paid for separately but shall be included in the work.

3.06 INSTALLATION: Locate other equipment as near as possible to locations designated. Consultant shall review deviations prior to installation. **Follow directions as shown on drawings, some notes below may not apply.**

- A. HDPE/POLY 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 degrees F. When pipe installation 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.
 - 1. HDPE Pipe - Lay pipe and make all plastic to plastic, fusion joints in accordance with manufacturer's recommendations.

- a. FUSION:

Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe supplier's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe supplier. The butt fusion joining will produce a joint weld strength equal to or greater than the tensile strength of the pipe itself. All field welds shall be made with fusion equipment equipped with a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the Quality Control records.
 - b. Mechanical joining may be used where the butt fusion method can not be used. Mechanical joining will be accomplished by either using a HDPE flange adapter or a substitute method as approved by the Consultant.
 - c. Hot gas fusion, threading, solvents, and epoxies will not be used to join HDPE pipe.
- B. 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 3M DBY 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. Maintenance spare wires - In addition to spare wires labeled on drawings, extend two spare #14 AWG UFUL control wires and one spare #14 AWG UFUL common wire from controller pedestal to the end of each and every leg of mainline. Label maintenance spare wires at controller and wire stub box.
- C. Electric Control Valves - Install cross-handle four inches below finished grade where shown on Drawings as detailed. When grouped together, allow minimum of 12 inches between valve box sides. Install each remote control valve in a separate valve box. Install valve box flush with grade or when present flush with surfacing material (rock mulch). When parallel to roadway, sidewalk or other permanent element or structure, control valve and box to be installed perpendicular to element or structure, spaced equally.

IRRIGATION SYSTEM RENOVATION

- D. Quick Coupling Valves - Install quick couplers on swing-joint assemblies as indicated on construction details; 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.
- E. 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 and flow sensors. 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.
- F. 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.
- G. 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 not cost to Owner.

Obtain permission to cut or break walks and/or concrete from Owner.

- H. Water Supply and Point of Connection - Water supply shall be extended as shown from water supply lines.

3.07 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. Pressure Testing - Conduct test in presence of Consultant. Arrange for presence of Consultant 48 hours in advance of testing. Supply force pump and all other test equipment. Compressed air shall not be used for pressure testing system.
 - 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.
 - 6. Pressure test shall be scheduled and passed prior to scheduling of Substantial Completion Walk-through.
- 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.
 - 6. During walk-through, expose all drip emitters under operations for observation by Consultant to demonstrate that they are performing and installed as designed, prior to placing of all mulch material. Schedule separate walk-through if necessary.
 - 7. Supply Consultant with prints of irrigation as-builts prior to scheduling substantial completion walk-through.
- D. Walk-Through for Final Completion:
 - 1. Arrange for Consultant's presence 48 hours in advance of walk-through.
 - 2. Show evidence to Consultant that Owner has received all accessories, charts, record drawings, and equipment as required before Final Completion

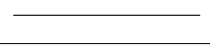
walk-through is scheduled.

3. Operate each zone, in its entirety for Consultant at time of walk-through to insure correction of all incomplete items.
4. Items deemed not acceptable by Consultant shall be reworked to complete satisfaction of Consultant.
5. If after request to Consultant for walk-through for Final Completion of irrigation system, Consultant finds items during walk-through which have not been properly adjusted, reworked, or replaced as indicated on list of incomplete 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 Consultant to conduct and document further walk-throughs as deemed necessary to insure compliance with Contract Documents.

3.08 ADJUSTING - Upon completion of installation, fine-tune entire system by adjusting patterns and break-up pins, and setting pressure reducing valves at proper and similar pressure to provide optimum and efficient coverage. Coordinate flow control and zone pressure adjustments with City of Louisville.

3.09 CLEANING - Maintain continuous cleaning operation throughout duration of work. Dispose of, off-site at no additional cost to Owner, all trash or debris generated by installation of irrigation system.

END OF SECTION

IRRIGATION SCHEDULE				
SYMBOL	MANUFACTURER	MODEL NO.	DESCRIPTION	DETAIL NO.
	RAIN BIRD	PESB-R	ELECTRIC CONTROL VALVE	4
	RAIN BIRD	44-NP	QUICK COUPLING VALVE	3
N/S	OLDCASTLE / CARSON	REFER TO SPECIFICATIONS AND DETAILS	VALVE BOXES	3 - 7
	MATCO-NORCA	10RW	FLANGED EPOXY COATED RESILIENT WEDGE GATE VALVE	5
		HDPE DR11 MAINLINE - 3" & LARGER	HDPE MAINLINE WITH FUSION WELDED FITTINGS	1 & 2
			EPOXY COATED SCHEDULE 40 STEEL PIPE	2
			EXISTING MAINLINE	
		CLASS 200 BE	PVC LATERAL	
	RAIN BIRD	XCZ-100-PRF-R	DRIF VALVE ASSEMBLY	6
	POLY-CAM	SERIES 500 STANDARD REDUCING TRANSITION	REDUCING TRANSITIONAL FITTING, 3" MPT STEEL WITH 4" HDPE BUTT FUSION, REQUIRES 3" EPOXY COATED SCH 40 STEEL FPT COUPLING	2
			TRANSITION, ISOLATION VALVE TO PVC, FLANGED CONNECTION	
			EXISTING CONTROLLER	
			EXISTING ROTOR SPRINKLER	
			EXISTING LATERAL LINE	
 CONTROLLER & STATION NO. CONTROL VALVE SIZE				
 A (controller) NUMBER OF SPARE WIRES WIRES TO INDICATED CONTROLLER - SEE CONSTRUCTION NOTES				

- A

FIELD LOCATE EXISTING 3" STEEL PUMP DISCHARGE PIPE AT THIS LOCATION OUTSIDE THE PUMP HOUSE. FIELD LOCATE EXISTING 2" WATER METER NORTH OF BUILDING. VERIFY WITH THE CITY OF LOUISVILLE. DISCONNECT AND SALVAGE 2" METER FOR REINSTALLATION. MAKE NEW 3" EPOXY COATED SCHEDULE 40 STEEL CONNECTION TO STEEL PUMP DISCHARGE PIPE USING 150 LB STEEL FLANGE OR APPROVED MECHANICAL JOINT. INSTALL NEW 3" EPOXY COATED SCHEDULE 40 STEEL PIPE AS SHOWN, WITH STEEL STUB TO MINER'S AND REINSTALL 2" METER ON NEW 3" STEEL PIPE DOWNSTREAM OF MINER'S CONNECTION. INSTALL 2' SECTION OF EPOXY COATED SCHEDULE 40 STEEL DOWNSTREAM OF 2" METER AND TRANSITION TO 4" HDPE DR11 USING TRANSITION FITTING, SEE SCHEDULE. INSTALL (27) NEW 14 AWG RED CONTROL WIRES AND (2)-12 AWG WHITE COMMON WIRES TO SERVE NEW CONTROL VALVE REPLACEMENTS. INSTALL ALL NEW CONTROL WIRES FROM EXISTING CONTROLLER TO NEW CONTROL VALVES WITH INSTALLATION OF NEW HDPE MAINLINE. ADD (12)-14 AWG SPARE CONTROL WIRES ROUTED FROM THE EXISTING CONTROLLER AND ALONG MAINLINE TO THE LOCATIONS IDENTIFIED ON THE PLAN.
- B

INSTALL NEW HDPE MAINLINE AS SHOWN TO NEW CONTROL VALVE LOCATIONS AND QUICK COUPLER LOCATIONS. LOCATIONS SHALL BE APPROVED BY THE CITY OF LOUISVILLE. ROUTE NEW HDPE MAINLINE 1'-2" OFFSET FROM THE EXISTING MAINLINE AND CONTROL VALVE LOCATIONS FOR MOST EFFICIENT CONNECTION TO EXISTING LATERAL LINES. ANY CONFLICTS WITH EXISTING UTILITIES OR EQUIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE CITY OF LOUISVILLE PERSONNEL FOR DIRECTION AND APPROVAL. REMOVE EXISTING CONTROL VALVES, VALVE BOXES AND QUICK COUPLERS, TURN EQUIPMENT OVER TO THE CITY OF LOUISVILLE PERSONNEL. CARE SHALL BE TAKEN TO MINIMIZE SOIL INTRUSION INTO EXISTING LATERAL LINES. INSTALL NEW CONTROL VALVES AND QUICK COUPLERS AT THE CITY APPROVED LOCATIONS AND MAKE NEW CLASS 200 PVC LATERAL LINE CONNECTION TO EXISTING LATERALS APPROXIMATELY 4' DOWNSTREAM FROM EXISTING VALVE LOCATION, MATCH NEW LATERAL LINE SIZE TO EXISTING LATERAL PIPE, SEE BLOW UP ON SHEET IR-1. BACKFILL ALL LATERAL PIPES AND OLD VALVE LOCATIONS TO MATCH EXISTING GRADE AND RE-SEED OR SOD AS NECESSARY.
- C

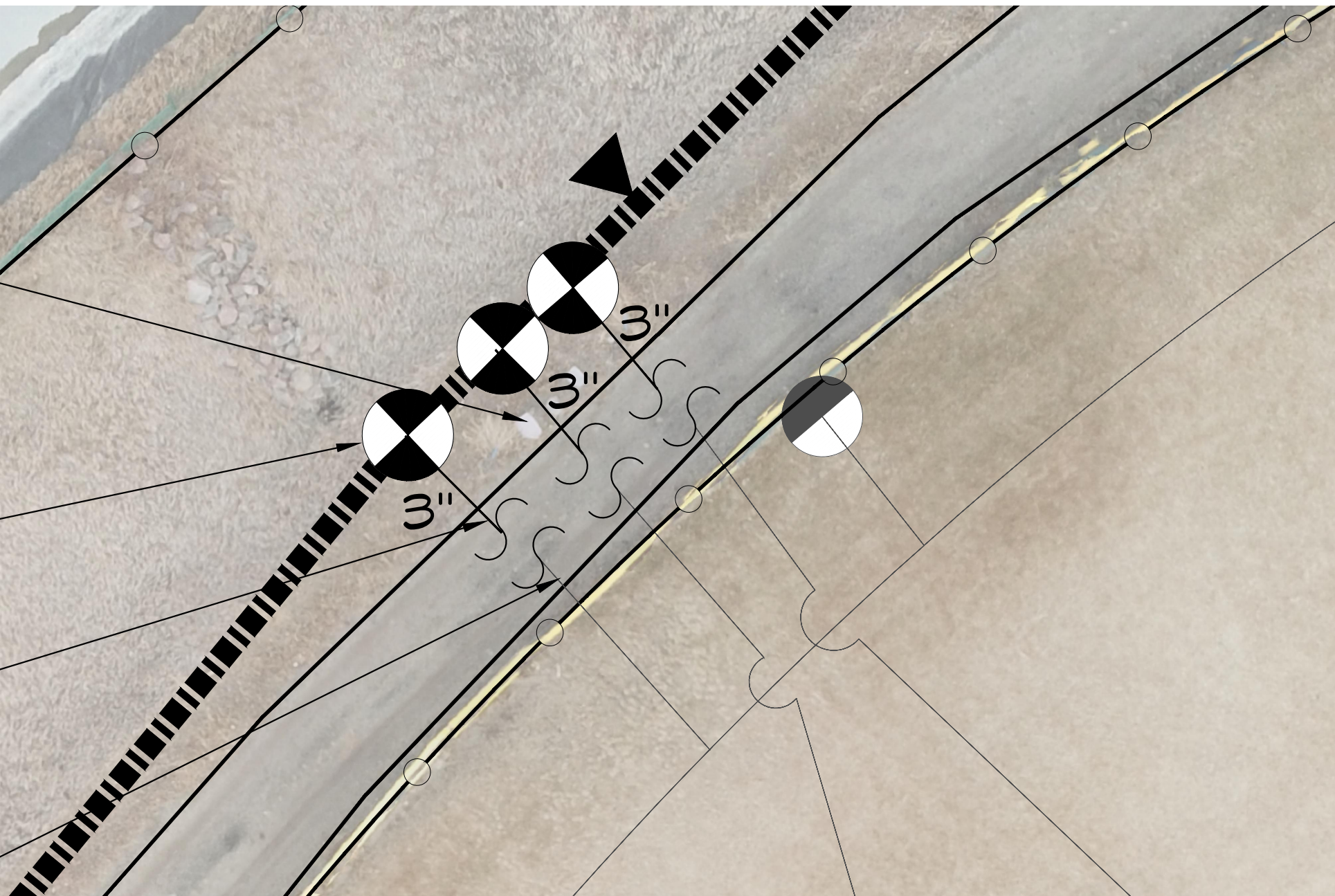
FIELD LOCATE EXISTING CONTROL VALVE SERVING SOUTH EDGE OF NORTHEAST BALL FIELD, POTENTIALLY RELOCATE VALVE LOCATION AS SHOWN AND MAKE NEW CLASS 200 PVC LATERAL CONNECTION TO EXISTING LATERAL PIPE, MATCHING NEW LATERAL LINE SIZE TO EXISTING LATERAL PIPE. FIELD VERIFICATION MAY BE NECESSARY.
- D

CONTRACTOR SHALL EXTEND AND CAP MAINLINE AT THIS LOCATION FOR FUTURE CONNECTION, SIZE AS NOTED. COIL 10' LENGTH OF CONTROL AND COMMON SPARE WIRES, QUANTITY AS INDICATED ON THE PLAN. CONTRACTOR TO USE ONLY APPROVED WATER PROOF WIRE CONNECTORS FOR ALL WIRE SPLICES. INSTALL ALL WIRE SPLICES IN 10 INCH ROUND VALVE BOX.
- E

FIELD LOCATE AND VERIFY SIZE OF EXISTING PVC MAINLINE TO MINERS AND MAKE TRANSITION CONNECTION TO NEW HDPE DR11 USING TRANSITION FITTING, SEE SCHEDULE. INSTALL FLANGED RESILIENT WEDGE ISOLATION GATE VALVE, MATCO 10RW, TO FLANGED STEEL PIPE AND TRANSITION TO EXISTING PVC USING DOWNSTREAM ISOLATION VALVE FLANGE. CONTRACTOR TO REPAIR AND/OR REPLACE ANY EXISTING IRRIGATION EQUIPMENT DAMAGED DURING NEW INSTALLATION OF HDPE MAINLINE.
- F

CONTRACTOR SHALL GRUB THIS VALVE AREA INCLUDING REMOVING OLD ROOTS AND ROCKS FROM BELOW GRADE. CONTACT THE CITY OF LOUISVILLE PRIOR TO CONSTRUCTION TO IDENTIFY THE AREA TO BE GRUBBED AND THE DEPTH TO WHICH REMOVE ROOTS AND ROCKS.

- EXISTING VALVE BOXES TO BE REMOVED AND BACKFILLED
- INSTALL NEW VALVE IN NEW VALVE BOX ON NEW HDPE MAINLINE
- CONNECT NEW LATERAL PIPE TO EXISTING LATERAL 2' DOWNSTREAM OF EXISTING VALVE LOCATION, NEW LATERAL PIPE SHALL MATCH EXISTING SIZE
- FIELD LOCATE AND CUT EXISTING LATERAL PIPE 2' DOWNSTREAM OF VALVE



VALVE REPLACEMENT BLOW UP

IRRIGATION CONSTRUCTION NOTES

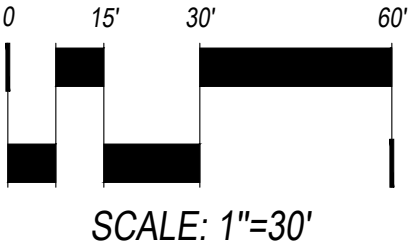
- DRAWINGS AND BASE INFORMATION - ALL BASE INFORMATION HAS BEEN DEVELOPED BY HYDROSYSTEMS*KDI AND FROM CITY OF LOUISVILLE AS-BUILTS. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY HYDROSYSTEMS*KDI OF ANY DISCREPANCIES BETWEEN THE UTILITY OR PLANTING PLANS AND THE IRRIGATION PLAN. IF CONTRACTOR FAILS TO NOTIFY HYDROSYSTEMS*KDI AND MAKES CHANGES TO THE IRRIGATION SYSTEM DESIGN, HE ASSUMES ALL COSTS AND LIABILITIES ASSOCIATED WITH THOSE FIELD CHANGES. REFER TO SPECIFICATIONS FOR ADDITIONAL PROJECT REQUIREMENTS. CONTACT IRRIGATION CONSULTANT FOR CURRENT SPECIFICATIONS IF NOT PROVIDED.
- SYSTEM PRESSURE - EXISTING IRRIGATION PUMP STATION PRESSURE IS ASSUMED TO BE 100 PSI, CONTRACOTR SHALL VERIFY EXISTING PRESSURE PRIOR TO INSTALLATION.
- EXISTING EQUIPMENT DEMOLITION - CONTRACTOR SHALL WALK THE EXISTING SYSTEM WITH CITY OF LOUISVILLE PERSONNEL TO VERIFY IRRIGATION EQUIPMENT TO SALVAGE, REMOVE AND TO REMAIN IN PLACE. ALL EXISTING CONTROL VALVES, ISOLATION GATE VALVES AND QUICK COUPLERS SHALL BE SALVAGED AND TURNED OVER TO THE CITY OF LOUISVILLE. EXISTING VALVE BOXES SHALL BE REMOVED AND EITHER DISPOSED OF OFF SITE OR IF IN GOOD CONDITION TURNED OVER TO CITY PERSONNEL. IRRIGATION MAINLINE AND CONTROL WIRES SHALL BE REMOVED WHERE NECESSARY, AND SHALL BE PRIMARILY ABANDONED IN PLACE UNDER GROUND. ALL AREAS WHERE EQUIPMENT HAS BEEN REMOVED SHALL BE BACKFILLED AND COMPACTED TO MATCH EXISTING GRADE. CONTRACTOR IS RESPONSIBLE TO RE-INSTALL MATCHING LANDSCAPE MATERIAL AND REPAIR ANY DAMAGED LANDSCAPE AREAS.
- NON-POTABLE WATER SOURCE - THIS SITE HAS BEEN DESIGNED TO BE IRRIGATED WITH NON-POTABLE RECLAIMED WATER. ALL VALVE HANDLES, VALVE BOX LIDS SHALL BE CONSTRUCTED OF PURPLE MATERIALS AND LABELED TO INDICATE NON-POTABLE WATER SUPPLY. ALL MAINLINE PIPING SHALL BE PURPLE, HAVE A PURPLE STRIPE OR BE IDENTIFIED BY PURPLE MARKING TAPE, AS REQUIRED BY THE SUPPLYING UTILITY. THE CONTRACTOR SHALL CONTACT THE RECLAIMED WATER SUPPLYING AGENCY TO OBTAIN THE REGULATIONS AND SPECIFICATIONS FOR IRRIGATION MAINLINE PIPE.
- EQUIPMENT INSTALLATION - IT IS THE INTENT OF THIS DESIGN THAT ALL IRRIGATION EQUIPMENT BE INSTALLED WITHIN PROPERTY LIMITS AND WITHIN LANDSCAPED AREAS. ANY EQUIPMENT OTHER THAN VALVE BOXES OR SLEEVING THAT CONTAINS PIPE OR WIRES SHOWN OUTSIDE OF THESE LIMITS IS SHOWN IN THAT LOCATION FOR GRAPHICAL CLARITY ONLY. ALL VALVE BOXES SHALL BE INSTALLED A MINIMUM OF 2'-0" FROM EDGE OF ANY PAVED SURFACES UNLESS SPECIFICALLY INDICATED ON PLANS AND AS APPROVED BY THE CITY OF LOUISVILLE. BOXES INSTALLED IN OPEN TURF AREAS SHALL BE KEPT TO EDGES AND STAKED FOR REVIEW IF ALONG HIGH TRAFFIC AREAS. ALL VALVE BOXES SHALL BE PLACED A MINIMUM OF 3'-0" FROM THE CENTERLINE OF ANY DRAINAGE SWALE. ALL VALVE BOXES WITHIN PAVEMENT SHALL BE TIER 15 RATED BOXES FOR HEAVY DUTY NON-DELIBERATE TRAFFIC. BOX LID COLOR SHALL BE PURPLE FOR RECLAIMED WATER SYSTEMS. ALL BOXES SHALL BE INSTALLED TO BE FLUSH WITH GRADE AND IN AN ORDERLY MANNER. WHERE MORTAR PAVING LIDS ARE INSTALLED ABOVE BOXES, IRRIGATION BOX WITH LID SHALL BE LOWERED TO ACCOMMODATE PAVING LID. REFER TO LANDSCAPE FOR ADDITIONAL INFORMATION, TO BE INSTALLED PER MANUFACTURE RECOMMENDATIONS.
- SPARE CONTROL WIRES - CONTRACTOR SHALL INSTALL SPARE CONTROL AND COMMON WIRES IN THE QUANTITY LABELED AT SPECIFIC LOCATIONS ON THE PLANS. INSTALL SPARE WIRES IN 10" ROUND VALVE BOX WITH QUICK COUPLING VALVE. REFER TO SPECIFICATIONS FOR WIRE COLOR. SEE IRRIGATION SCHEDULE FOR ADDITIONAL INFORMATION.
- PLANS AND SPECIFICATIONS - CONTRACTOR RESPONSIBLE TO ENSURE WORK CONFORMS TO PLANS AND SPECIFICATIONS. AT ONSET OF CONSTRUCTION, VERIFY PLANS ARE CURRENT. WHERE REQUIRED BY CITY OR TOWN, CONTRACTOR SHALL CONSTRUCT ONLY OFF CITY OR TOWN STAMPED PLANS. REVISIONS TO CITY OR TOWN STAMPED PLANS SHALL CONFORM TO CITY OR TOWN FIELD CHANGE PROCEDURES AND DOCUMENTATION.
- EXISTING IRRIGATION DAMAGE - CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISTING IRRIGATION SYSTEMS DAMAGED DURING NEW INSTALLATION. REPAIR OR REPLACEMENT SHALL BE DETERMINED BY OWNER OR OWNER'S REPRESENTATIVE AND PAID FOR BY THE LANDSCAPE CONTRACTOR.
- EXISTING TREE IRRIGATION - CONTRACTOR SHALL PROVIDE IRRIGATION DURING CONSTRUCTION TO EXISTING TREES AS REQUIRED.
- CONSTRUCTION SITE - CONTRACTOR SHALL SECURE THE CONSTRUCTION PER CITY OF LOUISVILLE DIRECTION.

A



MATCHLINE: SEE SHEET IR-3

DIRECTORY	
IRRIGATION SCHEDULE AND NOTES	IR-1
IRRIGATION PLANS	IR-2 - IR-3
IRRIGATION DETAILS	IR-4 - IR-5



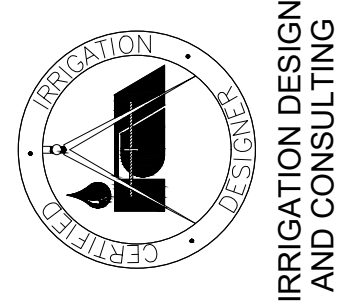
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LOUISVILLE, CO

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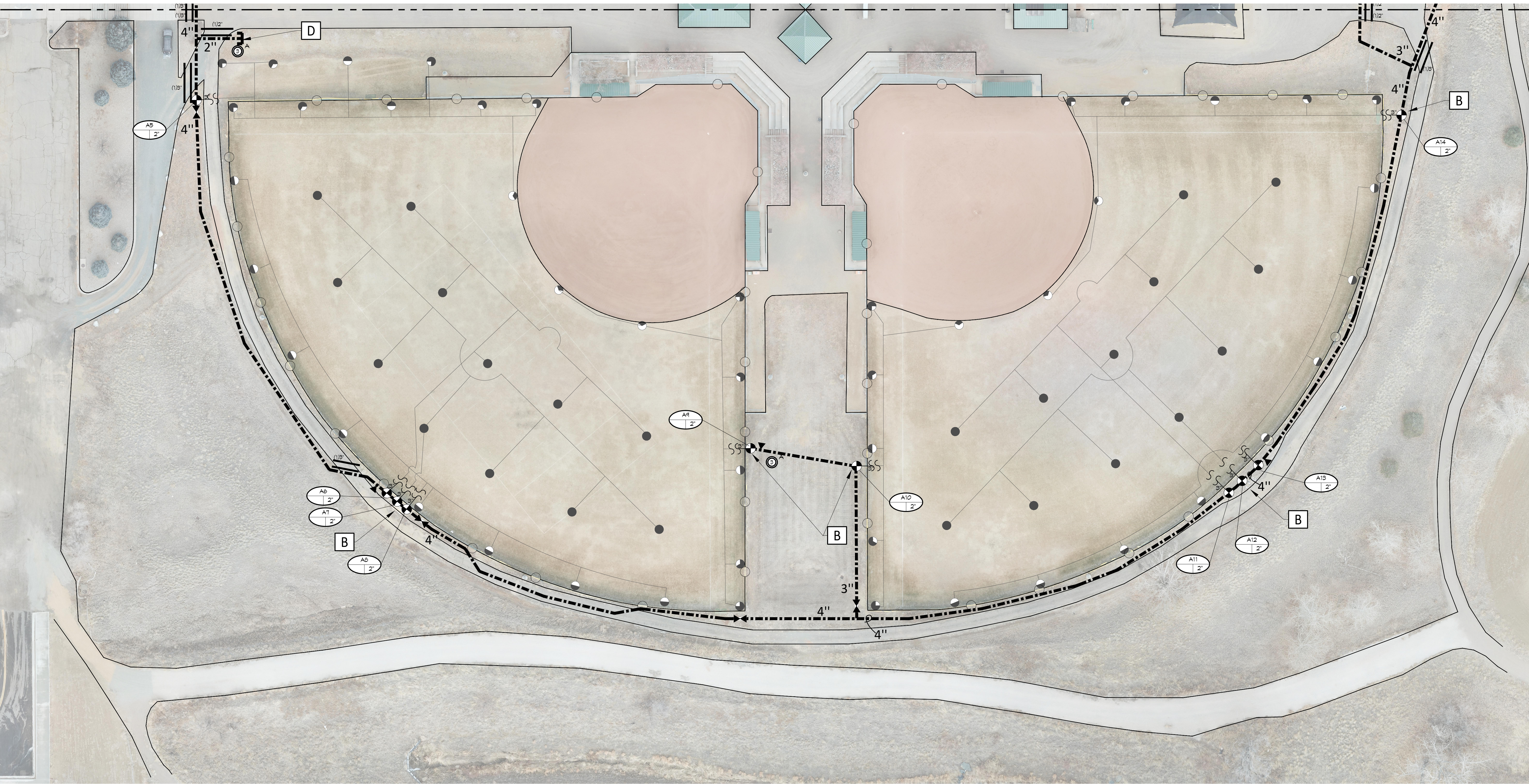
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IRRIGATION
PLAN

IR-2



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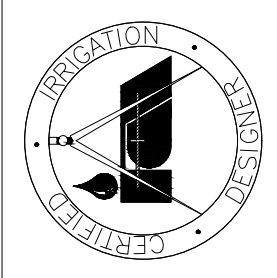
DIRECTORY	
IRRIGATION SCHEDULE AND NOTES	IR-1
IRRIGATION PLANS	IR-2 - IR-3
IRRIGATION DETAILS	IR-4 - IR-5



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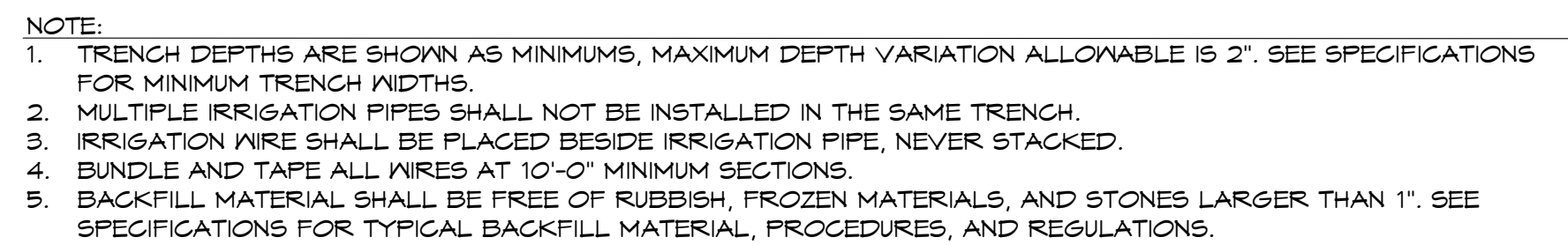
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LOUISVILLE, CO

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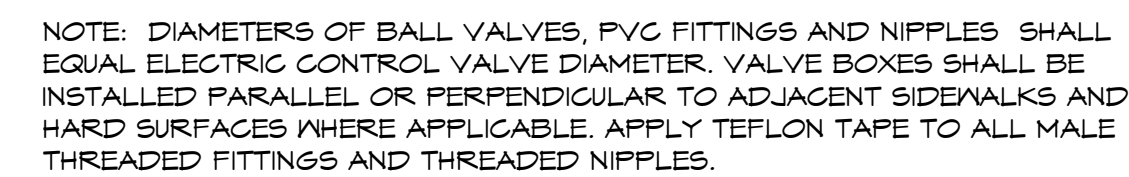
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**IRRIGATION
PLAN**

IR-3



1



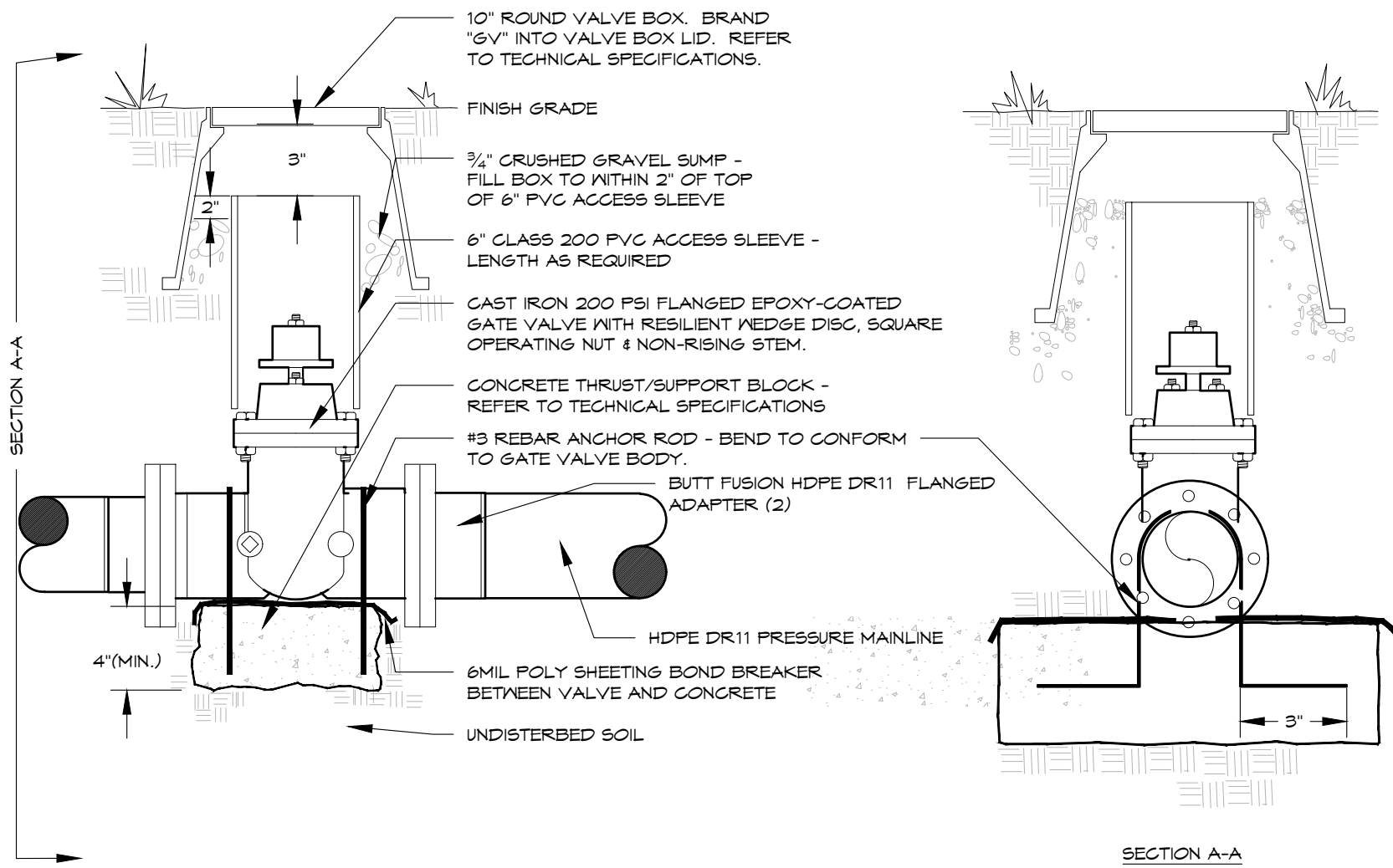
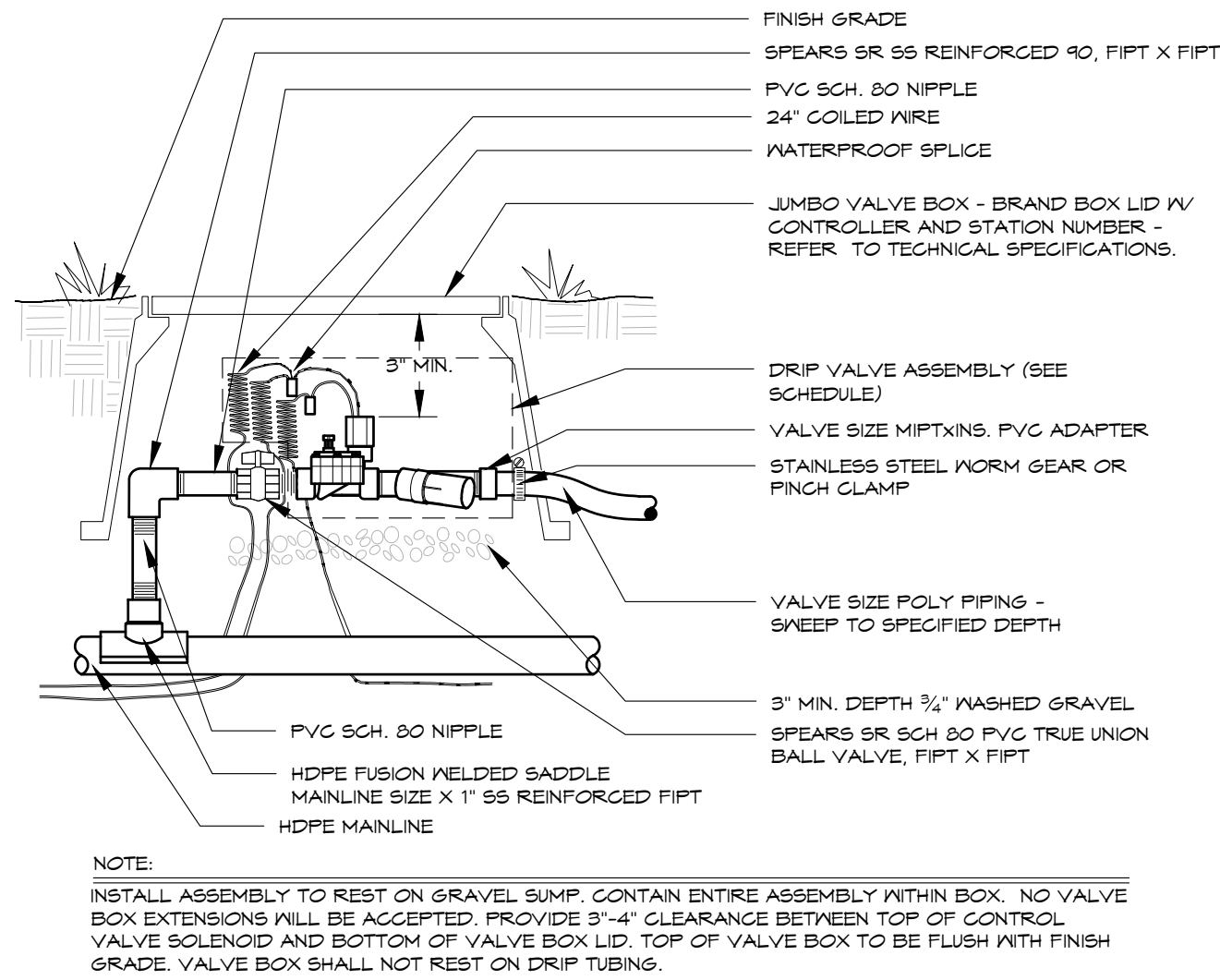
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REVISION:	BY	DESCRIPTION	DATE

IR-4

DRIP CONTROL VALVE

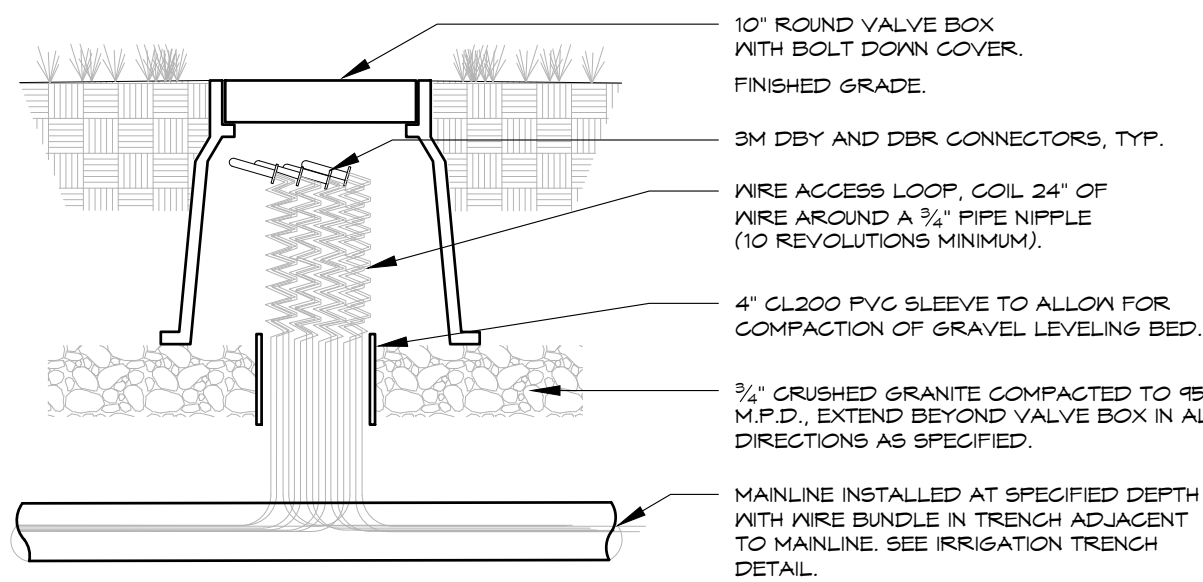
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HDPE GATE VALVE

3" & LARGER - REBARANCHOR

5

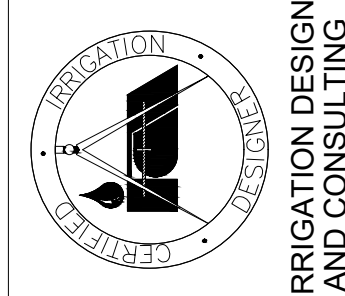


- NOTE:
1. SET TOP OF BOX LEVEL WITH FINISHED GRADE IN TURF AREAS AND LEVEL WITH TOP OF MULCH IN SHRUB BEDS.
 2. USE STANDARD RECTANGULAR VALVE BOX WITH BOLT DOWN LID FOR SPLICES OF MORE THAN TWENTY (20) WIRES.

WIRE SLICE BOX

24V WIRING SYSTEM

8



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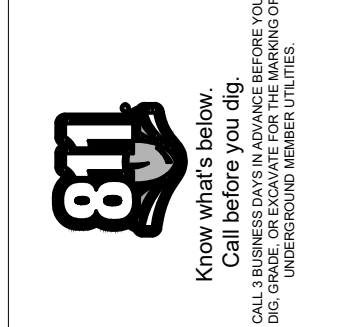
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REVISION: BY	DESCRIPTION	DATE	

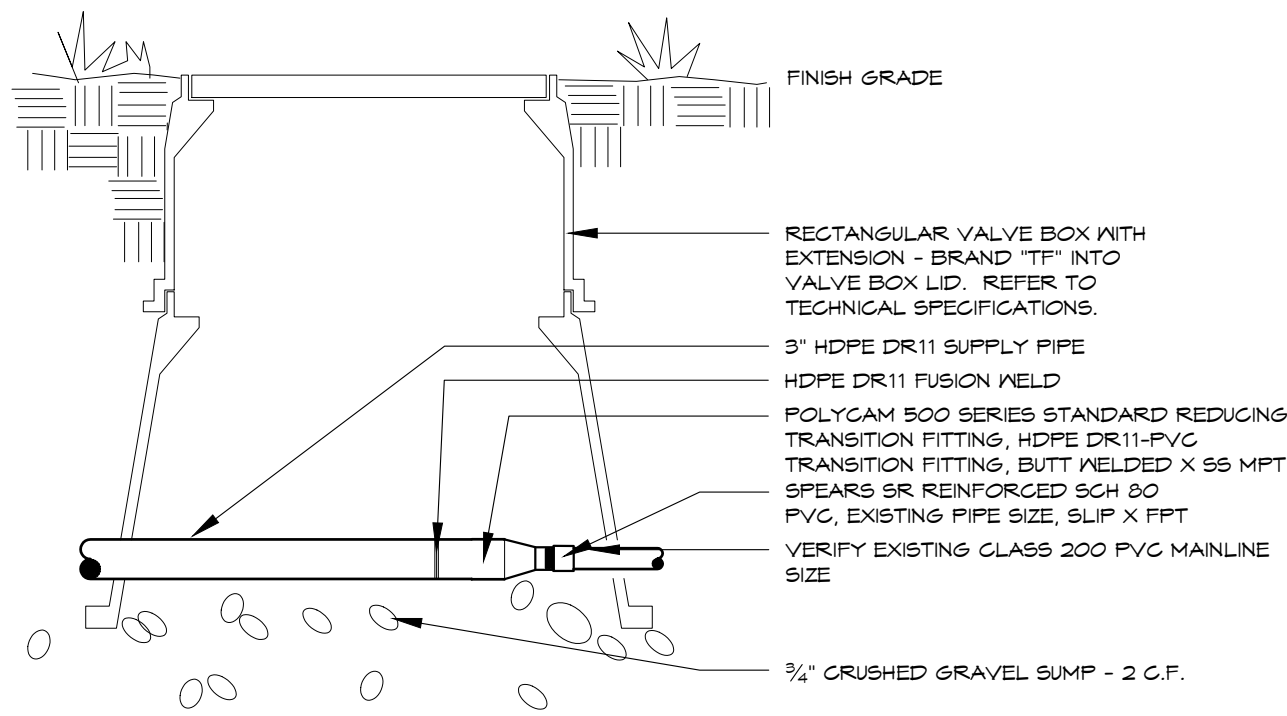
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IRRIGATION
DETAILS

IR-5

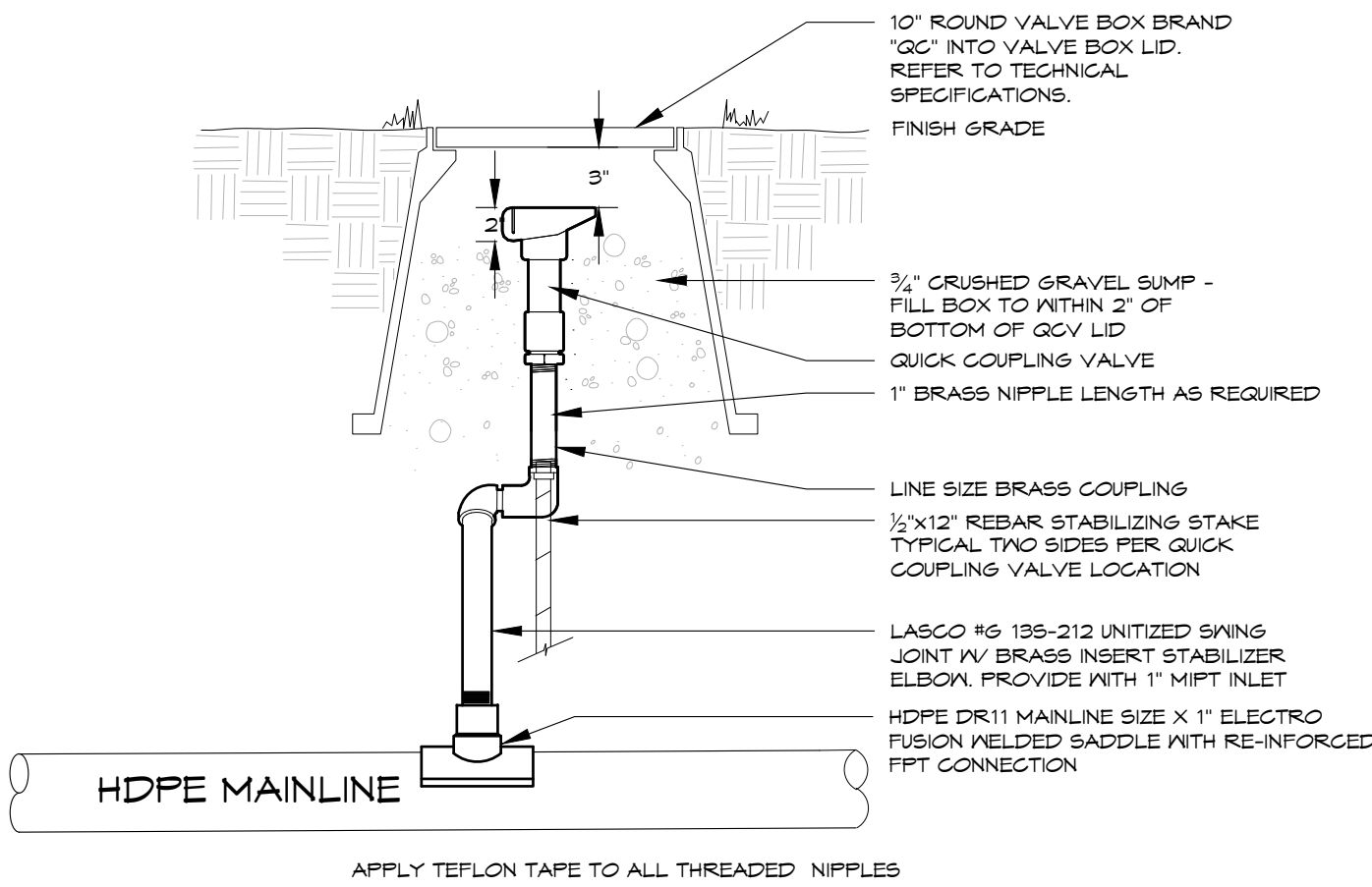


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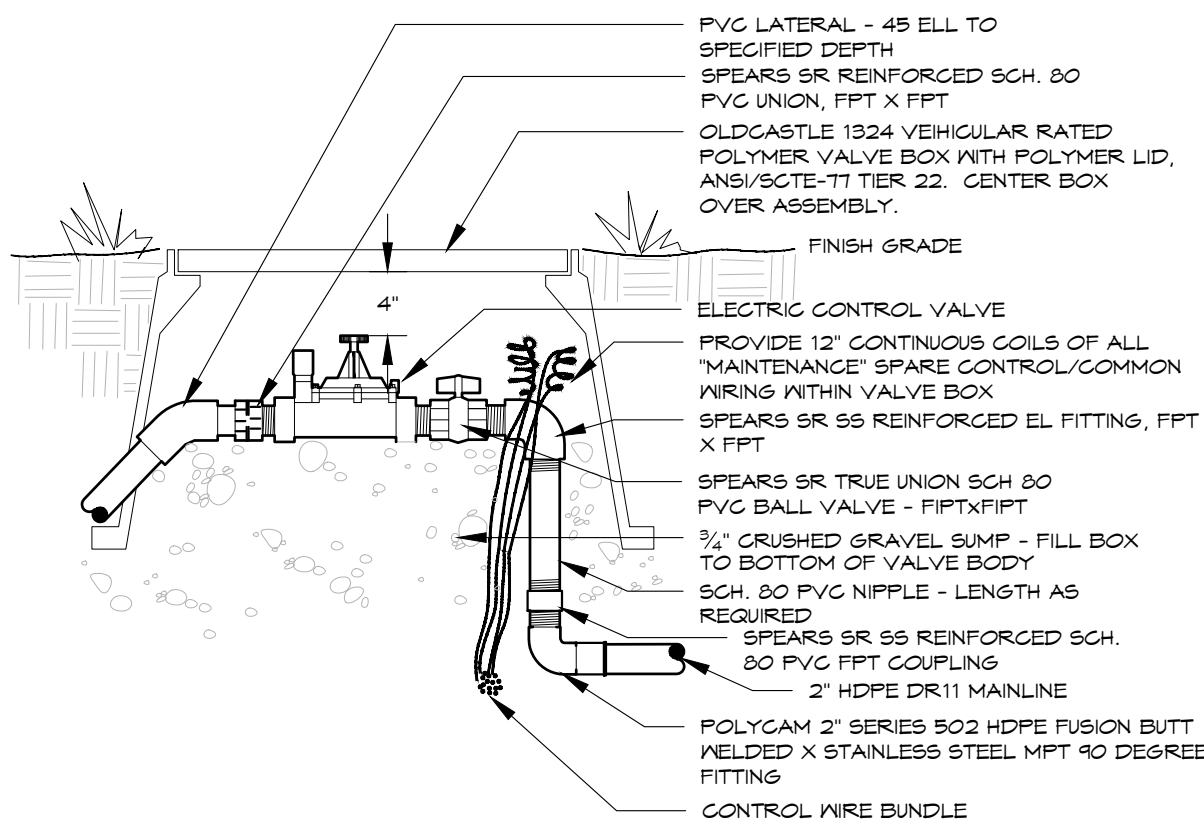
PVC TO HDPE TRANSITION FITTING

1



QUICK COUPLER VALVE

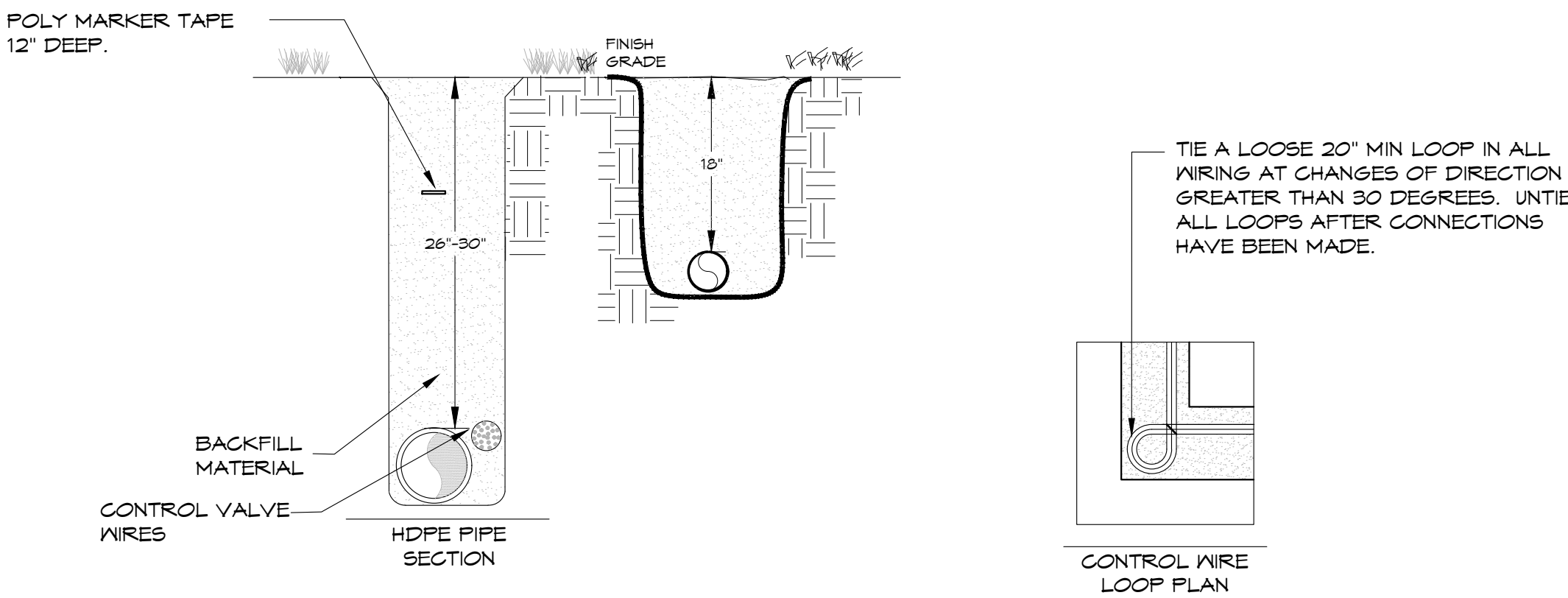
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NOTE: DIAMETERS OF BALL VALVES, PVC FITTINGS AND NIPPLES SHALL EQUAL ELECTRIC CONTROL VALVE DIAMETER. VALVE BOXES SHALL BE INSTALLED PARALLEL, OR PERPENDICULAR TO ADJACENT SIDEWALKS AND HARD SURFACES WHERE APPLICABLE. APPLY TEFLON TAPE TO ALL MALE THREADED FITTINGS AND THREADED NIPPLES.

ELECTRIC CONTROL VALVE

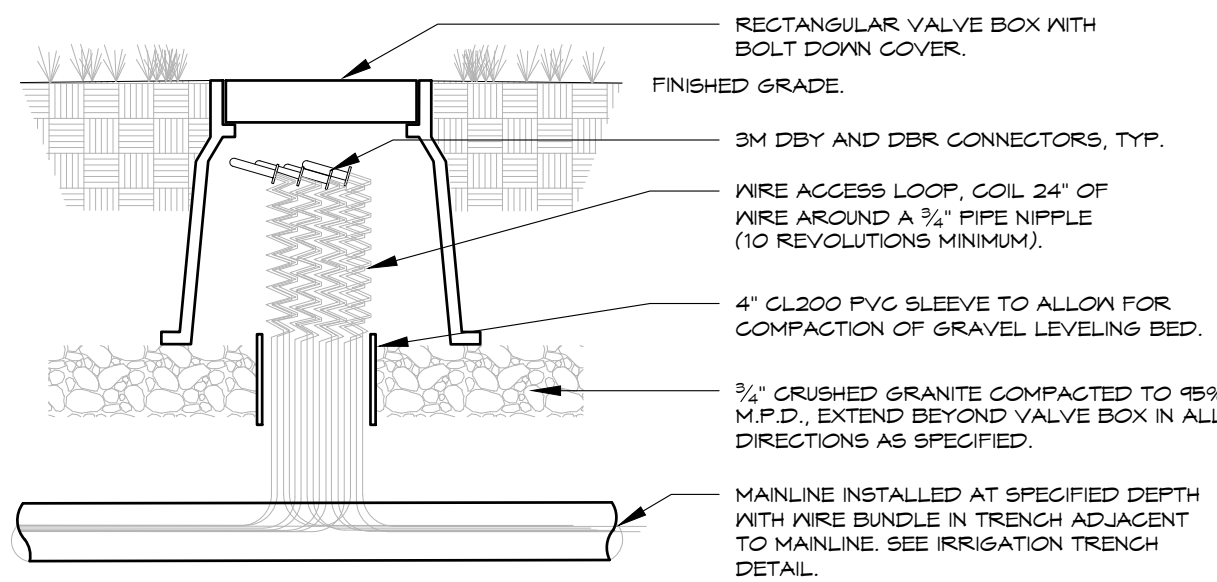
3



- NOTE:
1. TRENCH DEPTHS ARE SHOWN AS MINIMUMS, MAXIMUM DEPTH VARIATION ALLOWABLE IS 2". SEE SPECIFICATIONS FOR MINIMUM TRENCH WIDTHS.
 2. MULTIPLE IRRIGATION PIPES SHALL NOT BE INSTALLED IN THE SAME TRENCH.
 3. IRRIGATION WIRE SHALL BE PLACED BESIDE IRRIGATION PIPE, NEVER STACKED.
 4. BUNDLE AND TAPE ALL WIRES AT 10'-0" MINIMUM SECTIONS.
 5. BACKFILL MATERIAL SHALL BE FREE OF RUBBISH, FROZEN MATERIALS, AND STONES LARGER THAN 1". SEE SPECIFICATIONS FOR TYPICAL BACKFILL MATERIAL, PROCEDURES, AND REGULATIONS.
 6. TRENCH SETTLING OF ANY TYPE WILL NOT BE ACCEPTABLE, ALL TRENCH COMPACTION MUST BE APPROVED BY THE CITY OF LOUISVILLE

IRRIGATION TRENCH

4



- NOTE:
1. SET TOP OF BOX LEVEL WITH FINISHED GRADE IN TURF AREAS AND LEVEL WITH TOP OF MULCH IN SHRUB BEDS.
 2. USE STANDARD RECTANGULAR VALVE BOX WITH BOLT DOWN LID FOR SPLICES OF MORE THAN TWENTY (20) WIRES.

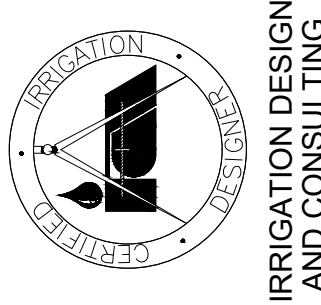
WIRE SPLICE BOX
24V WIRING SYSTEM

5

DIRECTORY

IRRIGATION SCHEDULE, NOTES AND PLAN
IRRIGATION DETAILS

IR-1
IR-2



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LOUISVILLE, CO

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SHEET DESCRIPTION:
IRRIGATION
DETAILS

IR-2

IRRIGATION SCHEDULE				
SYMBOL	MANUFACTURER	MODEL NO.	DESCRIPTION	DETAIL NO.
		DR-11	HDPE MAINLINE	
		HDPE TO PVC TRANSITIONAL FITTING	2" IPS SDR11 BUTT FUSION X 2" MALE 304 STAINLESS STEEL MPT	1
			WIRE SLICE BOX	4
			EXISTING CONTROL VALVE	
			EXISTING PVC MAINLINE	
			EXISTING SLEEVEING	
 A (controller) NUMBER OF SPARE WIRES - 2 CONTROL AND 1 SPARE WIRES TO INDICATED CONTROLLER - SEE CONSTRUCTION NOTES				

- IRRIGATION CONSTRUCTION NOTES
1.

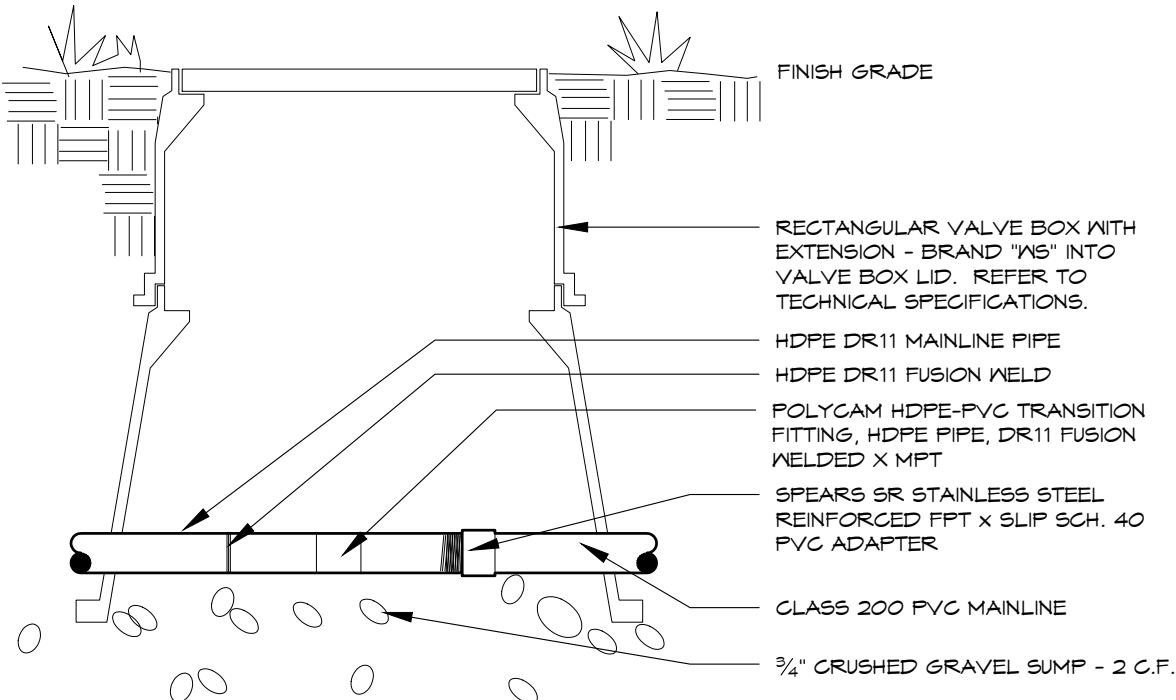
DRAWINGS AND BASE INFORMATION - ALL BASE AND AS-BUILT INFORMATION HAS BEEN DEVELOPED BY HYDROSYSTEMS-KDI USING SYSTEM INFORMATION COMMUNICATED BY CITY PERSONNEL. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY HYDROSYSTEMS*KDI OF ANY DISCREPANCIES BETWEEN BASE PLANS AND THE EXISTING CONDITIONS. IF CONTRACTOR FAILS TO NOTIFY HYDROSYSTEMS*KDI AND MAKES CHANGES TO THE IRRIGATION SYSTEM DESIGN, HE ASSUMES ALL COSTS AND LIABILITIES ASSOCIATED WITH THOSE FIELD CHANGES. REFER TO SPECIFICATIONS FOR ADDITIONAL PROJECT REQUIREMENTS. CONTACT IRRIGATION CONSULTANT FOR CURRENT SPECIFICATIONS IF NOT PROVIDED.
2.

PIPING INSTALLATION -HDPE DR11 SHALL BE INSTALLED USING ONLY FUSION WELDED FITTINGS. INSTALL PVC MAINLINE USING SCHEDULE 40 FITTING AND THREADED CONNECTIONS.
3.

SPARE CONTROL WIRES - CONTRACTOR SHALL EXTEND THREE SPARE WIRES (ONE COMMON AND 2 CONTROL WIRES) ALONG WITH NEW HDPE MAINLINE AS SHOWN ON THE PLANS. INSTALL SPARE WIRES IN STANDARD VALVE BOX WITH ISOLATION VALVE. REFER TO SPECIFICATIONS FOR WIRE COLOR. SEE IRRIGATION SCHEDULE FOR ADDITIONAL INFORMATION.
4.

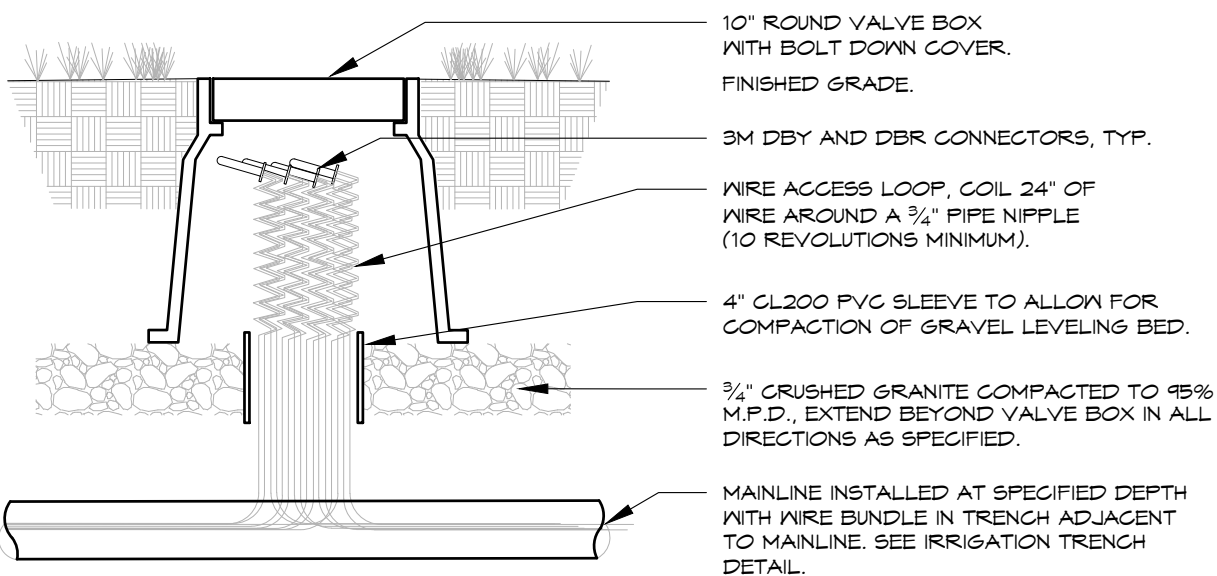
EXISTING IRRIGATION DAMAGE - CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISTING IRRIGATION SYSTEMS DAMAGED DURING NEW INSTALLATION. REPAIR OR REPLACEMENT SHALL BE DETERMINED BY OWNER OR OWNER'S REPRESENTATIVE AND PAID FOR BY THE LANDSCAPE CONTRACTOR.
5.

EXISTING IRRIGATION COORDINATION - COORDINATE SHUT DOWN OF EXISTING IRRIGATION SYSTEM IF NECESSARY WITH CITY OF LOUISVILLE PERSONNEL. CONTRACTOR SHALL CONTACT CITY OF LOUISVILLE PERSONNEL TO COORDINATE THE PUMP STATION CONNECTION 12 HOURS PRIOR TO ANY NEW CONSTRUCTION.



HDPE-PVC TRANSITION FITTING

1



- NOTE:
1.

SET TOP OF BOX LEVEL WITH FINISHED GRADE IN TURF AREAS AND LEVEL WITH TOP OF MULCH IN SHRUB BEDS.
2.

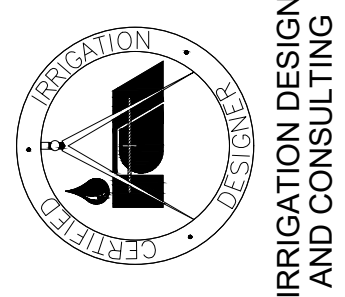
USE STANDARD RECTANGULAR VALVE BOX WITH BOLT DOWN LID FOR SPLICES OF MORE THAN TWENTY (20) WIRES.

WIRE SPLICE BOX
24V WIRING SYSTEM

2

DIRECTORY
IRRIGATION SCHEDULE, NOTES AND DETAILS
IRRIGATION PLANS

IR-1
IR-2



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SHEET DESCRIPTION: IRRIGATION NOTES & SCHEDULE			
IR-1			

NORTH SECTION



MATCHLINE: SEE ABOVE RIGHT

POINT OF CONNECTION #1 - 2"

CONTRACTOR SHALL EXCAVATE AND FIELD LOCATE EXISTING 2" PVC IRRIGATION MAINLINE AT THIS APPROXIMATE LOCATION. EXCAVATE TO CONCRETE NOSE AND LOCATE EXISTING IRRIGATION SLEEVE. CUT EXISTING PVC MAINLINE PIPE APPROXIMATELY 6' FROM EACH END OF THE EXISTING SLEEVE. CARE SHOULD BE TAKEN TO MOVE EXISTING CONTROL WIRES AWAY FROM MAINLINE WHEN CUTTING MAINLINE. REMOVE EXISTING 2" PVC MAINLINE FROM EXISTING SLEEVE AND RUN WATER OR SNAB OUT THE SLEEVE BY OTHER MEANS. CUT ALL EXISTING CONTROL WIRES ON EACH SIDE OF THE EXISTING SLEEVE LEAVING ENOUGH EXTRA WIRE TO BRING THEM INTO A RECTANGULAR VALVE BOX FOR SLICING WITH NEW WIRES ROUTED THROUGH THE SLEEVE. USE DBY WATERPROOF WIRE CONNECTORS ON ALL WIRE SPLICES. COORDINATE RE-CONNECTION AND SLICING OF CONTROL WIRES WITH CITY OF LOUISVILLE PERSONNEL.

AFTER EXISTING CONTROL WIRES ARE REMOVED AND THE SLEEVE IS WASHED OUT, INSTALL NEW 2" HDPE DR11 MAINLINE THROUGH SLEEVE. MAKE CONNECTIONS TO EXISTING PVC MAINLINE USING POLYCAM HDPE-PVC TRANSITION FITTING. PRIOR TO INSTALLING NEW HDPE PIPE IN THE SLEEVE TAPE NEW CONTROL WIRES TO HDPE PIPE WITH 20' EXTRA SLACK ON EACH SIDE OF PIPE. INSTALL SPARE WIRES, SLACK SECTION OF CONTROL WIRES AND SPLICES INTO 10" ROUND SPLICE BOX AND USE DBY WATERPROOF WIRE CONNECTORS. INSTALL TWO ANG #12 COMMON WIRES, AND ONE ANG #14 CONTROL WIRE FOR EACH EXISTING CONTROL WIRE PLUS TWO SPARE ANG #14 CONTROL WIRES. BUNDLE SPARE LENGTH OF CONTROL WIRE AT EACH TRANSITION FITTING AND IN EACH SPLICE BOX.

HAND TRENCH AROUND ALL EXISTING TREE ROOTS THAT ARE 2" AND LARGER. CONTRACTOR SHALL REPAIR/REPLACE ANY DAMAGED EXISTING IRRIGATION EQUIPMENT OR LANDSCAPE MATERIAL AT NOT EXPENSE TO THE OWNER. CONTRACTOR SHALL BACKFILL THE EXCAVATION AND REINSTALL LANDSCAPE TO MATCH EXISTING CONDITIONS.

POINT OF CONNECTION #2 - 2"

CONTRACTOR SHALL EXCAVATE AND FIELD LOCATE EXISTING 2" PVC IRRIGATION MAINLINE AT THIS APPROXIMATE LOCATION. EXCAVATE TO CONCRETE NOSE AND LOCATE EXISTING IRRIGATION SLEEVE. CUT EXISTING PVC MAINLINE PIPE APPROXIMATELY 6' FROM EACH END OF THE EXISTING SLEEVE. CARE SHOULD BE TAKEN TO MOVE EXISTING CONTROL WIRES AWAY FROM MAINLINE WHEN CUTTING MAINLINE. REMOVE EXISTING 2" PVC MAINLINE FROM EXISTING SLEEVE AND RUN WATER OR SNAB OUT THE SLEEVE BY OTHER MEANS. CUT ALL EXISTING CONTROL WIRES ON EACH SIDE OF THE EXISTING SLEEVE LEAVING ENOUGH EXTRA WIRE TO BRING THEM INTO A RECTANGULAR VALVE BOX FOR SLICING WITH NEW WIRES ROUTED THROUGH THE SLEEVE. USE DBY WATERPROOF WIRE CONNECTORS ON ALL WIRE SPLICES. COORDINATE RE-CONNECTION AND SLICING OF CONTROL WIRES WITH CITY OF LOUISVILLE PERSONNEL.

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HAND TRENCH AROUND ALL EXISTING TREE ROOTS THAT ARE 2" AND LARGER. CONTRACTOR SHALL REPAIR/REPLACE ANY DAMAGED EXISTING IRRIGATION EQUIPMENT OR LANDSCAPE MATERIAL AT NOT EXPENSE TO THE OWNER. CONTRACTOR SHALL BACKFILL THE EXCAVATION AND REINSTALL LANDSCAPE TO MATCH EXISTING CONDITIONS.

SOUTH SECTION

MATCHLINE: SEE BELOW LEFT



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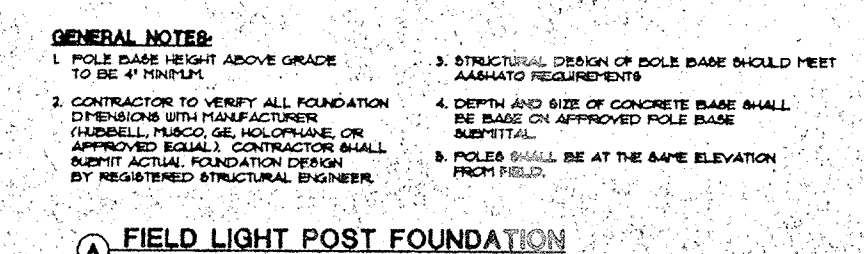
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SHEET DESCRIPTION:
IRRIGATION
PLAN

SYMBOL LEGEND	
SYMBOL	DESCRIPTION
---	UNDERGROUND CONDUIT, CONDUIT SIZE AS SHOWN
	20AMP WEATHERPROOF DUPLEX OUTLET (GROUND FAULT INTERRUPTER)
	WEATHERPROOF DISCONNECT SWITCH
	UTILITY TRANSFORMER (BY PSCO)
	FIELD LIGHTING FIXTURE (REFER TO SECTION 16-46-0)
	WEATHER-PROOF J-BOX
•	AIMING LOCATION 3' - 0" ABOVE ENTIRE FIELD
	MAINTAINED HORIZONTAL FOOTCANDLES, 3' - 0" ABOVE PLAYING FLOOR

3. ALL CONDUIT SHALL BE BURIED 24" BELOW FINISHED GRADE, MINIMUM. ENDS SHALL BE PLUGGED, FLAG AT FINISHED GRADE. COORDINATE LOCATION WITH ARCHITECT.
4. ELECTRICAL CONDUIT TO BE RUN ABOVE WATER AND SEWER UTILITY LINES WHERE LAID IN SAME TRENCH OR AT LINE CROSSING.
5. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF INSTALLATION BETWEEN ALL UTILITIES, INCLUDING (BUT NOT LIMITED TO) WATER LINES, SPRINKLER LINES, UNDERDRAIN STORM SEWER, SANITARY SEWER, TELEPHONE, ELECTRIC, SPRINKLER CONTROL WIRING, GAS, FIRE LINES, AND WATER AND SEWER SERVICE LINES. COORDINATION INCLUDES DETERMINING THE SCHEDULING OF WHICH UTILITIES ARE INSTALLED WHEN. CONTRACTOR SHOULD NOTE COORDINATION IS NEEDED BETWEEN EXCAVATION AND UTILITY INSTALLATION AS SEVERAL OF THE NEW UTILITIES ARE BEING PLACED AT ELEVATIONS SIGNIFICANTLY BELOW EXISTING GRADE.
6. CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE ELECTRICAL CONTRACTOR IN BID PACK 1 TO PROVIDE FOR A COMPLETE AND OPERATIONAL BASEBALL FIELD. NO ADDITIONAL COST TO THE OWNER WILL BE ALLOWED FOR NOT COORDINATING WITH THE OTHER CONTRACTORS.
7. CONTRACTOR SHALL COORDINATE SERVICE AMPACITY SIZE OF EACH FIELD LIGHT POLE WITH MANUFACTURER PRIOR TO INSTALLATION.

1. ONLY THOSE MANUFACTURERS THAT ARE LISTED ARE ALLOWED TO BID THE PROJECT.
2. THE BASIS FOR ALL CONTRACTOR BIDS SHALL INCLUDE QUANTITY (AS A MINIMUM) AND CONFIGURATION OF LIGHT FIXTURES SHOWN ON THIS DRAWING. IT IS UNDERSTOOD THAT SOME MANUFACTURERS FIXTURE PERFORMANCE MAY EXCEED THESE VALUES WITH THE QUANTITIES SHOWN.
3. IT WILL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE COMPLETE AIMING DIAGRAMS AND PHOTOMETRIC CURVES. THE CONTRACTOR IS TO INCLUDE IN THE COST OF THE FIELD LIGHTING PACKAGE EXTRA COSTS NEEDED FOR RE-AIMING AND RE-ADJUSTMENT MADE BY THE ENGINEER IN THE FIELD. REFER TO SPECIFICATIONS FOR FIELD MEASUREMENTS OF THE FIELD LIGHTING.



KEY NOTES:

- ① INSTALL RECEPTACLE AND CIRCUITING IN CONDUIT (FURNISHED UNDER BID PACK 1) AS SHOWN. THIS CONTRACTOR SHALL COORDINATE WITH CONTRACTOR IN BID PACK 1 TO PROVIDE FOR A COMPLETE OPERATIONAL SYSTEM.
- ② THIS CONTRACTOR SHALL INTERCEPT CONDUIT FURNISHED UNDER BID PACK 1 AND EXTEND TO EACH FIELD LIGHTING POLE. PROVIDE WIRING, CONDUIT, ETC. TO CIRCUIT EACH FIELD LIGHTING.
- ③ PROVIDE FOOTCANDLE VALUES FOR THE PLAZA AREA, AND LIGHT SPILLAGE FROM FIELD 80FT. AND 200FT. AWAY.
- ④ PROVIDE CIRCUITING TO SCOREBOARD THRU CONDUIT FURNISHED UNDER BID PACK 1. COORDINATE POWER REQUIREMENTS WITH GENERAL CONTRACTOR (208VOLT, 3PHASE, 4WIRE, 30AMPS.)
- ⑤ PROVIDE DUAL LEVEL SWITCHING CONTROL FOR NORTHEAST FIELD TO REDUCE LIGHTING LEVEL TO MATCH ADJACENT NORTHWEST FIELD. (I.e. 30 FOOTCANDLES INFIELD AND 20 OUTFIELD.)

DATE: 03-13-95

DOB NO.: 1257100

DRAWN: KES

CHECKED: SVG

REVISIONS:

SHEET CONTENTS:
ELECTRICAL
SITE PLAN

SHEET:

E3.2