

# LAKE HAVASU CITY

# CONTRACT DOCUMENTS

# AND

# TECHNICAL SPECIFICATIONS

# Dick Samp Park Phase 2

# PROJECT NUMBER PK1140

**LAKE HAVASU CITY**

**CONTRACT DOCUMENTS**

**VOLUME 1**

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01210 - MEASUREMENT AND PAYMENT

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027900- CHAINLINK FENCING

020844- IRRIGATION SYSTEM

029005 - GENERAL LANDSCAPE

029100 - LANDSCAPE ESTABLISHMENT AND MAINTENANCE

029140 - FINE GRADING & SOIL PREPARATION

029220 - TURF BY SODDING

029230 - HYDROSEEDING WITH NATIVE SEED

**The remaining applicable specifications can be accessed at:**

[**http://www.lhcaz.gov/community-investment/engineering/engineering-specifications**](http://www.lhcaz.gov/community-investment/engineering/engineering-specifications)

# DIVISION I - BID & CONTRACT DOCUMENTS

SECTION 00020

**NOTICE INVITING BIDS**

Lake Havasu City

**PROJECT NO.: PK1140 Contract No. 500082**

**PROJECT NAME:**  **DICK SAMP PARK PICKLEBALL COURTS – PHASE 2**

**PRE-BID MEETING: None**

**BID DUE DATE:** **August 5th, 2020**

**BID DUE TIME: 3:00 p.m., ARIZONA TIME**

**PROJECT DESCRIPTION:**

The “Project” consists of the phase 2 improvements to Dick Samp Park based on recommendations in the Field Assessment Report and the Dick Samp Park Master Plan prepared by Shepard Wesnitzer and Norris Design. Phase 2 improvements include; 8 new Pickleball courts on two post-tension slabs, additional parking, hardscape, landscaping, irrigation, and ramadas/shade structures for spectator and player seating.

**ENGINEER’S ESTIMATE:** $1,282,697

Notice is hereby given that sealed bids shall be received by the **City Clerk's Office, 2330 McCulloch Boulevard N., Lake Havasu City**, **Arizona, 86403** until **3:00 p.m.** **Arizona Time on August 5th, 2020.** All proposals received in proper form shall be publicly opened virtually and read aloud on the same day at 3:00 p.m., City Hall, 2330 McCulloch Boulevard N., Lake Havasu City, Arizona, 86403. Until further notice, all public openings held virtually may be attended by accessing the following video conferencing system:

To join the meeting on a computer or mobile phone:

https://bluejeans.com/2330864044?src=calendarLink

Phone Dial-in

+1.408.740.7256 (US (San Jose))

+1.888.240.2560 (US Toll Free)

Meeting ID: 233 086 4044

**QUESTIONS:** All questions that arise relating to this solicitation shall be directed in writing to [purchasing@lhcaz.gov](mailto:purchasing@lhcaz.gov) . To be considered, written inquiries shall be received at the above-referenced email address by July 22nd, 2020 3:00 p.m. Arizona Time. Inquiries received will then be answered in an Addendum.

**Bids must be clearly addressed to the City Clerk's Office, 2330 McCulloch Blvd. N, Lake Havasu City, Arizona, 86403,** and received no later than the exact time and date indicated above. Late bids will not be considered under any circumstances.

Bids must be submitted in a sealed envelope with the Project Number and the bidder's name and address clearly indicated on the envelope. All bids must be completed in ink or typewritten on a form to be obtained from the specifications and a complete Invitation for Bid returned along with the offer no later than the time and date cited above.

Bid documents and specifications are available on Lake Havasu City’s website at [www.lhcaz.gov](http://www.lhcaz.gov) or on DemandStar at [www.demandstar.com](http://www.demandstar.com). For documents obtained outside of DemandStar please contact Lynette Singleton, [purchasing@lhcaz.gov](mailto:purchasing@lhcaz.gov) to be added to the planholders’ list.

For technical information, contact Dustin Salisbury, Project Manager, at [SalisburyD@lhcaz.gov](mailto:SalisburyD@lhcaz.gov) with a copy to [purchasing@lhcaz.gov](mailto:purchasing@lhcaz.gov) .

**BONDS:**

Bid Bond: 10%

Labor and Material Bond: 100%

Faithful Performance Bond: 100%

**Project Completion Date:** **180 Days** after Notice to Proceed.

Lake Havasu City reserves the right to accept or reject any or all bids or any part thereof and waive informalities deemed in the best interest of the City.

*Pursuant to the Americans with Disabilities Act (ADA), Lake Havasu City endeavors to ensure the accessibility of all of its programs, facilities and services to all persons with disabilities. If you need an accommodation for this meeting, please contact the City Clerk's office at (928) 453-4142 at least 24 hours prior to the meeting so that an accommodation may be arranged.*

Publication Dates: Today’s News Herald July 7th and July 14th, 2020

Arizona Business Gazette July 9th and July 16th, 2020

\*\* END OF SECTION \*\*

## SECTION 00040

### INTENT TO BID NOTIFICATION

**ITB NO.: [######]**

**ITB TITLE: [TITLE]**

**CLOSING DATE & TIME: [MONTH DAY, 2019 at 3:00 p.m. Arizona Time**

**LETTER OF INTENT TO BID SUBMITTAL**

This is notification that it is our present intent to submit a bid in response to the above

referenced ITB. Please add our company to your planholders list.

The individual to whom all information regarding this ITB should be transmitted is:

Company Name:

Contact Name:

Street Address:

City, State, & Zip:

Phone Number: Fax Number:

E-Mail Address:

Submit this Letter of Intent by the deadline for requests for clarification and protests which must be physically received by MONTH DATE, 2019, end of day.

Clarification/Protest/Question/Letter of Intent to Bid

ITB No.: [######]

Lake Havasu City

Community Investment Department, Procurement

Email to: [purchasing@lhcaz.gov](mailto:purchasing@lhcaz.gov)

\*\* END OF SECTION \*\*

## SECTION 00100

### INFORMATION FOR BIDDERS

**1. RECEIPT AND OPENING OF BIDS**

The City of Lake Havasu City, Arizona, (hereinafter called the "Owner") invites Bids on the form attached hereto**.** All blanks must be appropriately filled in. The Bidder shall also complete and submit a form listing proposed subcontractors as enclosed herein. Any subcontractors proposed to be used on the project but not listed on this form shall not be considered when evaluating the Contractor’s qualifications and ability to perform the work. Bids for **Dick Samp Park Pickleball Courts – Phase 2,** will be received by the **City Clerk's office, 2330 N. McCulloch Boulevard, Lake Havasu City, Arizona 86403 no later than 3:00 P.M., Arizona Time, August 5th, 2020,** where said Bids will be publicly opened and virtually read aloud immediately thereafter at Lake Havasu City Hall.

The Owner may consider informal any Bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all Bids. Any Bid may be withdrawn prior to the above scheduled time for the opening of Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. No Bidder may withdraw a Bid within ninety (90) days after the actual date of the opening thereof.

**2. PREPARATION OF BID**

Each Bid must be submitted on the prescribed Form. Each Document must be submitted with an original signature of the Bidder, as well as all witnesses indicated therein.All blank spaces for Bid prices must be filled in, in ink or typewritten, in both words and figures.

Each Bid must be submitted in a sealed envelope bearing on the outside the name of the Bidder, the Bidder's address, and the name and number of the project for which the Bid is submitted. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed as specified in the Bid form.

1. **PRE‑BID MEETING**

The pre‑bid conference will be held for this project at the time and place stipulated in Section 00020 - Notice Inviting Bids, as modified by Addenda.

**4. FACSIMILE BIDS OR MODIFICATIONS**

No facsimile ("FAX") Bids or bid modifications will be accepted. Any modifications to the Bid shall be made by an authorized representative of the bidding company in person.

**5. QUALIFICATIONS OF BIDDER**

The Owner may make such investigations as he deems necessary to determine the qualifications of and the ability of the Bidder to perform the Work, and the Bidder shall furnish the Owner such information and data for this purpose as the Owner may request.

The Owner may request that the Bidder provide a list of key people for the project with their related work experience.

The Owner reserves the right to reject any Bid if the evidence submitted by or investigation of such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein in a timely manner. Conditional Bids will not be accepted.

All Bidders and listed subcontractors must be valid Arizona Licensed Contractors at the time of Bidding, approved by the Arizona State Registrar of Contractors to do the type and amount of work specified in these documents. In accordance with the Arizona State Registrar of Contractors, the Bidder must possess a minimum of a Class A Arizona Contractor’s License to perform the type and amount of work specified in these documents. **Failure of any bidder to possess all contractors’ licenses as listed in the bid packet, at the time of bidding, shall result in the bid being considered non-responsive and not in substantial compliance, and any such bid shall not be considered.** Refer to Section 00420, page 3, item 13.

**6. ARITHMETIC DISCREPANCIES IN THE BID**

A. For the purpose of the evaluation of Bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the Bid Schedule as submitted by Bidders:

1. Obviously misplaced decimal points will be corrected;

2. In case of discrepancy between unit price and extended price, the unit price will govern;

3. Apparent errors in extension of unit prices will be corrected;

4. Apparent errors in addition of lump sums and extended prices will be corrected; and

5. In case of discrepancy between words and figures in unit prices, the amount shown in words shall govern.

B. For the purpose of Bid evaluation, the Owner will evaluate the bids on the basis of the unit prices, extensions, and totals arrived at by resolution of arithmetic discrepancies as provided above.

**7. INCOMPLETE BIDS**

Failure to submit a Bid on all items in the Schedule will result in an incomplete Bid and the Bid may be rejected. **UNIT OR LUMP SUM PRICES MUST BE SHOWN FOR EACH BID ITEM WITHIN THE SCHEDULE.**

**NOTE: FAILURE TO INDICATE UNIT OR LUMP SUM PRICES IN THE APPROPRIATE COLUMN, WITH THE EXTENSION OF THE PRICES IN THE FAR-RIGHT COLUMN, WILL CAUSE THE BID TO BE “NON-RESPONSIVE”.**

**All forms indicated in the Bid Proposal, Section 00300, must be completely filled out, executed, and submitted with the Bid. Failure to do so will render the bid “non-responsive” and the bid will not be accepted.**

**8. BID SECURITY**

Each Bid must be accompanied by certified check, cashier's check, or a Bid Bond prepared on the form attached hereto or on a similar form acceptable to the Owner, duly executed by the Bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of ten percent (10%) of the Bid. Bid Bonds shall be valid for at least ninety (90) days after the date of the receipt of Bids. Such cash, check or Bid Bond will be returned to all except the three (3) lowest Bidders within fifteen (15) business days after the opening of Bids. The remaining checks, or Bid Bonds will be returned promptly after the Owner and the accepted Bidder have executed the Contract, or if no award has been made within ninety (90) days after the date of the opening of Bids, upon demand of the Bidder at any time thereafter, so long as he has not been notified of the acceptance of his Bid.

**9. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT**

The successful Bidder, upon his failure or refusal to execute and deliver the Contract, Bonds, and certificates required within ten (10) calendar days from the date of the Notice of Award, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the difference between his bid and the amount of the contract actually entered into with another party should he not enter into a contract at the bid price and provide the required payment and performance bonds and certificates of insurance. Liquidated damages for failure to enter into the contract shall not exceed the amount of the Bid Bond.

**10. SECURITY FOR FAITHFUL PERFORMANCE AND PAYMENT**

Simultaneously with his delivery of the executed Contract, the Bidder shall furnish **on the forms provided herein**, in 100% of the amount of this Contract, 1) a surety bond as security for faithful performance of this Contract, and 2) a surety bond as security for the payment of all persons performing labor on the project under this Contract and persons furnishing materials in connection with this Contract, and 3) a listing of all subcontractors who will be performing or providing more than one-half percent (0.50%) of the contract work, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner, listed on the Treasury Department's most current list (Circular 570 as amended), and authorized to transact business in the State of Arizona.

**11. POWER OF ATTORNEY**

Attorneys‑in‑fact who sign Bid Bonds or Contract bonds must file with each bond a certified and effectively dated copy of their power‑of‑attorney.

**12. LAWS AND REGULATIONS**

The Bidder's attention is directed to the fact that all applicable Federal Laws, State Laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

**13. METHOD OF AWARD**

A. The City will award the Contract on the basis of the Bid or Bids most advantageous to the City. In determining whether a Bid is most advantageous, in addition to price, the City may consider the following:

1. The ability, capacity, and skill of the Bidder to perform the Contract or provide the service indicated;

2. Whether the Bidder can perform the Contract or provide the service promptly, and within the time specified without delay or interference;

3. The character, integrity, reputation, judgment, experience, and efficiency of the Bidder;

4. The quality of performance on previous contracts;

5. The previous compliance with laws and ordinances by the Bidder;

6. The financial responsibility of the Bidder to perform under the Contract or provide the service;

7. The limitations of any license the Bidder may be required to possess;

8. The quality, availability, and adaptability of the product or service;

9. The ability of the Bidder to provide future maintenance and/or service;

1. The number and scope of any conditions attached to the Bid; and;
2. The life cycle, maintenance, and performance of the equipment or product being offered.

**14. OBLIGATION OF THE BIDDER**

At the time of the opening of Bids, each Bidder will be required to have inspected the site and to have read and to be thoroughly familiar with the Plans and Contract documents (including all Addenda, if applicable). The failure or omission of the Bidder to examine any form, instrument or document, or site changes due to natural causes, shall in no way relieve any Bidder from any obligation in respect to his Bid. Site changes due to natural causes prior to Bid opening shall not be cause for Bid alteration or withdrawal.

**15. TIME OF COMPLETION AND LIQUIDATED DAMAGES**

The Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" from the Owner, and to complete the work within **180 calendar days** of the date of the Notice to Proceed.

The Bidder further agrees to pay as liquidated damages, the sum indicated in the following Schedule of Liquidated Damages for each consecutive calendar day thereafter, plus any additional costs incurred by the Engineer as provided in Section 17 of the General Conditions, that the Contract remains incomplete. For the purposes of determining the Liquidated Damages for the project, the Original Contract Amount shall be that which is included in the Contract between the Owner and the Contractor for the project.

|  |
| --- |
| **SCHEDULE OF LIQUIDATED DAMAGES** |

|  |  |
| --- | --- |
| Original Contract Amount | Daily Charges |

|  |  |  |
| --- | --- | --- |
| From More Than | To and Including | Calendar Day or Fixed Rate |
| 0 | 25,000 | 210 |
| 25,000 | 50,000 | 250 |
| 50,000 | 100,000 | 280 |
| 100,000 | 500,000 | 430 |
| 500,000 | 1,000,000 | 570 |
| 1,000,000 | 2,000,000 | 710 |
| From More Than | To and Including | Calendar Day or Fixed Rate |
| 2,000,000 | 5,000,000 | 1,070 |
| 5,000,000 | 10,000,000 | 1,420 |
| 10,000,000 | ---0--- | 1,780 |

**16. CONDITIONS OF WORK**

Each Bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful Bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his Contract. Insofar as possible, the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.

**17. ADDENDA AND INTERPRETATIONS**

All questions that arise relating to this solicitation shall be directed in writing to:

Lynette Singleton

[purchasing@lhcaz.gov](mailto:purchasing@lhcaz.gov)

Community Investment Department

Lake Havasu City

2330 McCulloch Blvd. North

Lake Havasu City, AZ 86403

To be considered, written inquiries shall be received by the above-referenced contact by **July 22, 2020 end of day,** Arizona Time. Inquiries received will then be answered in an Addendum. Any and all such interpretations and any supplemental instructions will be in the form of written Addenda to the Specifications which, if issued, will be available to all prospective Bidders, not later than five (5) calendar days prior to the date fixed for the opening of Bids. Failure of any Bidder to incorporate any such Addendum or interpretation shall not relieve such Bidder from any obligation under his/her Bid as submitted. All Addenda so issued shall become part of the Contract documents.

No informal contact initiated by offerors on this solicitation will be allowed with members of City staff from the date of distribution of this solicitation until after the closing date and time for the submissions of quotations. All questions or issues related to this solicitation shall be submitted in writing.

**18. CONFLICT OF INTEREST**

Pursuant to A.R.S. Section 38-511, this Contract is subject to cancellation by Buyer if any person significantly involved initiating, negotiating, securing, drafting or creating the Contract on behalf of Lake Havasu City is, at any time while the Contract is in effect, an employee of any other party to the Contract in any capacity or a consultant to any other party of the Contract with respect to the subject matter of the Contract.

**19. NO COLLUSION**

The bidder will be required to complete, notarize and submit as part of this bid package the "No Collusion Affidavit" form, as attached herein. Failure of the bidder to submit a properly executed affidavit may be grounds for rejection of the bid.

**20. EMPLOYMENT ELIGIBILITY VERIFICATION**

The bidder will be required to complete, notarize and submit as part of this bid package the "Employer Verification of Employment Eligibility" form, as attached herein. Failure of the bidder to submit a properly executed verification of eligibility form may be grounds for rejection of the bid.

**21. EXAMINATION OF THE PLANS AND SPECIFICATIONS**

Each Bid shall be made in accordance with the Plans and Specifications which may be examined at the following locations:

1. Lake Havasu City, 2330 N. McCulloch Boulevard, Lake Havasu City, AZ 86403, 928.855.2116
2. B. Dodge Data & Analytics, 3315 Central Avenue, Hot Springs, AR, 71913, 871.375.2946, FAX 501.625.3544, www.construction.com, [dodge.bidding@construction.com](mailto:dodge.bidding@construction.com)
3. C. Colorado River Building Industry Association, 2182 McCulloch Blvd, Suite 3, Lake Havasu City AZ 86403, 928.453.7755, FAX 928.453.3175, www.crbia.org, [frontdesk@criba.org](mailto:frontdesk@criba.org)
4. D. Northern AZ Home Builders, 1500 E. Cedar Avenue, Suite 86, Flagstaff AZ 86004, 928.779.3071, FAX 928.779.4211, www.nazba.org, [info@nazba.org](mailto:info@nazba.org)
5. E. Performance Graphics Blueprinting, 4140 Lynn Drive, Suite 107, Fort Mohave, AZ, 86426, 928.763.6860, FAX 928.763.6835, [prints@pgblueprinting.net](mailto:prints@pgblueprinting.net)
6. F. Construction Market Data, 30 Technology Parkway South, Suite 500, Norcross, GA 30092-2912, 800.876.4045, FAX 800.303.8629, www.cmdgroup.com, [projects@cmdgroup.com](mailto:projects@cmdgroup.com)
7. G. ISqFt, 3301 N 24th Street, Phoenix, AZ, 85016, 800.364.2059, FAX 800.792.7508, www.isqft.com, [arizonaplanroom@isqft.com](mailto:arizonaplanroom@isqft.com)
8. H. Integrated Digital Technologies, LLC, 4633 E Broadway Blvd., Tucson, AZ 85711, PO Box 13086, Tucson AZ,85732, 520.319.0988, FAX, 520.319.1430,www.contractorsplanroom.com, [content@idtplans.com](mailto:content@idtplans.com)
9. I. Yuma/Southwest Contractors Association, 350 W. 16th Street, Suite 207, Yuma, AZ 85364, Phone: 928-539-9035, Fax: 928-539-9036, www.yswca.com, plans@yswca.com Updated 10/23/2018 00100-8
10. J. Arizona Builders Exchange, 1700 N. McClintock Drive, Tempe, AZ, 85281, (480) 227-2620, www.azbex.com, [rkettenhofen@azbex.com](mailto:rkettenhofen@azbex.com)
11. K. Construction Reports.com, 4110 N Scottsdale Road, Suite 335, Scottsdale, AZ, 85251, 480.994.0020, FAX 480.994.0030, www.constructionreports.com, [jess@constructionreports.com](mailto:jess@constructionreports.com)
12. L. Construction Reporter, 1609 2nd Street NW, Albuquerque, NM, 87102, 505.243.9793, FAX 505.242.4758, www.constructionreporter.com, [jane@constructionreporter.com](mailto:jane@constructionreporter.com)
13. M. PlanRoom Central at A&E Reprographics, 1030 Sandretto Drive, Suite F, Prescott, AZ, 86305, 928.442.9116, www.a-erepro.com, [planroom1@a-erepro.com](mailto:planroom1@a-erepro.com)
14. N. Shirley’s Plan Service, 425 S. Plumer Ave, Tucson, AZ, 85719, 520.791.7436, FAX 520.882.9208, www.shirleysplanservice.com, [shirley@shirleysplanservice.com](mailto:shirley@shirleysplanservice.com)
15. O. Construction Notebook Nevada, 3131 Meade Ave, Suite B, Las Vegas, NV, 89102- 7885, 702.876.8660, FAX 702.876.5683, [www.constructionnotebook.com](http://www.constructionnotebook.com)
16. P. The Blue Book Building & Construction Network, Jefferson Valley, NY 10535, 800.431.2584, www.thebluebook.com, info@thebluebook.com, [tdizon@mail.thebluebook.com](mailto:tdizon@mail.thebluebook.com)
17. Q. Integrated Marketing Systems (IMS), 945 Hornblend Street, Suite G, San Diego, CA 92109, 888.467.3151, FAX 858.490.8811, www.imsinfo.com , [ims@imsinfo.com](mailto:ims@imsinfo.com)

\*\* END OF SECTION \*\*

## SECTION 00300

### BID PROPOSAL

Lake Havasu City, Arizona

The undersigned, as bidder, declares that we have received and examined the documents entitled "**Dick Samp Park Pickleball Courts – Phase 2, Project No. PK1140”** and will contract with the Owner, on the form of Contract provided herewith, to do everything required for the fulfillment of the contract for the construction of the **Dick Samp Park Pickleball Courts – Phase 2, Project No. PK1140** at the prices and on the terms and conditions herein contained.

We agree that the Contract Documents include Volumes I and II of the Contract Documents as well as the referenced documents.

**We agree that the following shall form a part of this proposal and are included herein as our submittal:**

**Enclosed**

**Section Title **

**00300 Bid Proposal \_\_\_**

**00310 Bid Schedule \_\_\_**

**00400 Arizona Statutory Bid Bond \_\_\_**

**00420 Bidder’s Statement of Qualifications \_\_\_**

**00430 Affidavit of Contractor Certifying**

**That There Was No Collusion In**

**Bidding For Contract \_\_\_**

**00450 Hazard Communication Program \_\_\_**

**We acknowledge that addenda numbers \_\_\_\_\_ through \_\_\_\_\_ have been received and have been examined as part of the Contract Documents.**

We certify that our proposal is genuine, and not sham or collusive, nor made in the interest or behalf of any undisclosed person, organization, or corporation, and that we have not directly or indirectly induced or solicited any other bidder to put in a sham bid, or directly or indirectly inducted or solicited any other potential bidder to refrain from bidding, and that we have not in any manner sought by collusion to secure an advantage over any other bidder.

The bidder agrees that this Bid shall be good and may not be withdrawn for a period of ninety (90) calendar days after the scheduled closing time for receiving Bids.

Upon receipt of written notice of the acceptance of this bid, Bidder shall execute the formal Contract attached within 10 days and deliver a Performance Bond, Payment Bond, and Certificates of Insurance as required by Paragraph 25 of the General Conditions and the Special Provisions.

We hereby declare that we have visited the site and have carefully examined the Contract Documents relating to the work covered by the above bid or bids.

Enclosed herewith is a certified or cashier's check or bid bond, payable to Lake Havasu City, Arizona, in the amount of ten percent (10%) of the total bid. This check or bond is submitted as a guarantee that we will enter into a Contract, and furnish the required bonds in the event a contract is awarded us. The bid security attached, without endorsement, is to become the property of Lake Havasu City, Arizona, in the event the Contract and Bonds are not executed within the time set forth, as liquidated damages for delay and additional work caused thereby.

We understand that Lake Havasu City, Arizona reserves the right to reject any and/or all bids, or to waive any informalities in any bid, deemed by them to be for the best interests of Lake Havasu City, Arizona.

Dated in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_.

Respectfully Submitted By:

By:

Title:

Name of Firm:

Address:

Phone: FAX:

Seal - If bid by a Corporation:

Arizona Contractor's License No.: Type:

\*\* END OF SECTION \*\*

## SECTION 00310

### BID SCHEDULE

**LAKE HAVASU CITY**

**Dick Samp Park Pickleball Courts – Phase 2**

PROJECT NUMBER PK1140

Lake Havasu City Council

Lake Havasu City

2330 N. McCulloch Boulevard

Lake Havasu City, AZ 86403

The City Council:

Pursuant to request for bids to be opened the August 5th, 2020 at 3:00 P.M., Arizona Time, virtually and read aloud, of Lake Havasu City Hall, for the above project, the Contractor proposes to complete work, including furnishing all labor and materials, per the Specifications and Plans at the Following prices.

This Schedule of Items and Prices shall be completed in ink or typed by the Bidding Contractor. In case of discrepancy between the word and figure amount description, the word description shall control extensions.

Prices must be entered for each item and the appropriate subtotal and total blank shall be filled out. Bid prices shall include sales tax and all other applicable taxes and fees.

Bidder agrees to perform all the necessary work to complete the **Dick Samp Park Pickleball Courts – Phase 2, Project No. PK1140.**

ITEM ESTIMATED UNIT OF UNIT PRICE [[1]](#footnote-1)¹ ITEM

NO. DESCRIPTION QUANTITY MEASURE (Word & Figure Amount) TOTAL COSTS [[2]](#footnote-2)²

1. Sawcut existing AC Pavement 160 L.F. $ $
2. Remove and dispose existing AC Pavement 267 S.Y. $ $
3. Remove and dispose existing PCC Pavement 1073 S.F. $ $
4. Remove and dispose concrete curb 156 L.F. $ $
5. Remove and salvage park bench 1 EA. $ $
6. Clear and Grub 1 L.S. $ $
7. Soil Import 588 C.Y. $ $
8. Earthwork excavation 1405 C.Y. $ $
9. Earthwork embankment 1993 C.Y. $ $
10. Subgrade preparation 1 L.S. $ $
11. 4" Aggregate base 4,178 S.Y. $ $
12. 3” Asphaltic concrete 4,178 S.Y. $ $
13. 6” Curb and gutter 403 L.F. $ $
14. 6” Single curb 871 L.F. $ $
15. Drinking Fountain Drain 2 EA. $ $
16. Paint top of curb red 1,000 L.F. $ $
17. Curb termination 2 EA. $ $
18. Precast safety curb 4 EA. $ $
19. Curb and gutter to single curb transition 1 EA. $ $
20. Thickened asphalt edge 385 L.F. $ $
21. 4” sidewalk 111 S.F. $ $
22. Sidewalk ramp 1 EA. $ $
23. Install ADA parking stall 2 EA. $ $
24. Install Parking lot striping 1 L.S. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
25. 24’ Wide Driveway 1 E.A. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
26. 8” HDPE Storm Drain 40 L.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
27. Subgrade Preparation for 4” Concrete Work 4,695 S.Y. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
28. Place 4” Aggregate Base Course for PT Slab 2,022 S.Y. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
29. 6” Post Tension Slab System 17,800 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
30. 4” Depth Concrete Flatwork 24,197 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
31. Railing 565 L.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
32. Split Faced CMU Walls 692 L.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
33. Concrete Steps 258 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
34. Concrete Landscape Edger 120 L.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
35. 4’ Vinyl Coated Chain Link Fencing 597 L.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
36. 8’ Vinyl Coated Chain Link Fencing 625 L.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
37. 4’ Wide Gate 12 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
38. Pickleball Net Posts (2 in a set) 8 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
39. Pickleball Net 8 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
40. Pickleball Court Surfacing 17,800 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
41. Pickleball Lighting Footers and assoc. conduit 16 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
42. Irrigation Sleeving 1 L.S. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
43. 2” PVC Sch 40 Waterline 642 L.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
44. Water Fountain Assembly 2 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
45. Hose Connection Assembly 2 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
46. Curb Stop and Flushing Pipe Assembly 1 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
47. 4” SCH 40 Sleeves 60 L.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MISCELLANEOUS

1. Mobilization/Demobilization 1 L.S. $ $
2. Traffic Control 1 L.S. $ $
3. Erosion Control BMPs 1 L.S. $ $
4. Quality assurance and quality control testing 1 L.S. $ $
5. Construction staking 1 L.S. $ $

BASE BID TOTAL [[3]](#footnote-3)³ $ $

AMENITIES – Add Alternate

1. Bleacher (3-row, 27’) 15 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Round Picnic Table 3 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Fiberglass Permanent Umbrella 3 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Bike Rack 5 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Litter Receptacle 3 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Removable Bollard 1 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SHADE STRUCTURE – Add Alternate

1. Shade Canopy – 10’x10’ 9 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Shade Canopy – 10’x17’ 3 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

LANDSCAPE – Add Alternate

1. Topsoil Import and Place (4” depth) 10,709 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. ½” Rock Mulch 6,664 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 4”-8” Rip Rap 2,822 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Canopy Tree 5 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Ornamental Tree 21 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. #5 Shrub 69 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. #5 Accent Plants 104 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. #1 Ornamental Grass 41 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. #1 Perennial/Groundcover 34 EA. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Sod 1,223 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Turf Irrigation 1,223 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. Drip Irrigation 9,486 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
13. Native Seed Mix 9,830 S.F. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
14. Landscape Boulders 45 TON $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
15. Additional Irrigation Controller 1 EA $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

LIGHTING– Add Alternate

1. Pickleball Light Poles and Wiring 16 EA $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PARKING LOT LIGHTING – Add Alternate

1. Parking Lot Light Poles, Connection to Existing

System (Upgrades as necessary), Sleeving and

Pull Boxes for Future Fiber and Power Conduits

to Courts and Future Park Expansion. 1 L.S. $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Force Account 1 L.S. $ Twenty Five Thousand Dollars $ 25,000

**BASE BID TOTAL + FORCE ACCOUNT** **$** **$**

The unit prices for **Dick Samp Park Pickleball Courts – Phase 2, Project No. PK1140,** shall include all labor, materials, water disposal, bailing, shoring, removal, disposal, overhead, profit, insurance, and all other related costs and work to cover the finished work of the several kinds called for. Changes in the Contract shall be processed in accordance with Paragraph 16 of the General Conditions.

Bidder understands that the Owner reserves the right to reject any or all Bids, or portions thereof, and to waive any informalities in the bidding.

The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of ninety (90) calendar days after the scheduled closing time for receiving Bids.

Upon receipt of written notice of the acceptance of this Bid, Bidder shall execute the formal Contract attached within 10 days and deliver a Performance Bond, Payment Bond, and Certificates of Insurance as required by Paragraph 25 of the General Conditions and the Special Provisions.

The Bid security attached in the sum of $\_\_\_\_\_\_\_\_\_\_\_ is to become the property of the Owner in the event the Contract and Bond(s) are not executed and provided within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Bidder hereby acknowledges receipt of the following Addenda: \_\_\_, \_\_\_, \_\_\_.

RESPECTFULLY SUBMITTED BY:

BY: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TITLE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

FIRM: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ADDRESS: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PHONE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_FAX\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Seal ‑ if Bid by a corporation

AZ Contractor's License No: \_\_\_\_\_\_\_\_\_\_\_\_ Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*\* END OF SECTION \*\*

## SECTION 00400

### ARIZONA STATUTORY BID BOND

PURSUANT TO TITLES 28, 34 AND 41, ARIZONA REVISED STATUTES

(Penalty of this bond must not be less than 10% of the bid amount)

KNOW ALL MEN BY THESE PRESENTS:

That, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(hereinafter "Principal"), as Principal, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, (hereinafter "Surety"), a corporation organized and existing under the laws of the State of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, with its principal offices in the City of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, holding a certificate of authority to transact surety business in Arizona issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, are held and firmly bound unto Lake Havasu City, Arizona, (hereinafter "Obligee"), as Obligee, in the amount of Ten Percent (10%) of the amount of the bid of Principal, submitted by Principal to the Obligee for the work described below, for the payment of which sum, the Principal and Surety bind themselves, and their heirs, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for

**Dick Samp Park Pickleball Courts – Phase 2, Project No. PK1140**

NOW, THEREFORE, if the Obligee shall accept the proposal of the Principal and the Principal shall enter into a contract with the Obligee in accordance with the terms of the proposal and give the bonds and certificates of insurance as specified in the standard specifications with good and sufficient surety for the faithful performance of the contract and for the prompt payment of labor and materials furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter into the contract and give the bonds and certificates of insurance, if the Principal pays to the Obligee the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the proposal then this obligation is void. Otherwise it remains in full force and effect provided, however, that this bond is executed pursuant to the provisions of Section 34‑201, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of that section to the extent as if it were copied at length herein.

Witness our hands this \_\_\_day of\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_.

PRINCIPAL SEAL SURETY SEAL

By: By:

Attorney‑in‑Fact

Its:

Agency of Record

Agency Address

\*\* END OF SECTION \*\*

## SECTION 00420

### BIDDER'S STATEMENT OF QUALIFICATIONS

The Undersigned certifies the truth and correctness of all statements and of all answers to questions made hereinafter.

SUBMITTED TO: Lake Havasu City, Arizona

2330 N. McCulloch Boulevard

Lake Havasu City, AZ 86403

SUBMITTED BY: NAME: [ ] Corporation

[ ] Partnership

ADDRESS: [ ] Individual

[ ] Joint Venture

PRINCIPAL OFFICE: [ ] Other

(NOTE: Attach separate sheets as required)

1. How many years has your organization been in business as a Contractor?

2. How many years has your organization been in business under its present business name?

3. If a Corporation, answer the following:

Date of Incorporation:

State of Incorporation:

President:

Vice President(s):

Secretary:

Treasurer:

4. If a Partnership, answer the following:

Date of organization:

Type of Partnership:

(General/Limited/Assoc.)

Name and Address of all partners.

5. If other than a Corporation or Partnership, describe Organization and name Principals:

1. What percent of the work do you normally perform with your own forces?

List trades:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |

1. Have you ever failed to complete any work awarded to you? If so, indicate when, where and why:

8. Has any Officer or Partner of your Organization ever been an Officer or Partner of another Organization that failed to complete a construction contract? If so, state circumstances:

9. List major construction projects your Organization has under contract on this date:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Project Name** | **Name, Email Address & Telephone Number of Owner** | **Project Location** | **Contract Amount** | **Contract Date** | **Percent Complete** | **Scheduled Completion** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

10. List similar construction projects your Organization has completed in the past five years:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Project Name** | **Name, Email Address & Telephone Number of Owner** | **Project Location** | **Contract Amount** | **Date Awarded** | **Date Completed** | **Percent with Own Forces** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

11. List the construction experience of the principal individuals in your Organization:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Individual's Name** | **Construction Experience - Years** | **Within Your Organization** | | |
| **Present Position & Years Experience** | **Dollar Volume Responsibility** | **Previous Position & Years Experience** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

12. List states and categories in which your Organization is legally qualified to do business:

13. List all Arizona Contractor licenses currently held by your Organization; the status of each license; and provide a photocopy of each license with your bid proposal.

License Class / # Status

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please attach a list of additional Arizona Contractor licenses, if any.

14. Bank References:

15. Trade References:

16. Name of Bonding and Insurance Companies and Name and Address of Agents: Maximum Bonding Capacity

17. The Undersigned agrees to furnish, upon request by the Owner, within seven days after the Bid Opening, a current Statement of Financial Conditions, including Contractor's latest regular dated financial statement or balance sheet which must contain the following items:

Current Assets: (Cash, joint venture accounts, accounts receivable, notes receivable, accrued interest on notes, deposits, and materials and prepaid expenses), net fixed assets and other assets.

Current Liabilities: (Accounts payable, notes payable, accrued interest on notes, provision for income taxes, advances received from owners, accrued salaries, accrued payroll taxes), other liabilities, and capital (capital stock, authorized and outstanding shares par values, earned surplus).

Date of statement or balance sheet:

Name of firm preparing statement:

By:

(Agent and Capacity)

18. List of Subcontractors. In accordance with paragraph 1.0 of Instructions to Bidders, the following is a breakdown of all subcontractors anticipated to be used for completing this project and their approximate percentage of work to be performed.

The Bidder certifies that all Subcontractors listed are eligible to perform Work on public works projects pursuant to ARS 34-241.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Subcontractor |  | Description of Work |  | % of  Total Project |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  | Total % of all Subcontractor's work on project |  |  |

Total % for Prime Contractor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. Dated at this day of , \_\_\_\_\_\_\_\_\_

Name of Organization:

By:

Title:

\*\* END OF SECTION \*\*

## SECTION 00430

### AFFIDAVIT OF CONTRACTOR CERTIFYING THAT THERE WAS NO COLLUSION IN BIDDING FOR CONTRACT

STATE OF )

) ss

CITY OF )

(NAME OF INDIVIDUAL)

BEING DULY SWORN, DEPOSES AND SAYS:

THAT HE IS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(TITLE)

OF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(NAME OF BUSINESS)

THAT PURSUANT TO SECTION 34-253 OF THE ARIZONA REVISED STATUTES, HE CERTIFIES AS FOLLOWS:

THAT NEITHER HE NOR ANYONE ASSOCIATED WITH SAID

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(NAME OF BUSINESS)

HAS DIRECTLY, OR INDIRECTLY, ENTERED INTO ANY CONTRACT, PARTICIPATED IN ANY COLLUSION OR OTHERWISE TAKEN ANY ACTION IN RESTRAINT OF FREE COMPETITIVE BIDDING IN CONNECTION WITH THIS PROJECT.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NAME

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TITLE

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NAME OF BUSINESS

SUBSCRIBED AND SWORN TO BEFORE ME THIS \_\_ DAY OF \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_

MY COMMISSION EXPIRES: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NOTARY PUBLIC: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*\* END OF SECTION \*\*

## SECTION 00450

### HAZARD COMMUNICATION PROGRAM

Lake Havasu City

**HAZARD COMMUNICATION PROGRAM FOR**

(*Name of Company*)

The purpose of this program is to ensure that potential hazards and hazard control measures for chemicals used by this company are understood by company employees.

The written program is available for employee review at any time. It is located \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. A copy of the program will be provided to any employee or employee representative, upon request.

**CONTAINER LABELING:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will verify that all containers received for use by this

(name/title of individual)

company will:

\* be clearly labeled as to the contents, matching identification on MSDS;

\* note the appropriate hazard warnings;

\* List the name and address of the manufacturer.

No containers will be released for use until the above data is verified.

**MATERIAL SAFETY DATA SHEETS:**

Copies of MSDS's for all hazardous chemicals to which employees may be exposed will be kept

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be responsible for ensuring that:

(name/title of individual)

\* MSDS's for the new chemicals are available;

\* MSDS's will be available for review to all employees during each work shift;

\* Copies will be available on request.

**EMPLOYEE TRAINING AND INFORMATION:**

Each employee will be provided the following information and training before working in areas where hazardous chemicals exist. In addition, if a new hazardous material is introduced into the workplace, affected employees will be given new information and training concerning that material.

**A. Minimum Information Provided:**

(1) All operations and locations in the work area where hazardous chemicals are present.

**GENERAL INDUSTRY**

**A. Minimum Information Provided:**

(1) The location and availability of the written hazard communication program, including list(s) of hazardous chemicals used and related material safety data sheets;

(2) The method the company will use to inform employees of potential hazards of non-routine tasks (jobs that are not routine for an individual because of infrequency, location or type.)

**B. Minimum Training Provided:**

(1) Methods and observations used to detect the presence or release of a hazardous chemical in the work area (such as company monitoring programs, continuous monitoring device, visual appearance, odor or to other characteristics of hazardous chemicals;

(2) The physical and health hazards of chemicals in the assigned work area;

(3) The measures to take to protect against such hazards, including specific company procedures concerning work practices, emergencies and care and use of protective equipment.

(4) Details of the company hazard communication program, including explanation of the labeling system, the material safety data sheets, and how to obtain and use the appropriate hazard information.

(OPTIONAL) Upon completion of the training, each employee will sign a form acknowledging receipt of the written hazard communication program and related training.

**HAZARDOUS NON-ROUTINE TASKS:** (If applicable.)

If company employees are required to do hazardous non-routine tasks, such as welding in confined spaces, or cleaning of tanks, the employer must address how the employees doing the work will be informed about the specific hazards to which they will be exposed, what personal protective equipment will be provided and who will be responsible to oversee the operation or operations. If the company does not have any

hazardous non-routine tasks, line through this section and state "NO HAZARDOUS NON-ROUTINE TASKS".

**CHEMICALS IN UNLABELED PIPES:** (If applicable.)

If the company has chemicals in unlabeled pipes, the company must inform the employees of the hazards associated with those chemicals. If the company does not have any chemicals in unlabeled pipes, line through this section and state "NO CHEMICALS IN UNLABELED PIPES".

**INFORMING CONTRACTORS:**

Providing contractors and their employees with the following information is the responsibility of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

(Name/title of individual)

(1) Hazardous chemicals to which they may be exposed while on the job site;

(2) Measures the employees may take to lessen the possibility of exposure;

(3) Steps the company has taken to lessen the risks;

(4) Where the MSDS's are for chemicals to which they may be exposed;

(5) Procedures to follow if they are exposed.

**CONTRACTORS INFORMING EMPLOYERS:**

Contractors entering this workplace with hazardous materials will supply this employer with MSDS's covering those particular products the contractor may expose this company's employees to while working at this site.

LIST OF HAZARDOUS CHEMICALS IN THIS WORKPLACE

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**CONTRACTOR:**

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

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

Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

\*\* END OF SECTION \*\*

## SECTION 00460

### EMPLOYMENT ELIGIBILITY VERIFICATION FORM

Lake Havasu City

**INSTRUCTIONS FOR COMPLETION OF EMPLOYMENT ELIGIBILITY VERIFICATION FORM**

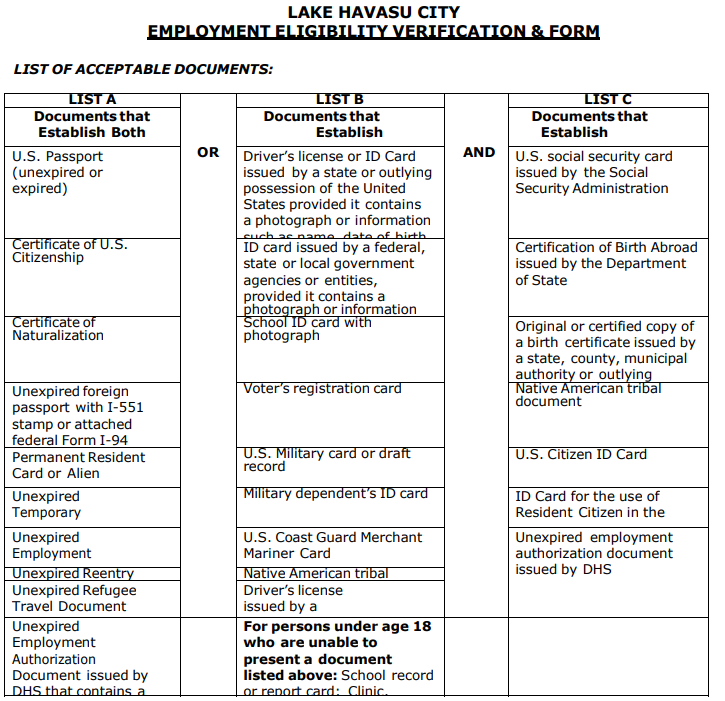
**WHO MUST COMPLETE THIS FORM:**

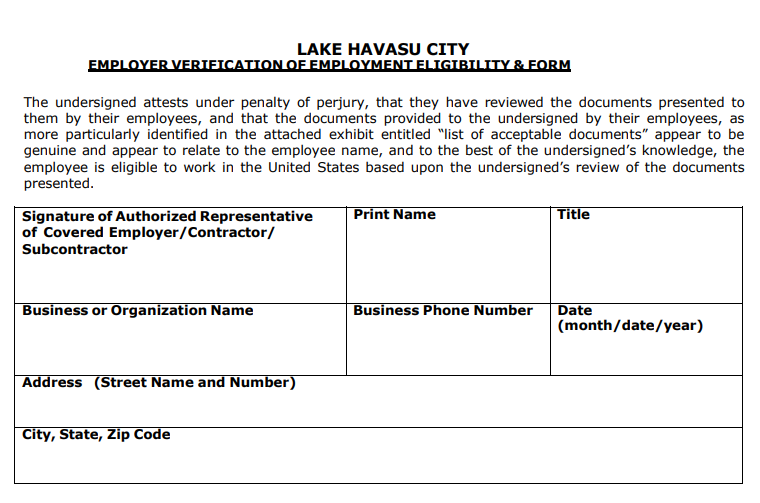
In accordance with Lake Havasu City Code Chapter 3.30, Employment of Unauthorized Aliens, all contractors and subcontractors furnishing labor, time, or effort for construction or maintenance of any structure, building, transportation facility, or improvements of real property must complete this form.

Contractors or subcontractors, as described above, must certify that they have complied, in good faith, with the applicable requirements of the Federal Immigration Control and Reform Act with respect to the hiring of covered employees. This certification must be executed by an authorized representative.

**WHEN THIS FORM MUST BE COMPLETED:**

This form must be completed by all contractors and subcontractors and submitted to the City department awarding the contract, license agreement, or lease no later than notification of successful direct selection, bid, request for proposals, request for qualification, or any similar competitive or noncompetitive procurement or bidding process.





\*\* END OF SECTION \*\*

## SECTION 00500

### CONTRACT

THIS CONTRACT is entered into by and between LAKE HAVASU CITY, ARIZONA, a municipal corporation ("OWNER"), and\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a(n) ARIZONA corporation,

**Federal I.D. # \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, ("CONTRACTOR").

WHEREAS, OWNER has developed plans for and desires to commence the **DICK SAMP PARK PICKLEBALL COURTS – PHASE 2, Project No. PK1140** (“Project”); and

WHEREAS, CONTRACTOR represents that it possesses the experience, competence, equipment and financing to properly complete the PROJECT, and has formally proposed to do so, and to furnish all necessary labor, materials, and equipment and services therefore in accordance with said plans, and subject to the terms and conditions hereof.

NOW, THEREFORE, in consideration of these promises and the mutual covenants herein, it is hereby agreed as follows:

1. CONTRACTOR shall commence and complete the construction of the PROJECT;

2. CONTRACTOR shall furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT.

3. CONTRACTOR shall commence the PROJECT in accordance with the CONTRACT DOCUMENTS within TEN (10) calendar days after the date of the Notice to Proceed. Final completion of the PROJECT shall occur within 180 calendar days of the date of the Notice to Proceed. The period for completion may be extended through the authorized and approved change order process.

4. Liquidated Damages: Owner and Contractor recognize that time is of the essence of this CONTRACT and that Owner will suffer financial loss if the Project is not completed within the time specified in paragraph 3 above, plus any extensions thereof allowed in accordance with the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual losses or damages (including special, indirect, consequential, incidental and any other losses or damages) suffered by Owner if a complete acceptable Project is not delivered on time.

Accordingly, and instead of requiring proof of such losses or damages, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay the Owner **$\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** for each calendar day that expires after the time specified in paragraph 3 for delivery of acceptable Bid Items, plus any costs incurred by the Engineer as provided in Section 17 of the General Conditions.

5. CONTRACTOR agrees to complete the PROJECT in accordance with all of the terms and conditions of the CONTRACT DOCUMENTS for the sum of **$\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**as shown in the Bid Schedule.

6. CONTRACTOR shall submit a completed Section 00450 entitled Hazard Communication Program with the executed copy of this CONTRACT.

7. The term "CONTRACT DOCUMENTS" means and includes the following:

00020 Notice Inviting Bids

00100 Information for Bidders

00300 Bid Proposal

00310 Bid Price Schedule

00400 Bid Bond

00420 Bidder's Statement of Qualifications

00430 Bidder's Affidavit of No Collusion

1. Hazard Communication Program

00460 Employment Eligibility Verification

00500 CONTRACT

00500A Indemnification and Insurance Requirements

00500B Contractor Claim Handling Procedure

00510 Arizona Statutory Performance Bond

00520 Arizona Statutory Payment Bond

00670 Notice of Award

00680 Notice to Proceed

00685 Certificate of Substantial Completion

00690 Certificate of Final Completion

00700 General Conditions

00800 Special Provisions

Technical Specifications and Details

Construction Contract Drawings

Change Orders

Lien Releases (Conditional and Final)

Addenda

8. OWNER shall pay CONTRACTOR in the manner and at such times as set forth in the General Conditions and in such amounts as required by the CONTRACT DOCUMENTS.

9. In the event CONTRACTOR fails to perform any portion of the PROJECT or satisfy any term or condition of the Contract Documents, OWNER may at its sole discretion file notice and/or claim of such failure with CONTRACTOR'S surety.

10. Israel. CONTRACTOR certifies that it is not currently engaged in, and agrees for the duration of this Contract that it will not engage in, a boycott of Israel, as that term is defined in A.R.S. § 35-393.

11. Export Administration Act. The CONTRACTOR warrants compliance with the Export Administration Act.

12. Recyclable Products. The CONTRACTOR shall use recyclable products and products which contain recycled content to the maximum extent economically feasible in the performance of the work set forth in the CONTRACT.

13. Asbestos License. The CONTRACTOR shall possess an asbestos abatement license if required under A.R.S. Title 32 or 49.

14. Assignment. No right or interest in this CONTRACT shall be assigned by CONTRACTOR without prior, written permission of the OWNER signed by the City Manager; and no delegation of any duty of CONTRACTOR shall be made without prior written permission of the OWNER signed by the City Manager. Any attempted assignment or delegation by CONTRACTOR in violation of this provision shall be a breach of this CONTRACT by CONTRACTOR.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this CONTRACT in two (2) copies, each of which shall be deemed an original. The last date of signature shall be the effective date of this CONTRACT.

OWNER:

Lake Havasu City, Arizona

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

Name:

Title:

APPROVED AS TO FORM:

Lake Havasu City Attorney's Office

By: Date:

**CONTRACTOR:**

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

Name/Title:

Address:

ATTEST:

BY:

Name/Title:

\*\* END OF SECTION \*\*

## SECTION 00500A

**LAKE HAVASU CITY CONSTRUCTION CONTRACT**

### INDEMNIFICATION AND INSURANCE REQUIREMENTS

(long form)

#### I. INDEMNIFICATION

Contractor shall indemnify and hold harmless City, its officers, volunteers and employees from and against any and all liabilities, damages, losses, and costs, including reasonable attorney’s fees, but only to the extent caused by the negligence, recklessness, or intentional wrongful conduct of Contractor or other persons employed or used by the Contractor in the performance of this Contract. It is agreed that Contractor will be responsible for primary loss investigation, defense, and judgment costs where this indemnification is applicable.

#### II. INSURANCE REQUIREMENTS

A. CONTRACTOR and its subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this CONTRACT, are satisfied, insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the CONTRACTOR, its agents, representatives, employees or subcontractors.

B. The insurance requirements herein are minimum requirements for this CONTRACT and in no way limit the indemnity covenants contained in this CONTRACT. City in no way warrants that the minimum limits contained herein are sufficient to protect the CONTRACTOR from liabilities that might arise out of the performance of the work under this CONTRACT by the CONTRACTOR, its agents, representatives, employees or subcontractors, and CONTRACTOR is free to purchase additional insurance.

C. MINIMUM SCOPE AND LIMITS OF INSURANCE:CONTRACTOR shall provide coverage with limits of liability not less than those stated below.

1. **Commercial General Liability – Occurrence Form**

Policy shall include bodily injury, property damage, personal injury and broad form contractual liability coverage.

1. General Aggregate $2,000,000
2. Products – Completed Operations Aggregate $1,000,000
3. Personal and Advertising Injury $1,000,000
4. Blanket Contractual Liability – Written and Oral $1,000,000
5. Fire Legal Liability $ 50,000
6. Each Occurrence $1,000,000

i. The policy shall be endorsed to include the following additional insured language: ***“Lake Havasu City, its departments, agencies, boards, commissions, and its officers, officials, agents, volunteers and employees shall be named as additional insureds with respect to liability arising out of the activities performed by or on behalf of the CONTRACTOR".***

1. Policy shall contain a waiver of subrogation against Lake Havasu City, its departments, agencies, boards, commissions, and its officers, officials, agents, volunteers and employees for losses arising from work performed by or on behalf of the CONTRACTOR.
2. Completed operations coverage shall remain effective for at least two years following expiration of CONTRACT.

2. **Business Automobile Liability**

a. Bodily Injury and Property Damage for any owned, hired, and/or non-owned vehicles used in the performance of this CONTRACT.

Combined Single Limit (CSL) $1,000,000

1. The policy shall be endorsed to include the following

additional insured language: “Lake Havasu City, its departments, agencies, boards, commissions, and its officers, officials, agents, volunteers and employees shall be named as additional insureds with respect to liability arising out of the activities performed by or on behalf of the CONTRACTOR, involving automobiles owned, leased, hired or borrowed by the CONTRACTOR."

1. Policy shall contain a waiver of subrogation against Lake Havasu City, its departments, agencies, boards, commissions, and its officers, officials, agents, volunteers and employees for losses arising from work performed by or on behalf of the CONTRACTOR.

3. **Workers’ Compensation and Employers' Liability**

a**.** Workers' Compensation Statutory

b. Employers' Liability Each Accident $ 500,000

Disease – Each Employee $ 500,000

Disease – Policy Limit $1,000,000

i. Policy shall contain a waiver of subrogation against Lake Havasu City, its departments, agencies, boards, commissions, and its officers, officials, agents, volunteers and employees for losses arising from work performed by or on behalf of the CONTRACTOR.

ii. This requirement shall not apply if exempt under A.R.S. Section 23-901.

4. **Professional Liability (Errors and Omissions Liability)\***

**\*If Applicable**

a.Each Claim$1,000,000

b. Annual Aggregate $2,000,000

1. In the event that the professional liability insurance required by this CONTRACT is written on a claims-made basis, CONTRACTOR warrants that any retroactive date under the policy shall precede the effective date of this CONTRACT; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of two (2) years beginning at the time work under this CONTRACT is completed.

ii. The policy shall cover professional misconduct or lack of ordinary skill for those positions defined in the Scope of Work of this CONTRACT.

5. **Builders’ Risk (Property) Insurance (Vertical Construction Only)**

a. CONTRACTOR shall purchase and maintain, on a replacement cost basis Builders’ Risk insurance in the amount of the initial CONTRACT amount as well as subsequent modifications thereto, including modifications through Change Order, for the entire work at the site. Such Builders’ Risk insurance shall be maintained until final payment has been made or until no person or entity other than CITY has an insurable interest in the property required to be covered, whichever is earlier. This insurance shall include interests of CITY, CONTRACTOR and any tier of CONTRACTOR’s subcontractors in the work during the life of the CONTRACT and course of construction, and shall continue until the work is completed and accepted by CITY. For new construction projects, CONTRACTOR agrees to assume full responsibility for loss or damage to the work being performed and to the buildings or structures under construction. For renovation construction projects, CONTRACTOR agrees to assume responsibility for loss or damage to the work being performed at least up to the full CONTRACT amount, unless otherwise required by the Contract documents or amendments thereto.

b. Builders’ Risk insurance shall be on an all-risk policy form and shall also cover false work and temporary buildings or structures and shall insure against risk of direct physical loss or damage from external causes including debris removal, demolition occasioned by enforcement of any applicable legal requirements and shall cover reasonable compensation for architects’ and engineers’ services and expenses, and other “soft costs,” required as a result of such insured loss.

c. Builders’ Risk insurance must provide coverage from the time any covered property falls within CONTRACTOR’s control and/or responsibility and continue without interruption during construction or renovation or installation, including any time during which covered property is being transported to the construction or installation site, and while on the construction or installation site awaiting installation. The policy will provide coverage while the covered premises or any part thereof is occupied. Builders’ Risk insurance shall be primary and not contributory.

d. If the CONTRACT requires testing of equipment or materials or other similar operations, at the option of city, CONTRACTOR will be responsible for providing property insurance for these exposures under a Boiler Machinery insurance policy.

6. **Contractor’s Personal Property**

CONTRACTOR and each of its subcontractors and suppliers shall be solely responsible for any loss or damage to its or their personal property and that of their employees and workers, including, without limitation, property or materials created or provided pursuant to this CONTRACT, any subcontract or otherwise, its or their tools, equipment, clothing, fencing, forms, mobile construction equipment, scaffolding, automobiles, trucks, trailers or semi-trailers including any machinery or apparatus attached thereto, temporary structures and uninstalled materials, whether owned, used, leased, hired or rented by CONTRACTOR or any subcontractor, consultant or supplier or employee or worker (collectively, “Personal Property”). CONTRACTOR and its subcontractors, consultants and suppliers, at its or their option and own expense, may purchase and maintain insurance for such Personal Property and any deductible or selfinsured retention in relation thereto shall be its or their sole responsibility. Any such insurance shall be CONTRACTOR’s and the subcontractors’, suppliers’ volunteers and employees’ and workers’ sole source of recovery in the event of loss or damage to its or their Personal Property. Any such insurance purchased and maintained by CONTRACTOR and any subcontractor, consultant or supplier shall include a waiver of subrogation as to Owner. CONTRACTOR waives all rights of 00500A-5 Revised 10-8-18 recovery, whether under subrogation or otherwise, against all such parties for loss or damage covered by CONTRACTOR’s property insurance. CONTRACTOR shall require the same waivers from all subcontractors and suppliers and from the insurers issuing property insurance policies relating to the Work or the Project purchased and maintained by all subcontractors and suppliers. The waivers of subrogation referred to in this subparagraph shall be effective as to any individual or entity even if such individual or entity (a) would otherwise have a duty of indemnification, contractual or otherwise, (b) did not pay the insurance premium, directly or indirectly, and (c) whether or not such individual or entity has an insurable interest in the property which is the subject of the loss or damage.

7. **Theft, Damage, or Destruction of Work**

In the event of theft, damage or destruction of the Work, Contractor will re-supply or rebuild its Work without additional compensation and will look to its own resources or insurance coverages to pay for such re-supply or rebuilding.  Contractor will promptly perform, re-supply or rebuild, regardless of the pendency of any claim by Contractor against any other party, including Owner, that such party is liable for damages, theft or destruction of Contractor’s Work.  This subparagraph shall apply except to the extent that the cost of re-supply or rebuilding is paid by Owner’s builder’s risk insurance; in such event, Owner waives (to the fullest extent permitted by the builder’s risk policy) all rights of subrogation against Contractor and each of its subcontractors to the extent of such payment by Owner’s builder’s risk insurer.

D. ADDITIONAL INSURANCE REQUIREMENTS:The policies shall include, or be endorsed to include, the following provisions:

1. Lake Havasu City, its departments, agencies, boards, commissions and its officers, officials, agents, volunteers and employees wherever additional insured status is required. Such additional insured shall be covered to the full limits of liability purchased by the CONTRACTOR, even if those limits of liability are in excess of those required by this CONTRACT.

2. The Contractor's insurance coverage shall be primary insurance with respect to all other available sources.

3. Coverage provided by the Contractor shall not be limited to the liability assumed under the indemnification provisions of this CONTRACT.

E. NOTICE OF CANCELLATION:Each insurance policy required by the insurance provisions of this CONTRACT shall not be suspended, voided, cancelled, reduced in coverage or in limits without ten (10) business days written notice to City. Such notice shall be mailed directly to Lake Havasu City, Community Investment Department, Procurement Division, 2330 McCulloch Blvd. North, Lake Havasu City, AZ, 86403 and shall be sent by certified mail, return receipt requested.

F. ACCEPTABILITY OF INSURERS**:** Insurance is to be placed with duly licensed or approved non-admitted insurers in the state of Arizona with an “A.M. Best” rating of not less than A- VII. City in no way warrants that the above-required minimum insurer rating is sufficient to protect the CONTRACTOR from potential insurer insolvency.

G. VERIFICATION OF COVERAGE**:**

1. Contractor shall furnish City with certificates of insurance as required by this CONTRACT. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalfand the Project/contract number and project description shall be noted on the certificate of insurance.

2. All certificates and endorsements are to be received and approved by City at least ten (10) days before work commences. Each insurance policy required by this CONTRACT must be in effect at or prior to commencement of work under this CONTRACT and remain in effect for the duration of the Project. Failure to maintain the insurance policies as required by this CONTRACT, or to provide evidence of renewal, is a material breach of contract.

3. All renewal certificates required by this CONTRACT shall be sent directly to Lake Havasu City, Community Investment Department, Procurement Division, 2330 McCulloch Blvd. North, Lake Havasu City, AZ, 86403. The Project/contract number and project description shall be noted on the certificate of insurance. City reserves the right to require complete, certified copies of all insurance policies required by this CONTRACT at any time**.**

H. SUBCONTRACTORS**:** CONTRACTOR's certificate(s) shall include all subcontractors as insureds under its policies **or** CONTRACTOR shall furnish to City separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to the minimum requirements identified above.

I. APPROVAL**:** Any modification or variation from the insurance requirements in this CONTRACT must have prior approval from the City’s Risk Management Division, whose decision shall be final. Such action will not require a formal CONTRACT amendment, but may be made by administrative action.

J. EXCEPTIONS**:** In the event the CONTRACTOR or sub-contractor(s) is/are a public entity, then the Insurance Requirements shall not apply. Such public entity shall provide a Certificate of Self-Insurance.

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Applied to Project No.

**Applicable Insurance** **Signature of Insurance**  **Company Representative**

General Liability Policy #\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Insurance Company \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Auto Liability Policy #\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Insurance Company \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Builder’s Risk Policy #\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Insurance Company \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*\* END OF SECTION \*\*

## SECTION 00500B

### CONTRACTOR Claim Handling Procedure

1. Claimant is to submit in writing to the OWNER or their REPRESENTATIVE the details of the claim to include the where, when, and how of the claim, and an estimate of damage, if applicable.
2. OWNER or their REPRESENTATIVE will forward the claim directly to the CONTRACTOR for handling. The CONTRACTOR is to respond to the claimant, in writing, within 30 calendar days of receipt with copies to:

Lake Havasu City Risk Management

Lake Havasu City Community Investment Department

OWNER’S REPRESENTATIVE, if applicable

If the CONTRACTOR denies the claim, the reasons for such denial must be included in the response to the claimant.

\*\* END OF SECTION \*\*

## SECTION 00510

### ARIZONA STATUTORY PERFORMANCE BOND

PURSUANT TO TITLES 28, 34, AND 41, ARIZONA REVISED STATUTES

(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS THAT:

(hereinafter "Principal"), as Principal, and (hereinafter "Surety"), a corporation organized and existing under the laws of the State of

with its principal office in the City of , holding a certificate of authority to transact surety business in Arizona issued by the Director of Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, are held and firmly bound unto Lake Havasu City, Arizona (hereinafter "Obligee") in the amount of (Dollars) ($ ), for the payment whereof, Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the day of \_\_\_\_\_\_ , \_\_\_\_\_, to furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of

**Dick Samp Park Pickleball Courts – Phase 2, Project No. PK1140**

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THE OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of the contract during the original term of the contract and any extension of the contract, with or without notice of the Surety, and during the life of any guarantee required under the contract, and also performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of all duly authorized modifications of the contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this day of , \_\_\_\_\_\_.

PRINCIPAL SEAL

BY:

AGENCY OF RECORD

AGENCY ADDRESS SURETY SEAL

BY:

\*\* END OF SECTION \*\*

## SECTION 00520

### ARIZONA STATUTORY PAYMENT BOND

**PURSUANT TO TITLES 28, 34, AND 41, ARIZONA REVISED STATUTES**

(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS THAT:

(hereinafter "Principal"), as Principal, and \_\_\_\_\_\_\_\_\_\_ (hereinafter Surety), a corporation organized and existing under the laws of the State of \_\_\_\_\_ with its principal office in the City of \_\_\_\_\_\_\_\_\_ , holding a certificate of authority to transact surety business in Arizona issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, are held and firmly bound unto Lake Havasu City, Arizona (hereinafter "Obligee") in the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(Dollars) ($ ), for the payment whereof, Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the of \_\_\_\_ , \_\_\_\_\_\_, to furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of

**Dick Samp Park Pickleball Courts – Phase 2, Project No. PK1140**

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFOR, THE CONDITION OF THE OBLIGATION IS SUCH, that if the Principal promptly pays all monies due to all persons supplying labor or materials to the Principal or the Principal's subcontractors in the prosecution of the work provided for in the contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statues, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this day of , \_\_\_\_\_.

PRINCIPAL SEAL

BY:

AGENCY OF RECORD

AGENCY ADDRESS SURETY SEAL

BY:

\*\* END OF SECTION \*\*

## SECTION 00670

### NOTICE OF AWARD

**TO**:  **DATE:**

**PROJECT DESCRIPTION**:

The “Project” consists of the phase 2 improvements to Dick Samp Park based on recommendations in the Field Assessment Report and the Dick Samp Park Master Plan prepared by Shepard Wesnitzer and Norris Design. Phase 2 improvements include; 8 new Pickleball courts on two post-tension slabs, additional parking, hardscape, landscaping, irrigation, and ramadas/shade structures for spectator and player seating.

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for BIDS dated July 1, 2020, and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, to include bid items shown in Section 00310 Bid Schedule.

You are required by the Information for Bidders to execute the Contract and furnish the required CONTRACTOR'S Performance Bond, Payment Bond, and Certificates of Liability, Vehicular, and Workmen's Compensation Insurance within ten (10) calendar days from the postmark date when this notice was sent by U.S. Mail.

If you fail to execute said Contract and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this day of , 2020.

Lake Havasu City, Arizona

BY:

NAME:

TITLE: Procurement Official

**Acceptance of Notice**

(NOTE: The contractor shall return a signed copy of this notice to the owner.)

Receipt of this NOTICE OF AWARD is hereby acknowledged by:

Contractor

This the day of \_\_\_\_\_\_ , 2019.

BY: TITLE:

\*\* END OF SECTION \*\*

## SECTION 00680 **Date:**

### NOTICE TO PROCEED

**TO:**

**RE: Dick Samp Park Pickleball Courts – Phase 2, Project No. PK1140**

You are hereby notified to commence WORK in accordance with the Contract dated

\_\_\_\_\_\_\_\_\_\_\_\_\_, 2020, within ten (10) calendar days of the date of this Notice To Proceed, and you are to complete the WORK within 180 CALENDAR DAYS, with a completion date of \_\_\_\_\_\_\_\_\_\_\_\_\_, 2020. The period for completion may be extended through the authorized and approved change order process.

OWNER: Lake Havasu City, Arizona

By:

Name:

Title: Procurement Official

ACCEPTANCE OF NOTICE

(NOTE: The Contractor shall return a signed copy of this Notice to the Owner)

Receipt of the above NOTICE TO PROCEED is hereby acknowledged

this the day of \_\_\_\_ , .

By:

Name:

Title:

\*\* END OF SECTION \*\*

## SECTION 00685

### CERTIFICATE OF SUBSTANTIAL COMPLETION

I hereby state that the degree of completion of:

**Dick Samp Park Pickleball Courts – Phase 2,**

**Project No. PK1140**

Provides the full‑time use of the project, or defined portion of the project, for the purposes for which it was intended and is the commencement of the Guarantee Period.

"Substantial Completion" shall not be considered as final acceptance.

**Lake Havasu City, Arizona**

Date:

By:

Name:

Title:

**ACCEPTANCE OF NOTICE**

(NOTE: The Contractor shall return a signed copy of this Notice to the Owner)

Receipt of the above **CERTIFICATE OF SUBSTANTIAL COMPLETION** is hereby acknowledged this the day of , \_\_\_\_\_\_.

By:

Name:

Title:

## SECTION 00690

### CERTIFICATE OF COMPLETION

I hereby state that all goods and services required by:

**Dick Samp Park,**

**Project No. PK1140**

have been delivered in conformance with the Contract, and all activities required by the Contractor under the Contract were completed as of \_\_\_\_\_\_\_\_ .

(Date)

**Lake Havasu City, Arizona**

By:

Name:

Title:

E-original: [Contractor]

E-copy: Procurement ([Purchasing@lhcaz.gov](mailto:Purchasing@lhcaz.gov) )

\*\* END OF SECTION \*\*

# DIVISION II - GENERAL CONDITIONS

## SECTION 00700

### GENERAL CONDITIONS

This section of the Contract Documents is pre‑printed. Any modifications to the following Articles, as may be required for this Project, are made in the Special Provisions.

**1.0 DEFINITIONS**

Wherever in the Contract Document the following terms are used, the intent and meaning shall be interpreted as follows:

**1.1** Addenda

Written or graphic instruments issued prior to the opening of Bids which modify or interpret the Contract Documents, Drawings and Specifications, by additions, deletions, clarifications or corrections.

**1.2** As Approved

The words "as approved," unless otherwise qualified, shall be understood to be followed by the words "by the Owner."

**1.3** As Shown, and as Indicated

The words "as shown" and "as indicated" shall be understood to be followed by the words "on the Drawings" or "in the Specifications."

**1.4** Award

The acceptance, by the Owner, of the successful Bidder’s proposal.

**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** Bidder

Any individual, firm partnership or corporation, or combination thereof submitting a proposal for the Work contemplated, acting directly or through a duly authorized representative.

**1.7** Bonds

Bid, Performance, and Payment Bonds and other instruments of security, furnished by the Contractor and its surety in accordance with the Contract Documents.

**1.8** Calendar Day

Every day shown on the calendar, measured from midnight to the next midnight.

**1.9** Change Order

A written order to the Contractor, signed by the Owner, covering changes in the Plans, Specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the Work affected by such changes.

If the Change Order increases the existing Contract Amount, the Builder’s Risk Insurance limit must be increased to the adjusted Contract Amount.

**1.10** Contract

The "Contract" is the written Contract covering the performance of the Work and the furnishing of labor, materials, incidental services, tools, and equipment in the construction of the Work. It includes Supplemental Contracts amending or extending the Work contemplated in the manner hereinafter described and which may be required to complete the Work in a substantial and acceptable manner to the Owner. The Contract may include Contract Change Orders.

**1.11** Contract Documents

The "Contract Documents" consist of the Bidding Requirements, Contract Forms, Conditions of the Contract including General and/or Supplemental General Conditions, Special Provisions, the Technical Specifications, and the Drawings, including all Addenda and modifications thereafter incorporated into the Documents before execution and including all other requirements incorporated by specific reference thereto.

**1.12** Contract Price

The total monies payable by Owner to the Contractor under the terms and conditions of the Contract Documents.

**1.13** Contract Time

The number of calendar days stated in the Contract Documents for the completion of the Work.

**1.14** Contractor

The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the Work contracted for and the payment of all legal debts pertaining to the Work who acts directly or through lawful agents or employees to complete the Contract Work.

**1.15** Days

Unless otherwise specifically stated, the term "days" will be understood to mean calendar days.

**1.16** Drawings

The term "Drawings," also described as "Plans," refers to the official drawings, profiles, cross sections, elevations, details, and other working drawings, and supplementary drawings, or reproductions thereof, which show the locations, character, dimensions, and details of the Work to be performed. Drawings may either be bound in the same book as the balance of the Contract Documents or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding.

**1.17** Engineer

The individual, partnership, firm, or corporation duly authorized by the Owner (sponsor) to be responsible for the Engineering of the contract Work and acting directly or through an authorized representative.

**1.18** Field Order

A written order effecting a change in the Work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the Contractor during construction.

**1.19** Final Acceptance

Upon due notice from the Contractor of presumptive completion of the entire project, the Owner will make an inspection. If all construction provided for and contemplated by the contract is found completed to the Owner’s satisfaction and all requirements of the contract have been met, that inspection shall constitute the final inspection and the Owner will make the final acceptance and issue the Certificate of Completion.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory or that all requirements of the contract have not been met, the Owner will give the Contractor the necessary instructions for correction or completion, and the Contractor shall immediately comply with and execute the instructions. Upon correction of the work, completion of contract requirements, and notification to Owner, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed and all requirements of the contract met. In such event, the Owner will make the final acceptance and issue the Certificate of Completion.

**1.20** Inspector

An authorized representative of the Owner assigned to make all necessary inspections and/or tests of the Work performed or being performed, or of the materials furnished or being furnished by the Contractor.

**1.21** Methodology and Quality of Workmanship

The manner and sequence of construction which considered to be the acceptable standard in which to perform the Work.

**1.22** Notice

The term "notice" or the requirement to notify, as used in the Contract Documents or applicable State or Federal statutes, shall signify a written communication delivered in person or by certified or registered mail to the individual, or to a member of the firm, or to an officer of the corporation for whom it is intended. Certified or registered mail shall be addressed to the last business address known to him who gives the notice.

**1.23** Notice of Award

The written notice of the acceptance of the Bid from the Owner to the successful Bidder.

**1.24** Notice to Proceed

Written communication issued by the Owner to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.

**1.25** Or Equal

The phrase "or equal" shall be understood to indicate that the "equal" product is the same or better than the product names in function, performance, reliability, quality, and general configuration. Determination of equality in reference to the project design requirements will be made by the Owner.

**1.26** Owner

The term “Owner” shall be understood to be Lake Havasu City, Arizona.

**1.27** Payment Bond

The approved form of security furnished by the Contractor and its surety as a guaranty that it will pay in full all bills and accounts for materials and labor used in the construction of Work.

**1.28** Performance Bond

The approved form of security furnished by the Contractor and its surety as a guarantee that the Contractor will complete the Work in accordance with the terms of the Contract and guarantee the Work for a period of one (1) year after the date of Certificate of Substantial Completion.

**1.29** Plans

Plans shall have the same meaning as "Drawings," see Section 1.16.

**1.30** Project

The undertaking to be performed as provided in the Contract Documents, see Section 1.11.

**1.31** Proposal

The offer of the Bidder for the Work when made out and submitted on the prescribed proposal form, properly signed and guaranteed.

**1.32** Proposal Guarantee

The cash, or cashier's check or certified check, or bidder's bond accompanying the Proposal submitted by the Bidder, as a guarantee that the Bidder will enter into a contract with the Owner for the construction or doing of the Work, if it is awarded to it, and will provide the contract bonds and insurance required.

**1.33** Shop Drawings

All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, supplier or distributor, which illustrate how specific portions of the Work shall be fabricated or installed.

**1.34** Specifications

The directions, provisions and requirements pertaining to the method and manner of performing the Work or to the quantities and qualities of the materials to be furnished under the Contract, together with all other directions, provisions and requirements, plus such amendments, deletions from or additions which may be provided for by Supplemental Contract or Change Orders.

**1.35** Subcontractor

A Subcontractor is a person or entity who has a direct or indirect contract with a Contractor to perform any of the Work at the site. For convenience, the term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender but includes the plural and feminine gender and includes a Sub‑Subcontractor or an authorized representative thereof. The term Subcontractor does not include any separate Contractor or its Subcontractors.

**1.36** Substantial Completion

"Substantial Completion" shall be that degree of completion of the project or a defined portion of the project, sufficient to provide the Owner, at its discretion, the full‑time use of the project or defined portion of the project for the purposes for which it was intended. "Substantial Completion" shall not be considered as final acceptance.

**1.37** Supplemental General Conditions

Modifications to General Conditions required by a Federal Agency for participation in the Project and approved by the agency for participation in the Project and approved by the agency in writing prior to inclusion in the Contract Documents and such requirements that may be imposed by applicable state laws. The term also includes modifications or additions to the General Conditions required by the Owner or Engineer.

**1.38** Supplier

Any person or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.

**1.39** Surety

The corporation, partnership, or individual, other than the Contractor, executing Payment, or Performance Bonds which are furnished to the Owner by the Contractor.

**1.40** Work

The word "Work" within these Contract Documents shall include all material, labor, tools, utilities, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good practice to provide a complete and satisfactory system or structure.

**1.41** Working Day

A working day shall be any day, other than a legal holiday, Saturday or Sunday, on which the normal working forces of the Contractor may proceed with regular work.

**2.0 NOTICE TO PROCEED**

**2.1** After the Owner has issued the Notice Of Award, the Contractor shall provide the Performance Bond, the Payment Bond, the Certificate Of Insurance, the Work Schedule, the monthly cash flow, and a signed Contract within ten (10) calendar days. The Owner's attorney will review each document and, if they are found to be acceptable, the Owner will sign and execute the Contract. Within a period of sixty (60) calendar days after executing the Contract, the Owner will issue the Notice To Proceed. Within ten (10) calendar days of the postmark date of the Notice To Proceed, the Work shall commence. The Contractor shall not commence any Work until such time that the Notice To Proceed has been issued.

**3.0 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS**

**3.1** The Engineer may furnish additional instructions to the Contractor by means of Drawings or otherwise, during the progress of the Work as necessary to make clear or to define in greater detail the intent of the Specifications and Contract Drawings.

The additional drawings and instruction thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.

**4.0 SCHEDULES, REPORTS AND RECORDS**

**4.1** The Contractor shall submit to the Owner payrolls, reports, estimates, records and other data where applicable as are required by the Contract Documents for the Work to be performed.

**4.2** The Contractor, after the Contract award and prior to the Pre‑Construction Conference, shall prepare for submittal to the Engineer for review, a detailed progress schedule. The progress schedule shall be brought up to date and submitted to the Engineer prior to each progress payment request, and at such other time intervals as the Engineer may request.

A. Progress Schedule

The schedule shall be a time‑scaled critical path progress schedule showing in detail the proposed sequence of activity. The critical path analysis shall consist of a graphic network diagram and shall clearly show start and completion dates and percentage of work completed.

**4.3** The Contractor shall also forward to the Engineer, prior to each progress payment request, an itemized report of the delivery status of major and critical items of purchased equipment and material, including Shop Drawings and the status of shop and field fabricated work. These progress reports shall indicate the date of the purchase order, the current percentage of completion, estimated delivery, and cause of delay, if any.

**4.4** If the completion of any part of the Work or the delivery of materials is behind the approved schedule, the Contractor shall submit in writing a plan acceptable to the Engineer for bringing the Work up to schedule.

**4.5** The Owner shall have the right to withhold progress payments for the Work if the Contractor fails to update and submit the progress schedule and reports as specified, and such withholding shall not constitute grounds for additional claims by the Contractor against the Owner.

**4.6** The Contractor shall submit an estimated monthly cash flow, based upon the progress schedule with the bonds, schedules, and Certificate Of Insurance.

**5.0 DRAWINGS AND SPECIFICATONS**

**5.1** The intent of the Drawings and Specifications is that the Contractor shall furnish all labor, materials, tools, equipment, utilities, and transportation necessary for the proper execution of the Work in accordance with the Contract Documents and all incidental work necessary to complete the Project in an acceptable quality and manner, ready for use, occupancy or operation by the Owner.

**5.2** In case of conflict between the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scale dimensions, and detailed Drawings shall govern over general Drawings.

**5.3** Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported verbally and within 24 hours of such a discovery, in writing to the Engineer, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk, and the Contractor shall assume full responsibility therefor and shall bear all costs attributable thereto, if not acceptable to the Owner.

**6.0 SHOP DRAWINGS**

**6.1** The Contractor shall provide seven (7) copies of the Shop Drawings as specified or as may be necessary for the prosecution of the Work as required by the Contract Documents. All drawings and schedules shall be submitted sufficiently in advance to allow the Engineer not less than 20 regular working days for checking the submittal. The Engineer's approval of any Shop Drawings shall not release the Contractor from responsibility for deviations from the Contract Documents.

**6.2** When submitted for the Engineer's review, Shop Drawings shall bear the Contractor's certification by means of a signed Stamp, that he has reviewed, checked and approved the Shop Drawings and that they are in conformance with the requirements of the Contract Documents. Shop Drawings, which in the opinion of the Engineer are incomplete or unchecked by the Contractor, will be returned to the Contractor for resubmission in the proper form.

If Shop Drawings or submittals are rejected by the Engineer, all costs incurred by the Engineer Or The Owner for reviewing the resubmittals shall be charged to the Contractor, and the Owner has the right to deduct such costs from any monies owed the Contractor by the Owner.

**6.3** When Shop Drawings have been reviewed by the Engineer, two sets of submittals will be returned to the Contractor appropriately stamped. If major changes or corrections are necessary, the Shop Drawing may be rejected and one set will be returned to the Contractor with such changes or corrections indicated, and the Contractor shall correct and resubmit the Shop Drawings. No changes shall be made by the Contractor to resubmitted Shop Drawings other than those changes indicated by the Engineer, unless such changes are clearly described in a letter accompanying the resubmitted Shop Drawings.

**6.4** The review of such Shop Drawings and catalog cuts by the Engineer shall not relieve the Contractor from responsibility for corrections of dimensions, fabrication details, and space requirements, or for deviations from the Contract Drawings or Specifications, unless the Contractor has called attention to such deviations in writing by a letter accompanying the Shop Drawings and the Engineer approves the change or deviation in writing at the time of submission; nor shall review by the Engineer relieve the Contractor from the responsibility for errors in the Shop Drawings. When the Contractor does call such deviations to the attention of the Engineer, the Contractor shall state in his letter whether or not such deviations involve any deduction or extra cost adjustment.

**6.5** Portions of the Work requiring a Shop Drawing or sample submission shall not begin until the Shop Drawing or submission has been approved by the Engineer. A copy of each approved Shop Drawing and each approved sample shall be kept in good order by the Contractor at the site and shall be available to the Engineer.

**7.0 RECORD DRAWINGS**

**7.1** During construction, the Contractor shall keep an accurate record of the following:

A. Deviations between the Work as shown on the Plans and the Work as actually installed.

B. The specific locations of piping, valves, electric conduits, duct work, equipment, and other such work which was not located on the Plans. The Record Drawings shall show actual coordinates that match the coordinate system used on the contract drawing, including distances to these locations from known points on the Plans such as stations, elevations, etc.

C. Equipment schedules indicating manufacturer's names and model numbers. When all revisions showing work as installed are made, the corrected set of plans shall be delivered to the Engineer before the final pay request is processed. These plans shall be clearly marked "Record Drawings."

* 1. Nothing contained in this section shall be construed as authorizing any deviation in the Work as shown on the Contract Drawings without a written Change Order or written authority to the Contractor from the Engineer.

**8.0 MATERIALS, SERVICES, AND FACILITIES**

**8.1** It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the Work within the specified time.

**8.2** The Contractor shall furnish the Owner a list of materials and the source of supply of each of the materials on the list. The source of supply of each of the materials shall be approved by the Owner before the delivery of said materials is started. Only materials conforming to these Specifications and approved by the Owner shall be used in the Work. All materials proposed for use may be inspected or tested at any time during their preparation and use. After trial, if it is found that sources of supply which have been approved do not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved material from other approved sources. No material which, after approval, has in any way become unfit for use shall be used in the Work.

**8.3** The Contractor warrants to the Owner and Engineer that the materials and equipment furnished under the Contract will be new and of a quality equal to that specified or approved and, that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. Mechanical and electrical equipment shall be the products of manufacturers of established good reputations and regularly engaged in the fabrication of such equipment. Unless otherwise noted, any equipment offered shall be current models which have been in successful regular operation under comparable conditions for a period of at least two years. This time requirement, however, does not apply to minor details nor to thoroughly demonstrated improvements in design or in material of construction. Work shall be done and completed in a thorough and workmanlike manner and if required by Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment used.

**8.4** All materials which the Engineer or its authorized Inspector has determined do not conform to the requirements of the Plans and Specifications will be rejected. They shall be removed immediately from the vicinity of the Work by the Contractor at his own expense, unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used in the Work, unless approval in writing has been given by the Engineer. Upon failure of the Contractor to comply promptly with any order of the Engineer made under the provisions in this section, the Engineer shall have authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any monies due or to become due the Contractor.

**8.5** If any part or portions of the Work done or material furnished under this Contract shall prove defective or non-conforming with the Drawings and Specifications, and if the imperfection in the same shall not be of sufficient magnitude or importance as to make the Work dangerous or unsuitable, or if the removal of such Work will create conditions which are dangerous or undesirable, the Engineer shall have the right and authority to retain such Work but shall make such deductions in the final payment therefor as may be just and reasonable. Such adjustment shall be effected whether or not final payment has been made.

**8.6** Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located so as to facilitate prompt inspection.

**8.7** Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

**8.8** Materials, supplies or equipment to be incorporated into the Work shall not be purchased by the Contractor or the Subcontractor subject to a chattel mortgage or under a conditional sale contract or other Contract by which an interest is retained by the seller.

**9.0 INSPECTION AND TESTING**

**9.1** All material and equipment used in the construction of the Project shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the Contract Documents.

**9.2** The Owner shall provide all inspection and testing services not required by the Contract Documents.

**9.3** The Contractor shall provide at its expense the testing and inspection services required by the Contract Documents.

**9.4** If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Contractor, the Contractor will give the Engineer timely notice of readiness, the minimum of which shall be forty‑eight (48) hours. The Contractor will then furnish the Engineer the required certificates of inspection, testing or approval.

**9.5** Inspections, tests or approvals by the Engineer or others shall not relieve the Contractor from its obligations to perform the Work in accordance with the requirements of the Contract Documents.

**9.6** The Engineer and its representatives will at all times have access to the Work. In addition, authorized representatives and agents of any participating Federal or State agency shall be permitted to inspect all Work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and also for any inspection, or testing thereof.

**9.7** If any Work is covered contrary to the written instructions of the Engineer or prior to inspection, if must, if requested by the Engineer, be uncovered for his observation and replaced at the Contractor's expense.

**9.8** If the Engineer considers it necessary or advisable that Work that has already been approved be inspected or tested by the Engineer or others, the Contractor, at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such Work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such Work is not found to be defective, the Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate Change Order shall beissued.

**10.0 SUBSTITUTIONS**

**10.1** Whenever a material, article or piece of equipment is identified on the Drawings or Specifications by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The Contractor may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the Contract Documents by reference to brand name or catalogue number, and if, in the opinion of the Engineer, such material, article, or piece of equipment is of equal substance and function to that specified, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract Price and the Contract Documents shall be appropriately modified by Change Order. The Contractor warrants that if substitutes are approved, no major changes in the function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time. Any substitutions not properly approved and authorized by the Engineer may be considered defective and the Engineer may require the Contractor to remove the substituted material, article or piece of equipment and the Contractor shall bear any and all costs associated with the removal of the substituted item, including all engineering, inspection, testing or surveying costs incurred by the Owner or the Engineer.

**10.2** Determination of equality in reference to the project design requirements will be made by the Owner. "Equal" products shall not be purchased or installed by the Contractor without the Owner's written approval. Contractor shall have fourteen (14) days after issuance of Notice to Proceed for submission of data substantiating a request for substitution of an "or equal" item.

1. **PATENTS**

**11.1** The Contractor shall pay all applicable royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and indemnify and hold the Owner and Engineer harmless from loss on account thereof, except that the Owner shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, it shall be responsible for such loss unless it promptly gives such information to the Engineer.

**12.0 SURVEYS, PERMITS, REGULATIONS**

**12.1** The Owner shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the Work together with a suitable number of bench marks adjacent to the Work as shown in the Contract Documents. The Contractor shall satisfy itself as to the accuracy of all measurements before constructing any permanent structure and shall not take advantage of any errors which may have been made in laying out the Work. From the information provided by the Owner, unless otherwise specified in the Contract Documents, the Contractor shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

**12.2** Such stakes and markings as the Engineer may set for either its own or the Contractor’s guidance shall be scrupulously preserved by the Contractor. In the event the Contractor, or its employees, destroy or otherwise remove or obliterate such stakes or markings, an amount equal to the cost of replacing the same may be deducted from subsequent estimates due the Contractor at the discretion of the Owner.

**12.3** Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be secured and paid for by the Contractor unless otherwise stated in the Supplemental General Conditions. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified. If the Contractor perceives that the Contract Documents are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in Section 16. Changes In The Work. If the Contractor performs and works knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Engineer, he shall assume full responsibility therefore and shall bear all costs attributable thereto.

**13.0 PROTECTION OF WORK, PROPERTY AND PERSONS**

**13.1** The Contractor shall have sole responsibility for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to, all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and other items not designated for removal, relocation or replacement in the course of construction.

**13.2** The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. The Contractor shall erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. The Contractor shall notify Owners of adjacent utilities when prosecution of the Work may affect them. The Contractor shall remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the Contract Documents or to the acts or omissions of the Owner or the Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.

**13.3** In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, shall act to prevent threatened damage, injury or loss. He shall give the Engineer prompt Written Notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be negotiated and issued covering the changes and deviations involved, as provided in Section 16.0, Changes in the Work.

**13.4** The Contractor shall designate a responsible member of its organization at the site whose duty shall be the prevention of accidents and the safety of all those at the site. The person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and the Engineer. The Engineer will not be responsible for safety precautions and programs in connection with the Work or for the Contractor's failure to properly perform its responsibilities with respect to initiating, maintaining and supervising all safety precautions and programs.

**14.0 PUBLIC SAFETY**

**14.1** Whenever the Contractor's operations create a condition hazardous to traffic or to the public, it shall furnish at its own expense, and without cost to the Owner, such flagmen and guards as are necessary to give adequate warning to the public of any dangerous conditions to be encountered and he shall furnish, erect, and maintain such fences, barricades, lights, signs, and other devices as are necessary to prevent accidents and avoid damage or injury to the public.

**14.2** Should the Contractor appear to be neglectful or negligent in furnishing warning and protective measures as above provided, the Engineer may direct attention to the existence of a hazard and the necessary warning and protective measures shall be furnished and installed by the Contractor at its own expense without cost to the Owner. Should the Engineer point out the inadequacy of warning and protective measures, such action on the part of the Engineer shall not relieve the Contractor from responsibility for public safety or abrogate his obligation to furnish and pay for these devices.

**14.3** Should the Contractor fail to, be neglectful, or be negligent in furnishing or maintaining warning and protective facilities as required herein, the Owner may furnish or maintain such facilities and charge Contractor therefor by deducting the cost thereof from periodic progress payments due the Contractor as such costs are incurred by Owner.

**14.4** No material or equipment shall be stored where it will interfere with the free and safe passage of public traffic, and at the end of each day's Work and at other times when construction operations are suspended for any reason, the Contractor shall remove all equipment and other obstructions from that portion of the right‑of‑way open for use by public traffic.

**15.0 SUPERVISION BY CONTRACTOR**

**15.1** The Contractor shall supervise and direct the Work, using its best skill and attention. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor shall employ and maintain on the Work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site, and who shall have been approved by the Engineer, which approval shall not be unreasonably withheld. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to and by the supervisor shall be as binding as if given to and by the Contractor. The supervisor shall be present on the site at all times. The Contractor shall be responsible to the Owner for the acts and omissions of the employees, subcontractors, and the agents and employees, and other persons performing any other Work under the Contract with the Contractor.

**16.0 CHANGES IN THE WORK**

**16.1** The Owner may at any time, as the need arises, order changes within the scope of the Work without invalidating the Contract. If such changes increase or decrease the amount due under the Contract Documents, or in the time required for performance of the Work, an equitable adjustment shall be authorized by Change Order.

**16.2** The Engineer, also, may at any time, by issuing a Field Order, make changes in the details of the Work. The Contractor shall proceed with the performance of any changes in the Work so ordered by the Engineer unless the Contractor believes that such Field Order entitles him to a change in Contract Price or Time, or both, in which event he shall give the Engineer Written Notice thereof within seven (7) days after the receipt of the ordered change. Thereafter the Contractor shall document the basis for the change in Contract Price or Time within fourteen (14) days. The Contractor shall not execute such changes pending the receipt of an executed Change Order or further instruction from the Owner.

**16.3** If the Contractor wishes to make a claim for an increase in the Contract sum, it shall give the Engineer written notice thereof within fourteen (14) days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property, in which case Contractor shall proceed in accordance with the provisions of the Contract. No such claim shall be valid unless so made. If the Owner and Contractor cannot agree on the amount of adjustment in the Contract sum, it shall be determined by the Engineer. Any change in the Contract sum resulting from such claim shall be authorized in a Change Order.

**16.4** The value of any Work covered by a Change Order shall be determined by one or more of the following methods in the order of precedence listed below:

A. Unit prices previously approved.

B. An agreed lump sum.

C. Cost plus percentage.

**17.0** **TIME FOR COMPLETION AND LIQUIDATED DAMAGES**

**17.1** The date of beginning and the time for completion of the Work are essential conditions of the Contract Documents and the Work embraced shall be commenced on a date specified in the Notice To Proceed.

**17.2** The Contractor shall proceed with the Work at such rate of progress to insure full completion within the Contract Time. It is expressly understood and agreed, by and between the Contractor and the Owner, that the Contract Time for the completion of the Work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the Work.

**17.3** The Contractor shall only work an eight (8) hour day consisting of Monday through Friday, between 6:00 a.m. to 6:00 p.m., and do not include local municipal holidays. If the Contractor desires to carry on Work more than eight (8) hours each day, or work at night or outside the regular hours, it shall give timely notice (72 hours) to the Engineer and receive the Owner's written approval to allow satisfactory arrangements to be made for inspecting the Work in progress. Should the prosecution of the Work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations. The Contractor shall be responsible for any extra compensation due or costs incurred as a result of Contractor's desire to carry out Work beyond an eight (8) hour day, or at night or outside regular hours, including but not limited to, any additional costs or compensation due the Engineer And Owner or its employees or agents as a result of having to be present at the site. The costs or extra compensation necessitated by the Contractor's Work beyond an eight (8) hour day, or at night or outside regular business hours may be deducted or withheld from progress payment or any other payments due to Contractor.

**17.4** If for any reason a suspension of the work should occur; the Contractor, at its own expense, shall do all the Work necessary to provide a safe, smooth and unobstructed passageway through construction for use by public traffic or to provide for the proper and efficient operation of sewer, drainage and other facilities within the site of the Work, during the period of such suspension. In the event that the Contractor fails to perform the Work specified in this Subsection, the Owner will perform such Work and the cost thereof will be deducted from periodic progress payments due the Contractor.

**17.5** During inclement weather and other conditions, the Contractor shall pursue only such portions of the Work as shall not be damaged thereby. No portions of the Work which satisfactory quality or efficiency will be affected by an unfavorable condition shall be constructed while these conditions remain, unless by special means or precautions, approved by the Engineer, the Contractor is able to overcome them.

**17.6** Delays in delivery of equipment or material purchased by the Contractor or its Subcontractor, including Engineer‑selected equipment, shall not be considered as a just cause for delay as this is not beyond the control of the Contractor. The Contractor shall be fully responsible for the timely ordering, scheduling, expediting, delivery, and installation of all equipment and materials.

**17.7** In case of failure on the part of the Contractor to complete the Work within the time affixed in the Contract, or such extension thereof as may be allowed by Engineer or Owner, the Contract shall by that fact be terminated by written notice. The Owner shall not thereafter pay or allow the Contractor any further compensation for any Work done by it under said Contract, and the Contractor and its sureties shall be liable to the Owner for all loss or damage which it may suffer by reason of his failure to complete the Contract within such time. Failure to prosecute the Work diligently shall be grounds for termination by the Owner pursuant to this paragraph.

In the event the Contract should be terminated, the Owner shall have the right to take over the Work and to proceed with the same until it is completed, either by performing said Work itself directly or by contracting it out to some other person or persons, and in such event the Owner may take possession of and utilize, in completing the Work, such materials, appliances and plant as may be on the site of the Work and necessary for its completion. Nothing herein contained shall be deemed to limit the right of the Owner in the event of any breach of Contract by the Contractor; but all rights herein given to the Owner are and shall be deemed to be additional to any other rights or remedies which the Owner shall have under any provision of law.

**17.8** Should the Contractor fail to complete the Work, or any part thereof, in the time agreed upon in the Contract or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the Contractor shall reimburse the Owner for the additional expense and damage for each calendar day that the Contract remains uncompleted after the Contract completion date. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the Work is the per diem rate, as stipulated in Section 15, Information For Bidders, plus any costs incurred by the Engineer including, but not limited to: the Engineer's costs for additional inspection, testing or surveying as a result of the Contractor's failure to complete the Work in the time agreed upon. The said amounts are agreed upon as liquidated damages for the loss to the Owner on account of expense due to the employment of Engineers, inspectors, and other employees after the expiration of the time of completion, and on account of the value of the operation of the Works dependent thereon. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the Contractor. The Owner shall have the right to deduct such damages from any amount due, or that may become due the Contractor, or the amount of such damages shall be due and collectible from the Contractor or its Surety.

**17.9** The Contractor shall not be charged with liquidated damages or any excess costs when the delay in completion of the Work is due to any of the reasons set forth below provided the Contractor has given Written Notice of the delay within three (3) days of the occurrence of the cause of the delay to the Owner or Engineer. In the event notice is not given as provided, liquidated damages may be assessed.

A. To unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to: acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a separate contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather.

**18.0 CORRECTION OF WORK**

**18.1** The Contractor shall promptly correct all work rejected by the engineer as defective or as failing to conform to the contract documents, whether observed before or after substantial completion and whether or not fabricated, installed or completed. Contractor shall bear all costs of correcting such rejected work, including compensation for the engineer's additional services made necessary thereby. Contractor shall also bear the costs of making good all work of the Owner or separate Contractor destroyed or damaged by such correction or removal.

**18.2** All removal and replacement work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected work within ten (10) days after receipt of Written Notice, the Owner may remove such work and store the materials at the expense of the Contractor, including compensation for the engineer's additional services made necessary thereby.

**19.0 SUBSURFACE CONDITIONS**

**19.1** The Contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the Owner by Written Notice of:

A. Subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents; or

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

**19.2** The Owner shall promptly investigate the conditions, and if it finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the Work, an equitable adjustment shall be made and the Contract Documents shall be modified by a Change Order. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given the required Written Notice; provided that the Owner may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

**20.0 SUSPENSION OF WORK, TERMINATION AND DELAY**

**20.1** The Owner may suspend the Work or any portion thereof for a period of not more than ninety (90) days or such further time as agreed upon by the Contractor, by Written Notice to the Contractor and the Engineer which notice shall fix the date on which Work shall be resumed. The Contractor shall resume that Work on the date so fixed. The Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

**20.2** In addition to any other reasons for termination provided in the Contract, the Contractor shall be considered in default of the Contract and such default will be considered as cause for the Owner to terminate the Contract for any of the following reasons if the Contractor:

A. Fails to begin the Work under the Contract within the time specified in the "Notice To Proceed," or

B. Fails to perform the Work or fails to provide sufficient workers, equipment or materials to assure completion of Work in accordance with the terms of the Contract, or

C. Performs the Work unsuitably or neglects or refuses to remove materials or to perform such new Work as may be rejected as unacceptable and unsuitable, or

1. Discontinues the prosecution of the Work, or

E. Fails to resume Work which has been discontinued within a reasonable time after notice to do so, or

F. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

G. Allows any final judgment to stand against him unsatisfied for a period of 10 days, or

H. Makes an assignment for the benefit of creditors, or acceptable manner, or

I. Is otherwise in breach of the Contract and has failed to remedy the breach within ten (10) days of written notice of the existence of such breach, or

J. Fails to provide safe conditions for its workers and/or the general public.

Should the Owner consider the Contractor in default of the Contract for any reason above, he shall immediately give Written Notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the Contract.

If the Contractor or Surety, within a period of 10 days after Written Notice, does not proceed in accordance therewith, then the Owner shall have, upon written notification of the facts of such delay or neglect, the power and authority without violating the Contract, to take the prosecution of the Work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the Work and are acceptable and may enter into an Contract for the completion of said Contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Owner will be required for the completion of said Contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the Work under Contract, will be deducted from any monies due or which may come due the Contractor. If such expense exceeds the sum which would have been payable under the Contract, then the Contractor and the Surety shall pay to the Owner the amount of such excess.

**20.3** 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 monies due Contractor by Owner will not release Contractor from liability.

**20.4** Upon seven days Written Notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, elect to terminate the Contract. In such case, Contractor shall be paid (without duplication of any items):

1. **20.4.1** 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;
2. **20.4.2** 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 on such expenses;
3. **20.4.3** for reasonable costs incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and
4. **20.4.4** 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.

**20.5** If the Work should be stopped under an order of any court or other public authority for a period of more than ninety (90) days, through no act or fault of the Contractor or of anyone employed by him, or if the Owner should fail to pay the Contractor within 45 days after the time specified in the Payments To Contractor, Section 22.0, then the Contractor may, upon 15 days Written Notice to the Owner, stop Work until payment of the amount owing has been received.

**20.6** The Owner may terminate the Contract or a portion thereof if conditions encountered during the progress of the Work make it impossible or impracticable to proceed with the Work or a local or national emergency exists.

When Contracts, or any portion thereof, are terminated before completion of all Work in the Contract, adjustments in the amount bid for the pay items will be made on the actual quantity of Work performed and accepted, or as mutually agreed for pay items of Work partially completed or not started. No claim for loss of anticipated profits will be considered.

Termination of the Contract or any portion thereof shall not relieve the Contractor of its responsibilities for the completed work nor the surety of its obligation for and concerning any just claims arising out of the Work performed.

**21.0 ISSUANCE OF NOTICE OF COMPLETION AND FINAL ACCEPTANCE BY OWNER**

**21.1** Upon completion of the Project, a Final Inspection shall be requested by the Contractor in writing and the Owner will make an inspection within seven (7) days. If all construction provided for and contemplated by the contract is found completed to his satisfaction, that inspection shall constitute the final inspection and the Owner will make the final acceptance and issue a Certificate Of Completion to the Contractor.

If, however, the inspection discloses any Work, in whole or in part, as being unsatisfactory, the Owner will give the Contractor the necessary instructions for correction of same, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the Work, another inspection will be made which shall constitute the final inspection provided the Work has been satisfactorily completed. In such event, the Owner will make the final acceptance and issue a Certificate Of Completion to the Contractor.

**22.0 PAYMENTS TO CONTRACTOR**

**22.1** In addition to any documents required by the Engineer to be submitted to Engineer at the time a partial pay estimate is submitted, including partial lien released as specified in Section 22.9 of the General Conditions***,*** the Contractor shall, at least ten (10) days before each progress payment falls due (but not more often than once a month), submit to the Engineer a partial payment estimate filled out and signed by the Contractor covering the Work performed during the period covered by the partial payment estimate and supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work, title to such materials and equipment shall vest in the Owner, and Contractor shall supply, at the time of submission of payment estimate, supporting documents satisfactory to the Owner, to establish and protect Owner's interest in the materials and equipment, and Contractor shall maintain appropriate insurance on same until such time as actual possession by the Owner of the materials and equipment shall occur. The Engineer will, within seven (7) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the Owner or return the partial payment estimate to the Contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate. The Owner will, within fourteen (14) days of presentation to him of an approved partial payment estimate, pay the Contractor a progress payment on the basis of the approved partial payment estimate. The Owner shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all Work covered by the Contract Documents. When the Contract is fifty percent completed, one‑half of the amount retained shall be paid to the Contractor provided the Contractor makes a written request for the payment and the Contractor is making satisfactory progress on the Contract and there is no specific cause or claim requiring a greater amount to be retained. After the Contract is fifty per cent completed, no more than five per cent of the amount of any subsequent progress payments made under the Contract may be retained providing the Contractor is making satisfactory progress on the project, except that if at any time the Owner determines satisfactory progress is not being made, ten per cent retention shall be reinstated for all progress payments made under the Contract subsequent to the determination.

**22.2** In lieu of ten percent (10%) retention provided for in paragraph 22.1, of this Article, the Owner shall, at the Contractor's option, accept as a substitute an assignment of any of the following:

A. Time certificates of deposit of banks licensed by the State of Arizona; or

B. Securities of or guaranteed by the United States of America; or

C. Securities of the State of Arizona, or any county, municipality or school district thereof; or

D. Shares of savings and loan institutions authorized to transact business in the State of Arizona.

Such assigned instruments shall have a face value in an amount equal to ten percent (10%) of the progress payment for which such instruments are tendered and shall be retained by the Owner as a guarantee for complete performance of the Contract.

In the event the Owner accepts substitute security as provided herein for the ten percent (10%) retention, the Contractor shall be entitled to all interest or income earned by such security, and all such security in lieu of retention shall be returned to the Contractor within sixty (60) days after final completion and acceptance of all material, equipment and work covered by the contract if the Contractor has furnished the Owner satisfactory receipts for all labor and material billed and waivers of liens from any and all persons holding claims against the work.

In no event shall the Owner accept a time certificate of deposit of a bank or shares of a savings and loan institution in lieu of the retention specified in paragraph 22.1 of this Article unless accompanied by a signed and acknowledged waiver of the bank or savings and loan institution of any right or power to set off against either the Owner or the Contractor in relationship to the certificates or shares assigned.

**22.3** Payments to Subcontractors is governed by ARIZ. REV. STAT. § 34-221.

**22.4** Prior to Substantial Completion, the Owner, with the approval of the Engineer and with the concurrence of the Contractor, may use any completed or substantially completed portions of the Work. Such use shall not constitute an acceptance of such portions of the Work.

**22.5** The Owner shall have the right to enter the premises for the purpose of doing Work not covered by the Contract Documents. This provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the Work, or the restoration of any damaged Work except such as may be caused by agents or employees of the Owner.

**22.6** Upon final completion and acceptance of the Work, the Engineer shall issue a certificate attached to the final payment request that the Work has been accepted under the conditions of the Contract Documents. No retention of payments may be delayed or retained without a specific written finding by the Engineer or Owner of the reasons justifying the delay in payment. The entire balance found to be due the Contractor, including the retained percentages, except the amount necessary to pay the expenses the Owner reasonably expected to incur in order to pay or discharge the expenses determined by the Engineer or Owner in the finding justifying the retention or delay, shall be paid to the Contractor, within sixty (60) days of completion or proper filing of the Notice of Completion.

**22.7** The Contractor shall indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the Work. The Contractor shall, at the Owner's request, furnish satisfactory evidence,in the form of lien releases or other documents deemed appropriate by the Owner***,*** that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the Owner may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the Contract Documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

**22.8** If any payment to Contractor is delayed after the date due, interest shall be paid at the rate of one percent per month or fraction of a month on such unpaid balance as may be due. If the Owner fails to make payment sixty (60) days after final completion and acceptance, in addition to other remedies available to the Contractor, interest shall be paid at the rate of one per cent per month or fraction of the month on such unpaid balance as may be due, except for that amount necessary to pay the expenses the Owner reasonably expects to incur in order to pay or discharge the expense determined by the Engineer or Owner in the finding justifying the retention or delay.

* 1. The Owner may require the Contractor to furnish partial releases or liens executed by all persons, firms and corporations who have furnished labor services or materials incorporated into the Work during the period of time for which the progress payment is due, releasing such lien rights as these persons, firms or corporations may have for that period.

**23.0 ACCEPTANCE OF FINAL PAYMENT AS RELEASE**

**23.1** Following the Owner's acceptance of the Work, the Owner will issue a Notice of Completion to the Contractor. Sixty days after the issuing of the Notice of Completion, and upon receipt of the necessary Unconditional lien releases executed by all persons, firms and corporations who have furnished labor services or materials incorporated into the work evidencing that all liabilities have been fully discharged,the Owner will pay to the Contractor the entire sum so found to be due after deducting therefrom all previous payments and all amounts to be kept and all amounts to be retained under the provisions of the Contract. All previous prior partial estimates and payments shall be subject to correction in the final estimate and payment.

**23.2** The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor other than claims in stated amounts as may be specifically excepted by the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the Owner and others relating to or arising out of this Work. Any payment, however, final or otherwise, shall not release the Contractor or his sureties from any obligations under the Contract Documents or the Performance Bond and Payment Bonds.

**24.0 INSURANCE**

**24.1** The Contractor shall give special attention to Section 00500-A of the Bid Documents when preparing a bid, which outline the insurance requirements of Owner and the Contractor shall consider these insurance requirements part of the Bid/Contract documents.

**25.0 CONTRACT SECURITY**

**25.1** The Contractor shall within ten (10) days after the receipt of the Notice Of Award furnish the Owner with a Performance Bond and a Payment Bond in sums equal to the amount of the Contract PRICE, conditioned upon the performance by the Contractor of all undertakings, covenants, terms, conditions and Contracts of the Contract Documents, and upon the prompt payment by the Contractor to all persons supplying labor and materials in the prosecution of the Work provided by the Contract Documents. Such Bonds shall be executed by the Contractor and a corporate bonding company licensed to transact such business in the state in which the Work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these Bonds shall be borne by the Contractor. If at any time a surety on any such Bond is declared a bankrupt or loses its right to do business in the state in which the Work is to be performed or is removed from the list of Surety Companies accepted on Federal Bonds, Contractor shall within ten (10) days after notice from the Owner to do so, substitute an acceptable Bond (or Bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such Bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable Bond to the Owner.

**26.0 ASSIGNMENTS**

**26.1** Neither the Contractor nor the Owner shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his right, title or interest therein, or his obligations thereunder, without written consent of the other party. Nor shall the Contractor assign any monies due or to become due to him hereunder without the previous written consent of the Owner.

**26.2** The Owner and Contractor each bind itself, its partners, successors and assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, Contracts and obligations contained in the Contract Documents.

**27.0 INDEMNIFICATION**

**27.1** Contractor shall indemnify and hold harmless City, its officers, volunteers and employees from and against any and all liabilities, damages, losses, and costs, including reasonable attorney’s fees, but only to the extent caused by the negligence, recklessness, or intentional wrongful conduct of Contractor or other persons employed or used by the Contractor in the performance of this Contract. It is agreed that Contractor will be responsible for primary loss investigation, defense, and judgment costs where this indemnification is applicable.

**28.0 SEPARATE CONTRACTS**

**28.1** The Owner reserves the right to let other contracts in connection with this Project. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their Work, and shall properly connect and coordinate its Work with theirs. If the proper execution or results of any part of the Contractor's Work depends upon the Work of any other Contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such Work that render it unsuitable for such proper execution and results.

**28.2** The Owner may perform additional Work related to the Project by itself, or it may let other contracts containing provisions similar to these. The Contractor shall afford the other Contractors who are parties to such Contracts (or the Owner, if he is performing the additional Work himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work, and shall properly connect and coordinate his Work with theirs.

**28.3** If the performance of additional Work by other Contractors or the Owner is not noted in the Contract Documents prior to the execution of the Contract, written notice thereof shall be given to the Contractor prior to starting any such additional Work. If the Contractor believes that the performance of such additional Work by the Owner or others involves it in additional expense or entitles him to an extension of the Contract Time, it may make a claim therefore as provided in Sections 16 and 17.

**29.0 SUBCONTRACTING**

**29.1** The Contractor may utilize the services of specialty Subcontractors on those parts of the Work which come under normal contracting practices or are typically performed by specialty Subcontractors, provided the Contractor, simultaneously with the delivery of the executed Contract, shall furnish to the Owner and the Engineer in writing the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. The engineer will promptly reply to the Contractor in writing stating whether or not the Owner or the Engineer, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Engineer to promptly reply shall constitute notice of no reasonable objection. The Contractor shall not contract with any such proposed person or entity to whom the Owner or Engineer has made reasonable objection and the Contractor shall not be required to contract with anyone to whom he has a reasonable objection. If the Owner or Engineer has a reasonable objection to any proposed person or entity, the Contractor shall submit a substitute to whom the Owner or the Engineer has no reasonable objection. The Contractor shall make no substitution for any Subcontractor, person or entity previously selected if the Owner or Engineer makes reasonable objection to such substitution.

**29.2** The Contractor shall not award Work to Subcontractor(s), in excess of forty‑nine (49%) percent of the Contract Price, without prior written approval of the Owner.

**29.3** The Contractor shall be fully responsible to the Owner for the acts and omissions of its Subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

**29.4** The Contractor shall not employ any Subcontractors that are not properly licensed with Lake Havasu City and the State of Arizona. Changes of Subcontractors listed with the Proposal shall be made only with the approval of the Owner.

**29.5** Nothing contained in these Contract Documents shall be construed as creating any contractual relationship between any Subcontractor and the Owner; the Contractor shall be as fully responsible to the Owner for the acts and omissions of Subcontractors, and of persons employed by them, as he is for the acts and omissions of persons directly employed by him.

**29.6** The Contractor shall, without additional expense to the Owner, utilize the services of specialty Subcontractors on those parts of the Work which are specified or required by State or local laws to be performed by specialty Subcontractors.

**29.7** The Contractor shall be responsible for the coordination of all trades, Subcontractors, material and people engaged upon this Work. The Owner will not undertake to settle any differences between the Contractor and his Subcontractors or between Subcontractors.

**29.8** The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the Work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

**29.9** Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

**30.0 ENGINEER’S AUTHORITY**

**30.1** The Engineer shall act as the Owner's representative during the construction period. The Engineer shall decide questions which may arise as to quality and acceptability of materials furnished and Work performed and shall interpret the intent of the Contract Documents in a fair and unbiased manner. The Engineer will make periodic visits to the site and determine if the Work is proceeding in accordance with the Contract Documents.

**30.2** The Contractor will be held strictly to the intent of the Contract Documents in regard to the quality of materials, workmanship and execution of the Work. Inspections may be made at the factory or fabrication plant of the source of material supply.

**30.3** The Engineer shall not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety precautions and programs in connection with the Work and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Engineer shall not be responsible or have control or charge over the acts or omissions of the Subcontractors, or any of their agents or employees, or any other person performing any of the Work.

**30.4** The Engineer shall promptly make decisions relative to interpretation of the Contract Documents.

**30.5** The Engineer will have the authority to reject Work which does not conform to the Contract Documents. Whenever, in its opinion, it is considered necessary or advisable for the implementation of the intent of the Contract Documents, the Engineer will have authority to require special inspection or testing of the Work in accordance with the other terms of this Contract whether or not such Work be then fabricated, installed or completed.

**31.0 LAND AND RIGHTS‑OF‑WAY**

**31.1** Prior to issuance of Notice To Proceed, the Owner shall obtain all land and rights‑of‑way necessary for carrying out and for the completion of the Work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.

**31.2** The Owner shall provide to the Contractor information which delineates and describes the lands owned and rights‑of‑way acquired.

**31.3** The Contractor shall provide at its own expense and without liability to the Owner any additional land and access thereto that the Contractor may desire for temporary construction facilities, or for storage of materials.

**32.0 GUARANTEE**

**32.1** Except as otherwise specified, all Work shall be guaranteed by the Contractor against defects resulting from the use of inferior materials, equipment, or workmanship for a period of one (1) year from the date the Certificate of Substantial Completion is issued by the Owner, or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents.

* 1. If, within any guarantee period, repairs or changes are required in connection with guaranteed Work, which, in the opinion of the Owner, is rendered necessary as the result of the use of materials, equipment, or workmanship which are inferior, defective, or not in accordance with the terms of the Contract, the Contractor shall, promptly upon receipt of notice from the Owner, and without expense, (1) place in satisfactory condition in every particular all of such guaranteed Work, correcting all defects therein; (2) make good all damage to the building, site or Work, or equipment or contents thereof, which in the opinion of the Owner, is the result of the use of materials, equipment, or workmanship which are inferior, defective, or not in accordance with the terms of the contract; and (3) make good any Work or material, or the equipment and contents of said building, site or Work disturbed in fulfilling any such guarantee. If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee, the Owner may have the defects corrected and the Contractor and his surety shall be liable for all expense incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

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**GUARANTEE**

**32.3** The Contractor agrees to execute, and to cause each Subcontractor to execute, a written guarantee to the Owner, in substantially the following form:

GUARANTEE FOR:

ACCEPTANCE DATE:

We hereby guarantee, both jointly and severally, that the improvement which we have installed for the Owner of Project, specifically described as:

**Dick Samp Park Pickleball Courts - Phase 2, Project No. PK1140**

has been done in accordance with the Contract Drawings and Specifications.

We agree, both jointly and severally, to repair and replace any or all Work included in said improvement, together with any other adjacent work which may be displaced or damaged by so doing, that may prove to be defective in its workmanship or material within a period of one year from date of acceptance of the above-mentioned improvement by the Engineer on behalf of the Owner, ordinary wear and tear and unusual abuse or neglect accepted.

In the event of our failure to comply with the above-mentioned conditions within a reasonable period of time (as determined by the Owner) after being notified in writing by the Owner, we both jointly and severally, do hereby authorize the Owner to proceed to have said defects repaired and made good at our expense, and we will honor and pay the costs and charges therefore upon demand.

Signed

Countersigned

Local Representative to be contacted for service:

Name

Address

Phone No.

FAX

The guarantee form(s) shall be completed and returned with the acknowledgement of the Certificate of Completion.

The failure of the Contractor or any Subcontractor to execute, such guarantee shall not affect the right of the Owner to rely on and enforce the guarantee and the obligations respectively assumed by the Contractor and each Subcontractor under Subparagraph 32.1 and 32.2 hereof.

**33.0 ARBITRATION**

**33.1** Provided both parties mutually agree, all claims, disputes and other matters in question arising out of, or relating to, the Contract Documents or the breach thereof, except for claims which have been waived by the making and acceptance of final payment as provided by Section 23, may be decided by arbitration in accordance with the American Arbitration Association or any other similar body. The foregoing Contract to arbitrate shall be specifically enforceable under the prevailing arbitration law (Arizona Revised Statutes Sections 12‑1501, *et seq*.) of the State of Arizona. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof.

**33.2** Notice of the demand for arbitration shall be filed in writing with the other party to the Contract Documents and with the American Arbitration Association and a copy shall be filed with the Engineer. The party filing for arbitration may select which arbitration service to use. Demand for arbitration shall in no event by made on any claim, dispute or other matter in question which would be barred by the applicable statute of limitations.

**33.3** The Contractor shall carry on the Work and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

**33.4** The provisions of the Contract pertaining to arbitration are not binding upon Engineer and Engineer cannot be compelled to participate against his will in an arbitration arising out of a dispute over the Contract or Contract Documents unless Engineer so consents in writing to be a party to the arbitration.

**34.0 TAXES AND CHARGES**

**34.1** The Contractor shall pay all State and local sales and use taxes on items, and in a manner as required by the laws and statutes of the State of Arizona and its political subdivisions. The Contractor shall withhold and pay any and all withholding taxes, whether State or Federal, and pay all Social Security charges, State Unemployment Compensation charges, industrial insurance, workers compensation charges, and pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees, or sums whatsoever, which are now or may hereafter be required to be paid or withheld under any laws.

**35.0 MISCELLANEOUS CONDITIONS**

**35.1** In the event that either party to the Contract is required to institute arbitration or litigation to enforce its rights under the terms of the Contract, then the prevailing party in the arbitration or litigation shall be entitled to recover all costs and attorney's fees incurred.

**35.2** In the event that any provision contained in the Contract is found to be contrary to the applicable law, then it shall be severed and the remaining provisions of the Contract shall remain in full force and effect.

**35.3** The Contract shall be governed by the laws of the State of Arizona.

**36.0 CONFLICTS WITHIN THE PLANS OR SPECIFICATIONS**

**36.1** In the event that a conflict is discovered between sections of the Specifications or between the Plans and the Specifications, the following list of priority shall be used to resolve the conflict:

A. Executed Change Orders

B. Addenda

C. Contract

D. Special Provisions

E. General Conditions

F. Instructions to Bidders

G. Technical Specifications

H. Plans

I. Referenced Standard Specifications or Other Documents

**37.0 NONDISCRIMINATION**

**37.1** The Contractor, with regard to the work performed pursuant to this contract, shall not discriminate on the grounds of race, color, sex, religion, creed, age, physical or mental disability, or national origin or ancestry in any contracts with the public and in the selection and retention of employees or subcontractors, nor in the procurement of materials and leases of equipment.

**38.0 INTEGRATION**

**38.1** This Contract represents the entire Contract between the parties hereto and supersedes any and all prior negotiations or representations, either written or oral.

**38.2** Amendments or modifications to the Contract shall be in writing, signed by both parties, or by Change Orders.

**38.3** The Contract Documents shall not be construed to create any contractual relationship of any kind between the Engineer and the Contractor, but the Engineer shall be entitled to performance of obligations intended for his benefit, and to the enforcement thereof.

**39.0 HAZARD COMMUNICATION PROGRAM**

**39.1** All contractors working on City projects shall submit a copy of their hazard communication plan to the Fire Prevention Office prior to commencement of work on any project. This will ensure that other individuals on the job site are not unknowingly exposed to a hazardous substance or chemical.

The Fire Prevention Office shall be provided a list of the hazardous substances and the material safety data sheets that are applicable to the work areas of those contract employees.

All contract labor within City facilities will be treated the same as regular employees with regard to this hazard communication standard.

\*\* END OF SECTION \*\*

# DIVISION III - SPECIAL PROVISIONS

## SECTION 00800

### SPECIAL PROVISIONS

**1.0 SCOPE**

These Special Provisions supplement and modify the General Conditions, Technical Specifications, and Plans. All requirements and provisions of the General Conditions, Technical Specifications and Plans apply except where modified by these Special Provisions.

1. **PROJECT DESCRIPTION**

The “Project” consists of the phase 2 improvements to Dick Samp Park based on recommendations in the Field Assessment Report and the Dick Samp Park Master Plan prepared by Shepard Wesnitzer and Norris Design. Phase 2 improvements include; 8 new Pickleball courts on two post-tension slabs, additional parking, hardscape, landscaping, irrigation, and ramadas/shade structures for spectator and player seating.

**3.0 DEFINITION OF TERMS**

Wherever in these documents the word "OWNER" appears, it shall be understood to mean Lake Havasu City, Arizona, the governing body of which is the City Council. Wherever in these documents the word "CONTRACTOR" appears, it shall be understood to mean the party or parties contracting with the Owner to perform the Work. Wherever in these documents the word "ENGINEER" appears, it shall be understood to mean Lake Havasu City Public Works Department, Engineering Division.

**4.0 PRECONSTRUCTION CONFERENCE**

Within ten (10) days after the contract has been awarded, but before the start of construction, the ENGINEER will schedule a conference to be held at the site of the project for the purpose of discussing such matters as project supervision, onsite inspections, progress schedules and reports, payrolls, payments to Contractors, equal employment opportunity, contract change orders, insurance, safety, and any other items pertinent to the project. The Contractor shall arrange to have all supervisory personnel connected with the project on hand to meet with the representatives of the Owner and the Engineer.

**5.0 COMPLIANCE WITH LAWS AND LABOR MATERIAL REQUIREMENTS**

The Contractor shall conduct the work in compliance with all existing state and national laws and county and municipal ordinance and regulations limiting or controlling the work in any manner. Particular attention is called to the following State of Arizona laws:

**WORKMAN'S COMPENSATION INSURANCE** All personnel working on the project shall be covered by Workmen's Compensation Insurance as provided or approved by the Arizona Industrial Commission in accordance with ARS 23‑901 et. seq.

**EMPLOYMENT OF ALIENS** Employment of aliens on Public Works projects prohibited.

ARS 34‑301 and residence requirements for employees, ARS 34‑302.

The Contractor understands and acknowledges the applicability to it of the American with Disabilities Act, the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act of 1989. The following is only applicable to construction contracts: The Contractor must also comply with A.R.S. § 34-301, “Employment of Aliens on Public Works Prohibited”, and A.R.S. § 34-302, as amended, “Residence Requirements for Employees”.

Under the provisions of A.R.S. §41-4401, Contractor hereby warrants to the City that the Contractor and each of its subcontractors (“Subcontractors”) will comply with, and are contractually obligated to comply with, all Federal Immigration laws and regulations that relate to their employees and A.R.S. §23-214(A) (hereinafter “Contractor Immigration Warranty”).

A breach of the Contractor Immigration Warranty shall constitute a material breach of this Contract and shall subject the Contractor to penalties up to and including termination of this Contract at the sole discretion of the City.

The City retains the legal right to inspect the papers of any Contractor or Subcontractors employee who works on this Contract to ensure that the Contractor or Subcontractor is complying with the Contractor Immigration Warranty. Contractor agrees to assist the City in regard to any such inspections.

The City may, at its sole discretion, conduct random verification of the employment records of the Contractor and any of subcontractors to ensure compliance with Contractor’s Immigration Warranty. Contractor agrees to assist the City in regard to any random verifications performed.

Neither the Contractor nor any of Subcontractor shall be deemed to have materially breached the Contractor Immigration Warranty if the Contractor or Subcontractor establishes that it has complied with the employment verification provisions prescribed by sections 274A and 274B of the Federal Immigration and Nationality Act and the E-Verify requirements prescribed by A.R.S.§23-214, Subsection A.

The provisions of this Article must be included in any contract the Contractor enters into with any and all of its subcontractors who provide services under this Contract or any subcontract. “Services” are defined as furnishing labor, time or effort in the State of Arizona by a contractor or subcontractor. Services include construction or maintenance of any structure, building or transportation facility or improvement to real property.

**6.0 COPIES OF DOCUMENTS**

The Owner will furnish to the Contractor one electronic copy of the Contract Documents in pdf format, unless otherwise requested.

**7.0 DRAWINGS OF RECORD**

Two sets of the Contract Documents are to be kept at the job site, maintained in good condition, and marked daily by the Contractor as the work proceeds. The Contract Documents shall be kept available for inspection by the OWNER at all times, and shall be kept up to date.

**8.0 CONTRACT TIME**

The contract time shall be **180 CALENDAR DAYS** from the NOTICE to PROCEED.

**9.0 SURVEYS**

The CONTRACTOR shall layout the WORK, in accordance with the drawings, shall establish all necessary lines, etc., required to complete the work in accordance with the Contract Documents. The CONTRACTOR shall employ an experienced and competent Arizona Registered Land Surveyor (R.L.S.) satisfactory to the OWNER to layout the WORK and to verify lines and elevations as the WORK progresses.

**10.0 WEATHER CONDITIONS**

In the event of temporary suspension of work, or during inclement weather, or whenever the OWNER shall direct, the Contractor will and will cause his Subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the OWNER, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his subcontractors to so protect his work, such materials shall be removed and replaced at the expense of the Contractor.

**11.0 SUBMITTALS**

Prior to construction and as soon as possible, the Contractor shall supply all submittals required by the Technical Specifications or as requested by the Owner.

**12.0 INSPECTION OF THE WORK**

The Owner intends to provide a full‑time resident inspector for the project. The resident inspector will be available for a forty (40) hour period during the week from Monday through Friday during the period of the Contract. In the event the Contractor elects to work outside the forty (40) hour week that occurs between Monday through Friday, such as Saturday, Sunday or legal holidays, in accordance with Section 17.0 of the General Conditions the Contractor will be responsible for all inspection, engineering, and testing costs incurred during that period. For any inspection work performed on Saturday, Sunday, or local municipal holidays the minimum chargeable time shall be four (4) hours. The Owner reserves the right to deduct these additional inspection, engineering, and testing costs directly from the Contractor's payments.

**13.0 WATER AND POWER**

* + 1. WATER
  1. Water is available from the Water Department at no cost to the Contractor. The Contractor shall make application and obtain a hydrant meter from the Water Department for the purpose of metering the use of water on the project. The Contractor shall adhere to all conditions stated in the Meter Application, including payment of a deposit for the meter, return of the meter to the Water Department each month during the project for reading, and notification to the Water Department prior to any change in the location of the hydrant meter. The maximum water to be drawn off a hydrant at any time is 200 gpm (water drawn from 4" hydrant whenever available). Water shall only be drawn off hydrants approved by the Lake Havasu City Water Superintendent or his authorized representative.
     1. POWER
  2. All power for lighting, operation of Contractor's plant or equipment or for any other use as may be required for proper completion of the work to be performed under the provisions of these contract documents, shall be provided by the Contractor at his sole cost and expense.

**14.0 BURNING OF VEGETATION**

No burning of vegetation will be allowed.

**15.0 MATERIALS TESTING**

**A.** CONSTRUCTION TESTING

All quality control testing must be provided by CONTRACTOR. The material and workmanship provided during construction will be tested on a regular basis by the CONTRACTOR. It shall be the responsibility of the CONTRACTOR, at no additional cost, to provide material samples for testing at the **OWNER’s** request.

The CONTRACTOR shall be responsible for charges resulting from failed tests, costs for retesting shall be based upon hourly and/or individual test rates.

In the event any portion of the project is rejected because of substandard work, all materials testing, engineering, and inspection costs associated with corrective measures shall be chargeable to the CONTRACTOR at the current respective rates.

**B.** PRELIMINARY MATERIALS TESTING

All preliminary materials testing and mix design testing required by the specifications to ensure materials and mix designs are suitable for project use will be the responsibility of the CONTRACTOR at no additional cost to the OWNER.

**16.0 CLEANUP AND POLLUTION CONTROL**

**A.** GENERAL

The CONTRACTOR shall be responsible for the removal of all debris, litter and waste from the job site(s) and/or equipment maintenance area and the restoration of any and all areas affected, directly or indirectly by the construction, transportation of equipment or materials and/or by the acts of neglect or omission by his employees.

All debris, litter, etc., shall be disposed of in accordance with prevailing ordinance or law. Open burning of trash, debris, etc., will not be permitted.

Such clean‑up operations shall be on a daily basis. All pavement, concrete, brush, rocks, excess materials, etc. accumulated or removed during the course of construction must be disposed of in those areas designated by the Engineer or his authorized representative, including but not limited to the Lake Havasu City Landfill. All costs for disposal, including gate or tipping fees, etc. are the responsibility of the Contractor. This material must be disposed of within ten (10) days of time of removal. If the areas in question are not cleaned up to the satisfaction of the ENGINEER, progress payments will be withheld until clean‑up is completed and approved by the ENGINEER, or, in the case of private projects, other legal action will be taken.

**B.** TEMPORARY FACILITIES

The CONTRACTOR shall provide temporary mailboxes and traffic control signs where necessary until completion of backfilling and clean‑up.

**C.** SOLID WASTES

All solid wastes shall be removed and disposed of in accordance with prevailing ordinance or law. Clean‑up shall be completed on a daily basis. All costs for disposal shall be the responsibility of the Contractor, and shall be considered incidental to the costs of the various bid items.

All spilled paving material shall be removed and disposed of prior to final acceptance and payment.

**D.** MAINTENANCE AREAS

Maintenance areas shall be kept clean during construction and shall be free of litter at all times. All empty containers, debris, waste, etc., shall be removed and disposed of prior to final acceptance. Upon inspection by the ENGINEER, the CONTRACTOR may be required to dress the surface of the ground, dependent upon the extent of spillage of petroleum products on the surface. If so directed, such dressing shall consist of scarifying the surface to a depth of six (6) inches and moving and compacting the soil in such a way as to blend the spill areas into clean soil and restore the surface by partial compaction.

**E.** POLLUTION

The CONTRACTOR shall be held responsible for acts leading to pollution of water, air or land by any means.

Open burning of trash, debris, etc., will not be permitted anywhere in the City limits.

The discharge of any pollutants upon the surface of the ground, or into any stream, ravine, wash or body of water which may result in pollution of the public water supply, or of groundwater contributory thereto, will not be permitted.

Violation of these conditions will be cause for the termination of work, and possible legal action.

**F.** REMOVAL AND REPLACEMENT OF SIGNS, MAILBOXES, ETC.

It is the responsibility of the CONTRACTOR to remove all poles, etc. which are located within the construction area and replace at the time of backfilling and clean‑up in the locations determined by the Street Superintendent. In the case of landscaping or other private items located in the construction area, the CONTRACTOR shall hand‑deliver a written notice to all residences in that area stating his intentions to perform construction activities and shall do so at least five (5) working days prior to work commencing. If, at the time of construction these items are still in the construction area, the CONTRACTOR is to remove and dispose of them properly. All signs and mailboxes shall be permanently installed within forty‑eight (48) hours of completion of construction activities.

**G.** NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)GENERALPERMIT

At the time of the preconstruction conference, the contractor shall submit, for the Engineer's approval, a program which includes all the measures which the contractor proposes to take for the construction of permanent erosion control work specified in the contract and all the temporary control measures to prevent erosion and pollution of streams, lakes and reservoirs.

Permanent erosion control work and pollution prevention measures shall be performed at the earliest practicable time consistent with good construction practices. Temporary work and measures are not meant to be performed in lieu of permanent work specified in the contract.

Construction of drainage facilities as well as the performance of other contract work which will contribute to the control of erosion and sedimentation shall be carried out in conjunction with earthwork operations or as soon thereafter as possible.

Except for that approved in writing by the Engineer, the contractor shall perform no clearing and grubbing or earthwork until the contractor's program has been approved.

If in the opinion of the Engineer, clearing and grubbing, excavation, or other construction operations are likely to create an erosion problem because of the exposure of erodible earth material, the Engineer may limit the surface area to be disturbed until satisfactory control measures have been accomplished. Unless otherwise permitted by the Engineer, the contractor shall not expose an area of erodible earth material greater than 217,800 square feet at any one location.

The Engineer may order the contractor to provide immediate measures to control erosion and prevent pollution. Such measures may involve the construction of temporary berms, dikes, dams, sediment basins and slope drains; the use of temporary mulches, mats and seeds and the use of other devices, methods, items, etc., as necessary.

At any time the contractor proposes to change his/her schedule of operations, the contractor shall review and update his/her erosion and pollution control program and submit it to the Engineer for approval.

The contractor shall not be entitled to additional compensation or an extension of contract time for any delays to the work because of the contractor's failure to submit an acceptable erosion and pollution control program.

Erosion control and pollution prevention work specified in the contract which is to be accomplished under any of the various contract items will be paid for by the bid item. Any additional work required by the Owner will be paid for by the Force Account set up for this work.

The cost of any erosion control and pollution prevention work which may be proposed by the contractor in his/her program, in addition to that specified in the contract, will be considered as included in the prices bid for contract items.

**17.0 DUST CONTROL**

It shall be the Contractor's responsibility to provide adequate water for dust control. It is imperative that the air quality standards are maintained. In addition, dust could be quite hazardous in the everyday operations. It shall be the Contractor's responsibility to ensure that all regulations for air quality and safety are met.

**18.0 SUPERVISORY PERSONNEL**

It is the intent of these Specifications to provide a completed project which will in every way reflect the work of competent journeyman mechanics in the various trades represented. The Contractor shall ensure that each portion of the work is supervised by a qualified person, well versed in the operation of the various tools required for the trade, the method in which the work is to be done, and a knowledge of the general requirements of the construction work. All work is to be done in accordance with the latest methods devised for such work to ensure the highest quality product.

**19.0 SAFETY REQUIREMENTS**

The Contractor shall comply with all pertinent provisions of the Department of Labor "Safety and Health Regulations for Construction" (29 CFR Part 1518, 36 CFR 7340), with additions or modifications thereto, in effect during construction of this project.

**THE FOLLOWING MEASURES OR PROVISIONS ARE TO BE ADHERED TO AT ALL TIMES DURING THE CONSTRUCTION OF THIS PROJECT:**

**A.** All heavy construction machinery to include trenching machines, bulldozers, backhoes, etc., must be equipped with a roll bar meeting the requirements of the above regulation.

**B.** Safety helmets will be worn by all personnel working at the site. In addition, all spectators and inspectors will be required to wear safety helmets in construction zone.

**C.** Steel toe safety shoes or boots will be worn by all personnel working at the site.

**20.0 PRESERVATION OF BENCH MARKS AND MONUMENTS**

The Contractor shall exercise caution to ensure that permanent bench marks, monuments, established property corners, survey lines, and points are not damaged or disturbed by this work. If any survey monuments, property corners, survey lines or points are damaged or disturbed, the Contractor's representative shall immediately notify the inspector. All centerline survey monumentation located in pavement removal areas shall be replaced by an Arizona Registered Land Surveyor (R.L.S.) after completion of the pavement removal and replacement operations. All costs incurred to re‑establish such points shall be borne by the Contractor.

**21.0 DISPOSAL OF EXCESS MATERIAL**

Excess soil and unsuitable materials shall be removed from the site by the Contractor at his own expense and disposed of in accordance with the Contract Documents unless otherwise permitted herein. In the event the Contractor chooses to utilize local private lots to dispose of excess material, the Contractor must provide the Engineer with written permission from the lot owner prior to utilizing the lot. Placing material suitable for fill on vacant lots will require a Grading Permit in advance of placing the material.

**22.0 REFERENCE STANDARD SPECIFICATIONS**

Where standard specifications or testing methods have been referred to, such as ASTM or AASHTO, the intent is to refer to the latest applicable issue or revision of such specifications or testing methods. The following abbreviations are used in these specifications.

AWWA American Waterworks Association

AASHTO American Association of State Highway and Transportation Officials

ACI American Concrete Institute

AI Asphalt Institute

AISI American Iron and Steel Institute

ANSI American National Standards Institute

(formerly the USA Standards Institute)

ASTM American Society for Testing and Materials

NSF National Sanitation Foundation

S.P.W.C. Standard Specifications for Public Works Construction. (Wherever written herein shall mean "Maricopa Association of Governments, Arizona Specification for Public Works Construction".)  The “Sample Forms” and “Part 100 – General Conditions” of these Standard Specifications for Public Works Construction are excluded from the documents for this project.

**23.0 CODES, ORDINANCES AND LOCAL SPECIFICATIONS**

All work under this project shall be performed in strict accordance with these specifications and the Standard Specifications for Public Works Construction (SPWC). Where any conflict occurs between these plans and specifications and the local codes and ordinances in effect at the time, such codes and ordinances shall take precedence over these plans and specifications only if these plans and specifications are inferior as to materials and workmanship called for by such codes and ordinances.

**24.0 INTERFERING STRUCTURES AND UTILITIES**

The Contractor shall notify Blue Stake (1‑800‑782‑5348) at least three (3) working days prior to any excavations.

The Contractor shall exercise all possible caution to prevent damage to existing structures and utilities, whether above ground or underground. The Contractor shall notify all utility offices concerned at least seventy‑two (72) hours in advance of construction operations in which a utility's facilities may be involved.

Any structure or utility damage caused by the work shall be repaired or replaced in a condition equal to or better than the condition prior to the damage. Such repair or replacement shall be accomplished at the Contractor's expense without additional compensation from the Owner.

If interfering structures or installations such as vaults, manholes, valves, utility poles, guy wires, or anchors are encountered, the Contractor shall notify the Engineer and contact the appropriate utility or structure owner at least seven (7) days in advance of construction to arrange for protection or relocation of the structure.

The Contractor shall remove, protect and/or replace all existing structures, utilities or other improvements and similar items within the proposed improvements at his own expense without additional compensation from the Owner unless specifically provided for as a pay item of work by the Specifications or as otherwise provided for on the Plans. Replacement shall be in a manner and in a condition at least equivalent to, or better than, the original condition.

If the Contractor encounters existing facilities which will prevent the construction of any facility and which are not properly shown on the Plans, he shall notify the Owner before continuing with the construction in order that the Owner may make such field revisions as necessary to avoid conflict with the existing structure. The cost of waiting or "down" time during such field revision shall be borne by the Contractor without additional cost to the Owner. If the Contractor fails to notify the Owner when an existing structure is encountered, but proceeds with the construction despite this interference, he does so at his own risk. In particular, when the location of the new construction will prohibit the restoration of existing structures to their original condition; the Contractor shall notify the Engineer and contact the utility or structure owner so a field relocation may be made if possible to avoid the conflict.

In the event of interruption to any utility service as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authority. He shall cooperate with the said authority in restoration of service as promptly as possible and shall bear all costs of repair. In no case shall interruption of any utility service be allowed to exist outside working hours unless prior approval of the Owner is received.

Neither the Owner nor its officers or agents shall be responsible for damages to the Contractor as a result of the locations of the water and sewer lines or utilities being other than those shown on the Plans or for the existence of water, sewer lines or utilities not shown on the Plans.

**25.0 AIR QUALITY ‑ OPERATING PERMITS**

The Contractor may be required to obtain registration certificates and/or operating permits for sources of air pollution.

Information concerning these certificates and permits may be obtained from:

The Office of Air Quality

Arizona Department of Environmental Quality

P.O. Box 600

Phoenix, AZ 85001‑0600

(602) 207‑2300

**26.0 ADJUST UTILITIES TO FINISHED GRADE**

The Contractor shall be responsible for locating all manhole rims, valve boxes, meter boxes, utility vaults, etc., and setting them to finished grade. The Contractor shall adjust sewer and water facilities to finished grade in accordance with the specifications within seven (7) days after street surfacing has been completed on each street. All valves and/or manholes will be made visible and accessible for emergency use within 24 hours. It shall be the responsibility of the Contractor to coordinate with the various private utility companies so that they can adjust their facilities to finished grade at an appropriate time. Adjust all facilities in accordance with these specifications and the MAG Standard Details, as modified by Lake Havasu City.

**27.0 SAFETY, HEALTH AND SANITATION PROVISIONS**

The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his employees as may be necessary to comply with the requirements and regulations of the Arizona State Department of Health.

The Contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions, on his own responsibility or as the Owner may determine, reasonably necessary to protect the life and health of employees on the job, the safety of the public and to protect property in connection with the performance of the work covered by the contract.

Precaution shall be exercised by the Contractor at all times for the protection of persons (including employees) and property. The Contractor shall comply with the provisions of all applicable laws, pertaining to such protection including all Federal and State occupational safety and health acts, and standards and regulations promulgated thereunder.

**28.0 PUBLIC SAFETY AND TRAFFIC CONTROL**

Every attempt shall be made to provide public safety during the construction of the project. Traffic control shall be performed in accordance with Section 2650, Traffic Control, of the Technical Specifications.

During all construction operations, the Contractor shall construct and maintain such facilities as may be required to provide access for all property owners to their property. No person shall be cut off from access to his residence or place of business for a period exceeding two (2) hours, unless the Contractor has made a special arrangement with the affected persons. It shall be the Contractor's responsibility to notify all adjacent property owners of the construction activity and the schedule of such activities.

The CONTRACTOR shall submit for approval a traffic control and barricade plan within ten (10) days of receipt of Notification of Award of Contract. There shall be no deviations from the approved barricade plan unless a revised barricade plan is submitted and approved. The CONTRACTOR shall issue a news release once a week for duration of the project. The release will be published in Sunday's newspaper and shall indicate the area in which the CONTRACTOR will be performing work for that week.

Businesses must be notified forty-eight (48) hours prior to any restrictions on normal parking areas used by their employees or patrons.

The CONTRACTOR shall contact, cooperate with, and give notice to each resident, homeowner, business or school that will be affected by any part of the construction process, particularly concerning temporary interruptions to vehicular access.

Written notice of the approximate schedule and explanation of work shall be given to each resident, homeowner, business or school at least five (5) days prior to commencement of work in the area. Verbal door-to-door communication shall be made at least twenty-four (24) hours prior to construction to remind all affected parties of the construction to take place.

The OWNER shall receive a copy of all notifications to residents. In the event of complaints by residents, the OWNER may require the CONTRACTOR to provide documentation (ie. check list) showing the date & time of the verbal door-to-door communication.

In addition, the CONTRACTOR is responsible to answer and resolve any conflicts that may arise between a homeowner or business owner and himself during the construction process.

The CONTRACTOR shall provide and station competent flaggers whose sole purpose shall be to direct the movement of public traffic through or around the work. Proper advanced warning signs shall be in place when flaggers are working and removed when work requiring flaggers is completed. Flaggers must be used to assist trucks for safe ingress and egress whenever truck movements may interfere with safe passage through the work zone.

All traffic control devices that are not in use or will not be used for a period greater than 72 hours or that are determined by the Engineer to be unnecessary, confusing, or causing an unsafe condition, shall be removed by the CONTRACTOR from the public right-of-way immediately upon notification by the Engineer.

Every attempt shall be made to provide public safety during the construction of the project. Traffic control shall be performed in accordance with Section 2650, Traffic Control, of the Technical Specifications. No person shall be cut off from access to his residence or place of business for a period exceeding six (6) hours, unless the Contractor has made a special arrangement with the affected persons. In addition, no work will be scheduled which will interrupt regular trash pickup to either residential or commercial properties. It will be the CONTRACTOR'S responsibility to coordinate his activities with the local trash haulers.

No streets, avenues, boulevards or cul-de-sacs will be closed to traffic unless prior arrangements have been made and approval has been obtained from the ENGINEER.

**29.0 TEMPORARY FACILITIES ON SITE**

**A.** General

Except as otherwise provided, the Owner shall bear no costs of temporary facilities and their removal.

**B.** Temporary Utility Services

The Contractor shall provide temporary electric power as necessary for the execution of the Work, including that required by all Subcontractors. He shall make the necessary arrangements with Owner, shall bear all costs for these temporary services and shall furnish and install all necessary transformers, metering facilities and distribution centers from branch circuits as he may require.

The Contractor shall provide lighting and outlets in temporary structures throughout the project as may be required for safety, proper performance and inspection of the Work. If operations are performed during hours of darkness, or if natural lighting is deemed insufficient by Owner, the Contractor shall provide adequate floodlights, clusters and spot illumination. The use of permanently installed lighting fixtures, lamps and tubes for work will not be permitted except by special permission of Owner. The Contractor shall make arrangements with Subcontractors for electrical services and lighting as may be necessary in the performance of their work.

Temporary water service lines, if required, shall be installed and removed by the Contractor, who shall pay all charges for making the connections, running the temporary lines, removing the temporary lines at the completion of the Work and disconnecting the services. All relocations required to clear the work of others shall be performed by the Contractor when requested by the Owner.

**C.** Temporary Structures

Prior to starting Work, the Contractor shall, as directed by Owner, provide and maintain suitable temporary office facilities for the duration of the Project as required for the Contractor's project administration; and all necessary sheds and facilities for the proper storage of tools, materials and equipment employed in the performance of the Work.

**D.** Toilet Facilities

The Contractor shall provide and maintain temporary toilet facilities for the duration of operations, which shall be maintained in a clean and sanitary condition acceptable to Owner and in full compliance with applicable regulations of any public authority.

**E.** Telephones

The Contractor shall provide, maintain and pay for telephone services for the duration of the Work as required for the Contractor's operation.

**F.** Fence and Barricades

The Contractor shall provide such protective fences and barricades as he may deem necessary for public safety and to protect his storage areas and the Work in place. The location and appearance of all fences shall be subject to the approval of the Owner.

**G.** Contractor Parking

The Contractor shall not park his equipment, nor allow his personnel to park, in any area except those specifically designated by the Owner.

**H.** Temporary Living Quarters

Temporary living quarters shall not be allowed on the job site or on publicly owned properties. In addition, all Lake Havasu City Zoning Codes for the area in question shall be strictly adhered to.

**I.** Removal of Temporary Construction

The Contractor shall remove temporary office facilities, toilets, storage sheds and other temporary construction from the site as soon as, in Owner's opinion, the progress of Work permits. He shall recondition and restore those portions of the site occupied by the same to a condition equal to or better than it was prior to construction.

**30.0 ACCESS TO WASHES**

**A.** Unless otherwise mentioned herein, the Contractor must obtain written permission from the Owner prior to gaining access or utilizing washes or City parcels for any purpose. Request for access to washes and City parcels will be reviewed on a case by case basis. The Contractor shall have access to washes and City parcels via public streets and/or private easements only. For the purposes of this paragraph, "private easement" means an agreement by and between the Contractor and a property owner, in writing, authorizing the Contractor to travel across the property owner's real property in order to have ingress or egress to washes, parcels or any portion thereof. Such agreement, if any, shall be filed with the Office of the City Engineer before the Contractor may exercise the rights thereunder granted. Access to any wash, parcels, or portion thereof by any means not in compliance with the terms of this paragraph shall be deemed a trespass and a breach of the terms of the agreement.

**B.** Violations of the provisions of subparagraph (a.) hereof, shall entitle the City to deduct the sum of One Thousand Dollars ($1,000.00) from the monies due to Contractor as and for liquidated damages for each such violation. For the purposes of this paragraph, each entry by a vehicle upon land for which Contractor has not received permission to enter shall be deemed a separate violation of subparagraph (a.) hereof.

**31.0 COORDINATION AND COOPERATION WITH UTILITY COMPANIES AND OTHER TRADES**

**A.** Coordination/Interruption

The Contractor is responsible to coordinate work with all utility companies and other trades, on or affecting the job, for an efficient and effective execution of the complete project. The Contractor shall carefully examine all work that may conflict, and plan removal and/or installation details in advance of the construction to avoid any such conflict. Failure on the contractor's part to coordinate with any and all utilities, public or private, shall preclude the City's consideration for additional time or cost.

**B.** Permission Required

Utility mains and utility service to buildings shall not be cut off or otherwise interrupted without the Contractor obtaining permission from the Owner in each and every instance.

**C.** Scheduling of Interruptions

Where utilities serve facilities or buildings in use, interruptions in service shall be scheduled during the hours when the facility is not in operation. Any overtime costs occasioned thereby shall be regarded as incidental to, and included within, the Contract Sum.

**D.** General Requirements

Prior to interrupting any utility service, the Contractor shall ascertain that he has the proper materials, together with adequate workmen and equipment, to complete the Work with a minimum of delay.

**E.** Project Electrical Service

The Contractor is responsible to coordinate with Unisource, Electric Division, to determine the extent of work to be performed by Unisource and by the Contractor to provide electric service for the finished product. The Contractor is also responsible to contact Unisource to determine the hardware required by Unisource to provide service to the final product. Unisource does not provide service to delta connections.

\*\* END OF SECTION\*\*

# DIVISION IV - TECHNICAL SPECIFICATIONS

## SECTION 01110

### SUMMARY OF WORK

1. **GENERAL** 
   1. **Summary**
      1. This Section summarizes the Work covered in detail in the complete Contract Documents.
      2. **Owner:** Lake Havasu City is contracting for Work described in the Contract Documents.
         1. Contract Identification: Dick Samp Park Pickleball Courts – Phase 2, PK1140

* + - 1. Work Site Location: Dick Samp Memorial Park, 1628 Avalon Ave, Lake Havasu City, AZ, 86404
    1. **Engineer:** The Contract Documents were prepared by Shephard Wesnitzer, Inc., 75 Kallof Place, Sedona, Arizona 86336.
  1. **Project Description**
     1. **Description of Contract**

The “Project” consists of the phase 2 improvements to Dick Samp Park based on recommendations in the Field Assessment Report and the Dick Samp Park Master Plan prepared by Shepard Wesnitzer and Norris Design. Phase 2 improvements include; 8 new Pickleball courts on two post-tension slabs, additional parking, hardscape, landscaping, irrigation, and ramadas/shade structures for spectator and player seating.

* + 1. **Work Covered by Contract Documents**

The WORK includes all construction activities associated with the construction of a new pickleball courts and improvements as identified on the contract drawings. The work also provides for the complete restoration of all areas disturbed by construction operations.

* + 1. **Drawings and Specifications**

All WORK shall be performed in accordance with the CONTRACT DRAWINGS, Special Provisions, supplemental technical SPECIFICATIONS, and STANDARD TECHNICAL SPECIFICATIONS for Public Works Construction as furnished by Lake Havasu City, latest edition. Some Specifications have been revised and are different from specifications used in previous years. These changes reflect current design and construction conditions. It is the CONTRACTOR’s responsibility to thoroughly review and adhere to the CONTRACT DRAWINGS, Technical SPECIFICATIONS, and all referenced Standards, test methods, and procedures

* 1. **Contractor’s use of premises**
     1. **Limited Use**
        1. Limit use of the premises for storage and execution of the Work to allow for Owner occupancy. Confine operations to areas within Contract limits indicated. Portions of the Site outside the Contract limits shall not be disturbed.
        2. Coordinate with other separate contractors and Owner to avoid interference of operations.
        3. Conduct operations so as to ensure the least inconvenience to OWNER and the general public as the rest of the Park will continue to operate during the construction.
  2. **General Requirements**

* + 1. **Continuous Operation:** The WORK shall be conducted in a manner that maintains continuous operation of the existing park with the exception of the existing pickleball courts and a portion of the parking lot. Contractor must exercise extreme care and protect existing facilities in place that are not intended for replacement.
    2. **Work Area and Access:** The general sequence of construction will be determined by the CONTRACTOR and submitted to the City for approval. Restoration of the disturbed area must be completed prior to approval of “Project”.

The CONTRACTOR shall submit a detailed resource based schedule, including a work breakdown structure within 10 days of the issuance of the Notice of Award.

* + 1. **Grading:** The engineer’s calculated fill amount exceeds excavation, so only a portion of the fill material can come from excavated areas located on site. Off-site import will likely be required.
  1. **Contract Documents**
     1. After execution of Agreement, CONTRACTOR will be furnished at no cost, digital files of plans and specifications.
  2. **List of Drawings**
     1. **Contract Drawings**
        1. Each sheet of the Contract Drawings will bear one of the following general titles:

Dick Samp Park Pickleball Courts – Phase 2, PK1140

* + - 1. Individual sheet numbers and titles are as stated on Index Sheet of the Contract Drawings.

1. **PRODUCTS - Not Applicable.**
2. **EXECUTION – Not Applicable.**
3. **MEASUREMENT & PAYMENT - Not Applicable.**

\*\* END OF SECTION \*\*

## SECTION 01210

### MEASUREMENT AND PAYMENT

1. **GENERAL**

**1.1**  **Description**

1. The outline of measurement and payment in this section is intended to provide a general guideline to the CONTRACTOR in preparing bids and submitting pay requests. Listing of work included in each bid item is not intended to include all work, but is to provide general guidance to the CONTRACTOR for allocating costs. All work will be paid for on a unit price basis with payment made for the quantity of each item completed.
2. All materials required for construction shall be furnished by the CONTRACTOR unless specifically stated. Items not specifically measured and paid for shall be considered as subsidiary items required to complete the installation in accordance with the intent of the contract documents. The CONTRACTOR shall include in the unit price bid items, all costs associated with subsidiary items not being measured for payment.

**1.2 Authority**

1. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirement of the individual specification section governs.
2. Take all measurements and compute quantities. The ENGINEER will verify measurements and quantities.

**1.3 Unit Quantities**

1. Quantities indicated in the Bid Form are for bidding and contract purpose only. Quantities and measurements supplied or placed in the Work and verified by the ENGINEER shall determine payment.
2. If the actual Work requires more or fewer quantities than indicated, provide the required quantities at the unit prices contracted.

**1.4 Breakdown of Contract Price of Lump Sum Contracts**

1. Prior to construction on any lump sum bid items, CONTRACTOR shall submit a detailed price breakdown showing the allocated portion of the bid price to the various items of work. CONTRACTOR must submit a preliminary price breakdown for the review and approval of the ENGINEER. The ENGINEER reserves the right to reject any breakdown submitted by the CONTRACTOR which the ENGINEER judges is not sufficient to allow for the preparation of accurate monthly progress payment estimates. The detailed price breakdown shall be listed by specification section number and shall include a separate cost item for all items of equipment or work. The price breakdown shall typically be a WT7440 01210 - 2 unit price type breakdown and shall include quantities, unit prices and total bid cost for each cost item. Where a unit price breakdown is judged impractical, ENGINEER may allow a breakdown by lump sum for certain cost items
2. **PRODUCTS – NOT APPLICABLE**
3. **CONSTRUCTON – NOT USED**
4. **MEASUREMENT AND PAYMENT**
   1. **General**
5. All items that are included in the bid for measurement and payment are included herein. All other items of work shall be considered subsidiary to construction and will not be measured for payment.
   1. **MEASUREMENT AND PAYMENT**
      1. **Demolition Bid Items**
6. **Sawcut Asphalt Pavement**

The Contract Lump Sum Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for all required bonds, insurance, mobilization of staff and equipment, and any other costs associated with complying with the contract administrative requirements and commencing work at the project site. This item also includes all work and materials necessary to complete the work as described in the plans and specifications and Section 01200 – Mobilization/Demobilization of the Lake Havasu City Engineering Specifications. Payment for this item shall bein accordance with the Section 01200 – Mobilization/Demobilization of the Lake Havasu City Engineering Specifications.

1. **Remove and Dispose Asphalt Pavement**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for removal of existing asphalt pavement per Lake Havasu City Engineering Specifications Section 02110 and per the project plans. This includes removal of the full depth of existing pavement to provide a clean straight transitions to new improvements, removal of any damaged pavement as result of construction activities and disposing of material per City specifications. Measurement and Payment of this item shall be per square yard.

1. **Remove and Dispose Concrete Pavement**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for removal of existing concrete pavement per Lake Havasu City Engineering Specifications Section 02110 and per the project plans. This includes removal of the full depth of existing pavement to provide a clean straight transitions to new improvements, removal of any damaged pavement as result of construction activities and disposing of material per City specifications. Measurement and Payment of this item shall be per square foot.

1. **Remove and Dispose Concrete Curb**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for removal of existing concrete pavement per Lake Havasu City Engineering Specifications Section 02110 and per the project plans. This includes removal of the full depth of existing pavement to provide a clean straight transitions to new improvements, removal of any damaged pavement as result of construction activities and disposing of material per City specifications. Measurement and Payment of this item shall be per linear foot.

1. **Remove and Salvage Park Bench**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for removal and salvage of existing park bench per Lake Havasu City Engineering Specifications Section 02110 and per the project plans. The relocation of salvaged bench shall be coordinated with Park staff and is included in this item. There is no measurement of this item and Payment of this item shall be a lump sum. Any additional related items will be considered incidental.

* + 1. **Site Grading Bid Items**

1. **Clearing and Grubbing**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the Clearing and Grubbing for the associated improvements as shown on the plans. Removal of unsuitable or excess material shall be properly disposed of in a suitable area at the contractor’s expense per the direction of the City Engineer. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 02100 – Clearing and Grubbing of the Lake Havasu City Engineering Specifications. Payment of this item shall be lump sum.

1. **Soil Import**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for acquiring and importing additional off-site soil on-site to complete grading. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 02200 – Earthwork of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per cubic yard of soil import.

1. **Earthwork Excavation**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the earthwork excavation. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the plans and specifications and shall be in accordance with the Section 02200 – Earthwork of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be lump sum per completed earthwork excavation.

1. **Earthwork Embankment**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the earthwork embankment. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the plans and specifications and shall be in accordance with the Section 02200 – Earthwork of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be lump sum per completed earthwork embankment.

* + 1. **Parking Lot Construction Bid Items**

1. **Subgrade Preparation**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the subgrade preparation. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 02600 – Subgrade Preparation of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per square yard of subgrade preparation.

1. **4” Aggregate Base**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the 4” thick aggregate base. Aggregate base to be placed to the elevations, grades, and drainage patterns as shown on the plans. This includes staking necessary to ensure the lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications and shall be in accordance with the Section 02610 – Aggregate Base Course of the Lake Havasu City Engineering Specifications. Measurement and Payment of items shall be made per square yard. Payment will only be made after the base has passed acceptance testing and a visual inspection.

1. **Asphaltic Concrete 3”**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the 3” thick asphaltic concrete. This includes staking necessary to ensure the lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material, saw cutting of edges of existing pavement to provide a clean straight transition, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications and shall be in accordance with the Section 02630 – Asphalt Concrete Pavement of the Lake Havasu City Engineering Specifications. Measurement and Payment of items shall be made per square yard. Payment will only be made after the asphalt pavement has passed acceptance testing and a visual inspection.

1. **Vertical Curb and Gutter 6”**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of 6” vertical curb and gutter per M.A.G. Standard Detail 220-1 and per the project plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, saw cutting of edges of existing pavement to provide a clean straight transition, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 03310 – Concrete Curb, Gutter, Sidewalk and Driveways of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per linear foot of curb installed.

1. **6” Single Concrete Curb**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of 6” single concrete curb per M.A.G. Standard Detail, Type A. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, saw cutting of edges of existing pavement to provide a clean straight transition, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 03310 – Concrete Curb, Gutter, Sidewalk and Driveways of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per linear foot of curb installed.

1. **Drinking Fountain Drain**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of a drinking fountain drain basin per detail 8 on DWG C3 of the project plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, saw cutting of edges of existing pavement to provide a clean straight transition, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. Measurement and Payment of this item shall be per drain basin installed.

1. **Paint top of Curb Red**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the painting of curb tops red to designate fire lanes. Curb shall be painted as directed by the plans and as directed by the LHC Fire Marshall. Measurement and Payment of this item shall be per each linear foot of curb painted.

1. **Curb Termination**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of concrete curb termination per M.A.G. Standard Detail 222 per the project plans. This includes staking necessary to ensure lines and grades of preconstruction surface and preparation and grading of subgrade. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 03310 – Concrete Curb, Gutter, Sidewalk and Driveways of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per each curb termination installed.

1. **Precast Safety Curb**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of precast safety curb per M.A.G. Standard Detail 150. This item also includes all work and materials necessary to complete the work as described in the plans and shall be in accordance with the Section 03310 – Concrete Curb, Gutter, Sidewalk and Driveways of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per each precast safety curb installed.

1. **Curb and Gutter Transition to Single Curb**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of a 3’ long curb and gutter transition to single curb. This item also includes all work and materials necessary to complete the work as described in the plans and shall be in accordance with the Section 03310 – Concrete Curb, Gutter, Sidewalk and Driveways of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per each curb transition installed.

1. **Asphalt Thickened Edge**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of a thickened asphalt edge per M.A.G. Standard Detail 201, Type ‘A’. This item also includes all work and materials necessary to complete the work as described in the plans and shall be in accordance with the Section 02630 – Asphalt Concrete Pavement of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per linear foot installed.

1. **4” Concrete Sidewalk**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of 4” thick concrete sidewalk per detail 4 on DWG C3 of the project plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, saw cutting of edges of existing pavement to provide a clean straight transition, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 03310 – Concrete Curb, Gutter, Sidewalk and Driveways of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per square foot of sidewalk completed.

1. **Sidewalk Ramp**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of concrete sidewalk ramps per detail 6 on DWG C3 of the project plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, saw cutting of edges of existing pavement to provide a clean straight transition, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 03310 – Concrete Curb, Gutter, Sidewalk and Driveways of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per each sidewalk ramp completed.

1. **ADA Parking Stalls & Signage**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the complete installing of, striping and permanent ADA signage per detail 7 on DWG C3 of the project plans and in accordance with Manual of Uniform Traffic Control Devices (MUTCD), 2010 ADA Standards for Accessible Design with all current provisions, M.A.G. Standard Detail 131 and in accordance with Section 02660 – Permanent Signs of the Lake Havasu City Engineering Specifications. Measurement and Payment for this item shall be per each stall completed.

1. **Parking Lot Striping**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of pavement markings. All parking lot striping shall be white in color. Transverse markings and symbols shall be epoxy dual component markings installed with ADOT standard specifications 709. Measurement and Payment of items shall be made per lump sum of markings completed.

1. **24’ Driveway**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of a concrete driveway per project plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, saw cutting of edges of existing pavement to provide a clean straight transition, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 03310 – Concrete Curb, Gutter, Sidewalk and Driveways of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per each driveway completed.

1. **8” HDPE Storm Drain**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of an 8” HDPE storm drain per project plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 02500 – Storm Drain Construction of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per each linear foot of storm drain installed.

* + 1. **Pickleball Court and Hardscape Construction Bid Items**

1. **Subgrade Preparation for Concrete Flatwork, Steps, and PT Slab**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the subgrade preparation. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 02600 – Subgrade Preparation of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per square yard of subgrade preparation.

1. **4” Aggregate Base Course for Post Tension Slab**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the 4” aggregate base course preparation. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 02600 – Subgrade Preparation of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per square yard of subgrade preparation.

1. **6” Post Tension Slab System**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the 6” post tension slab system per details shown on the Project Plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 02600 – Subgrade Preparation of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per square yard of subgrade preparation.

1. **4” Concrete Flatwork**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of 4” thick concrete flatwork per detail 3 on DWG C3 of the project plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, saw cutting of edges of existing pavement to provide a clean straight transition, and hauling and disposal of any excess soil, asphalt, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 03310 – Concrete Curb, Gutter, Sidewalk and Driveways of the Lake Havasu City Engineering Specifications. Measurement and Payment of this item shall be per square foot of sidewalk completed.

1. **Ramp and Stair Railing**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of ramp and stair railing per details shown in Landscape Plans and Details. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per linear foot of railing completed.

1. **Split-face CMU Walls**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of the split-face block MSE walls per details on the Landscape plans and elevations per the civil plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, saw cutting of edges of existing pavement to provide a clean straight transition, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Plans. Measurement and Payment of this item shall be per linear foot of wall completed.

1. **Concrete Steps**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of concrete steps per details shown in Landscape Plans and Details. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 03300 – Concrete Structures of the LHC Engineering Specifications. Measurement and Payment of this item shall be per square foot of concrete steps completed.

1. **Concrete Landscape Edger**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools to install concrete edger per details shown in Landscape Plans and Details. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per linear foot of steel edger installed.

1. **4’ Vinyl Coated Chain Link Fencing**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of 4’ vinyl coated chain link fencing per details shown in Landscape Plans and Details. This includes staking necessary to ensure lines and grades of preconstruction surface. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per linear foot of fence installed.

1. **8’ Vinyl Coated Chain Link Fencing**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of 8’ vinyl coated chain link fencing per details shown in Landscape Plans and Details. This includes staking necessary to ensure lines and grades of preconstruction surface. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per linear foot of fence installed.

1. **4’ Wide Chain Link Gate**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of 4’ wide chain link gate per details shown in Landscape Plans and Details. This includes staking necessary to ensure lines and grades of preconstruction surface. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per unit of gate installed.

1. **Pickleball Net Posts**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of pickleball net posts per USAPA guidelines. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each pair of posts installed.

1. **Pickleball Net**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of pickleball net per USAPA guidelines. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each net installed.

1. **Pickleball Court Surfacing**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of pickleball court surfacing per Landscape Plans and Details and USAPA guidelines. This item includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per square foot installed.

1. **Pickleball Lighting Footers and Associated Conduit**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of electrical conduit and conductors for pickleball lighting footers, sized per Electrical Plans, including trenching and backfill per Electrical Plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Electrical Plans and Specifications and shall be in accordance with the Section 16000 – General Electrical Requirements and Section 16111 – Conduit, Fittings and Accessories of the LHC Engineering Specifications. Measurement and Payment of this item shall be lump sum for complete installation of conduit and conductors.

1. **Irrigation Sleeving**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of irrigation sleeving per Irrigation Details. This includes staking necessary to ensure lines, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the LHC Engineering Specifications. Measurement and Payment of this item shall be per each linear foot of sleeving completed.

1. **2” PVC SCH 40 Waterline**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of 2” PVC Sch 40 waterline. This includes coordinating a connection point to the existing system with L.H.C. and field verifying the existing location. This includes staking necessary to ensure lines, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil or other debris. This item also includes all work and materials necessary to complete the work and shall be in accordance with the LHC Engineering Specifications 02550 – Water Piping Systems. Measurement and Payment of this item shall be per linear foot of waterline installed.

1. **Water Fountain Assembly**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for connecting to the new 2” line and installation of new Barrier-free steel pedestal with bottle filling station (Model LK4420BF1UBLU or approved equal) water fountain. Lake Havasu City to verify if refrigerated. This includes staking necessary to ensure lines, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil or other debris. This item also includes all work and materials necessary to complete the work and shall be in accordance with the LHC Engineering Specifications 02550 – Water Piping Systems. Measurement and Payment of this item shall be per water fountain installed.

1. **Hose Connection Assembly**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for connecting to the new 2” line and installation of new quick coupler hose connection point located in an underground concrete box as shown in detail 5 on DWG C3 of the plans. This includes staking necessary to ensure lines, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil or other debris. This item also includes all work and materials necessary to complete the work and shall be in accordance with the LHC Engineering Specifications 02550 – Water Piping Systems. Measurement and Payment of this item shall be per water fountain installed.

1. **Curb Stop and Flushing Pipe Assembly**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for connecting to the new 2” line and installing flushing pipe assembly per M.A.G. Standard Detail 390 Type ‘A’. This includes staking necessary to ensure lines, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil or other debris. This item also includes all work and materials necessary to complete the work and shall be in accordance with the LHC Engineering Specifications 02550 – Water Piping Systems. Measurement and Payment of this item shall be per water fountain installed.

1. **4” SCH 40 Sleeving**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of sleeving (conduit) for future dry utility use. In particular the sleeving located beneath the entry drive to the new parking lot. This includes staking necessary to ensure lines, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil or other debris. This item also includes all work and materials necessary to complete the work and shall be in accordance with the LHC Engineering Specifications 16111, 16120 and 16121. Measurement and Payment of this item shall be lump sum for complete instillation of 4” SCH 40 sleeving.

1. **Parking Lot Light Poles and Connection to Existing system. Sleeving and Pull Boxes for Future Fiber Optic and Power to Courts and Future Park Expansion.**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of parking lot light poles, connection to the existing system (including service upgrades if necessary), sleeving (conduit) and pull boxes for future cable or fiber installation and conduit and pull boxes for future power lines. Note that the final design for this item will be completed by the City at a later date. This includes staking necessary to ensure lines, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil or other debris. This item also includes all work and materials necessary to complete the work and shall be in accordance with the LHC Engineering Specifications 16111, 16120 and 16121. Measurement and Payment of this item shall be lump sum for complete instillation of parking lot light poles, wiring to connect to existing system, and sleeving and pull boxes for court lighting and future park expansion.

1. **Bleachers – 3-row, 27’ Long**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of 3-row, 27’ long bleachers per Landscape Plans and Details. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each bleacher installed.

1. **Round Picnic Table**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of picnic tables per Landscape Plans and Details. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each table installed.

1. **Fiberglass Permanent Umbrella**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of fiberglass permanent umbrella per Landscape Plans and Details. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each permanent umbrella installed.

1. **Bike Rack**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of bike racks per Landscape Plans and Details. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each bike rack installed.

1. **Litter Receptacle**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of trash receptacles per Landscape Plans and Details. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each trash receptacle installed.

1. **Removable Bollard**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of the removable bollard. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each Removable Bollard completed.

1. **Shade Canopy – 10’x10’**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of the shade canopy and associated footers. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. Contractor is responsible for hiring a shade structure company to prepare the details including the footing design by an Arizona Registered Civil Engineer. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each shelter completed.

1. **Shade Canopy – 10’x17’**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of the shade canopy and associated footers. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. Contractor is responsible for hiring a shade structure company to prepare the details including the footing design by an Arizona Registered Civil Engineer. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each shelter completed.

1. **Topsoil Import and Place**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the import and placement of 4” of topsoil per Plans This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per cubic foot of topsoil imported and placed.

1. **½” Rock Mulch**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the import and placement of 2” thick landscape rock top dress for beds per Landscape Plans and Details. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per square foot of rock top dress placed.

1. **4”-8” Rock Mulch**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction of rock rip rap protection per Landscape Plans and Details. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications and shall be in accordance with the Section 02510 – Rock Rip Rap Protection of the LHC Engineering Specifications. Measurement and Payment of this item shall be per square foot of rip rap protection installed

1. **Canopy Trees**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the planting of canopy trees per Landscape Plans and Details. This includes preparation of the soil, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each tree planted.

1. **Ornamental Trees**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the planting of ornamental trees per Landscape Plans and Details This includes preparation of the soil, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each tree planted.

1. **#5 Shrub**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the planting of #5 shrub per Landscape Plans and Details. This includes preparation of the soil, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each shrub planted.

1. **#5 Accent Plant**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the planting of #5 accent plant per Landscape Plans and Details. This includes preparation of the soil, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each shrub planted.

1. **#1 Grass**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the planting of #1 grass per Landscape Plans and Details. This includes preparation of the soil, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each shrub planted.

1. **#1 Perennial / Groundcover**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the planting of #1 perennial/groundcover per Landscape Plans and Details. This includes preparation of the soil, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per each shrub planted.

1. **Sod**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the placement of sod per Landscape Plans and Details This includes preparation and grading of subgrade, preparation of the soil, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per square foot of sod placed.

1. **Sod Irrigation (Overhead)**

The Contract Unit Price bid for this item shall constitute full compensation for

furnishing all materials, labor, equipment and tools for the installation sod irrigation per Irrigation Plans This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per square foot of irrigation installed.

1. **Landscape Bed Irrigation (Drip)**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of landscape bed irrigation per Irrigation Plans. This includes staking necessary to ensure lines and grades of preconstruction surface, preparation and grading of subgrade, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per square foot of irrigation installed.

1. **Desert Restoration/Native Reseed**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the desert restoration per Landscape Plans and Details. This includes preparation and grading, possibly hauling in or out of additional material and similar items to finished grade, and hauling and disposal of any excess soil, concrete, or other debris. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per square foot of restoration completed.

1. **Landscape Boulders**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of the landscape boulders. This includes preparation and grading, excavation of boulders on site to be reused, and possibly hauling in or out of additional material and similar items. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Measurement and Payment of this item shall be per ton of boulder used.

1. **Additional Irrigation Controller**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of an additional irrigation controller. This includes necessary hauling of materials and equipment, wiring and rewiring, and skilled labor. Measurement and Payment of this item shall be per unit of additional irrigation controller(s).

1. **Pickleball light Poles and Wiring**

The Contract Unit Price bid for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the installation of Pickleball Light poles and wiring circuit to connect to the service panel per design to be completed by City. This includes necessary hauling of materials and equipment, wiring and rewiring, and skilled labor. Measurement and Payment of this item shall be per unit of additional irrigation controller(s).

* + 1. **Miscellaneous Construction Bid Items**

1. **Mobilization, Demobilization, Bonds, and Insurance**

The Contract Lump Sum Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for all required bonds, insurance, mobilization of staff and equipment, and any other costs associated with complying with the contract administrative requirements and commencing work at the project site. This item also includes all work and materials necessary to complete the work as described in the plans and specifications and Section 01200 – Mobilization/Demobilization of the Lake Havasu City Engineering Specifications. Payment for this item shall be in accordance with the Section 01200 – Mobilization/Demobilization of the Lake Havasu City Engineering Specifications.

1. **Traffic Control**

The Contract Lump Sum Price for this item shall constitute full compensation for furnishing all materials, labor, equipment and tools for the development and implementation of the Traffic Control plan(s) in accordance with the Section 01530 and 02650 of Lake Havasu City Engineering Specifications. This shall include all signage, temporary striping, flaggers, barricades, lighting, temporary barriers, and related items necessary to ensure the safety of workers and convenience of local residents throughout the project. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications. Payment of this item shall be lump sum.

1. **BMP’s (Design and Install)**

The Contract Lump Sum Price bid for this item shall constitute full compensation for furnishing all design, materials, labor, equipment and tools for the complete installation of the Storm Water Pollution Protection Best Management Practices in accordance with the City of Lake Havasu and the Arizona Department of Environmental Quality General Permit for Discharge from Construction Activities to Waters of the United States. Measurement and Payment for this item shall be lump sum for all BMP’s complete including post construction removal of BMP’s upon stabilization of site. Payment of this item shall be lump sum.

1. **Construction Staking**

The Contract Lump Sum Price bid for this item shall constitute full compensation for furnishing all design, materials, labor, equipment and tools to layout the WORK, in accordance with the drawings, establish all necessary lines, etc., required to complete the work in accordance with the Contract Documents. The CONTRACTOR shall employ an experienced and competent Arizona Registered Land Surveyor (R.L.S.) satisfactory to the OWNER to layout the WORK and to verify lines and elevations as the WORK progresses. Payment of this item shall be lump sum.

* + 1. **Force Account**

A force account has been established and is indicated in the Bid Form as a lump sum cost item. The value indicated in the Bid Form is to be included in the total bid price for the work. The CONTRACTOR shall not consider any monies indicated in the force account item as a part of his payment for the Work or profit or otherwise without written notification by the OWNER. This item can be used when the CONTRACTOR and the ENGINEER cannot agree on a cost for a requested addition to the project. The ENGINEER can direct the CONTRACTOR to perform work that is similar in nature to the Contract Work and the CONTRACTOR will be compensated based on the hours for labor & equipment actually used to complete the work, plus any materials needed. The equipment will be compensated on an hourly rate published in the latest “Rental Rate Blue Book” for construction equipment. Labor will be paid on the actual paid wage of the workers used and calculated as shown in the ADOT Standard Specification Section 109. A 15% mark-up for overhead & profit will be added to the equipment & material only, as well as the labor burdens as described in the ADOT Standard Specification Section for Force Account Work.

This item includes all stipulations stated in the Lake Havasu City Engineering Specifications Section 01330.

* 1. **Progress Payments**
     1. Contract provides for payment of 90% for completed work until final payment. Completed work includes placement to line and grade, satisfactory and acceptable compaction, testing, clean-up and inspection.
     2. Partial pay estimates must be submitted to the ENGINEER no later than the 25th of each month. Pay estimates may only include work that has been completed at that time.
     3. No materials will be considered for stored material partial payment. No other payment will be made until after the materials have been installed, inspected, tested and approved.
  2. **Final Payment**
     1. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the ENGINEER multiplied by the unit sum/price for work which is incorporated in or made necessary by the Work.

1. **DEFECT ASSESSMENT**

**5.1** Replace the Work, or portions of the work, not conforming to specified requirements.

**5.2** If, in the opinion of the ENGINEER, it is not practical to remove and replace the Work, the ENGINEER will direct one of the following remedies:

**A.** The defective Work may remain, but the unit price will be adjusted to a new price at the discretion of the ENGINEER.

**B.** The defective Work will be partially repaired to the instructions of the ENGINEER, and the unit price will be adjusted to a new price at the discretion of the ENGINEER.

**5.3** The individual specification sections may modify these options or may identify a specific formula or percentage sum/price reduction.

**5.4** The authority of the ENGINEER to assess the defect and identity payment adjustment is final.

1. **NON-PAYMENT FOR REJECTED PRODUCTS**

**6.1** Payment will not be made for any of the following:

**A.** Products wasted or disposed of in a manner that is not acceptable.

**B.** Products determined as unacceptable before or after placement.

1. Products not completely unloaded from the transportation vehicle.

**D.** Products placed beyond the lines and levels of the required Work.

**E.** Products remaining on hand after completion of the Work.

**F.** Loading, hauling and disposing of rejected products.

\*\* END OF SECTION \*\*

## SECTION 027700

### POST TENSION CONCRETE COURT

#### GENERAL REQUIREMENTS

##### Scope

* + 1. The contract work to be performed under this specification consists of furnishing all of the required labor, materials, equipment, implements, parts and supplies necessary for, or appurtenant to, the construction of post-tension slab for Pickleball courts for in accordance with the specifications, drawings, and A.S.B.A. Guidelines for Tennis Court Construction.

##### Standards

* + 1. The work shall be done in a thorough, workmanlike manner by contractors of the United States Tennis Court and Track Builders Association, and shall conform to A.S.B.A Guidelines for Tennis Court Construction.
    2. Contractor shall have a USTC & TBA Certified Tennis Court/Pickleball Builder on staff.
    3. Proof of certification shall be required of successful bidder.
    4. Contractor references for (3) three similar successfully executed projects will be required. Contractor(s) will provide proof of insurance.
    5. All work shall be properly engineered and in compliance with geotechnical requirements. Soil testing is recommended prior to developing engineered drawings for the concrete.

##### Guarantee

* + 1. The Contractor shall guarantee the work against defective materials or faulty workmanship for a period of five (5) years.

#### MATERIALS

##### Below slab Vapor Barrier

* + 1. Two layers of 6 mil polyethylene sheeting approved by the court design professional or approved substitute recommended by the court design professional.

##### Tensioning Cables and Anchors

* + 1. Refer to Structural Plans – Sheet S1.1 (to be completed with CD set)

##### Concrete Compressive Strength

* + 1. Refer to Structural Drawings – Sheet S1.1 (to be completed with CD set)
    2. Refer to A.S.B.A Guidelines for Tennis Court Consruction

#### EXECUTION

##### Below slab vapor barrier

* + 1. Lay two layers of 6 mil polyethylene sheeting in opposite directions, overlapped and taped at the joints as approved by the court design professional or approved other method recommended by the court design professional.

##### Forming

* + 1. Forms shall be accurately set to the lines and to plus or minus one-quarter inch (+ ¼”) of finished grades indicated on drawings and be securely staked to prevent settlement or movement during placement of concrete. Forms shall remain until concrete has taken final set.
    2. Place sufficient expansion joint material around fence posts, net sleeves and center anchor to allow for PT slab movement. Two layers of ½” foam around all posts is recommended. Caulk/Seal over expansion joint material.

##### Tensioning Cables and Anchors

* + 1. The cable ends shall be cut off and cone holes grouted flush with edge of slab. Grout shall be non-shrink grout.
    2. Coordinate with Fencing Contractor to ensure fence posts will work with PT slab.

##### Joints

* + 1. Use a soff cut machine to “score” control joints to a ¾” to 1” depth at the center of the fence line and along net lines to provide a weak point and control potential cracking to these areas that are outside the playing areas as to not affect play.

##### Placing

* + 1. A full court shall be placed in one (1) continuous operation.
    2. The slab will be placed to provide a surface that meets A.S.B.A tolerances for tennis court construction.
    3. In order to drain properly and to be acceptable for play, the finished surface must be smooth and regular, lacking humps and dips. An even surface will not cause ball deflection or create a player tripping hazard. As a measure of evenness, the finished surface should not vary more than ¼” in 10’ when measured in any direction with a straightedge. Required leveling should be done by grinding down the high areas and filling in the low areas with an approved patching material.
    4. The court’s finished slope should be 0.83% (1:120) to 1.00% (1:100). According to the ITF, the finished court should not vary more than +/- 3/8” from its designated elevation and grade. Planarity and slope are commonly measured with a transit or laser level.

\*\* END OF SECTION\*\*

## SECTION 027800

### PLAY COURT SURFACING

1. GENERAL
   1. Description of Work

The contract work to be performed under this section consists of furnishing all required labor, materials, equipment, implements, parts and supplied necessary for, or appurtenant to, the surfacing of Pickleball Courts in accordance with these specifications, drawings and and A.S.B.A. Guidelines for Tennis Court Construction.

* 1. Quality Assurance
     1. The work shall be done in a thorough, workmanlike manner by contractors of the United States Tennis Court and Track Builders Association, and shall conform to A.S.B.A. Guidelines for Tennis Court Construction.
     2. Contractor shall have a USTC & TBA Certified Tennis Court/Pickleball Builder on staff.
     3. Proof of certification shall be required of successful bidder.
     4. Contractor references for (3) three similar successfully executed projects will be required. Contractor(s) will provide proof of insurance.
  2. Warranty

The contractors guarantee their respective work against defective materials or faulty workmanship for a period of one (1) year from the date of completion, and that the colored surface will not wear through for a period of at least two (2) years.

1. MATERIALS
   1. multipurpose sports coating

AcrylotexPB system by California Sports Surfaces or approved equal. Contractor shall submit specifications for approval by Owner if the sports coating is not AcrylotexPB.

**Californiasportssurfaces.com**

**978-623-9980**

* 1. Color
     1. Two standard colors per the drawings. Colors shall match the existing pickleball courts.
  2. Playing Lines

Playing lines shall be painted on using white, latex acrylic, line paint that is compatible with the surface coating and shall adhere to A.S.B.A Guidelines for Tennis Court Construction.

1. EXECUTION
   1. Surface Preparation
      1. Contractor shall abide by the Manufacture’s specifications.
      2. Prior to the surfacing applications, the concrete shall be thoroughly cleaned by the use of a power broom or power washer.
      3. Concrete should be prepared for the application of a surface coating since naturally occurring salts in the slab may prevent acrylic surface systems from adequately bonding. Generally, the concrete is acid-etched to clean it and neutralize the salts.
      4. Prime the slab with a primer approved by the manufacturer of the coating system.
   2. Leveling Course(s)
      1. The Contractor shall abide by the Manufacture’s specifications.
      2. Once the surface has been prepared, the contractor shall flood courts, mark and fill all water-holding depressions with a leveling course court patch binder approved by the court surfacing manufacturer.
      3. Contractor to ensure proper bonding with the acrylic surfacing.
      4. Water-holding areas can only be removed where positive and adequate slope exists.
      5. Surfacing shall adhere to A.S.B.A Guidelines for Tennis Court Construction.
   3. Finishing Courses
      1. The Contractor shall abide by the Manufacture’s specifications.
      2. Contractor shall blend in water-holding patches and surface defects and provide for a wearing base with the finishing courses.
      3. The mixture will be agitated in a one hundred (100) gallon paddled mortar mixer so as to provide a consistent and homogeneous solution. One (1) finishing course will be applied and additional applications will be made as necessary to provide a uniform, ridge free surface.
      4. Finishing courses shall adhere to A.S.B.A Guidelines for Tennis Court Construction.
   4. Playing Lines
      1. Playing lines will be accurately located and marked by snapping a chalk line and placing one inch (1”) tape guides.
      2. Latex acrylic line paint will be brushed on to provide a uniform line. The lines shall have clear definition and ragged lines will not be accepted.
      3. Lines shall adhere to A.S.B.A Guidelines for Tennis Court Construction.

END OF SECTION

## SECTION 027900

### CHAINLINK FENCING

(FOR POST-TENSIONED CONCRETE COURTS)

1. DESCRIPTION

The contract work to be performed under this section consists of furnishing all required labor, materials, equipment, implements, parts and supplies necessary for, or appurtenant to, the fencing of play courts (pickleball) in accordance with these specifications.

1. MATERIALS
   1. Height

Height of fence shall be 8’-0” or 4’ height as indicated on the drawings and details.

* 1. Fabric

Eight gauge (8 Ga.) 1 ¾” mesh black resin clad fabric shall have a polyvinyl chloride coating, minimum wall thickness of .015 inches over a galvanized substrate. The base metal shall have a minimum breaking strength of five hundred fifty pounds (550 lbs.) and a zinc coat weight of .1503 pounds per square foot of uncoated wire surface. Top and bottom selvage of the fabric shall be knuckled.

* 1. Pipe and Accessories
     1. Method of Manufacturing

Pipe used for fence framework shall be cold rolled and electric-resistance-welded from steel conforming to ASTM A-569 and hot dip galvanized to ASTM A-525 G-90 zinc weight both inside and outside the pipe. The outside then receives a conversion coating and fusion bonded black polyester powder coating. The application of the coating will consist of three (3.0) mils of cured thermosetting polyester powder coatings applied over zinc phosphate pre-treatment of galvanized steel.

* + 1. Posts

All line, terminal, and gate posts shall be two and seven eighths inch outside diameter (2 7/8” O. D.)with a wall thickness of eleven gauge (11 Ga.) and a minimum yield strength of fifty five thousand pounds per square inch (55,000 psi).

* + 1. Top Rail
       1. Top rail shall be one and five eighths inch outside diameter (1 5/8” O. D.) pipe with a wall thickness of thirteen gauge (13 Ga.) and a minimum yield strength of fifty five thousand pounds per square inch (55,000 psi) and provided with seven inch (7”) long expansion sleeve couplings.
       2. Note: Middle rail is suggested where windscreen is used (owner is to specify). Only black toprail requires sleeves.
    2. Accessories
       1. Fabric ties: Eleven gauge (11 Ga.) galvanized steel tie wire to fasten fabric to framework. Tension wire shall be attached to fabric bottom with heavy galvanized hog rings.
       2. Tension Wire: Galvanized – Two (2) strands of twelve and half gauge (12.5 Ga.) steel wire twisted together.
       3. Vinyl Coated – One (1) strand of (8 Ga.) with a six gauge (6 Ga.) finish.
       4. Tension Bands: Beveled edge type with nuts and bolts.
       5. Line Post Tops: Heavy galvanized cast from eye top fitting.

Terminal Post Tops: Heavy galvanized iron tops of rounded type construction.

* + - 1. Coating: All accessories to receive black polyester powder coating.
    1. Gates

Construct gate frames with one and five eighths inches outside diameter (1 5/8” OD) rail material with welded corners. Provide fabric filler same as used in fence and use heavy duty galvanized hardware with lockable latches, colored black.

* + 1. Concrete

Concrete shall have twenty eight (28) day, four thousand pounds per square inch (4,000 psi) compressive strength.

1. EXECUTION
   1. Workmanship
      1. The complete fence shall be plumb, both in line and transverse to the fence, straight and rigid with fabric tightly stretched and held firmly in place.
      2. Details of construction not specified, shall be performed in keeping with standard good fencing practices.
      3. Bottom of chainlink shall hang two inches (2”) from court surface.
   2. Posts
      1. Coordinate with Post Tension Concrete Contractor to ensure fence posts will work with PT slab.
      2. Space all posts not more than ten feet (10’) apart and set in concrete footer per Civil details.
      3. Account for the Post Tension Slab, set footer low and top of fence to be at correct height after the Post Tension Slab is installed. Set top rails as nearly parallel to the finish grade as possible and at the specified height of the fence.
      4. Make provisions to allow for post tensioning of concrete.
   3. Top Rail
      1. Set top rails as nearly parallel to the finish grade as possible and at the specified height of the fence.
      2. Middle rail is suggested where windscreen is used (owner is to specify).
   4. Fabric Ties
      1. Provide a minimum of six (6) ties for each ten feet (10’) of rail and one (1) tie to each foot of post height.
      2. Ties to tension wire shall be made with heavy galvanized hog rings at six (6) per ten feet (10’) of tension wire.
   5. Tension Bands

Provide one (1) fastener for each one foot (1’) of fabric height. (Minimum of 8 bands for 10 ft., 3 bands for 42”).

* 1. Gates

Gates shall swing easily and hang true and close into the plane of the fence.

\*\* END OF SECTION\*\*

## SECTION 020844

### IRRIGATION SYSTEM

#### PART 1- GENERAL

* 1. RELATED DOCUMENTS
     1. The General Provisions of the Contract, including all General and Supplementary Conditions and Supplements and Amendments to the General Conditions of the Contract apply to work specified in this section.
  2. DESCRIPTION OF WORK
     1. The work covered by this section includes, but is not limited to:
        1. Coordination of new water meter installation
        2. Installation and testing of backflow preventer
        3. Installation of backflow preventer security enclosure
        4. Excavation, backfill, and compaction of trenches
        5. Installation and pressure testing of mainline pipe
        6. Installation of lateral line pipe
        7. Installation of sleeves for pipe and wire under pavements
        8. Installation of mainline isolation valves
        9. Installation of master control valve
        10. Installation of flow sensor
        11. Installation of remote control valve assemblies
        12. Installation of quick-coupling valves
        13. Installation of automatic controller
        14. Installation of two-wire type control wiring, and related equipment
        15. Installation of sprinkler heads and swing-joint risers
        16. Installation of drip emitters
        17. Installation of drip zone filters and pressure regulators
        18. Operational testing of the irrigation system
        19. Initial maintenance of the irrigation system
     2. The extent of the irrigation work is shown on the drawings and details.
  3. RELATED WORK
     1. Related work includes, but is not limited to, the:
        1. Earthwork and grading operations
        2. Installation / planting of trees, shrubs, and turf areas
        3. Construction hardscape and other site improvement
  4. COORDINATION
     1. The Contractor shall coordinate all irrigation system work with the Owner's Representative. Work that is completed or in-progress shall be protected during the installation of the irrigation system. The Contractor shall notify the Owner's Representative immediately of field conditions which prevent installation of the irrigation system as shown.
  5. REQUIRED LICENSURE
     1. All work shall be performed by a Contractor licensed by the State of Arizona Registrar of Contractors. The license classification held by the Contractor shall be appropriate for the work to be performed.
  6. QUALIFICATIONS OF IRRIGATION SYSTEM INSTALLERS
     1. The irrigation system shall be installed by, and under the direct supervision of, individuals who have appropriate experience with the installation of irrigation systems similar to the system being installed. A supervisor, with not less than three-years of irrigation system installation experience shall be on-site at all times when the project irrigation system is being installed.
  7. COMPLIANCE WITH APPLICABLE REGULATIONS
     1. The Contractor shall comply with all local, state, and federal regulations regarding materials, methods of work, and disposal of excess and waste materials. The Contractor shall provide notices required by governmental authorities, request required inspections, obtain required permits, and pay for all associated fees.
  8. REFERENCE SPECIFICATIONS
     1. American Society for Testing and Materials:
        1. ASTM-D-1784 Specification for Rigid Polyvinylchloride Compounds
        2. ASTM-D-1785-34 Specification for PVC Pipe, Schedules 40, 80, and 120
        3. ASTM-D-2241-34 Specification for PVC Pipe (SDR-PR)
        4. ASTM-D2564 Specification for Solvent Cements for PVC Pipe and Fittings
        5. ASTM-D-2672 Specification for bell-end PVC Pipe
        6. ASTM-F-656 Specifications for Primers to be used for Solvent Weld Joints of PVC Pipe
  9. SUBMITTAL REQUIREMENTS
     1. Material and Equipment Information: The Contractor shall submit to the Owner's Representative, three (3) sets of catalog cuts for all irrigation system materials and equipment proposed for use on the project. The information submitted shall clearly indicate the type, model, and size of the equipment proposed and shall be sufficient for the Owner's Representative to determine if the proposed equipment meets the project specifications. No materials or equipment shall be ordered or incorporated into the Work until the material or equipment has been approved for use on the project. The submittal shall include information related to the following items, if required for the project.
        1. Backflow Preventers
        2. Backflow Preventer Security Enclosures
        3. Mainline Pipe (Reclaimed)
        4. Lateral Line Pipe (Reclaimed)
        5. Sleeving Pipe under paving
        6. Fittings for Mainline Pipe
        7. Fittings for Lateral Line Pipe
        8. Solvent Weld Primer for PVC Pipe
        9. Solvent Weld Cement for PVC Pipe
        10. Isolation Valves
        11. Master Valves
        12. Flow Sensors
        13. Remote Control Valves
        14. Quick Coupling Valves
        15. Pressure Regulating Valves
        16. Access Boxes for Master Valves
        17. Access Boxes for Flow Sensors
        18. Access Boxes for Remote Control Valves
        19. Access Boxes for Isolation Valves
        20. Access Boxes for Quick-Coupling Valves
        21. Controllers
        22. Controller Security Enclosure (and/or pedestal)
        23. Communication Cable
        24. Conduit for Communication Cable
        25. Pull Boxes for Communication Cable
        26. Low Voltage Control Wire
        27. Waterproof Wire Splices
        28. Sprinkler Heads (Large Radius)
        29. Swing Joints for Large Radius Sprinklers
        30. Swing Joints for Medium Radius Sprinklers
        31. Drip Emitters (Multi-outlet, all types)
        32. Drip Emitters (Single Outlet)
        33. In-Line Screen Filters
        34. Emitter Distribution Tubing
        35. Access Boxes for Emitters
        36. Access Boxes for Flush Caps
        37. Mainline Marking Tape
     2. As-Built Record Drawings: The Contractor shall submit to the Owner's Representative prior to Substantial Completion of the work, As-Built Record drawings for the irrigation system installed. The drawings shall indicate the location of all; mainlines, master valves, flow sensors, mainline isolation valves, remote control valves, quick coupling valves, and sleeves and pipelines under roadways or other paved surfaces.
        1. Preliminary As-Built Drawings: Preliminary As-Built Drawings shall be prepared for the irrigation mainline and mainline isolation valves prior to the backfilling of mainline trenches. The Preliminary As-Built Drawings shall be presented to the Owner’s Representative when the mainline is pressure tested. Approval of the pressure test and authorization to backfill the mainline trenches will be contingent upon submittal of acceptable Preliminary As-Built Drawings.
        2. Procedures to be Used to Document As-Built Locations: The location of all mainlines shall be identified by two or more dimensions from fixed objects such as curbs or structures. The location of all valves shall be identified by Global Positioning System (GPS) coordinates using the State Plane Coordinate System. The GPS equipment used to locate irrigation system valves shall be accurate to within +/-3 meters and shall be as approved by the Owner’s Representative. A table listing all system valves and their corresponding coordinates shall be included on the As-Built Drawings. As-Built requirement recommendations to be provided by Lake Havasu City.
        3. Format for Final As-Built Drawings: The Final As-Built Drawings shall be prepared with ink on mylar. The preparation of mylar reproductions of the drawings and the preparation of the drawings shall be at the Contractor’s expense.
  10. IRRIGATION SYSTEM DRAWINGS
      1. The irrigation drawings are diagrammatic and are intended to show the approximate location of outlets, equipment and piping. Certain runs of piping may be shown distorted for clarity. Minor adjustment to the layout of the system will be necessary. Significant adjustments to the layout, including all changes that effect the configuration of the system or length of piping runs, shall be approved by the Owner's Representative prior to installation.
  11. ACQUISITION AND INSTALLATION OF NEW METER(S) AND WATER SERVICE(S)
      1. Requests for and Installation of New Water Meters: The Contractor shall be responsible for contacting Lake Havasu City Water or the appropriate water company and requesting the installation of new water meters as shown on the Project Plans. If required, the Contractor shall obtain an “address” for each meter from Lake Havasu City. The Contractor shall pay for all fees and charges associated with the supply and installation of the new meter(s) and water service(s).
  12. PAYMENT FOR WATER DURING CONSTRUCTION
      1. Payment for Irrigation Water Prior to Final Acceptance: The Contractor shall be responsible for paying all charges for water used for irrigation or for other purposes during construction, during the initial maintenance period, and up to the date of Final Acceptance of the landscape and irrigation improvements.
      2. Transfer of Water Meters to the Lake Havasu City: At the time of Final Acceptance of the landscape and irrigation work, the Contractor shall submit a letter to the Owner’s Representative requesting that the party billed for water service at the project site be changed from the Contractor to the Lake Havasu City Parks and Recreation Department. The request shall note the date of Final Acceptance. Upon receipt of this request, the Owner will initiate a formal request to change the name of the party to be billed for water.
  13. CONTRACTOR PROVIDED SPARE PARTS
      1. Contractor Provided Spare Parts: Prior to Substantial Completion of the Work, the Contractor shall turn-over the following spare parts to the Owner’s Representative.
         1. Sprinkler Heads: Three (3) sprinklers of each type installed on the project
         2. Sprinkler Nozzles:Three (3) sets for each sprinkler type installed on the project
         3. Drip Emitters:Twenty (20) for each type installed on the project
         4. Remote Control Valves: One (1) of each size valve installed on the project
         5. Emitter Access Boxes: Ten (10) of each type installed on the project

1. **MATERIALS** 
   1. PIPE AND FITTINGS
      1. Color Coding of Pipe Conveying Reclaimed Water: All mainline and lateral line pipe used to convey irrigation water shall be integrally color-coded purple pipe.
      2. PVC Mainline and Lateral Line Pipe: Mainline and lateral line pipe shall be PVC plastic pipe extruded from virgin parent materials. Pipe shall comply with ASTM standards D-1785-34 or D-2241-34 as applicable and shall be free from defects.
         1. Mainline Pipe - 3" and 4" Size: Mainline pipe, pipe subject to constant pressure that is 3" size to 4" size (inclusive) shall be C900 Class 200 PVC pipe with gasketed bell-ends. Color shall be purple. Pipe shall be furnished with elastomeric gaskets that conform to ASTM F477 providing a water-tight seal when tested in accordance with ASTM D3139
         2. Mainline Pipe - 2-1/2" Size and Smaller: Mainline pipe, pipe subject to constant pressure that is 2-1/2" size or smaller shall be Schedule 40 PVC pipe. Joints shall be of the solvent weld type. Color shall be purple
         3. Lateral Line Pipe: Lateral line pipe not subject to constant pressure shall be Schedule 40 PVC pipe. Joints shall be of the solvent weld type. Color shall be purple
         4. Sleeves for Pipe and Control Wire: Sleeves for irrigation pipe and control wire under roadways, parking lots, and walkways shall be Schedule 40 PVC pipe for sizes 3" and larger and Schedule 40 PVC pipe for all sleeves 2-1/2" size and smaller. Color shall be purple.
      3. PVC Pipe Fittings: PVC fittings shall be made from Type I, Grade I, PVC compounds conforming to ASTM D-1784, D-2672, and D-2241 as applicable.
         1. Fittings for Mainlines 3" and 4" Size: Fittings for mainlines 3" and 4" size shall be Spears Ever Tuff Cl 315 fittings.
         2. PVC Fittings for Mainlines 2-1/2" and Smaller: PVC fittings for mainlines 2-1/2" and smaller shall be Spears Ever Tuff Cl 315 fittings.
         3. PVC Fittings for Lateral Lines: PVC fittings for lateral lines shall be Schedule 40 PVC.
         4. PVC Fittings for Remote Control Valve Assemblies: PVC fittings for remote control valve assemblies, and as detailed for other locations, shall be Schedule 80 PVC.
         5. Threaded PVC Pipe and Nipples: All threaded PVC pipe and nipples shall be Schedule 80 PVC.
         6. Swing Joints: Swing joints shall PVC and shall be of the factory assembled, double-swing type with “O” ring connections. Swing joints shall have a rated operating pressure of not less than 80 psi.
      4. PVC Solvent Cement and Primer: Solvent cement and primer for joining PVC pipe and fittings shall be as approved by the pipe and fit­ting manufacturers and shall comply with ASTM Standards D-2564 and F-656.
         1. Primer: Primer shall be manufactured for use on all Classes and Schedules of rigid PVC pipe and fittings, including Schedule 80. Color shall be purple.
         2. Solvent Weld Cement: Solvent weld cement shall be manufactured for use on all Classes and Schedules of rigid PVC pipe and fittings, including Schedule 80. It shall have a medium fast set-up time. Color shall be grey. Fast-set or “hot-glue” solvent weld cement shall not be utilized without written approval by the Owner’s Representative.
      5. Steel Pipe and Fittings: Steel pipe and fittings shall be Schedule 40 galvanized steel pipe. Unless otherwise detailed on the Project Plans, steel pipe shall be used for backflow preventer risers only if called for on the plans.
      6. Copper Pipe and Fittings: Copper pipe shall be Type K rigid pipe. Fittings shall be wrought copper or cast bronze fittings. Unless otherwise detailed on the Project Plans, copper pipe shall be used for backflow preventer risers only if called for on the plans.
      7. Corrosion Protection Pipe Wrap: Pipe wrap for steel and copper pipe installed below grade shall be adhesive backed polyethylene tape specifically designed for the protection of buried metallic pipe.
   2. BACKFLOW PREVENTERS
      1. Backflow Preventers: Backflow preventers shall be of the reduced pressure principle type with bronze body and stainless steel springs. The device shall be equipped with ball valves on the upstream and downstream ends. The backflow preventer manufacturer and model shall be as previously approved by Lake Havasu City Water Department. Size shall be as noted on the drawings.
      2. Backflow Preventer Security Enclosure: The backflow preventer security enclosure shall be fabricated from bent 1-1/4" diameter Schedule 40 steel pipe, 1" x 1" steel angle, and 13 gauge expanded metal panels. The enclosure shall be equipped with hinges and U-bolt hasp for padlocking. The enclosure shall have a powder coated finish. Color shall be “Desert Tan.” The security enclosure manufacturer and model shall be as noted on the Project Plans.
   3. AUTOMATED CONTROL VALVES
      1. Master Valves shall be of the globe type with brass body and bonnet. The valve shall be of the normally-closed design and shall be equipped with a heavy-duty 24 VAC solenoid. The master valve manufacturer and model shall be as noted on the Project Plans.
      2. Remote Control Valves: Remote control valves shall be of the globe type with heavy duty glass filled nylon body and bonnet, nylon reinforced rubber diaphragm, stainless steel flow control stem, and 24 volt heavy-duty solenoid. The remote control manufacturer, model, and size shall be as noted on the Project Plans.
   4. MANUAL VALVES
      1. Gate Valves - 3" Size and Smaller: Gate valves (3" size and smaller) shall be 200 psi rated WOG brass gate valves with female NPT threaded ends. Valves shall have a clear waterway equal to the full nominal diameter of the valve and shall be equipped with a hand wheel and non-rising stem.
      2. Ball Valves: Ball valves shall be 400 psi rated WOG, full-port brass ball valves with threaded ends. Ball valves shall be equipped with resilient TFE seats and blow-out proof stems. Valve handle shall provide 1/4 turn on / off control.
      3. Quick Coupling Valves: Quick coupling valves shall be constructed of brass with a two piece design. Internal valve spring shall be of stainless steel. Valve shall be equipped with a self-closing thermoplastic rubber cover. The quick-coupling valve manufacturer and model shall be as noted on the Project Plans.
         1. Quick-Coupling Valve Key: Quick coupling valve keys shall be constructed of brass with galvanized steel handle. Key shall be furnished with brass hose swivel ell. Key shall be of the same manufacturer as the quick-coupling valve.
      4. In-line Pressure Regulating Valves: In-line pressure regulating valves shall be of the permanently assembled type with heavy-duty plastic body and FPT ends. The regulator shall have a pre-set outlet pressure as noted on the drawings. The pressure regulating valve manufacturer and model shall be as noted on the Project Plans.
   5. CONTROLLERS
      1. Controller: Controller(s) shall be a microprocessor based electronic irrigation controller. The controller shall have water management capabilities that include the ability to adjust operating times based on evapotranspiration (ET), the ability to receive and process flow-sensing data, the ability to provide reports to an off-site location, and the ability to provide an alert when system failures occur. The controller(s) shall be as manufactured by Motorola and shall be fully compatible with the Lake Havasu City’s central control system. The controller model number shall be as noted on the Project Plans.
   6. FLOW SENSORS AND ACCESSORIES
      1. Flow Sensors / Meters: Flow meters shall integrate both a vertical turbine Woltman-type water meter and a pilot operated, diaphragm actuated control valve, with a built-in auxiliary shut-off pilot for batch applications. Flow meters shall be as manufactured by Bermad. Model number shall be as noted on the Project Plans.
      2. Communication Cable: Communication cable shall be as manufactured by Paige Cable, Model P-7354-D, or approved equal.
         1. Conduit and Fittings for Communication Cable: Conduit and fittings for communication cable shall be Schedule 40 PVC conduit. Size shall be 3/4", minimum, or as required for the Work
         2. Pull Boxes for Communication Cable Conduit: Pull boxes shall be constructed of HDPE plastic materials. Pull boxes shall be of the manufacturer and model as noted on the Project Plans. Box size and configuration shall be as follows:
         3. Pull Boxes: 19-3/4"” x 13-1/8" Clear Opening x 12” Height
   7. LOW VOLTAGE CONTROL WIRING
      1. Low Voltage Irrigation Control Wire: Control wire shall be Type UF and shall be of the size and type recommended by the valve manufacturer. Wire size for control wires shall be minimum #14 AWG solid copper, jacketed or approved equal or as noted on the drawings. Wire shall be Underwriters Laboratory (UL) approved for direct burial. Insulation color shall be as follows:
      2. Waterproof Wire Splices: Wire splices shall be of the two piece, sealant filled type which permit connection of 2 or 3 wires of 18 through 10 gauge size. Wire splices shall be Underwriter Laboratory (UL) listed. Wire splices shall be #M Scotchcast Connector Sealing Pack 3570G-N or as approved by manufacturer and Owner’s Representative.
   8. SPRINKLER HEADS
      1. Large Radius Gear Drive Sprinkler Heads (For Turf Areas): Large-radius, gear-drive sprinkler head shall have a body, nozzle, and screen constructed of UV resistant heavy duty plastic. Riser stem and retract spring shall be constructed of stainless steel. Sprinkler cover shall be rubber. Inlet shall be 1 inch FPT and pop-up height shall be four inches (4"). Sprinklers shall be full circle or part circle. Part circle heads shall be adjustable from 40 to 360 degrees. Radius of spray on both full and part circle heads shall be adjustable. Nozzles shall be color coded, removable, and capable of providing matched precipitation rates. Sprinkler manufacturer, model number, and nozzle size shall be as noted on the Project Plans.
      2. Medium/Small Radius Pop up Sprinkler Heads: Medium-radius, pop up sprinkler head shall have a body, nozzle, and screen constructed of UV resistant heavy duty plastic. The sprinkler shall be of the viscous fluid brake rotary type and be a multi-stream, multi-trajectory rotating stream sprinkler. Riser stem and retract spring shall be constructed of stainless steel. The sprinkler shall have a pressure-activated, multi-function, UV stable wiper seal that will clean debris from the pop-up stem while it retracts. The sprinkler shall have a standard pressure-regulating device as an integral part of the pop-up riser. Sprinkler cover shall be rubber. Inlet shall be 1/2 inch FPT and pop-up height shall be four inches (4"). Sprinklers shall be full circle or part circle. Part circle heads shall be adjustable from 40 to 360 degrees. Radius of spray on both full and part circle heads shall be adjustable. Nozzles shall be color coded, removable, and capable of providing matched precipitation rates. Sprinkler manufacturer, model number, and nozzle size shall be as noted on the Project Plans.
   9. DRIP EMITTERS
      1. Eight-Outlet Drip Emitters: Emitters shall be of the type with eight independent / removable emitter ports. The pressure compensating ports available having flow rates of 0.5 to 24 gph. Emitter shall have a ½" FPT inlet. The eight-outlet emitter manufacturer and model shall be as noted on the Project Plans.
         1. Eight outlet drip emitters shall be used to irrigate specific plants of the species and sizes as noted on the Project Plans
      2. Six-Outlet Drip Emitters: Emitters shall be of the permanently assembled, pressure compensating, six-outlet type with ½" FPT inlets. The flow rate per outlet shall be nearly the same at inlet pressures of 15 to 50 psi. The six-outlet emitter manufacturer and model shall be as noted on the Project Plans.
         1. Six outlet emitters shall be used to irrigate specific plants of the species and sizes as noted on the Project Plans.
      3. Root Zone Watering System Bubbler Emitters: Bubbler Emitters shall be permanently assembled, pressure compensating, one outlet type with ½" FPT inlet. The flow rate per outlet shall be nearly the same at inlet pressures of 15 to 50 psi. The bubbler outlet emitter manufacturer and model shall be as noted on the Project Plans. Bubbler shall be a part of a root zone watering system consisting of perforated polyethylene cylinder with length – 36” .The factory-assembled system comes preconfigured with swing assemblies and/or spiral barbed fittings, with an integrated bubbler and optional check valve. System shall have a locking grate cover to help deter vandalism, also a sock option in order to prevent small particles from penetrating the cylinder
      4. Emitter Distribution Tubing: Emitter distribution tubing shall be fabricated from polyvinyl materials with a 0.16" I.D. and a 0.22" O.D. The tubing manufacturer and model shall be as noted on the Project Plans.
      5. Emitter Lateral Line Flush Caps: Flush caps shall consist of a Schedule 40 PVC pipe riser, a Schedule 40 PVC male adapter fitting, and a Schedule 40 PVC threaded cap. Flush caps shall be assembled as detailed.
   10. ACCESS BOXES
       1. Valve Access Boxes: Valve access boxes for gate valves, ball valves, master valves, flow sensors, remote control valve assemblies, and quick-coupling valves shall be constructed of HDPE plastic materials. Valve box covers shall be permanently marked with the words "control valve" or "irrigation". Valve access box shall be of the manufacturer and model as noted on the Project Plans. All boxes, exclusive of emitter access boxes and emitter line flush cap access boxes, shall be equipped with bolt-down lids. Box sizes and configurations shall be as follows:
          1. Master Valves: 19-3/4" x 13-1/8" Clear Opening x 12" Height
          2. Flow Sensors: 15-3/8" x 10-1/8" Clear Opening x 12" Height
          3. Drip Zone Remote
             1. Control Valve Assemblies: 19-3/4" x 13-1/8" Clear Opening x 12" Height
             2. Turf Zone Remote Control Valve Assemblies: 19-3/4" x 13-1/8" Clear Opening x 12" Height
          4. Isolation Valves: 15-3/8" x 10-1/8" Clear Opening x 12" Height
          5. Quick-Coupling Valves: 9-1/4" Diameter Clear x 10-1/8" Height
          6. Emitter Line Flush Cap: 6-7/8" Diameter Clear Opening x 9-5/16" Height
          7. Access Boxes: 6-7/8" Diameter Clear Opening x 9-5/16" Height
          8. Emitter Boxes : 6-7/8" Diameter Clear Opening x 9-5/16" Height
   11. MISCELLANEOUS IRRIGATION SYSTEM EQUIPMENT
       1. In-Line Filter: In-line filters shall have a glass-filled nylon body with removable, 200 mesh, stainless steel screen, and manual flush port. The filter manufacturer and model shall be as noted on the Project Plans.
       2. Detectable Marking Tape: Detectable marking tape to be installed above all mainlines shall be a five mil thick, five-ply composition, polyethylene tape. The tape shall have a 20 gauge solid aluminum foil core that is encapsulated within the polyethylene material. The tape shall be three inches (3") wide.
          1. Tape for Irrigation Systems: Tape shall have the words “CAUTION, IRRIGATION LINE BELOW” printed at regular intervals. Tape color shall be green.
2. EXECUTION
   1. BLUE STAKING
      1. Blue Staking: The Contractor shall request that the project site be Blue Staked prior to the start of any excavation or trenching work. Blue Staking shall be kept current during the course of the project. All utilities damaged by the Contractor shall be repaired or replaced by the Contractor, as required by the Owner or appropriate utility company, at the Contractor's expense.
   2. LAYOUT
      1. Layout of Irrigation System: Prior to the start of trenching and excavation work, the Contractor shall layout the irrigation system, staking out the location of mainlines, master valves, flow sensors, remote control valves, sprinkler heads and other equipment as shown on the drawings. All deviations from the layout shown on the drawings impacting the length of piping runs or the configuration of the system shall be approved by the Owner's Representative.
   3. WATER METER INSTALLATION
      1. Water Meter Installation: The Contractor shall coordinate the installation of new water meter(s) as specified herein. The location of the water meter shall be as approved by the water provider and the Owner’s Representative.
   4. BACKFLOW PREVENTER INSTALLATION
      1. Backflow Preventer: Backflow preventers shall be installed as detailed in all locations shown on the Project Plans. All backflow preventers shall be tested by an individual certified by Lake Havasu City Water or the appropriate water provider. Test certificates, signed by the tester, shall be filed with the water provider in accordance with the water utility’s requirements.
      2. Backflow Preventer Security Enclosure: The backflow preventer security enclosure shall be installed as detailed and per manufacturer’s specifications. The device shall be positioned so as to allow for the opening and closing of the security enclosure without interfering with the backflow preventer.
   5. TRENCHING FOR PIPE AND CONTROL WIRING
      1. Trenching: Trench excavations shall be straight and true with uniform bottom for bearing of pipe. Minimum depth of cover on pipe, sleeves, and wire shall be as follows:
         1. PVC Sleeves under Roadways and Parking Areas: 24 inches
         2. PVC Sleeves for Mainlines under Walkways: 24 inches
         3. PVC Sleeves for Lateral Lines under Walkways: 18 inches
         4. PVC Mainline: 24 inches
         5. Detectable Marking Tape over Mainline: 8 inches
         6. PVC Lateral Lines: 18 inches
         7. Control and Common Wires: 24 inches
         8. Communication Cable / Conduit: 24 inches
      2. Barriers to Prevent Public Access to Open Trenches: The Contractor shall provide barriers as required to restrict public access to open irrigation trenches. Barriers shall be in compliance with applicable construction site safety regulations.
   6. PLACEMENT OF SLEEVES AND (MAINLINE / LATERAL LINE) PIPE
      1. Sleeves: Sleeves shall be installed as detailed. Separate sleeve shall be provided for pipe and control wire. Sleeve size shall be as noted. If not noted, the sleeve shall be a minimum of two standard pipe sizes larger than the pipe enclosed. The minimum sleeve size shall be three inches (3”).
      2. Mainline and Lateral Line Pipe: PVC pipe shall be placed in trenching with identification markings located on top of the pipe so they are readable. Place select backfill material in bottom of trench as detailed before laying pipe. Do not install pipe in trench that is wet or when conditions are otherwise unsuitable for the Work. Keep inside of pipe clean during installation. Snake pipe from side to side of trench to allow for expansion and contraction. Provide 2 inch minimum vertical and horizontal clearance between irrigation pipes. Provide 12 inch minimum clearance between irrigation pipes and pipe, conduit, or cable of other trades.
   7. CONSTRUCTION OF PIPE JOINTS
      1. PVC Pipe - Solvent Weld Joints: Make all solvent weld joints using only procedures recommended by the pipe, fitting, and solvent weld cement manufacturers. Make all threaded connections using teflon tape on male threads with a maximum 3 wraps around pipe.
   8. FLUSHING AND PRESSURE TESTING OF MAINLINE
      1. Notification: The Contractor shall notify the Owner's Representative of his intent to perform pressure testing 72 hours prior to the scheduled test time. Except as otherwise approved, all tests shall be performed in the presence of the Owner's Representative. The entire mainline shall be tested at one time except for instances where project phasing requires testing of individual segments of the mainline system.
      2. Tools and Equipment: The Contractor shall furnish all tools, materials, fittings, and equipment required for testing and shall make all temporary connections.
      3. Trench and Backfill Conditions for Testing: The trench(es) shall not be backfilled until pressure testing of mainline has been successfully completed. Center loading of mainline pipe during testing is acceptable. All joints shall be exposed during testing operations.
      4. Flushing: After all mainline piping and risers are connected in place and all related work is complete, open each control valve(s) use a full head of water to flush the mainline system.
      5. Testing: The mainline shall be tested at a pressure of 150 psi for a period of two (2) hours. For acceptance, the original test pressure shall be maintained for the duration of the test.
      6. Repairs: All leaks or defects which develop under pressure testing shall be promptly repaired and the test repeated until satisfactory results have been achieved. Repairs shall be made using only materials and procedures specified herein.
   9. CONTROL WIRE AND COMMUNICATION CABLE INSTALLATION
      1. Control Wiring: Wherever possible, mainline trenches shall be used for installation of wire.
      2. Wire Splices: Each end of the two-wire control wire shall be brought to the remote control valve and a 3' long coil of wire shall be neatly looped in the access box as detailed. Splices shall be made using manufacturer recommended waterproof wire splices. Wire shall be spliced at remote control valve locations only.
      3. Communication Cable: Communication cable shall be installed in conduit as detailed. Pull boxes shall be installed at intervals not exceeding 200 feet. Cable shall not be spliced between connections at the project controllers.
   10. BACKFILLING OF TRENCHES
       1. Placement of Bedding Material: Place select backfill material around pipe to provide minimum cover shown on the details. Carefully tamp or water-in bedding material around pipe.
       2. Placement of Backfill: Place excavated material as backfill in lifts of six inches, maximum. Carefully compact each lift as work pro­gresses. Grade top of trenches to be level with adjacent finished grade. All trenches improperly backfilled or where settlement occurs shall be re-excavated and compacted as specified.
       3. Removal of Excess Material: Excavated material that is removed from trenches and not used as backfill shall be carefully removed from the site and disposed of in an approved location at the Contractor's expense.
   11. INSTALLATION OF VALVES AND VALVE ACCESS BOXES
       1. Valves: Gate valves, ball valves, master valves, remote control valves, and quick coupling valves shall be installed as detailed. Use teflon tape on all threaded connections.
       2. Valve Access Boxes: Install valve access boxes such that top of box is parallel to and flush with the surrounding finished grade, or as detailed. Provide gravel sumps and brick footings as detailed. Where more than one access box is to be installed in a given location, group boxes together and keep boxes within a uniform alignment. Provide adequate clearance around enclosed valves to allow for valve operation and/ or removal.
   12. CONTROL SYSTEM INSTALLATION
       1. Controller(s): The controller(s) shall be installed as detailed, in the location(s) approved by the Owner's Representative. Extend electrical power and communication connections to the new controller(s) as shown on the electrical plans and make connections. All work shall be in accordance with applicable code requirements.
       2. Programming of Controllers: The Contractor shall be responsible for the initial programming of all controllers. Programming work shall be performed by a technician certified by the control system manufacturer. Controllers shall be programmed to operate as stand-alone controller during construction and during the initial Contractor Maintenance Period.
          1. Verification of Central Control System Operation: Prior to Final Acceptance of the Work, the Contractor shall coordinate the programming of the on-site controller(s) with the Lake Havasu City Parks and Recreation Department staff. Testing shall be performed to ensure that the system installed in the field properly communicates with the Department’s off-site workstation. Deficiencies associated with equipment installed by the Contractor shall be repaired by the Contractor prior to Final Acceptance of the Work.
       3. Grounding Equipment: Grounding equipment shall be installed at each controller in accordance with the controller manufacturer’s written recommendations and applicable codes.
   13. FLOW SENSORS
       1. Flow Sensors: Flow sensors shall be installed as detailed and in accordance with the manufacturer’s written instructions.
   14. SPRINKLER HEADS
       1. Large-Radius and Medium-Radius, Gear-Drive Sprinkler Heads: Install gear drive sprinkler heads on double swing joints so that top of head matches finished grade as detailed. Use teflon tape on all threaded connections, exclusive of “O” ring connections. Flush lateral line and clean inlet screen prior to installation of nozzle. Adjust radius of spray and orientation of head and nozzle so that spray pattern matches the area to be irrigated and minimizes over-spray on to adjacent surfaces.
          1. Nozzle Adjustment: Sprinkler heads shall be installed with the nozzles noted on the drawings. If necessary to provide complete and uniform coverage, the Contractor shall remove and replace the specified nozzles and supply and install nozzles that are one size larger or one size smaller than that specified. Nozzle replacement work, if required, shall be performed by the Contractor at no cost to the Owner.
   15. DRIP EMITTERS
       1. Drip Emitters: Install drip emitters in access boxes and extend distribution tubing to locations around the irrigated plant as detailed.
   16. MISCELLANEOUS IRRIGATION EQUIPMENT
       1. In-Line Filters: Install in-line filters as detailed. Position filter in access box so that the unit can be disassembled and the filter removed and/or replaced, without removal of the access box.
       2. Detectable Marking Tape: Install detectable marking tape above all mainline pipe as detailed.
   17. OPERATIONAL TESTING
       1. Operational Test: An operational test shall be performed by the Contractor after the irrigation system installation is complete. The test shall demonstrate that all controller and control valves perform properly and that all sprinkler heads and emitters are operating correctly and are providing adequate irrigation water to land­scape plantings. All tests shall be performed in the presence of the Owner's Representative. Irrigation system components found to be operating incorrectly or to be defective shall be replaced or repaired by the Contractor at no cost to the Owner.
       2. Schedule for Performance of Operational Test: The operational test shall be performed at the date and time of the Substantial Completion inspection. The operational test may be performed in advance of the Substantial Completion inspection, if requested by the Contractor. The request for an operational test inspection shall be submitted to the Owner’s Representative not-less-than seven (7) days prior to the requested inspection date.
   18. REPAIR OF DAMAGE BY LEAKS
       1. Repair of Damage: The Contractor shall be responsible for damages to slabs, curbs, roadways, walkways, piping systems, electrical systems, buildings and associated equipment and contents caused by leaks in the irrigation piping systems being installed or having been installed by him. The Contractor shall repair all damage so caused. All repair work shall be performed in a manner that is satisfactory to the Owner's Representative, and at no cost to the Owner.
   19. CLEAN-UP
       1. Clean up: Perform cleaning operations during the installation of the Work and upon completion of the project. Remove from the site all excess materials, debris, and equipment. Legally dis­pose of all excess and waste materials. Repair all damage resulting from irrigation system installation.
   20. TURF IRRIGATION SYSTEM AUDIT
       1. Applicability: An audit of the installed turf irrigation system shall be performed as noted on the Project Plans.
       2. Scope of Audit: The scope of the irrigation audit shall include an evaluation of the Distribution Uniformity (DU) of the installed irrigation system within designated turf areas as noted on the Project Plans.
       3. Reference Standards and Procedures: The evaluation of the Distribution Uniformity (DU) shall be in accordance with definitions, standards, and procedures as published by the Center for Irrigation Technology at the University of California, Fresno.
       4. Schedule for Performance of Audit: The irrigation audit shall be performed and remedial actions implemented, as-needed, prior to Substantial Completion of the Work.
       5. Qualifications of the Individual Performing Audit: The individual performing the audit shall be a Certified Irrigation Auditor as certified by the Irrigation Association (IA).
       6. Payment for Audit Fees: Except as may be noted in the project documents, the Lake Havasu City Parks and Recreation Department will hire the Irrigation Auditor directly and pay the fee for the initial audit and one (1) follow-up inspection, if needed. If additional inspections are required, the cost of the additional inspections shall be borne by the Contractor.
       7. Performance Standards: The audited Distribution Uniformity (DU) for the turf irrigation system(s) installed shall be as follows:
          1. For Rotor Type Sprinkler Heads: 65% Minimum
       8. Remedial Work: If the turf irrigation system installed does not meet the minimum Distribution Uniformity (DU) standards noted above, the Contractor shall be responsible for making required corrections and/or adjustments. Remedial work may include, but is not be limited to, correction of head spacing, replacement of incorrect nozzles, and repair of damaged or contaminated sprinklers. Remedial work shall be performed at the Contractor’s expense.
       9. Re-inspection of the Work: Installed systems that do not meet the specified Distribution Uniformity (DU) standards, as determined by audit, shall be re-inspected by the Certified Irrigation Auditor after remedial work has been performed by the Contractor. Additional remedial work and re-inspections will be required until the specified Distribution Uniformity (DU) has been achieved.
   21. MAINTENANCE AND GUARANTEE
       1. Maintenance during Construction: The Contractor shall operate and maintain the irrigation system during project construction. Operation and maintenance procedures shall include, but not be limited to: programming of the controller(s), repair / adjustment of sprinklers, repair / replacement of emitters, and replacement of defective installations. Maintenance during construction shall continue until the issuance of a Certificate of Substantial Completion.
       2. Inspection of Completed Irrigation Work: Upon substantial completion of the irrigation work, the Contractor shall notify the Owner's Representative who will schedule an inspection of the irrigation system improvements. During the inspection, items which are incomplete or which must be repaired or replaced will be identified. The Issuance of a Certificate of Substantial Completion will be contingent on the completion or correction of noted items.
       3. Maintenance after Substantial Completion: After issuance of a Certificate of Substantial Completion, the Contractor shall continue to operate and maintain the irrigation system for a period of 60 consecutive calendar days. Operation and maintenance procedures shall include, but not be limited to: programming of the controller(s), repair / adjustment of sprinklers, repair / replacement of emitters, and replacement of defective installations. Upon satisfactory completion of the initial Contractor maintenance period, the Owner will assume responsibility for irrigation system operation and maintenance.
          1. Irrigation Maintenance Requirements: Activities and tasks associated with the 60 day maintenance period shall include, but not be limited to:
             1. Daily inspection of the project to check on-site conditions and to perform activities required to correct safety deficiencies and/or to address field conditions impacting the proper operation of the irrigation system
             2. Daily observation of the turf grass irrigation system operation to verify that sprinklers are performing correctly and that all turf areas are receiving adequate and appropriate irrigation water
             3. Weekly checking and adjustment of the irrigation controller program(s) as needed to provide appropriate application of water to the project plantings
             4. Weekly inspection of the operation of each sprinkler to check for proper pop-up and retraction, arc adjustment, radius adjustment, nozzle performance, rubber cover installation, height adjustment.
             5. Weekly inspection of the operation of each drip emitter to check for proper water flow from each of the emitter distribution tubing outlets
             6. Weekly flushing of the in-line filter at each drip zone remote control valve assembly
             7. As-needed repair of leaks and other system deficiencies
             8. As-needed replacement of defective irrigation system equipment
          2. Suspension of Initial Contractor Maintenance Period for Non-Compliance: Failure to properly operate and maintain the irrigation system as specified herein, as determined by the Owner’s Representative, will result in the suspension of the number of days being credited towards the initial 60 day Contractor maintenance period. The suspension will remain in effect until such time as the remedial actions required by the Owner’s Representative have been implemented by the Contractor.
   22. STANDARDS FOR FINAL ACCEPTANCE OF THE LANDSCAPE IMPROVEMENTS
       1. Standards for Acceptance of the Irrigation System: Standards for acceptance of the irrigation system include, but are not limited to, the following:
          1. On-site controller(s) and remote control valves) have been tested and are operating correctly.
          2. Communication between the on-site control system and the Lake Havasu City Parks and Recreation Department’s off-site central control work station has been established and is working properly.
          3. All sprinkler heads are popping-up correctly and sealing in the up position during operation to eliminate flows from the perimeter of the riser stem.
          4. All sprinkler heads are retracting properly to the fully closed or down position.
          5. All sprinkler heads are set plumb so that riser stem extends vertically when in the up position.
          6. The arc of all part-circle sprinkler heads has been adjusted to avoid overspray on adjacent surfaces.
          7. The inlet screens and nozzles of all sprinkler heads have been cleaned and are set in the proper, sealed position.
          8. The radius of spray for all sprinklers has been adjusted to provide uniform coverage of the turf area with minimal overspray on to adjacent surfaces.
          9. The top of all sprinkler heads have been adjusted to finished grade as detailed on the Project Plans.
          10. The cover and/or top of all sprinkler heads are undamaged and correctly attached to the sprinkler.
          11. All drip emitter lateral lines have been flushed to remove contamination.
          12. All drip emitters are operating correctly and providing uniform flow the irrigated plants.
          13. All emitter distribution tubing has been extended to the locations detailed on the Project Plans and covered with soil or surfacing material as detailed.
          14. All irrigation system components are in place and operating as detailed on the Project Plans, as specified herein, as required by the irrigation equipment manufacturer, and as required for proper operation of the irrigation system.
   23. GUARANTEE
       1. Guarantee: The Contractor shall guarantee the irrigation system to be free of defects in materials and workmanship for a period of two (2) years from the date of Final Acceptance. All material and equipment that proves to be defective within that period shall be promptly repaired or replaced by the Contractor at no additional cost to the Owner. The guarantee period for any part so repaired or replaced shall be extended for a period of two (2) years from the date of repair or replacement.

END OF SECTION

## SECTION 029005

### GENERAL LANDSCAPE

1. **GENERAL**
   1. summary
      1. This section covers work necessary for installing the landscape and plant materials as indicated on the Construction Documents and details in accordance with the Contract Documents.
   2. DESCRIPTION OF WORK
      1. The work shall include, but is not limited to, supply all trees, shrub, cacti and all plant materials (nursery stock), labor, material procurement, equipment, tools, transportation protection, and services required for complete installation of landscape and plant materials as indicated or reasonably implied on the Construction Documents and/or specified herein.
      2. Contractor shall retain a copy of the Construction Documents on the project site until final project acceptance.
      3. If any discrepancies exist between the plans and the specifications, the specifications will prevail.
      4. Contractor shall be responsible for obtaining all necessary permits required for installation of landscape. .
   3. related sections
      1. Examine all sections related to the project work.
   4. References
      1. American Nursery and Landscape Association (ANLA) American Standard for Nursery Stock ANSI Z60.1-2004 May 12, 2004 (Approved by American National Standards Institute, ANSI).
      2. Arizona Nursery Association Grower’s Committee Recommended Average Tree Specifications, August 2005.
      3. U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and equal in quality to standards for Certified Seed.
      4. Federal Specifications (FS): FS O-F-241 (Rev D) Fertilizers, Mixed, Commercial.
      5. American Joint Committee on Horticulture Nomenclature.
   5. definitions
      1. Subgrade: The final elevation of material supporting additional material above it.
      2. Finished Grade: The final elevation of the uppermost surface material (sod shall be top of thatch layer.)
   6. SUBMITTALS
      1. Product Data
         1. Submit product data sheets for each of the following items. Submittals must be made prior to commencing any activities. Make all submittals at one time. No submittals will be reviewed until the entire package has been provided for review. Finished work shall match approved samples.
            1. Plant Material Availability
            2. Plant substitutions
            3. Plant material delivery schedule
            4. Construction schedule
            5. Supplier List
            6. Soil Amendments
            7. Soil mix
            8. Imported Topsoil
            9. Fertilizers
            10. Gravel or Rock
            11. Decomposed Granite
            12. Seed mixes
            13. Tree ties and guys
            14. Other
      2. Samples
         1. Submit physical samples of each of the aforementioned materials for approval. Applicable samples shall be submitted in a one quart, clear, plastic bag (Ziploc type) or appropriate container. Submittals must be made prior to commencing any activities. All samples shall be clearly labeled with the following information.
            1. Project Name
            2. Material name as shown on Construction Documents and Specifications
            3. Supplier or distributor’s name
            4. Supplier or distributor’s product name and/or order number
      3. Substitutions
         1. Substitutions must have written approval of Owner’s Representative and equal the standard of products specified herein and in the Construction Documents.
         2. Installation of approved substitution is Contractor's responsibility. Changes required for installation of approved substitution must be made to the satisfaction of Owner’s Representative and without additional cost to Owner.
         3. Approval by Owner’s Representative of substituted equipment does not waive these requirements.
      4. Supplier list
         1. The Contractor shall provide the Owner’s Representative with a single list of all material suppliers for plant material, and all related landscape and irrigation materials to complete the work in this section and related sections. List must be submitted prior to commencing any activities.
      5. Construction Schedule
         1. Prior to beginning installation of the landscape, the Contractor is to submit a project construction schedule to the Owner’s Representative for approval. The schedule should include the areas and types of construction to be undertaken and the sequence which will be used to accomplish the completion of the project. The construction schedule shall be submitted prior to commencing any activities.
      6. Soils Testing
         1. The cost of testing shall be the responsibility of the Contractor.
         2. Results of the testing shall be submitted to the Owner’s Representative.
         3. Soil Test Reports
            1. Submit soils report for all horticultural soil testing as specified herein to the Owner’s Representative.
            2. Soil report must include the following: complete fertility analysis (major nutrients and micronutrients copper, zinc, manganese and iron), pH, reverse lime analysis, calcium, magnesium, boron, sodium, potassium, exchangeable (plus soluble) sodium percentage, free lime, nitrate, nitrogen, phosphate, phosphorous, organic content, salts, salinity level by electro-conductivity, plasticity index and particle size gradation, and texture.
         4. Soils Testing Agency
            1. Soil tests and analyses shall be performed by an approved independent certified agricultural soils testing laboratory.
            2. The laboratory shall be responsible for determining the number, location and collection of the soil samples for testing.
            3. The test results shall determine the acceptability of the soils.
            4. The testing laboratory shall suggest ways to amend soil to make it suitable to grow plants.
      7. Certificates for Inspections of Materials
         1. All plant material shall be inspected and accepted by the owner at the nursery prior to delivery. Notify the Owner’s Representative 48 hours in advance of any Inspections or Approvals of Landscape Materials. Furnish a certificate with each delivery of material to the site in containers, or in bulk. Certificates shall state source, quantity, or weight, type and analysis, and date of delivery. Deliver all certificates to the Owner’s Representative.
         2. All State, Federal, or other inspection certificates shall be submitted to the Owner’s Representative prior to acceptance of the plant material along with other information showing the source or origin.
         3. Current grower or nursery certifications indicating that all contractor supplied plant material is healthy, vigorous, and free from insect pests, plant diseases, and injuries
      8. Contract Closeout Submittals
         1. Refer to Section 029100 – Landscape Establishment and Maintenance.
         2. Operation and Maintenance Manuals
            1. At the completion of the work, furnish three (3) copies of written maintenance instructions to the Owner’s Representative for maintenance and care of the landscaping. Instructions shall include directions for irrigation, weeding, pruning, fertilization, and spraying, as required for continuous and proper maintenance through a full growing season and dormant period. Contractor shall also furnish three (3) copies of operation manuals for all equipment, provided by the Contractor.
         3. Warranty
            1. At completion of work, furnish written warranty to the Owner’s Representative based on the requirements of this section.
   7. quality assurances
      1. Landscape Subcontractor's Qualifications: The work covered under this Section is considered specialty work and the Subcontractor shall have a valid Arizona Business License or he shall employ as a Subcontractor a person or persons holding such a license. Additionally, a minimum of three (3) years’ experience performing landscape work of comparable size and scope is required.
      2. Field Conditions
         1. The Contractor shall conduct a site visit to become familiar the existing site conditions.
         2. The Contractor is responsible to inform the Owner’s Representative of any discrepancies between the existing site conditions and those on the Construction Documents prior to the start of construction.
         3. The Contractor shall determine the requirements for preparation and construction methods appropriate for the soil type and existing site conditions.
      3. Advanced Notices
         1. The Contractor shall provide the Owner’s Representative with the following advanced notices:
            1. Notice of product delivery schedules forty eight (48) hours in advance
            2. Notice for observation of landscaping layout, plant materials installation and fine grading forty eight (48) hours in advance.
            3. Substantial Completion acceptance walk through and the start of the Maintenance Period one (1) week in advance.
            4. Final Acceptance observation one (1) week in advance.
            5. Notice of Warranty Period expirations, each phase one (1) week in advance.
            6. Notice of Final Completion and Owner assumes maintenance of project two (2) weeks in advance.
      4. Obtaining and Analyzing Samples
         1. The Owner’s Representative reserve the right to obtain and analyze samples of any materials for conformity to the requirements specified at any time during the work.
         2. The Contractor shall furnish samples upon request by the Owner’s Representative.
         3. Rejected materials shall be immediately removed from the site at the expense of the Contractor
      5. Observation, Sale and Shipment
         1. The Contractor shall comply with all local, state and federal laws pertaining to the observation, sale and shipment of the plant materials.
         2. The Owner’s Representative may impose additional requirements.
      6. Specifications of Materials
         1. Contractor shall furnish specifications of any item to be used on-site upon request by the Owner’s Representative.
      7. Soils Testing
         1. The cost of testing shall be the responsibility of the Contractor.
         2. Results of the testing shall be submitted to the Owner’s Representative.
         3. Soil Test Reports
            1. Submit soils report for all horticultural soil testing as specified herein to the Owner’s Representative.
            2. Soil report must include the following: complete fertility analysis (major nutrients and micronutrients copper, zinc, manganese and iron), pH, reverse lime analysis, calcium, magnesium, boron, sodium, potassium, exchangeable (plus soluble) sodium percentage, free lime, nitrate, nitrogen, phosphate, phosphorous, organic content, salts, salinity level by electro-conductivity, plasticity index and particle size gradation, and texture.
         4. Soils Testing Agency
            1. Soil tests and analyses shall be performed by an approved independent certified agricultural soils testing laboratory.
            2. The laboratory shall be responsible for determining the number, location and collection of the soil samples for testing.
            3. The test results shall determine the acceptability of the soils.
            4. The testing laboratory shall suggest ways to amend soil to make it suitable to grow plants.
         5. Imported Soils
            1. If imported soils are needed, the following tests shall be performed on the on-site and imported soils to ensure both soils have similar characteristics.
            2. Soils tests and analysis shall include tests for complete fertility analysis (major nutrients and micronutrients copper, zinc, manganese and iron), pH, reverse lime analysis, calcium, magnesium, boron, sodium, potassium, exchangeable (plus soluble) sodium percentage, free lime, nitrate, nitrogen, phosphate, phosphorous, organic content, salts, salinity level by electro-conductivity, plasticity index and particle size gradation, and texture.
            3. Contractor may be directed by the Owner’s Representative to provide the amendments at no additional cost to the Owner.***!SUBMITTAL***
      8. Soil Percolation Testing
         1. A test for percolation shall be done to determine positive drainage of plant pits and beds.
         2. The Owner’s Representative will be notified, in writing, of all soil and drainage conditions detrimental to growth of plant material and shall submit a proposal for correcting the condition.
      9. Soil Amendments
         1. Refer to Section 029140 – Fine Grading and Soil Preparation
      10. Fertilizers
          1. Refer to Section 029140 – Fine Grading and Soil Preparation
      11. Plant Material Availability
          1. The Contractor is responsible for the documentation and verification of the availability of plant material specified on the Construction Documents within thirty (30) days of the date on the Notice to Proceed. Approved documentation from a wholesale nursery will specify the following:
             1. Nursery name
             2. Nursery location
             3. Nursery contact information
             4. Plant botanical and common name
             5. Plant quantities and sizes
      12. Plant Material Quantities
          1. Plant quantities shown on the drawing are for reference only. It is the responsibility of the Contractor to furnish the plant quantities and materials necessary to complete the work as indicated on the Construction Documents and shall be of species, kinds, sizes, etc., specified.
      13. Plant Substitutions
          1. Plant substitutions shall be requested by the Contractor within thirty (30) days of the date on the Notice to Proceed. No request for substitutions will be accepted after the submittal package has been approved. Refer to Section 013300 – Submittals
      14. Plant Delivery Coordination
          1. The Contractor will coordinate all deliveries of plants and other materials covered by this specification.
      15. General Plant Health and Condition
          1. Plants shall equal or exceed the measurements specified in the plant list, which are minimum acceptable sizes. Plants shall be measured before pruning with branches in normal position. Any necessary pruning shall be done at the time of planting.
          2. Plants shall be free from pests, eggs, diseases. Plants shall not be root bound, damaged or substandard in any way. All materials to bear original labels.
          3. Plant material shall not exhibit signs of accelerated growth.
          4. Trees
             1. Trees shall be well branched, with grafts at ground level and with normal trunks throughout their full height.
             2. Trees with weak, thin trunks not capable of supporting themselves when planted will not be approved.
          5. Container stock
             1. Container stock will be grown for four (4) months to one (1) year before delivery.
             2. The container stock shall not be root bound and have sufficient roots to hold the root ball intact after removal from the container.
          6. The health and vigor of the plant material shall be the sole responsibility of the Contractor.
      16. Plant Acclimation
          1. Plant materials shall be acclimated to Arizona environs for not less than eight (8) months prior to planting.
          2. Contractor is responsible for any off-site storage arrangements to meet the acclimation requirement.
          3. Materials stored for acclimation will be available for periodic review by the Owner’s Representative.
      17. Review of Plant Material/Inspection
          1. All Plant material shall be subject to review and approval of the Owner’s Representative at place of growth and/or upon delivery to the site for conformance with requirements specified. The Owner’s Representative reserves the right to reject at any time or place, prior to acceptance, the work and all materials which in the Owner’s Representative's opinion fails to meet these specification requirements.
          2. The review/inspection of the plant material is primarily for quality; however, other requirements are not waived even though visual inspection results in approval. Materials may be inspected where growing but inspection at the place of growth shall not preclude the right of rejection at the site.
          3. The review/inspection may be made periodically during installation of materials, at completion, and at the end of warranty periods by the Owner’s Representative. Plants shall have a habit of growth that is normal for the species. They shall be healthy, vigorous, and free from insect pests, plant diseases, and injuries. All plant material shall be inspected stock conforming to all State and Federal Regulations.
          4. Such approval will not limit the right of observation and rejection during progress of the work.
          5. Observation and tagging of plant material by the Owner’s Representative for design intent purposes does not necessarily constitute Owner’s Representative's approval of the plant material in regards to their health and vigor as specified herein.
          6. Tagged material shall be clearly designated to ensure that the proper plants will be delivered to the project site.
      18. On-Site Review of Root Ball
          1. The Owner’s Representative shall randomly select two plants of each species on-site for review of the root ball. Plants of the same species from different growers shall be considered as separate shipments.
          2. If the Owner’s Representative determines the roots do not sufficiently fill the container, or have become overgrown or “rootbound”, restricted or are deformed in the containers, all the plants of that species from the same shipment and grower shall be rejected and removed from the site immediately.
          3. The Contractor and or the Contractor’s project superintendent will attend all plant inspections. The Contractor shall replace any plants damaged during any inspection at no additional cost to the Owner. The Contractor shall replace all plants rejected by the Owner’s Representative at no additional cost to the Owner.
      19. Defective Materials
          1. Any plant not conforming to the requirement herein shall be considered defective. All defective plants whether in place on still in the container will be tagged as rejected and immediately removed from the site and replaced with new plants at no additional expense to the Owner.
      20. On-Site Plant Care
          1. Upon acceptance of plant delivery, the Contractor will assume full responsibility for the condition, care and protection of the plant material.
          2. The Contractor will provide replacements for plants damaged under his care.
      21. Replacement Plants
          1. Replacement plants will be provided in accordance with these Specifications including the warranty provision.
      22. Vandalism
          1. The Contractor will not be responsible for malicious destruction of plantings after Final Acceptance of the project. The Contractor will, however, be responsible for replacement of vandalized materials stored but not yet installed, and material vandalized prior to Final Acceptance. All cases of vandalism shall be promptly reported to the Owner’s Representative. The Contractor shall inform the Owner’s Representative in writing if additional protection must be installed to protect the landscaping from damage after installation.
   8. DELIVERY, STORAGE, AND HANDLING
      1. General Requirements
         1. The delivery, storage, handling and transporting of any materials for the project will be in compliance with all Federal, State and Local laws and requirements.
      2. Pesticides and Herbicides
         1. It is the responsibility of the Contractor to verify current status and delivery, storage, handling and transporting requirements of the materials utilized.
         2. The Contractor shall notify the Owner’s Representative and obtain prior approval for the use of any chemicals for insect eradication or control and weed eradication or control.
         3. The types of insecticides or herbicides to be used and the methods of application will conform to Environmental Protection Agency, and all state and local requirements and labeling instructions.
         4. Insecticides and herbicides shall be approved by the Owner’s Representative prior to use on the Project.
      3. Fertilizer and Amendments
         1. Deliver fertilizer to site in original unopened containers bearing the manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to Federal and State laws. Notify Owner’s Representative forty eight (48) hours in advance of delivery so that material may be inspected upon arrival at the job site.
         2. Deliver packaged manufactured materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at the site. Provide copies of delivery receipts for materials to be incorporated into the construction to the Owner’s Representative as the deliveries are made. Materials to be accounted for shall include (but are not limited to) the following: fertilizers, soil amendments, manure, grass seed, plant tabs, etc.
      4. Plant Material
         1. The Contractor shall be responsible for obtaining all necessary permits and tags for transporting plant materials on public roads.
         2. Plants shall be containerized, properly wrapped and prepared for shipping in accordance with recognized standard practice. The root system shall be kept moist and plants shall be protected from adverse conditions due to climate and transportation at all times including when they are planted
         3. Each plant shall be identified by means of a grower's label affixed to the plant. The grower's label shall give the data necessary to indicate conformance to Construction Documents. Durable waterproof labels with water resistant ink which will remain legible for a minimum of sixty (60) days shall be used.
         4. Owner’s Representative shall be notified a minimum of forty eight (48) hours prior to delivery of plant materials to the site so plant material may be inspected upon arrival at job site.
         5. Care shall be taken when working with plants. Plants shall not be dropped, nor shall plants be lifted by the trunk, stems, or foliage. The root ball of the plant shall be natural and intact, and the plant shall be handled by the container at all times. All plants shall be protected at all times from drying out or other injury. Minor broken and damaged roots shall be pruned before planting.
         6. Storage and Protection
            1. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than four (4) hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage.
            2. Keep root balls moist at all times. Do not allow root balls to dry out.
            3. Protect all existing and newly planted trees, shrubs, and groundcover within the areas of construction and related excavation as herein specified. Provide suitable barricades and/or fences as required.
         7. The Contractor shall be responsible for repair or replacement of any damaged structures, plants, etc. in which the damage was caused by the planting operations.
      5. Acceptance at Site
         1. Major damage to any part of the plant or root ball shall be cause for rejection.
         2. No container plant shall be accepted if the root ball is broken or the trunk is loose in the root ball or the container.
         3. The Contractor shall be responsible for the removal of all unacceptable or rejected plant material immediately from job site. Removal shall be done in a legal manner.
   9. PROJECT/SITE CONDITIONS
      1. The Contractor must examine the sub-grade upon which work is to be performed, verify sub-grade elevations, observe the conditions under which work is to be performed, verify suitability of the soil and notify the Owner’s Representative in writing of unsatisfactory conditions. Work shall not proceed until unsatisfactory conditions have been corrected in a manner acceptable to the Owner’s Representative. Commencement of work shall mean acceptance of the site conditions.
      2. Existing Conditions
         1. Any discrepancy between the existing site conditions and the contract documents shall be reported to the Owner’s Representative and resolved prior to the start of construction operations.
         2. The site shall be provided to the Contractor within ±0.2 foot of finish grades.
         3. Determine location of all existing and proposed underground utilities and perform work in a manner which will avoid possible damage. Do not permit heavy equipment such as trucks, rollers, or bulldozers to damage utilities. Hand excavate where called for, or as necessary, to minimize the possibility of damage to underground utilities. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned. Any damage to existing or proposed utilities that may result in spite of protective measures must be completely corrected and repaired by the Contractor at no additional cost to the Owner.
         4. All scaled dimensions are approximate. Before proceeding with work carefully check and verify all dimensions and quantities; immediately inform the Owner’s Representative of any discrepancy between the drawings and/or the specifications and the actual dimensions. No work shall be done in any area where there is such a discrepancy until review and approval for the same has been given by Owner’s Representative.
         5. Planting areas shall be kept clean, free of any waste or debris.
   10. SEQUENCING & SCHEDULING
       1. Coordinate the landscape construction with all other trades to ensure that construction is not delayed.
       2. Schedule each type of landscape work required during the normal season for such work in the area of the site. Establish dates for each type of work and establish a completion date. Correlate work with specified maintenance periods to provide maintenance until accepted by the Owner. Do not depart from the accepted schedule, except with written authorization from the Owner’s Representative. Submit request to the Owner’s Representative for changes in the planting schedule. When delays in the planting schedule are unavoidable, include documentation of the reason for delay.
   11. ORDER OF COMPLETION
       1. Pre-Substantial Completion Walk-through
          1. A Pre-Substantial Completion Walk-through shall be performed upon acceptance of Substantial Completion of all landscape and irrigation work under this Contract.
          2. A punch list shall be generated by the Owner’s Representative in the presence of the Contractor requiring incomplete or unacceptable work to be successfully installed per the work under this Contract.
          3. A final walk through with the Owner’s Representative and the Contractor shall occur to review the punch list items to ensure they all have been completed successfully as required per the work under this contract.
          4. At this time the Contractor shall submit Irrigation Record Drawings (As-Builts) for approval by the Owner’s Representative per Section 028000 – Irrigation of these specifications.
       2. Substantial Completion
          1. Substantial Completion shall be granted only when one hundred (100) percent of the irrigation system is fully operational and functioning properly and all plantings and landscape materials are installed per the Construction Documents successfully.
          2. Conditional Acceptance shall be provided at the time the Owner’s Representative deems the project Substantially Complete.
       3. Plant Establishment/Maintenance Period
          1. The start of the Landscape Establishment/Maintenance Period shall begin after the work recorded on the punch list at the Substantial Completion walk-through and all work in the Construction Documents and under this contract is successfully completed. At this time if it is established that all work under this Contract has been successfully complete acceptance will be provided by the Owner’s Representative to the Contractor and the Plant Establishment/Maintenance Period shall begin.
          2. A second Substantial Completion walk-through in the presence of the Contractor shall be conducted to establish compliance with the punch list items generated at the first Substantial Completion walk-through and that all work has been successfully completed as per the work under this Contract.
          3. The length of the Landscape Establishment/Maintenance Period shall be forty two (42) calendar days (six weeks).
          4. The schedule of Operations for the Landscape Establishment/Maintenance Period shall include but not limited to the following;
             1. Each week the Contractor shall submit a work schedule of operations for approval by the Owner’s Representative.
             2. Failure to maintain an approved work schedule will result in the extension of the maintenance period for one (1) work day each day until the schedule of operations is submitted and approved by the Owner’s Representative.
          5. Maintenance Observations by the Owner’s Representative shall occur biweekly during the Landscape Establishment/Maintenance Period.
             1. The Contractor shall be present for all observations.
             2. The Contractor shall maintain a weekly landscape maintenance log, indicating services performed. Submit copies of the log with each month’s pay request.
             3. If it is determined that the landscape areas are being improperly maintained, plant replacement shall be required, or other corrective measures shall become necessary. The Contractor shall correct all items in a timely manner at no additional cost to the Owner.
             4. Any remedial work shall be completed prior to the next maintenance observation.
             5. If the remedial work is not completed in the aforementioned time, the Landscape Establishment/Maintenance Period shall be extended one (1) month, or at the discretion of The Owner’s Representative.
             6. Monthly payments shall be held until the remedial work is completed.
       4. Final Acceptance Observation
          1. The Owner’s Representative shall be notified seven (7) days prior to the end of the Landscape Establishment/Maintenance Period that Final Acceptance Observation is requested.
          2. The Owner’s Representative shall set the date with Contractor present for Final Acceptance Observation.
          3. A punch list shall be prepared of any plantings or other work in this Specification Section or as a part of this contract that is not acceptable and requires correction.
          4. Contractor will immediately make such corrections.
       5. Notice of Final Acceptance
          1. After the Final Acceptance Observation, if the Owner’s Representative agrees that all planting areas are weed free and plant materials are in satisfactory growing condition, written Notice of Final Acceptance will be given to the Contractor for landscape installation.
          2. Final written Notice of Acceptance will be granted only after one hundred (100) percent of the items on the Final Acceptance Observation punch list are corrected and accepted by the Owner’s Representative.
          3. Owner maintenance shall begin only after the Notice of Final Acceptance for all landscape items is issued.
       6. Additional Observations
          1. If additional observations are required to gain Final Acceptance, the Contractor shall be required to pay all consultants and staff fees.
          2. Fees will be deducted from final payment.
       7. Corrective Work
          1. Deficiencies in workmanship and installation shall be written up in a corrective work report. Perform work requiring corrective action within fifteen (15) days after the observation.
          2. Corrective work shall be done in accordance with the Contract Documents and at no extra cost to the Owner.
          3. Contractor shall submit, in writing, notice of completion of corrective work
   12. WARRANTY
       1. The Warranty Period shall begin after:
          1. The Irrigation Record As-built Drawings have been received and approved by the Owner’s Representative.
          2. The Final Acceptance punch list items have been completed and approved by the Owner’s Representative.
       2. The Contractor shall guarantee all trees, shrubs, groundcovers and all plant material for a period of one (1) year from the date of Final Acceptance against defects not resulting from neglect of Owner, or abuse and damage by others. The Contractor shall replace any plants that are dead, unhealthy, unsightly, or that have lost their natural shape due to dead branches or excessive pruning. Inadequate maintenance by the Owner shall not be cause for replacement. All replacement planting is to be done no later than the succeeding season.
       3. Replacement plants shall be of the same variety and size or larger as originally specified in the plant list. Plants shall be planted as originally specified. All areas damaged by planting or replacement operations shall be fully restored to their original condition as specified. Remove all dead or defective plant material from the site immediately.
       4. A one (1) year warranty shall also apply to the plants replaced at the first warranty walk-through.
       5. Salvaged Plants that were transplanted from their original location and placed in a temporary nursery whether boxed or transplanted directly in the native soil shall be guaranteed. Salvaged plants that die during the landscape construction or Plant Establishment/Maintenance Period shall be replaced with plant material of like kind, size and economic value at no additional expense to the Owner.
2. **PRODUCTS**
   1. MATERIALS:
      1. Fertilizer
         1. Refer to Fine Grading & Soil Preparation Section 029140.
         2. If it is determined by the soil test that the plant material does not need additional fertilization and based on the sole discretion of the Owner’s Representative the Agriform Tablets may be eliminated from the contract.
      2. Plant Material
         1. General Requirements
            1. All plants grown in a nursery will conform to the applicable requirements specified in the current edition of "American Standard for Nursery Stock" ANSI Z60.1 as approved by the American National Standards Institute, Inc., and sponsored by the American Association of Nurserymen, Inc.
            2. Botanical plant names will be in accordance with the current edition of "Standard Plant Names" prepared by the American Joint Committee on Horticultural Nomenclature.
            3. Plants shall be in accordance with Arizona State Department of Agriculture regulations for nursery observations, rules and ratings.
            4. Label each tree and shrub with a securely attached waterproof tag bearing legible designation of botanical and common name and size.
            5. The Owner’s Representative will be sole judge as to acceptability.
         2. Species, Sizes, Grades, and Condition
            1. Requirements for measurements, branching, and quality of plants in the plant list generally follow the code of standards currently recommended by the American Association of Nurserymen, Inc., in the American Standard for Nursery Stock ANSI Z60.1.
            2. The size of all plants will correspond to that normally expected for species and variety of commercially available nursery stock as specified in the Construction Documents.
            3. Plants shall be equal to or exceed the measurements specified in the plant list, which are minimum acceptable sizes.
            4. Plants shall be nursery grown under climatic conditions similar to those in Pima County, Arizona. Grower's certificates may be required when doubt exists as to the origin of the plant material.
            5. Plants shall be container grown or established “boxed out” field grown plant material unless otherwise specified.
            6. Established container stock is defined as a tree, shrub or groundcover grown from seed or transplanted into a container for a length of time sufficient to develop new fibrous roots so that the root mass will retain it’s shape and hold together when removed from the container.
            7. Container stock shall be grown in containers for at least four (4) months and shall not be root bound. No bare root or recently containerized stock will be accepted.
            8. Container plants with cracked or broken balls or earth when taken from the containers may only be planted with specific approval of the Owner’s Representative.
            9. Plant material containers shall be sufficiently rigid to retain the root ball shape and protect the root mass during shipping.
            10. Protect all plant material in transit and after delivery to the project site. Plants in broken containers and plants with broken branches or injured trunks will be rejected. Remove rejected material from the site immediately.
            11. Plants, including their containers, will be free of noxious weeds including Bermuda grass and Bufflegrass.
            12. Flat grown plant material shall be rooted full and compact, and shall not be leggy.
            13. All plants shall have a normal growth habit for each respective species and will be sound, healthy, vigorous and free from plant disease, insect pests or their eggs, fresh bark abrasions, excessive abrasions or other objectionable disfigurements.
            14. Where formal arrangements or consecutive order of plants are shown, select stock for uniform height and spread, and label with numbers (if necessary) to ensure symmetry in planting.
            15. At no time will tree or plant materials be pruned, trimmed, or topped prior to delivery and any alteration of their shape will be conducted only with the approval of and as directed by the Owner’s Representative.
         3. Plant Material Substitutions
            1. Plants larger than specified in the plant list may be used if approved by the Owner’s Representative but use of such plants will not increase the contract price.
            2. If use of larger plants is approved, the root ball will be increased in proportion to the size of the plant.
            3. Under no conditions will there be any substitutions of plants or sizes listed on the drawings, except with written approval from the Owner’s Representative.
            4. The Owner’s Representative shall consider plants of other kinds than those indicated on the plant list only upon submission of proof that the specified plant is not reasonably procurable in the local region.
            5. Replacement plants shall be approved on the grounds that it resembles the plant specified in regards to appearance, ultimate height, shape, habit of growth, general soil and other requirements.
            6. In no case shall the average cost and value of the substituted plants be less than the cost and value of plants indicated.
            7. All proposed plant substitutions due to unavailability shall be requested in writing for approval by the Owner’s Representative prior to the confirmation of ordering.
            8. Should the Contractor not secure plant materials and materials become unavailable at time of installation, the Contractor shall install larger container size of equal plant variety at no additional cost to the Owner.
         4. Trees
            1. Height of branching should bear a relationship to size and variety of tree specified and with the crown in good balance with the trunk and trunk caliper as recommended by ANSI Z60.1.
            2. Trees shall not be "poled" or have the leader removed.
            3. Single trunk plants shall be reasonably straight and symmetrical with crown according to species and have a persistent main leader.
            4. Boxed trees shall be harvested and boxed at least ninety (90) days prior to planting.
            5. Trees in groves shall match in caliper, height, spread and overall form.
         5. Shrubs and Groundcovers
            1. Provide deciduous shrubs with not less than the minimum number of canes required by ANSI Z60.1 for the type and height of shrub specified.
            2. Plants furnished in containers shall have been grown in pots, cans, or baskets long enough to have sufficient roots to hold earth together intact after removal from container, without being root bound.
      3. Tree Stakes and Guys
         1. Stakes and guys shall only be installed for plant material larger than 24” box container size for a minimum period of one year.
         2. Tree stakes shall be two (2) inches dia. x eight (8) feet in length, be sound and knot-free pressure treated Redwood or Lodgepole Pine, uniformly sized, pointed six (6) inches from the end and capable of at least two (2) years ground burial.
         3. Guy wire shall be twisted double strand twelve (12) gauge galvanized steel wire. Trunk protective covering shall be three quarter (3/4) inch dia. vinyl two-ply fabric-bearing hose with a six (6) inch to eight (8) inch inside diameter around the tree trunk to allow for natural sway of tree. Install hose and guy so as to not constrict tree trunk and per Construction Documents.
      4. Weed Control
         1. Pre-Emergent Herbicide: Elanco Mfg. Co. "Surflan 75W", or approved equal. Do not apply on areas that receive native seed mix or turf.
         2. Herbicide: Monsanto "Round-Up", or approved equal.
      5. Water
         1. The water shall be free of oil, acid, salts or other toxic elements.
         2. The Owner’s Representative shall approve the water source prior to use.
      6. Fencing
         1. The Contractor shall provide temporary security fencing for adequate protection of workers, the general public, preserve-in-place vegetation and existing features and structures from construction activities.
3. **Execution**
   1. inspection
      1. Contractor shall inspect the site with the Owner’s Representative prior to beginning any activities on site. The Contractor shall provide a written report of any discrepancies that would interfere with their scope of work, or would delay progress on the project.
      2. The Contractor shall verify the location of underground utilities and facilities.
      3. Any damage to any such underground items resulting from work of this Specification Section or under this contract shall be repaired at the Contractor's expense.
      4. Weed Control
         1. If live perennial weeds exist on the site at the beginning of the landscaping operation, spray with herbicide according to the manufacturer's instructions and applied by an Arizona licensed herbicide applicator.
         2. After allowance of adequate time for systemic kill, clear and remove all dead vegetation and maintain entire site weed-free until Final Acceptance by Owner’s Representative using mechanical, manual, and/or chemical treatment.
         3. Remove all weeds including Bermuda Grass, Bufflegrass, Johnson Grass and Nut Grass and dispose of off-site in a legal manner.
   2. Protective Fencing
      1. Existing Landscape
         1. Provide protective fencing for existing landscaped plants from construction activities per the direction of the Owner’s Representative.
      2. Prior to Construction
         1. The Contractor shall, prior to the start of construction activities on the site, define the limit boundaries of all areas designated as off-limits to the Contractor.
   3. Removal of Existing Materials
      1. General
         1. Items such as abandoned irrigation lines, sleeving, wiring or other used materials shall be disposed of appropriately and in a legal manner off-site.
         2. Care shall be taken not to damage existing irrigation system.
         3. Damage shall be repaired immediately
         4. Damaged and/or modified lines shall be flushed and pressure tested.
      2. Tree and Shrub Removal
         1. Remove existing trees and shrubs as necessary to execute all aspects of these contract documents and as directed by the Owner’s Representative.
         2. Prior to construction, remove the entire trunk and root system below grade of the indicated trees and shrubs.
         3. Dispose of off-site in a legal manner.
         4. Fill the removed tree and shrub plant holes with approved imported soil suitable for plant growth.
   4. INSTALLATION/APPLICATION
      1. Proceed with and complete the landscape work as rapidly as portions of the site become available, working within the seasonal limitations for each kind of landscape work required.
      2. Coordinate and cooperate with any other Contractors and trades which may be working in and adjacent to the landscape work areas. Examine drawings which show the development of the entire site and become familiar with the scope of all work required. Refer to Section 02800 – Irrigation.
      3. Refer to section 029140 – Fine Grading and Soil Preparation
      4. Refer to section 029220 – Turf Installation by Sodding
      5. Refer to section 029230 – Hydroseeding with Native Seed
      6. Existing Plant Materials
         1. Any existing plants outside the construction limits that are removed, damaged or destroyed during construction shall be replaced with plants of the same species, size and variety at the Contractor's expense.
         2. The Contractor shall be responsible for maintaining all "preserve in place" plants as designated by the Owner’s Representative.
         3. The Contractor shall provide an adequate water supply to any "preserve in place" plants affected by construction activities.
         4. Any plants designated as "preserve in place" that are removed, damaged or destroyed during construction will be replaced with trees and shrubs of the same species, size and variety at the Contractor's expense.
      7. Native Plants
         1. Protected native plants within the project that have been identified by the Owner’s Representative.
         2. Plastic tape to correspond to the determinations made in the Native Plant Inventory
            1. White tape - Plants to remain in place.
            2. Red tape - Plants to be moved to another location.
            3. Blue tape - Plants to be destroyed.
         3. The Contractor is responsible for properly marking and protecting preserve-in-place native vegetation.
      8. Removal and Storage of Salvageable Vegetation
         1. Salvageable vegetation shall be removed or relocated to an area near the present location as directed by the Owner’s Representative.
      9. Pruning of Existing Plant Materials
         1. International Society of Arboriculture Certified Tree Worker or Arborist supervising pruning of existing trees and plant material.
         2. Existing plant materials adjacent to walkways or within sightlines shall be pruned as part of landscape restoration to provide a minimum seven foot (7') height canopy/branch clearance above walkway surfaces for trees and maximum three foot (3') height for shrubs.
         3. All existing shrubs as hedges which exceed the three foot (3') maximum height shall be removed to provide a four foot (4') clearance from the back of all walkways.
         4. All plant removal and pruning shall be reviewed and approved with the Owner’s Representative prior to beginning any work.
         5. Failure to get prior approval may require the Contractor to replace the pruned plant material at no additional cost to the Owner.
      10. Irrigation System
          1. No planting shall be done until installation and acceptance by the Owner’s Representative of the irrigation system in total or in increments is provided.
          2. The initial watering and all subsequent watering of the planting shall be done using the newly constructed irrigation system.
          3. Boxed Trees
             1. Boxed trees may be placed before irrigation system installation.
             2. The Contractor shall transport adequate water to these trees to maintain them in prime condition until the irrigation system is automated.
          4. Refer to Section 028400 – Irrigation for additional information.
      11. Layout of Planting Areas
          1. The Contractor shall paint or stake the layout of all planting areas and berm locations for approval of the Owner’s Representative prior to grading.
          2. All planting areas shall be shaped as indicated on the Construction Documents or as directed by Owner’s Representative.
      12. Layout of Plant Material
          1. Stake location of individual trees, for approval by Owner’s Representative, prior to planting or excavating.
          2. If a new tree or shrub relocation is necessary due to interference with underground piping or wiring, the Contractor shall notify the Owner’s Representative and receive approval of a new plant location prior to installation.
          3. The Owner’s Representative must approve the precise location of all plants prior to pit excavation and installation.
          4. Make minor adjustments as requested by the Owner’s Representative, or as necessary to avoid conflicts with sprinkler line locations.
      13. Work Under or Near Existing Vegetation
          1. Where landscape operations are to be completed below the canopy spread of existing trees, all work shall be performed by hand or other methods necessary to complete the work and prevent damage to any limbs, branches, trunks or roots.
          2. Excavation or trenching below existing trees shown to remain shall be completed providing the greatest allowable distance from the trunk and limited to one side of the tree.
          3. Field verify the location or route which shall provide the least disturbance of the root structure.
          4. Roots encountered which are two (2) inches or larger in diameter shall be tunneled or excavated under or around and protected from any damage.
          5. Roots that are less than two (2) inches in diameter shall be cleanly pruned and painted with two coats of standard tree paint or compound prior to backfilling.
          6. No roots shall be left unprotected from damage caused by exposure or loss of moisture.
          7. Notify Owner’s Representative for direction if conditions are encountered which may affect trees or landscape installation methods.
      14. Excavation for Planting
          1. If rock, underground construction work, or other obstructions are encountered in excavation for planting of trees or shrubs, notify the Owner’s Representative. If necessary, new locations may be selected by the Owner’s Representative.
          2. Any subsurface obstructions, materials or substances which conflict with or impact the installation of plants or may be detrimental to plant health shall be excavated and removed to a minimum of two times the root ball container depth and four times the root ball container width.
          3. Remove any rock or other underground obstruction, if possible, to the depth necessary to permit proper planting according to the Construction Documents and as specified.
      15. Planting Operations
          1. General
             1. Do not install plant materials until all construction work has been completed and irrigation system has been installed and tested. Planting areas shall have been graded and prepared as herein specified and shall have been approved by the Owner’s Representative.
             2. Do not plant during unfavorable weather.
             3. Soil shall be at optimum moisture content for planting.
             4. Do not lift or handle container plants by tops, stems or trunks at any time.
             5. All plants shall be set so that, when settled, natural grade of the container plant shall be as detailed in the Construction Documents.
             6. All plants shall be planted immediately after the containers are cut and containers shall be regularly removed from the site so as not to present a hazard to persons using the area.
             7. Set plants upright, plumb and faced to give best appearance or relationship to each other or adjacent structure.
             8. Set vines as close as possible to the structure and tie to structure. Two (2) ties per vine.
             9. Place backfill in six (6) inch lifts, water settle if possible.
             10. After planting remove all nursery stakes and tags after inspection and Acceptance of Substantial Completion.
             11. Thoroughly water in all planting.
      16. Planting Pits
          1. Boxed Trees
             1. Boxed material shall be observed by Owner’s Representative and approved prior to planting in a new location as shown on the Construction Documents.
             2. Width of pit shall be a minimum of two (2) to three (3) times the width of the box size and the depth will be the same as depth of box size or as large as necessary for placement in pit without damage to tree or adjacent structures or existing landscaping.
             3. At the Owner’s Representative's option, tree pits will be filled with water and must drain completely within twenty-four hours (24) to be acceptable. Pits that do not drain shall receive a drainage chimney. A drainage chimney is twelve inch (12") diameter x twenty four inch (24") deep auger holes (two per tree pit) to be filled with one and one half (1-1/2) inch gravel.
          2. Container Stock
             1. Planting pits shall be approximately circular with diameter two (2) to three (3) times the width and depth at least the height of the plant ball or container.
             2. If pits are dug with an auger the surface shall be scarified.
             3. Pits must be large enough to permit handling and planting without injury or breakage of the root ball or root system.
             4. If soil is added to level or stabilize the plant, the soil shall be compacted to avoid settlement after planting.
             5. Plants shall not be allowed to stand in these pits without watering.
      17. Moving Boxed Plants
          1. Check plant box containers before moving.
          2. Any box damage that may cause harm to the root ball will be repaired at the Contractor's expense prior to relocation.
          3. This includes but is not limited to provide new bottoms, side reinforcement, re-banding, box repair or replacement.
      18. Placing Plants
          1. General
             1. Place shrubs no closer than twenty (20) inches from foundations, fences, walls and walks or as far as character of growth demands, whichever is greater, unless directed otherwise by the Owner’s Representative.
             2. Place trees no closer than six (6) feet to foundations, fences, walls and walks unless directed otherwise by the Owner’s Representative.
             3. All plants which settle deeper than the surrounding grade shall be rejected and must be raised to correct level.
             4. Backfill plants with clean site soil that will be thoroughly settled by watering and tamping to fill all voids. Refer to Section 029140 – Fine Grading and Soil Preparation.
             5. Set trees plumb and rigidly brace in position until the soil has been tamped solidly around the ball.
          2. Boxed Trees
             1. Notify Owner’s Representative at least two (2) days in advance to secure approval of the equipment to be used for planting.
             2. Owner’s Representative shall be present at the time the trees are set and positioned in the planting pit.
             3. Fill the excavated planting pits half way with water and drain before placing tree in pit. Any drainage problem must be rectified prior to planting the tree.
             4. Boxed trees will be carefully lowered into their pits using approved equipment and at no time will be pushed or dropped into pit.
             5. Boxed trees thirty (30) inches or greater shall be positioned by crane.
             6. Branches and root balls shall not be damaged.
             7. Top of root ball at finish grade shall be in accordance with details in the Construction Documents.
             8. Add soil backfill under the tree if needed to bring root ball to proper height.
             9. Planting pit will be backfilled with clean site soil as box sides are progressively removed to minimize damage to the root ball and to prevent it from collapsing. Refer to Section 029140 Fine Grading and Soil Preparation.
             10. Backfill in bottom of planting pit to prevent undue settling.
          3. Container Stock
             1. Unless otherwise specified, place all plants in the center of planting pits, plant upright and face to give the best appearance and relationship to the adjacent plants or structures.
             2. Plants will be set in relation to surrounding grade in accordance with the details in the Construction Documents.
             3. After removing plant from container, scarify side of root ball to eliminate root bound condition.
             4. Do not plant stock if root ball is cracked or broken.
          4. Watering and Filling
             1. Water compact topsoil to the extent approved by the Owner’s Representative.
             2. After settlement, supply additional topsoil as required to make a constant finished in accordance with details in the Construction Documents.
          5. Staking of Plants
             1. Tree stakes shall be two (2) inches in diameter x eight (8) feet in length sound and knot-free pressure treated Redwood or Lodgepole Pine, uniformly sized, pointed six (6) inches from the end and capable of at least two (2) years ground burial.
             2. Trees stakes shall be placed on opposite sides of the tree in accordance with details in the Construction Documents.
             3. Tree stakes will be driven vertically into firm ground and will not injure the root ball.
             4. Provide extra guys if they are needed in the opinion of the Owner’s Representative.
             5. In accordance with details in the Construction Documents, avoid rigid restraint of tree and allow for trunk movement.
             6. All stakes and guys are to be removed from all trees after a period of one year from Project Completion.
          6. Pruning
             1. After planting, prune the plants of superfluous growth as directed by the Owner’s Representative.
             2. Dead or broken tip growth shall be removed.
             3. Typical growth habit of individual plants shall be retained with clean cuts made at the natural growth collar at the base of the branch where it emerges from the parent trunk.
             4. "Headback" cuts at right angles to line of growth shall not be permitted.
             5. All cuts larger than 3/4-inch diameter will be trimmed back to healthy tissues, smoothed so as not to retain water.
             6. Trees shall not be poled or the leader removed, nor shall the leader be pruned or "topped off".
             7. Improper cuts, stubs, dead and broken branches shall be removed.
             8. All pruned material shall be removed from project site.
             9. Pruning tools will be new and of proper size for the cut and maintained with sharp cutting surfaces.
             10. Remove and replace excessively pruned or deformed stock resulting from improper pruning.
   5. Field quality control
      1. When the landscape work is completed, the Owner’s Representative shall, upon seven (7) calendar days advance notice, make an inspection of the landscape work to determine if the work is complete and acceptable. The Owner’s Representative shall prepare a punch list of items improperly installed, inadequately sized or otherwise deficient based on the findings of his inspection. The punch list shall be completed not more than seven (7) working days after the field inspection. When the Contractor has remedied all deficiencies and completed all items on the punch list, the Contractor shall request another inspection by the Owner’s Representative to determine whether the deficiencies have been adequately corrected. Once the punch list items have been corrected and re-inspected, the Owner’s Representative shall issue a written certificate to the Owner who will then respond to the Contractor in writing formally accepting the work and beginning the Warranty Period.
      2. Additional landscape inspections shall be conducted upon request by the Owner’s Representative, to determine the condition of the work at the completion of the Warranty Period.
   6. ADJUSTING AND CLEANING
      1. During landscape work, store materials and equipment where directed.
      2. Keep pavements clean and work areas in an orderly condition.
      3. Protect landscape work from loss, damage, and deterioration during storage, installation, and maintenance periods.
      4. Protect from unauthorized persons (trespassers), as well as from operations by other Contractors and tradesmen and landscape operations.
      5. At the time of the final inspection of the work and before the issuance of Final Acceptance, all paved areas shall be thoroughly cleaned by the Contractor by sweeping and washing. All construction equipment and excess materials shall have been removed and any debris or rubbish shall have been removed from the site.

**End of SectiON**

## SECTION 029100

### LANDSCAPE ESTABLISHMENT & MAINTENANCE

1. **GENERAL** 
   1. summary
      1. This section covers work necessary for maintaining the landscape amenities as indicated on the Construction Documents and details in accordance with the Contract Documents.
   2. DESCRIPTION OF WORK
      1. Furnish all supervision, labor, material, equipment, transportation, permits and fees, and perform all operations in connection with and reasonably incidental to maintaining all plantings, hydroseed, hydrostolon and turf, included within the area as delineated on the plan and as called for under this Contract for a forty two (42) calendar days (six weeks) Contractor shall retain a copy of the Construction Documents on the project site until final project acceptance.
      2. These specifications are intended as a guideline for contractors to develop their maintenance schedules for the duration of the Landscape Establishment Maintenance Period. Work will be inspected on the overall performance, rather than strict conformance with the Specifications. The Owner’s Representative will monitor work at biweekly intervals to ensure that the landscape is well manicured, free of weeds, properly watered, dead material is removed or replaced, and the overall appearance of the site is acceptable to the owner. The Contractor shall be present for all of the Owner’s Representative maintenance observations.
      3. These guidelines are minimum expectations of the Contractor. Maintenance obligations during the Landscape Establishment Maintenance Period are anticipated to be more involved on the part of the Contractor.
      4. The Contractor is responsible for all elements that may be included in maintaining the property. These elements will include but are not limited to aeration, fertilizing, mowing, trimming, blowing sidewalks and street curbs, keeping log books, replacements of trees and shrubs, clean up, weeding, insect and disease control, etc. It is the responsibility of the Contractor to utilize all measures to maintain this property at a high level.
      5. The following areas shall have an appearance as described below, immediately after each plant or turf area is installed, at all times during the Landscape Establishment Maintenance Period. Some of the elements listed may not occur within this project.
         1. Planting Areas
            1. Continuous operations of watering, weeding, cultivating, trimming, mowing, edging, rolling, fertilizing, spraying, insect, pest, fungus and rodent control, and any other operations to ensure good normal growth.
            2. All planting areas shall be weed free. Decomposed granite and or screened rock should be raked, redistributed, or replenished to maintain a depth outlined in Construction Documents.
            3. Dead plant material should be removed or replaced, as indicated by Owner’s Representative.
            4. All perennials and annuals should be dead headed on a regular basis to promote further flowering, and have a neat, well kept appearance.
         2. Sod and Hydrostolon turf areas
            1. Refer to Section 029220 – Refer to Turf by Sodding
         3. Hydroseeded areas (native seed mix)
            1. This includes all areas within the limits of work that are irrigated, non-irrigated, recently planted, or well established. Contractor should monitor these areas on a regular basis for the presence of weeds and percentage of germination/coverage.
            2. Areas will require individual attention and separate maintenance schedules, thus the Contractor is responsible for developing and sustaining a weed-free, lush stand of native plant material.
            3. Chemical, mechanical, or manual methods should be implemented to prevent the spread of weeds. Contractor will be expected to re-seed or over-seed areas as bare spots develop.
   3. QUALITY ASSURANCE:
      1. The Contractor is responsible protect all improvements installed as a part of the Contract against damage form pedestrian and vehicular traffic, vandalism or malicious destruction until Final Acceptance is provided in writing by the Owner’s Representative (not including Warranty Period).
      2. Contractor shall maintain a weekly landscape maintenance log, indicating services performed. Submit copies of the log with each month's pay request.
      3. Contractor shall submit a sample of the form used to log work. Owner’s Representative must approve the format for logging work. All maintenance logs will be entirely completed and in a uniform format. Contractor shall maintain originals of the maintenance logs in a bound format. The Owner’s Representative will be sent a copy of the logs for the month prior to the Contractor submitting the pay request.
      4. Contractor shall use the pay request form approved by the Owner’s Representative in preparing monthly pay submittals.
      5. Contractor shall assume all responsibility for plant material or turf which is damaged or stressed in any way as a result of poor maintenance. Contractor will assume all cost associated with replacement of damaged plant material.
2. Products
   * 1. Materials used for maintenance shall be supplied by Contractor unless otherwise specified.
     2. Any replacement plant materials shall conform to the sizes identified in the supplemental unit prices.
     3. Any replacement non-organic landscape materials shall conform to the type, size and condition of the material being replaced.
3. EXECUTION
   1. TREE MAINTENANCE
      1. Pruning
         1. Fall planted trees shall not be pruned until one year after planting, except to remove broken or weak branches.
         2. Prune trees to select and develop permanent scaffold branches that are smaller in diameter than the trunk or forty eight (48) inches and radial orientation so as not to overlay one another; to eliminate diseased or damaged growth; to eliminate narrow V-shaped branch forks that lack strength; to reduce toppling and wind damage by thinning out crowns; to maintain growth within space limitations; to maintain a natural appearance; to balance crown with roots.
         3. Stripping of lower branches ("raising up") of young trees shall be permitted unless directed by the Owner’s Representative.
   2. SHRUBS, GROUND COVERS, ornamental grasses, AND FLOWERS
      1. Pruning
         1. Prune shrubs and ground covers by hand to maintain a natural appearance. There are no plantings in which shearing is intended.
         2. Prune all dead, diseased, and dying branches.
         3. Prune long uncharacteristic branches that detract from the shrub's overall form. Prune branches adjacent to bare spots to encourage full shrub growth.
         4. Prune flowering shrubs within two (2) weeks after flowering has ended (to prevent pruning of future flower buds).
         5. Prune ground covers to maintain a neat, well kept appearance and to prevent ground covers from climbing shrubs.
         6. Cut back taller growing herbaceous perennials when they become rangy in appearance.
         7. Pinch back dead flower heads on a weekly basis to promote greater flowering.
      2. Fertilization
         1. In early May, fertilize all shrubs, ornamental grasses, and ground cover with 18-7-10 formulation, slow release fertilizer at the rate of 6 oz/1,000 sq. ft. Use a broadcast or liquid application method for fertilizer, or as directed by Owner’s Representative.
   3. turf by sodding
      1. Refer to Section 029220 –Turf by Sodding
   4. hydroseeding with native seed
      1. Refer to Section 029230 –Hydroseeding with Native Seed
   5. Weed Control
      1. Weeds represent the greatest threat to successful establishment of ground covers, shrub planting and hydroseeded areas. Therefore, a vigorous, high level of weed control is necessary to maintain an attractive, healthy landscape.
      2. Spot control weeds weekly using chemical and/or mechanical means. Do not spray in windy weather. Use extra caution in application of chemicals to prevent overspray onto ornamental plant material. If necessary, use mechanical means for removal of weeds.
   6. Replacements
      1. Notify Owner's Representative of any unhealthy or dead plant material. Submit proposed removal and replacement and receive written authorization prior to replacement. Cost of removal and replacement shall be determined by pre-approved price schedule, or unit pricing in bid form.
      2. If replacement plant material becomes necessary, conform to material and installation standards (including Warranty Period of one year) established in the original project specifications.
      3. Replace plant material with size equal to that of the plant material being replaced.
      4. All replacements shall be affixed with an inconspicuous tag, to be removed after the one year warranty has expired. This tag shall indicate the date the plant material was installed.
      5. All replacements shall carry a one year warranty against expiration of the plant material, assuming adequate maintenance is performed.
   7. DISEASE/INSECT CONTROL
      1. Inspect all landscape areas weekly during growing season for signs of insect or disease infestation.
      2. Apply seasonal applications of insecticide, herbicide, or fertilizer as necessary to protect plant material.
      3. Spot treat areas as needed to maintain healthy growing plant material. Spot treatment is included in the scope of this contract.
      4. Do not apply airborne insecticides or pesticides when unprotected people or animals may be affected.
      5. Protect all trees, shrubs, and ground covers from over spray that is detrimental to the health of ornamental plant material.
      6. Notify Owner's Representative if extensive spraying is required. Submit proposed for additional application and receive written authorization prior to commencement.
   8. CLEANUP
      1. Clean all areas weekly to provide a neat, well groomed site. Pick up all trash and debris, sweep walks and rake decomposed granite and or screened rock in planting areas, parking islands, etc.
      2. Adjust cleanup to match seasonal needs.
      3. Cleanup after severe rain or hailstorms is not included [notify Owner's Representative within twenty four (24) hours after damage occurs]. Obtain a written authorization from Owner's Representative prior to cleanup.
      4. Provide weekly, complete policing and litter pickup to remove paper, glass, trash, undesirable materials, animal and bird droppings, situation and other accumulated debris within the hard surfaces and landscape areas to be maintained, including but not limited to: walkways, between and around planted areas, drains, catch basins, and pond edges.
      5. Litter pickup shall be completed as early in the day as possible, but in no case later than 10:00 A.M.
      6. Contractor shall be responsible for weekly removal of all trash, litter and accumulated debris to an approved off-site disposal site.
      7. Rake and remove accumulation of leaves and grass clippings. Remove from all turf and landscaped areas, including planting beds, turf areas and under trees, play and sand areas, and removed from site. Rake as needed in fall and spring. Collect and remove grass clippings in non-playfield areas only when thatch build-up in irrigated turf areas becomes a problem. Notify Owner's Representative and obtain approval prior to removing clippings during mowing operations.
   9. Sweep/Washing
      1. Check paved areas bi-weekly for cracks, crevices and deterioration. Report any problems to Owner's Representative immediately. Walkways, hard surface areas, play and sand areas shall be cleaned, including but not limited to: the removal of all foreign objects from surfaces, such as gum, grease, paint, graffiti, broken glass, etc. Methods of sweeping of designed areas can incorporate one or all of the following:
         1. Power pack blowers
         2. Vacuums
         3. Brooms
         4. Push power blowers
      2. In the event the Contractor elects to use power equipment to complete such operations, Contractor shall be subject to local and state ordinances regarding noise levels. Further, any schedule of such operations may be modified by the Owner's Representative in order to ensure that the public is not unduly impacted by the noise created by such equipment.
      3. Sweep all walkway and hard surface areas once per week.
   10. Graffiti
       1. Graffiti abatement is not part of the base maintenance contract and will be paid for on an hourly basis as approved by the Owner's Representative at the agreed upon unit price.
       2. Eradication and control of graffiti shall include all surfaces throughout the site, including, but not limited to, the following:
          1. Walkways and hard surfaces
          2. Site furniture
          3. Boulders
          4. Retaining walls
          5. Monumentation and signage
          6. Lighting
       3. All materials and processes used in graffiti eradication shall be non-injurious to surfaces and adjacent property and approved by Owner's Representative.
       4. Appropriate surface preparation shall be made on painted surfaces. Paint applied shall be the exact shade of color as existing paint, unless otherwise specifically approved by the Owner's Representative.
       5. Contractor shall use special care and attention when removing graffiti from treated or sealed surfaces. Such surfaces shall not be painted. Contractor shall use materials, and methods of application approved by the Manufacturer and Owner's Representative.
       6. Visually inspect all areas weekly. Remove graffiti the same day it is visually noted.
   11. maintenance
       1. The Contractor will perform maintenance operations to keep installed plants in a healthy growing condition at no additional cost to the Owner.
       2. Beginning of Maintenance operations will begin immediately after each plant is installed and will continue as required until the start of the Maintenance Period. All maintenance activities shall be provided at the start of the maintenance period.
       3. Duties include the Contract to observe the plants at least once per week and appropriate maintenance performed.
       4. Replacing Unhealthy Plants
          1. A plant will be considered unhealthy or dead when main leader has died back or twenty five (25%) percent of crown is dead.
          2. The cause for an unhealthy plant will be determined and reported to the Owner's Representative.
          3. Unhealthy or dead plants will be immediately removed from the site and disposed of in a legal manner.
          4. The plant will be replaced as soon as seasonal conditions permit.
       5. Irrigation
          1. The Contractor will maintain the irrigation system and make any necessary repairs, regardless of cause, to ensure a complete and operational system during the course of the work, during Plant Maintenance/Warranty Period and until final written Notice of Acceptance.
          2. Plants will be watered as necessary to maintain an adequate supply of moisture within the plant's root zone.
          3. Run-off, puddling and wilting will be prevented.
       6. Weeding
          1. Plant beds and planting swales will be kept free of weeds, grass and other undesirable vegetation.
          2. Weeds in planting swales and plant beds will be removed before reaching two inches in height.
          3. Removal will include root growth.
       7. Pruning
          1. After planting, prune the plants of superfluous growth as directed by the Owner's Representative.
          2. Dead or broken tip growth will be removed.
          3. Typical growth habit of individual plants will be retained with clean cuts made at the natural growth collar at the base of the branch where it emerges from the parent trunk.
          4. "Headback" cuts at right angles to line of growth will not be permitted.
          5. All cuts larger than 3/4-inch diameter will be trimmed back to healthy tissues, smoothed so as not to retain water.
          6. Trees will not be poled or the leader removed, nor will the leader be pruned or "topped off".
          7. Improper cuts, stubs, dead and broken branches will be removed.
          8. All pruned material will be removed from project site.
          9. Pruning tools will be new and of proper size for the cut and maintained with sharp cutting surfaces.
       8. Any plants that have been knocked out of true for any reason will be straightened.
       9. All loose stakes and guying materials will be tightened. Staked plants will be checked for girdling and adjusted if necessary.
       10. Settling
           1. Plants will be checked for settlement and will be reset to proper grade as necessary.
           2. Serious settlement of a plant will require re-planting to match original requirements as specified herein and in the Construction Documents.
       11. Edges of planting beds will be maintained to retain design intent.
       12. Planting areas will be protected from erosion. Eroded areas will be repaired to match original requirements.
       13. The Contractor will remove construction trash and debris on a daily basis.
       14. Condition of Planting at the End of the Maintenance Period.
           1. All plant materials shall be live, healthy, undamaged and free from infestations.
           2. Ground cover, shrub areas, lawn, and other planting areas shall be free of all weeds (broadleaf and grass weeds).
           3. All lawn areas shall be completely covered at the time of Final Acceptance.
           4. Plantings that do not conform to specifications shall be replaced and brought to a satisfactory condition before Final Acceptance of the work can be made.
           5. Mow grass to one and one eighth (1-1/8) inches.
       15. The required maintenance instructions shall be forwarded to the Owner’s Representative prior to the Final Acceptance to inform the Owner’s Representative of any maintenance responsibilities that would be required for the project.
           1. The items addressed by the manual may include but is not limited to the following:
              1. Irrigation
              2. Fertilization
              3. Weeding
              4. Pesticide and herbicide application
              5. Pruning
              6. Resetting unstable plants
              7. Mowing
              8. Repairing, adjusting or replace stakes and guying
              9. Repair damage caused by weather, wildlife and vandalism
              10. Precautions to prevent damage from cold, frost, sunburn, vandalism or other hazards
              11. Perform other maintenance operations necessary to ensure healthy plant growth
              12. Wood Chip replacement
              13. Decomposed Granite or Screened Rock Replacement

**END OF SECTION**

## SECTION 029140

### FINE GRADING & SOIL PREPARATION

1. **GENERAL** 
   1. summary
      1. This section covers work necessary for ripping, fertilizing, soil conditioning, and fine grading as indicated on the Construction Documents and details in accordance with the Contract Documents.
   2. DESCRIPTION OF WORK
      1. The work shall include, but is not limited to, supplying fertilizer, soil conditioners and all labor, material procurement, equipment, tools, transportation protection, and services required for complete execution of the fine grading and soil preparation as indicated or reasonably implied on the Construction Documents and/or specified herein.
      2. Contractor shall retain a copy of the Construction Documents on the project site until final project acceptance.
      3. If any discrepancies exist between the plans and the specifications, the specifications will prevail.
      4. Contractor shall be responsible for obtaining all necessary permits required for installation of landscape. .
   3. RElated sections
      1. Examine all sections related to the project work.
   4. SUBMITTALS
      1. Section 013300 – Submittals
      2. Section 029005 – General Landscape
      3. Section 029220 – Turf by Sodding
      4. Soil Test Reports
      5. Fertilizer Manufacturer’s Specifications
   5. QUALITY ASSURANCE
      1. Qualifications
         1. The Contractor shall provide, upon request of the Owner’s Representative, past performance data indicating that equipment and procedure are suitable.
      2. Equipment and Procedure Approval
         1. The Owner’s Representative has the final approval as to equipment and procedure to be utilized to complete the work under this contract.
      3. Rejection of Work
         1. Any method of installation or use of materials not in conformance with these specifications shall be reinstalled, repaired or removed as directed by the Owner’s Representative at no additional cost to the Owner.
      4. Soils Testing
         1. The cost of testing shall be the responsibility of the Contractor.
         2. Results of the testing shall be submitted to the Owner’s Representative.
         3. Soil Test Reports
            1. Submit soils report for all horticultural soil testing as specified herein to the Owner’s Representative.
            2. Soil report must include the following: complete fertility analysis (major nutrients and micronutrients copper, zinc, manganese and iron), pH, reverse lime analysis, calcium, magnesium, boron, sodium, potassium, exchangeable (plus soluble) sodium percentage, free lime, nitrate, nitrogen, phosphate, phosphorous, organic content, salts, salinity level by electro-conductivity, plasticity index and particle size gradation, and texture.
         4. Soils Testing Agency
            1. Soil tests and analyses shall be performed by an approved independent certified agricultural soils testing laboratory.
            2. The laboratory shall be responsible for determining the number, location and collection of the soil samples for testing.
            3. The test results shall determine the acceptability of the soils.
            4. The testing laboratory shall suggest ways to amend soil to make it suitable to grow plants.
         5. Imported Soils
            1. If imported soils are needed, the following tests shall be performed on the on-site and imported soils to ensure both soils have similar characteristics.
            2. Soils tests and analysis shall include tests for complete fertility analysis (major nutrients and micronutrients copper, zinc, manganese and iron), pH, reverse lime analysis, calcium, magnesium, boron, sodium, potassium, exchangeable (plus soluble) sodium percentage, free lime, nitrate, nitrogen, phosphate, phosphorous, organic content, salts, salinity level by electro-conductivity, plasticity index and particle size gradation, and texture.
            3. Contractor may be directed by the Owner’s Representative to provide the amendments at no additional cost to the Owner.***!SUBMITTAL***
         6. Soil Percolation Testing
            1. A test for percolation will be done to determine positive drainage of plant pits and beds.
            2. The Owner's Representative will be notified, in writing, of all soil and drainage conditions detrimental to growth of plant material and will submit a proposal for correcting the condition.
   6. DELIVERY, STORAGE AND HANDLING
      1. Comply with Sections 029005 – General Landscape
   7. PROJECT/SITE CONDITIONS
      1. Do not perform work when climate and existing site conditions will not provide satisfactory results.
      2. Vehicular accessibility on-site shall be as directed by the Owner’s Representative. Repair damage to prepared ground and surface caused by vehicular movement during work under this section to original condition at no additional cost to the Owner.
2. PRODUCTS
   1. materials
      1. Compost
         1. A totally organic product that has been aerobically and naturally processed without the addition of coarse wood chips, in such a manner as to maintain a consistent temperature of 140 degrees Fahrenheit or greater for a period of time sufficient to create the following characteristics, measured by dry weight.
            1. Moisture content of 30%-35%
            2. Organic matter to nitrogen ratio: 25:1 to 30:1.
            3. pH: 6.0 to 8.0 pH.
            4. Salts: maximum of 10 mmhos/cm.
            5. Less than 1% soil, dirt or sand.
            6. Maximum particle size of 1/2 inch diameter.
            7. Eradication of all harmful weed seeds, pathogens and bacteria.
            8. A non-offensive, earth smell.
      2. Topsoil
         1. Topsoil will be a screened, fertile, friable soil from well-drained arable land, free of brush, litter, stumps, nut grass, roots, heavy clay, noxious weeds, or other material toxic to plant growth.
         2. Soils containing rocks, clods or objects larger than 3/4 inches in any dimension shall also be rejected.
         3. The topsoil textural composition will be:
            1. silt 20-45%
            2. clay 15-20%
            3. sand 30-60%
         4. The topsoil content will be:
            1. Topsoil 90%
            2. Mulch 15%
            3. Compost 10% (total organic matter from composted source)
         5. The pH shall be no lower than 6.5 nor over 8.0.
         6. Soluble salts shall not exceed 1000 PPM.
         7. Plasticity index shall be in the range of 5 to 20 inclusive.
      3. On-Site Topsoil
         1. Topsoil shall be the existing surface soil stripped and stockpiled on the project site at a location approved by the Owner’s Representative.
         2. For the purposes of the Bid, the Contractor shall assume that there is no available topsoil on site.
         3. Soil shall be amended as required to meet topsoil quality and requirements, and as recommended by soils testing agency to meet local growing conditions for the type and variety of plants specified.
         4. The source of topsoil shall be subject to observation by the Owner’s Representative.
      4. Imported Topsoil Source
         1. For purposes of the Bid, the Contractor shall **estimate 4” depth topsoil** over all areas to be sodded.
         2. The imported topsoil shall be furnished by the Contractor.
         3. The source of topsoil shall be subject to approval by the Owner’s Representative.
         4. Imported topsoil shall be delivered and installed in sufficient quantity to complete the work under this Contract.
      5. Fertilizer
         1. Fertilizer applications shall be prescribed as specified herein and be based on soil testing as specified herein. The following guidelines will be used for soils testing and the resulting fertilizer applications.
            1. Formulated fertilizer analysis shall be submitted to Owner's Representative for review and shall be based upon recommendations made by soil lab. Contractor to submit soil sample to an Arizona based testing lab for analysis and fertilizer recommendations.
            2. See Soil Testing 1.04 Quality Assurances in this Section.
            3. If soil types are similar in structure, the Contractor may use a consistent formulated fertilizer for the entire site area. However, if soil structures are vastly different, a formulated fertilizer for each specific site area will be required.
         2. General
            1. The following organic amendments, soil amendments and fertilizers are for bidding purposes only.
            2. Trees, shrubs and groundcovers shall have installed in their planting pits, Scotts Agriform Tablets per the manufacturer’s recommended application rate based on container size.
            3. Ammonium Sulfate

Chemical fertilizer will be standard commercial fertilizer, suitable for application with approved equipment, containing the minimum analysis and in physical form of 21-0-0 at an application rate of 2.5 pounds of product per 1,000 square feet.

Chemical fertilizer will be furnished in standard containers with the name, weight and guaranteed analysis of the contents clearly marked.

* + 1. Soil Amendments
       1. General
          1. The following organic amendments, soil amendments and fertilizers are for bidding purposes only.
       2. Sand will be washed masonry sand.
       3. Peat Moss
          1. Peat moss shall be Canadian "sphagnum" peat moss consisting of partially decomposed plant residues containing a negligible amount of woody or mineral material.
          2. Peat shall be evenly moist at the time of mixing and will be delivered to the site in unopened original containers.
       4. Gypsum
          1. Agricultural grade gypsum product, commercially packaged and free flowing, and containing a minimum of ninety five percent (95%) calcium sulfate by volume.
    2. Sodded Area Amendments
       1. Section 029220 – Turf by Sodding
    3. Seeded Area Amendments
       1. Section 029230 – Hydroseeding with Native Seed
  1. source quality control
     1. Verification of Performance
        1. Compost and other soil amendments are typically identified by a rate of cubic yards per 1000 s.f. In order to accurately determine if amendments are applied at the correct rate, the following chart is supplied. This chart is intended to verify the cubic yards by allowing a method for measuring the depth of the material spread uniformly across the surface of the planting area, with no exposed soil, prior to mixing the amendments with the existing soils. This method will be used during inspections to verify that adequate amendments are incorporated into the soil.

|  |  |
| --- | --- |
| c.y./1000 s.f. | Depth (inches) |
| 3 c.y./1000 s.f. | 1” |
| 3.5 c.y./1000 s.f. | 1 ⅛” |
| 4.0 c.y./1000 s.f. | 1 ¼” |
| 4.5 c.y./1000 s.f. | 1 ½” |
| 5.0 c.y./1000 s.f. | 1 ⅝” |

* + - 1. An inspection of soil preparation will be performed by the Owner’s Representative before areas will be released for planting. The inspection shall consist taking a soil sample to determine
         1. Proper tilling of the soil. Soil will be judged on how easily a soil probe can be inserted into the ground.
         2. Proper depth of tilling, and homogeneity of the soil. The soil sample will be judged on uniformity of the soil profile in the top six to eight inches.
         3. A visual inspection for adequate compost will be conducted. An area that has similar soil structures, that has not received compost will be used as the basis of comparison. Should a disagreement exist, multiple soil samples will be sent to an independent testing laboratory to determine the amount of organic matter present. The cost of this testing will be absorbed by the Owner’s Representative.

1. **EXECUTION**
   1. EXAMINATION
      1. General
         1. Verify that existing site conditions are as specified and indicated before beginning work under this Section.
      2. Grades
         1. Inspect to verify rough grading is within +0.2 foot of grades indicated and specified.
      3. Damaged Earth
         1. Inspect to verify that earth rendered unfit to receive planting due to concrete, water, mortar, limewater or any other contaminant dumped on it has been removed and replaced with clean earth from a source approved by the Owner’s Representative.
      4. Cleanliness
         1. Inspect to verify that site is clean of all trash and debris.
      5. Equipment
         1. Inspect to verify other trades have removed all equipment and staging areas from areas of work.
      6. Unsatisfactory Conditions
         1. Report in writing to Contractor with copy to Owner’s Representative.
      7. Acceptance
         1. Beginning of installation means acceptance of existing conditions by installer.
   2. PREPARATION
      1. Protection
         1. Locate sewer, water, irrigation, gas, electric, phone and other pipelines or conduits and equipment prior to commencing work.
         2. Be responsible for proper repair to landscape, utilities, walls, pavements and other site improvements damaged by operations under this section.
      2. Weed Control
         1. Remove annual weeds by tilling. Remove perennial weeds by applying herbicide 1 week before soil preparation and as needed, but no sooner than three (3) months before beginning work.
         2. If the area to be developed is infested with noxious or invasive weeds, a chemical application will be required, at a rate recommended on the chemical’s product label.
      3. Surface Grade
         1. Remove weeds, debris, clods and rocks larger than one half (1/2) inch. Dispose of accumulated debris at direction of Owner’s Representative.
      4. Runoff
         1. Take measures and furnish equipment and labor necessary to control the flow, drainage, and accumulation of water. Ensure that all water will run off the grades.
      5. Erosion Control
         1. Take measures and furnish equipment and labor necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited material on the site throughout duration of work.
   3. INSTALLATION
      1. Refer to Section 029220 – Turf by Sodding
      2. Refer to Section 029225 – Turf by Hydrostolon
      3. Refer to Section 029230 – Turf by Hydroseeding with Native Seed
      4. Soil Amendment
         1. Evenly distribute soil amendments, conditioners, and fertilizer, and first application of fertilizer in landscaped areas at the rates outlined in Part 2.01 of this Section.
      5. Mixing
         1. Thoroughly mix all materials to achieve a uniform, will pulverized soil mix free of clumps, stones, sticks and any other foreign debris. Distribute planting mix uniformly in planting pits per the Construction Documents and details and specified herein.
      6. Fine Grading in all Landscape Areas:
         1. Do fine grading for areas prior to planting.
         2. For ground surface areas surrounding buildings to be landscaped, maintain required positive drainage away from buildings.
         3. Establish finish grades to within 0.04 foot of grades indicated.
         4. Fine grading must be inspected and approved by Owner’s Representative.
         5. Any damage caused by inclement weather, to finish grades before inspection, will be repaired by the Contractor, prior to acceptance by Owner’s Representative.
         6. Sodded areas - Allow one (1) inch for sod.
      7. Noxious weeds or parts thereof shall not be present in the surface grade prior to landscaping.
      8. Prior to acceptance of grades, hand rake to smooth, even surface free of debris, clods, rocks, and vegetative matter greater than one half (1/2) inch.
   4. Field quality control
      1. Inspection
         1. Provide notice to Owner’s Representative requesting inspection at least seven (7) calendar days prior to anticipated date of completion.
         2. The following required inspections will be conducted to ensure proper preparation of soil, prior to planting.
            1. During, or after, the first cultivation
            2. After the application of specified soil amendments.
            3. During, or after, the second cultivation
            4. After the final grades have been established
      2. Deficiencies

Owner’s Representative will specify deficiencies to Contractor who shall make satisfactory adjustments and shall again notify Owner’s Representative for final inspection.

* 1. CLEANING
     1. Remove debris and excess materials from site. Clean out drainage inlet structures. Clean paved and finished surfaces soiled as a result of work under this Section, in accordance with direction given by Owner’s Representative.
  2. Protection
     1. Provide and install barriers as required and as directed by Owner’s Representative, or as needed, to protect fine graded areas against damage form pedestrian and vehicular traffic until acceptance by Owner’s Representative. Contractor is responsible for malicious destruction of fine graded areas caused by others until Final Acceptance (not including Warranty Period)
     2. Protection of Surfaces
        1. Any materials spilled or sprayed will be cleaned up at the Contractor's expense to the satisfaction of the Owner's Representative.
     3. Protection of Existing Features
        1. Protect existing utilities, paving, irrigation systems, and other facilities from damage caused by grading and soil preparation operations.

**END OF SECTION**

## SECTION 029220

### TURF BY SODDING

1. **GENERAL** 
   1. summary
      1. This section covers work necessary for installing the turf areas using sod as indicated on the Construction Documents and details in accordance with the Contract Documents.
   2. DESCRIPTION OF WORK
      1. The work shall include, but is not limited to, supply all sod, labor, material procurement, equipment, tools, transportation protection, and services required for complete installation of the turf areas as indicated or reasonably implied on the Construction Documents and/or specified herein.
      2. Contractor shall retain a copy of the Construction Documents on the project site until final project acceptance.
      3. If any discrepancies exist between the plans and the specifications, the specifications will prevail.
      4. Contractor shall be responsible for obtaining all necessary permits required for installation of landscape.
   3. related sections
      1. Section 013300 – Submittal Process
      2. Section 029005 - General Landscape
      3. Section 029100 - Landscape Establishment and Maintenance
      4. Section 029140 - Fine Grading and Soil Preparation
   4. REFERENCES
      1. Reference Standards: U.S. Department of Agriculture Rules and Regulations under Federal Seed Act and equal in quality to standards for Certified Seed.
   5. SUBMITTALS
      1. Section 013300 – Submittal Process
      2. Section 029005 - General Landscape
      3. Soil Test Reports
         1. Submit Certificate of Analysis for all horticultural soil testing as specified by the Owner’s Representative and as specified herein.
   6. QUALITY ASSURANCE
      1. Qualifications
         1. The Contractor shall provide, upon request of the Owner’s Representative, past performance data indicating that equipment and procedure are suitable.
      2. Equipment and Procedure Approval
         1. The Owner’s Representative has the final approval as to equipment and procedure.
      3. Rejection of Work
         1. Any turf area that fails to produce, in the opinion of the Owner’s Representative, shall be rejected and reinstalled at no cost to the Owner.
         2. Any method of installation or use of materials not in conformance with these specifications shall be reinstalled, repaired or removed as directed by the Owner’s Representative at no additional cost to the Owner.
      4. Soils Testing
         1. The cost of testing shall be the responsibility of the Contractor.
         2. Results of the testing shall be submitted to the Owner’s Representative.
         3. Soil Test Reports
            1. Submit soils report for all horticultural soil testing as specified herein to the Owner’s Representative.
            2. Soil report must include the following: complete fertility analysis (major nutrients and micronutrients copper, zinc, manganese and iron), pH, reverse lime analysis, calcium, magnesium, boron, sodium, potassium, exchangeable (plus soluble) sodium percentage, free lime, nitrate, nitrogen, phosphate, phosphorous, organic content, salts, salinity level by electro-conductivity, plasticity index and particle size gradation, and texture.
         4. Soils Testing Agency
            1. Soil tests and analyses shall be performed by an approved independent certified agricultural soils testing laboratory.
            2. The laboratory shall be responsible for determining the number, location and collection of the soil samples for testing.
            3. The test results shall determine the acceptability of the soils.
            4. The testing laboratory shall suggest ways to amend soil to make it suitable to grow plants.
         5. Soil Percolation Testing
            1. A test for percolation will be done to determine positive drainage of plant pits and beds.
            2. The Owner's Representative will be notified, in writing, of all soil and drainage conditions detrimental to growth of plant material and will submit a proposal for correcting the condition.
      5. Documentation of Sod Availability
         1. Contractor is responsible for documenting and verification of the availability of the sod within thirty (30) days of the award of contract.
         2. Submit written documentation to the Owner's Representative within 30 days after contract award for review and approval showing that the sod is available and secured in a wholesale nursery.
         3. Documentation will specify the following:
            1. Plant quantities and sizes
            2. Nursery name
            3. Contact person
            4. Phone number
            5. Location of nursery
         4. This verification will serve as proof of availability for the sod.
      6. Sod Materials
         1. Subject to inspection and acceptance. The Owner’s Representative reserves the right to reject at any time or place prior to acceptance, any work and sod which in the Owner’s Representative's opinion fails to meet these specification requirements. Rejected sod will be promptly removed from site.
      7. Inspection
         1. Primarily for quality; however, other requirements are not waived even though visual inspection results in acceptance. Notify the Owner’s Representative of intended sod farm prior to cutting for inspection. Inspection at growth site shall not preclude the right of rejection at project site.
         2. Inspection shall be made periodically during sodding, at completion and at end of Warranty Period by the Owner’s Representative.
         3. Inspection shall be scheduled prior to sodding. The Owner’s Representative shall inspect finish grades on which sod will be laid. This inspection does not dismiss the Contractor’s responsibility for creating positive drainage across the landscaped areas.
      8. Sod Standards
         1. General - Healthy, thick turf having undergone a program of regular fertilization, mowing and weed control; free of objectionable weeds; uniform in green color, leaf texture and density; healthy, vigorous root system; inspected and found free of disease, nematodes, pests and pest larvae by the entomologist of the State Department of Agriculture.
         2. Each piece of Sod - Sandy-loam soil base that will not break, crumble or tear during sod installation.
         3. Thickness – one half (1/2) inch minimum root zone thickness.
         4. Thatch - Not to exceed one half (1/2) inch uncompressed.
         5. Size – Large rolls, forty two (42) inches wide x one hundred and five (105) feet long, approximately four hundred (400) square feet in size, shall be installed as often as possible, cut no more than twenty four (24) hours prior to delivery. Small size sixteen (16) inches x seventy two (72) inches may be used in areas where large rolls cannot be laid, cut in strips twenty four (24) inches wide no more than twenty four (24) hours prior to delivery.
   7. DELIVERY, STORAGE AND HANDLING
      1. General
         1. Refer to Section 029005 - General Landscape
      2. Packing and Shipping
         1. Deliver on large sod on rolls small sod rolls on pallets, properly loaded on vehicles and with root system protected from exposure to sun, wind, and heat in accordance with standard practice and labeled with botanical and common name of each grass species in accordance with Federal Seed Act.
         2. Protect sod from dehydration, contamination and heating at all times. Keep stored sod moist and under shade or covered with moistened burlap.
         3. Do not drop sod rolls from carts, trucks or pallets.
      3. Acceptance at Site
         1. Material shall be inspected upon arrival at job site.
         2. Immediately remove unacceptable material from job site.
      4. Storage and Protection
         1. Do not stack sod more than two (2) feet deep.
         2. Do not deliver more sod than can be installed within twenty four (24) hours. Storage is not recommended.
   8. PROJECT/SITE CONDITIONS
      1. Environmental Requirements:
         1. Do not install sod on saturated or frozen soil unless otherwise directed by the Owner’s Representative.
         2. Comply with all local and state regulations for dust control.
      2. Existing Conditions
         1. Import and place any fill material required to adjust the fine grade to meet drainage requirements or to match hard surface fine grades, or as indicated on plans (e.g.: one and one half (1-1/2) inches lower than adjacent concrete paving).
         2. Vehicular accessibility on-site shall be as directed by the Owner’s Representative. Repair damage to prepared grounds and surfaces caused by vehicular movement during work under this Section to original condition at no additional cost to Owner.
   9. WARRANTY
      1. Warranty sod for a period of one year from date of Substantial Completion is in a healthy, vigorous growing condition.
      2. During the original Warranty Period, replace at once sod areas that die due to natural causes, etc., or which in the Owner’s Representative's opinions are unhealthy.
      3. Replacement will not be required in any season definitely unfavorable for sodding.
      4. Install replacements as originally specified and warranted.
2. **PRODUCTS**
   1. Sod
      1. See Plans for Sod Type
   2. Soil Amendments
      1. Compost
         1. 1. A totally organic product that has been aerobically and naturally processed without the addition of coarse wood chips, in such a manner as to maintain a consistent temperature of 140 degrees Fahrenheit or greater for a period of time sufficient to create the following characteristics, measured by dry weight.
            1. Moisture content of 30%-35%
            2. Organic matter to nitrogen ratio: 25:1 to 30:1.
            3. pH: 6.0 to 8.0 pH.
            4. Salts: maximum of 10 mmhos/cm.
            5. Less than 1% soil, dirt or sand.
            6. Maximum particle size of 1/2 inch diameter.
            7. Eradication of all harmful weed seeds, pathogens and bacteria.
      2. Sand
         1. Sand will be washed masonry sand.
      3. Fertilizer
         1. Ammonium Sulfate
            1. Chemical fertilizer will be standard commercial fertilizer, suitable for application with approved equipment, containing the minimum analysis and in the physical form of 21-0-0 at an application rate of 5 pounds of product per 1000 square feet.
            2. Chemical fertilizer will be furnished in standard containers with the name, weight, and guaranteed analysis of the contents clearly marked.
         2. Gypsum
            1. Agricultural grade gypsum product, commercially packaged and free flowing, and containing a minimum of ninety five percent (95%) calcium sulfate by volume.
   3. Equipment

Equipment used shall be consistent with industry standards and approved by Owner’s Representative prior to installation.

1. **EXECUTION**
   1. EXAMINATION
      1. General
         1. Verify that existing site conditions are as specified and indicated before beginning work under this section.
         2. The planting of turf grass shall not commence until the soil preparation has been completed.
         3. The planting of turf grass shall not commence until the irrigation system in the area to be planted has been installed, made fully operational, and has been approved by the Owner’s Representative.
      2. Layout
         1. Verify layout of sodded areas as indicated on Construction Documents and Civil Engineering Plans prior to starting operations.
      3. Grades
         1. The Contractor shall be responsible for the coordination and installation of all grade stakes for the layout and grading as shown on the Construction Documents including the Civil Engineering Plans. All grades and stakes shall be set by an Arizona Registered Land Surveyor including a 20’ x 20’ grid for multi-use turf area.
         2. The finish grade shall be uniform and set to the grades indicated on the grade stakes set in the topsoil for the new sod areas and shall be approved by the Owner’s Representative for approval prior to the installation of the sod.
         3. Do not deliver sod to the site until the finish grade has been approved by the Owner’s Representative.
         4. Verify that grades are within 0.2 ft. of grades indicated and specified.
      4. Unsatisfactory Conditions
         1. Report in writing to Contractor with copy to the Owner’s Representative.
         2. Beginning of installation means acceptance of existing conditions by the Contractor.
   2. schedule and locations
      1. Scheduling
         1. Perform sodding only after other work affecting the areas to receive sod is complete.
         2. The Owner’s Representative, in conjunction with the Contractor, will establish exact dates to begin sod installation.
         3. The Owner’s Representative, in conjunction with the Contractor, may adjust the schedule of sod installation, until conditions are suitable.
      2. Locations
         1. Install areas as shown on the Construction Documents and Civil Engineering Plans.
         2. Sod installation shall not be performed outside the limits of the project or as shown on the Construction Documents and Civil Engineering Plans.
   3. PREPARATION
      1. Protection
         1. Identify prepared sod areas requiring protection and erect barriers for proper protection and traffic control.
         2. Any damage to sodded areas, either accidental or otherwise, by the Contractor or sub-contractors shall be repaired by the Contractor to the satisfaction of the Owner’s Representative at no additional cost to the Owner.
      2. Sod Installation
         1. The responsibility for all preparation will be by the Contractor.
      3. Subgrade Preparation
         1. For areas to be sodded, at the time of planting, the top six (6) inches will be free of stones, stumps, or other deleterious matter three (3) inches in diameter or larger, and free from all wire, plaster, concrete, rubble, or similar objects which would hinder planting, maintenance, or sod growth.
         2. Dispose of accumulated debris off-site in approved legal dump site, or in an on-site location pre-approved by the Owner’s Representative.
         3. Ripping and Loosening Soil
            1. Prior to irrigation installation, scarify and rip areas to receive sod to a minimum depth of twelve inches (12”) below rough grade to loosen compacted soil.
            2. Cross rip using a minimum of two (2) perpendicular passes.
         4. Ripping of Soils with Shallow Caliche or other Adverse Soil Conditions
            1. When noted on Project Plans, areas with shallow caliche or other adverse conditions shall be ripped to a minimum depth of eighteen (18) inches or to the depth noted herein, whichever is greater.
            2. The equipment used to scarify these areas shall have teeth with spacing of not more than eighteen (18) inches on-center. If a single ripping bar is used, passes shall be made eighteen (18) inches on-center.
            3. After ripping, the area shall be graded to the lines and grades shown or noted on the Construction Documents and Civil Engineering Plans.
      4. Soil Amendments
         1. For areas to be sodded, after approximate finish grades have been established, add three (3) cubic yards of specified compost per 1,000 sq. feet of sod area.
         2. Soil conditioning and fertilizers will be added as determined by soils testing. As a general guideline, the following rates shall be utilized.
            1. Fertilizer – Ammonium Sulfate (21-0-0) 2.5 lbs. per 1000 ft2
            2. Gypsum 60 lbs. per 1000 ft2
            3. Specified Compost 3.0 c.y. per 1000 ft2
            4. Sand 1.0 c.y. per 1000 ft2
         3. All amendments shall be uniformly spread and cultivated into the top six (6) inches of soil by means of a mechanical tiller.
      5. Fine Grading and Repair
         1. Carefully smooth all surfaces to be sodded and roll areas to eliminate soil depressions and surface irregularities.
         2. Re-establish grade and specified conditions to damaged sod areas prior to placing sod.
         3. Re-grade as required.
         4. All rocks with a dimension of one half (1/2) inch or larger shall be removed from the soil surface. Rock removal shall be repeated after the irrigation system has been made operational and the initial irrigation cycles conducted.
         5. All foreign, deleterious materials and rocks and clods one half inch (1/2) in diameter or greater in the top six inches (6) of the soil will be removed from the site and disposed of appropriately.
         6. Grading of Turf Grass Fields:
            1. The finished grades in all turf grass athletic fields shall be established using laser leveling techniques.
         7. Surface Tolerances:
            1. The finished grades in turf grass areas shall be within plus or minus 1/10 of a foot of the grades noted on the Civil Engineering Plans or interpolated from the contours shown on the drawings. Within the field areas the surface shall not vary more than 3/4 inch from the bottom surface of a ten (10) foot straightedge when the straightedge is laid on the prepared soil surface.
         8. Settling- Thoroughly water settle soil for two (2) to four (4) days before final grading.
         9. The Owner’s Representative will review and approve areas designated to receive stolons for finished grading and proper site drainage before the start of hydrostolon installation.
      6. Smoothing
         1. Plow, disk or till all areas to a minimum depth of six (6) inches to break up large clods or fill voids.
         2. Drag rake turf areas.
         3. Establish grade at walls, walks and curbs per details.
      7. Drainage
         1. Ensure finished areas of hydrostolonized turf are such that positive drainage of storm and irrigation water will occur and ponding of water will be minimized.
      8. Weeding
         1. If the area to be developed is infested with noxious or invasive weeds, a chemical application will be required, at a rate recommended on the chemical’s product label.
      9. General Irrigation System Requirements
         1. The irrigation system shall be fully operational and approved by the Owner’s Representative prior to starting sod installation.
         2. Adjust irrigation heads for proper coverage and to minimize spray outside of turf area prior to the installation of sod.
         3. Locate, protect and maintain the irrigation system during sod installations.
         4. Repair irrigation system components damaged during sod installation at the Contractor’s expense.
      10. Adjustment
          1. Adjust irrigation heads to proper watering height according to depth of sod material but lower than compacted blade height to enable lawn mowers to cut grass freely without damage to the sprinkler system.
      11. Refer to maintenance portion of this section.
   4. Installation
      1. Finish Grade

Finish grade will be as per Construction Documents and Civil Engineering Plans.

* + 1. Laying Sod
  1. SODDING
     1. Sodding
        1. Soil on which sod is laid shall be slightly moist.
        2. Lay with longest dimension parallel to contours and in continuous rows.
        3. Tightly butt ends and sides of sod together. Stagger and compact vertical joints between sod strips by rolling so sod will be incorporated with the ground surface, insuring tight joints between adjacent pieces.
     2. Rolling
        1. When soil and sod are moist, roll sod lightly as soon as possible after it is laid. Delay rolling until just before the second watering.
     3. Topsoil
        1. Add along exposed edges to match adjacent grade. Feather topsoil out approximately one (1) ft. from edge of sod.
     4. Drainage
        1. Ensure finished areas of sod are such that positive drainage of storm and irrigation water will occur and ponding of water will be minimized.
  2. REPAIR OF EXISTING SOD AREAS DISTURBED BY RENOVATION
     1. Repair existing sod areas disturbed by renovation work (utilities, paving, etc.), in accordance with these Specifications and Construction Documents to satisfaction of the Owner’s Representative.
     2. Add washed masonry sand and re-sod as necessary to eliminate tire ruts and other depressions.
  3. MAINTENANCE
     1. Mowing
        1. The mower blades or reels shall be sharpened and maintained to provide a smooth, even cut without tearing. The result shall be a uniform, level cut without ridges or depressions. Variations of weather from season to season may require additional or fewer mowings. Clippings need not be collected unless thatch build-up becomes a problem. Use mowers of proper size to mow difficult areas. Do not use heavy mower in areas prone to rutting. Do not leave tire marks on sidewalk.
        2. Mow all turf areas during the growing season at an approximate height of one and one eighth inch (1-1/8) inch. Mowing shall be performed so that no more than one-third (1/3) of the grass blade is removed during each mowing in returning the grass to the accepted height, or one (1) time per week, whichever is more frequent. Mowing shall not be delayed until grass blades bend over and become matted. Remove grass clippings from pavement areas.
        3. Mowing shall not be done when grass is wet.
        4. Perform all mowing with equipment suitable for the type of turf.
        5. Dispose of all clippings off-site in a legal manner, as necessary.
        6. If Final Acceptance of area is more than fourteen (14) days after sod was laid, the Contractor shall mow all turf with in the forty-eight (48) hours prior to the final walk through.
     2. Trimming
        1. Trim all turf areas inaccessible to mowers after each mowing. Trim to match the height of the open turf areas. Protect trees and shrubs from damage caused by trim lines. Replace all plant material killed or seriously injured by trim lines. Replace with plants of equal or better size and quality at no cost to the Owner. Seriously injured is defined as when thirty percent (30%) or greater of the cambium layer of the trunk circumference has been removed by trim lines or when shrubs have been seriously deformed (in the Owner's Representative’s opinion).
        2. Protect fences, buildings, and other structures from damage caused by mowers or trim lines.
        3. Dispose of all clippings off-site.
     3. Edging
        1. Edge irrigated turf areas only along all walks and curbs, using a steel bladed edger. Remove debris created by edging. Sweep walks and gutters to remove debris and provide a clean site.
        2. Dispose of all clippings off-site in a legal manner.
     4. Weed Control
        1. All irrigated and non-irrigated areas shall be kept free of weeds. Weeding shall be done manually or by the use of a selective herbicide. The Contractor shall replace any desirable plants damaged as a result of his spraying.
        2. Control broadleaf weeds with selective contact herbicides in spring, and spot control as needed throughout the summer. Application of pre-emergence herbicide to control grassy weeds is not included. If needed for a known weed problem, notify the Owner’s Representative and furnish a price for applying the appropriate material.
        3. Spray and remove all weeds growing in hard surface areas, such as between concrete gutters and sidewalks.
        4. Protect all ornamental trees, shrubs, and ground covers from overspray.
        5. Conform to legal requirements, the Owner Representative's requirements and manufacturer's recommendations. Submit all Material Safety Data Sheet (MSDS) to the Owner’s Representative for approval prior to application.
     5. Fertilization
        1. Fertilization shall be conducted according to the following schedule:
           1. Week 2 application of 20-5-10-1% Fe 25% SCU at the rate of 5 lbs. per 1,000 sq. ft. for 1 lb. Actual Nitrogen per 1,000 sq. ft. Thoroughly sweep curb, gutter, and walks after application of fertilizer and prior to irrigating. Do not apply fertilizer during rainfall or when rainfall is imminent. Protect all concrete from iron spots due to fertilizer.
           2. Week 6 application of 24-6-12-3% Fe 40% SCU at the rate of 5 lbs. per 1,000 sq. ft. for 1 lb. Actual Nitrogen per 1,000 sq. ft. Thoroughly sweep curb, gutter, and walks after application of fertilizer and prior to irrigating. Do not apply fertilizer during rainfall or when rainfall is imminent. Protect all concrete from iron spots due to fertilizer. This application will consist of:

40% SCU slow release

60% Urea Nitrogen

8% Sulfate Sulfur

3% Iron

Trace element forms Zinc, Copper, Boron, and Manganese

* + 1. Subsequent Fertilizer Application
       1. Eight (8) to ten (10) weeks after the installation of sod the sports field turf and every forty five (45) days thereafter until Final Acceptance of project by the Owner’s Representative, apply 1 lb. of nitrogen or 5 lbs. of fertilizer material per 1,000 sq. ft. using 20-10-5 with 50% sulfur coated urea to all sod and sports field turf seed areas.
    2. General
       1. The maintenance shall begin immediately after each area is sodded and continue until Final Acceptance of entire project. During this time, the Contractor shall be responsible for watering, mowing, spraying, weeding, aerating, fertilizing, and all related work as necessary to ensure that sodded areas are in vigorous growing condition. Contractor shall furnish all supervision, labor, material and equipment to maintain turf areas.
       2. Activities and tasks associated with general maintenance shall include, but not be limited to:
          1. Daily inspection of the site to check on-site conditions and to perform remedial activities required to correct safety deficiencies and/or to address field conditions impacting the health of the turf and landscape plantings.
          2. Weekly mowing of all turf areas.
          3. Weekly removal of surface rocks larger than one (1) inch from all turf areas.
          4. Weekly repair of surface irregularities within all turf areas.
          5. As-specified re-fertilization of turf areas.
          6. As-needed application of horticultural chemicals to control diseases and pests.
          7. As-needed repair of erosion.
          8. As-needed clean-up.
    3. Watering
       1. Contractor shall know, understand, and abide by all local water restrictions, if applicable.
       2. Contractor will be held responsible for any fines received for violating any watering restrictions in effect, if applicable.
       3. The Contractor shall attempt to provide the minimum water necessary to maintain irrigated landscape areas, especially in times of drought and during summer months. The Owner’s Representative will determine what appropriate level of distress is acceptable on turf areas.
       4. Initial Irrigation.
          1. Water sod sufficiently to moisten subsoil to a depth of at least four (4) inches, in a manner not to cause erosion or damage to adjacent finished surfaces for a number of repeat cycles to prevent sod from drying out until rooting develops. Water shall be free of substances harmful to plant growth. The Contractor shall be responsible for furnishing water from underground sprinkler system.
       5. Subsequent Irrigation.
          1. Thoroughly water the completed lawn surfaces, moistening soil at least eight (8) inches deep every second day, or at other appropriate interval, until Final Acceptance of the work.
          2. Repeat sprinkling at regular intervals to keep sod moist at all times until rooted.
          3. After sod is established, decrease the frequency and increase amount of water per application as necessary.
          4. The amount of water and the frequency at which it is applied shall be reduced during winter months.
          5. Run-off, puddling, and wilting shall be prevented.
    4. Re-sodding
       1. Re-sod spots larger than nine (9) inches square and not having healthy, uniform stand of grass.
    5. Insect and Disease Control:
       1. As required, using insecticides and fungicides approved by Owner’s Representative.
  1. NOTIFICATION OF INSPECTION
     1. Notification
        1. Give notice requesting inspection by the Owner’s Representative at least seven (7) calendar days prior to the anticipated date of completion. All sod must be healthy and significantly rooted in place in order to be considered complete.
     2. Deficiencies
        1. If deficiencies exist, the Owner’s Representative shall specify such deficiencies to the Contractor who shall make satisfactory adjustments and will again notify the Owner’s Representative for final inspection.
  2. CLEANING
     1. Remove pallets, unused sod, and other debris from site. Clean paved and finished surfaces soiled as a result of work under this Section in accordance with directions given by Owner’s Representative. Clean out drainage inlet structures.
  3. PROTECTION
     1. Provide and install barriers as required and as directed by Owner’s Representative, or as needed, to protect sodded areas against damage form pedestrian and vehicular traffic until acceptance by Owner’s Representative. Contractor is responsible for malicious destruction of sodding caused by others until Final Acceptance (not including Warranty Period).

**END OF SECTION**

## SECTION 029230

### HYDROSEEDING WITH NATIVE SEED

1. **GENERAL** 
   1. summary
      1. This section covers work necessary for installing the hydroseeding by native seed areas as indicated on the Construction Documents and details in accordance with the Contract Documents.
   2. DESCRIPTION OF WORK
      1. The Contractor shall supply all material and labor necessary for seeding of non-irrigated native seed mix, in the areas shown on plans. The work shall include, but is not limited to, all labor, material procurement, equipment, tools, transportation, and services required for complete installation of a native seed mulch mixture as indicated or reasonably implied on the Construction Documents and/or specified herein.
      2. The Contractor will be expected to ensure that native plants are established or germinating consistent with seasonal temperatures and precipitation by the end of the one (1) year Establishment Period.
      3. The Contractor shall ensure that seeded areas are free from erosion and displacement of soil material.
      4. Areas where seed and mulch have been displaced shall be reseeded and remulched.
      5. Contractor shall retain a copy of the Construction Documents on the project site until final project acceptance.
      6. If any discrepancies exist between the plans and the specifications, the specifications will prevail.
      7. Contractor shall be responsible for obtaining all necessary permits required for installation of landscape.
   3. REFERENCES
      1. Reference Standards: Comply with U.S. Department of Agriculture Rules and Regulations under Federal Seed Act and be equal in quality to standards for Certified Seed.
      2. Hydroseeding shall be per the Pima Association of Governments Standard Specifications for Public Improvements 2015 Edition.
      3. Section 02900 – General Landscape
      4. Section 029100 – Landscape Establishment and Maintenance
      5. Section 029140 – Fine Grading and Soil Preparation
   4. SUBMITTALS
      1. Section 013300 – Submittals
      2. Section 02900 – General Landscape
      3. Seed Procurement
         1. Contractor will provide written documentation verifying the species, quantity and source of all seed to the Owner’s Representative.
         2. Documentation to include name and telephone number of seed source.
   5. system description
      1. Performance Requirements
         1. Non-irrigated Native Seeded Areas
            1. This includes all areas within the limits of work that are recently seeded, and do not receive supplemental watering. Contractor should monitor these areas on a regular basis for the presence of weeds. Areas will require individual attention and separate maintenance schedules, thus the Contractor is responsible for developing and sustaining a weed-free, lush stand of native plant material per the 2.01 B. Manual methods should be implemented to prevent the spread of weeds. Contractor will be expected to re-seed or over-seed areas as bare spots develop.
   6. QUALITY ASSURANCE
      1. Section 02900 – General Landscape
      2. Qualifications
         1. The Contractor will provide, upon request of the Owner's Representative, past performance data indicating that equipment and procedure are suitable.
      3. Equipment and Procedure Approval
         1. The Owner's Representative has final approval as to equipment and procedure for the hydroseeding process.
      4. Inspections
         1. The Contractor will notify the Owner's Representative at least two (2) days prior to commencing seeding operations for inspection of the materials at the off-site location.
         2. At this time if it is determined by the Contractor that the temporary chain link construction fencing is obstructing the hydroseeding operation the Contractor shall propose an alternate location for the fencing keeping in mind the site must be secured at all times.
         3. The Contractor shall be responsible for the establishment of seeded areas (naturalized areas). After a period of two years there should be 70% of background density.
      5. Rejection of Work
         1. Any native seed mix area that fails to produce, in the opinion of the Owner's Representative, will be rejected and reinstalled at no cost to the Owner.
         2. Any method of installation or use of materials not in conformance with these specifications will be reinstalled, repaired or removed as directed by the Owner's Representative at no additional cost to the Owner.
   7. delivery, storage, and handling
      1. Comply with Sections 029005
      2. Deliver seed in sealed standard containers stating correct name and composition on the outside of the container and as per Sub-Section 2.01 MATERIALS, A. General Requirements. Seed damaged in transit or storage will not be accepted and removed from the site immediately.
   8. PROJECT/SITE CONDITIONS
      1. Existing Conditions
         1. Vehicular accessibility on-site shall be as directed by Owner’s Representative. Repair damage to prepared ground and surfaces caused by vehicular movement during work under this Section to original condition at no additional cost to Owner.
         2. Do not spray directly on or adjacent to temporary chain link construction fencing or any other improvement as prescribed in the Construction Documents.
         3. If it is determined by the Contractor that the temporary chain link construction fencing is obstructing seeding operations it must be relocated to allow for seeding operations to commence. The site must remain secure at all times therefore the location of temporary chain link construction fencing must be approved by the Owner’s Representative prior to its relocation.
      2. Environmental Conditions
         1. Do not seed during windy weather or when ground is un-tillable.
   9. Warranty
      1. At completion of work, furnish written warranty to Owner’s Representative based upon requirements as specified herein.
   10. MAINTENANCE
       1. The interim maintenance period shall begin immediately after each area is seeded and continue until substantial completion of entire project. Final Acceptance of seeded areas will not be given until Owner’s Representative is satisfied with germination and that the entire seeded area is in a vigorous growing condition, with consistency and completion of coverage. During this time, Contractor shall be responsible for weeding, fertilizing and all related work as necessary to ensure that seeded areas are in a vigorous growing condition. Provide all supervision, labor, material and equipment to maintain seeded areas.
   11. standards for Final Acceptance
       1. Surfacing is free from erosion and displacement of material.
       2. The finished grade of surfacing material has been maintained and the surface has been raked to provide neat and clean appearance.
       3. The reveal where the surfacing material abuts paved surfaces has been maintained or re-established as detailed or noted on Construction Documents and Civil Engineering Plans.
       4. Surfacing is free of weeds, turf grass, and other plants except as shown noted on plans.
2. **products**
   1. Materials
      1. General Requirements
         1. The species, variety, and strain of seed (designated elsewhere herein as contract-specified seed) shall be as shown on the Construction Documents or as specified herein. The contract‑specified seed shall be obtained from seed suppliers through harvesting of wildland collections, or field-grown seeds grown prior to or during the Contract Period.
         2. The seed shall be delivered to the project site premixed in standard, sealed, undamaged containers for each seed species. Each container shall be labeled in accordance with the appropriate provisions of the Arizona Revised Statues and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Labels shall indicate the variety or strain of seed, the percentage of germination, purity and weed content, the date of analysis which shall not be more than nine months prior to the delivery date, and testing information. A Certificate of Analysis from an accredited seed-testing laboratory shall accompany each container of seed.
         3. Unless otherwise approved by the Owner’s Representative, weed content of the contract-specified seed mix shall not exceed 0.5 percent.
         4. The Contractor shall provide all seed tag labels to the Owner’s Representative. No payment will be made for seed unless tag labels from all seed to be used on the project have been submitted as specified.
         5. The Contractor shall store seed under dry conditions, at temperatures of between 35 °F and 120 °F, and out of direct sunlight. Prior to using the seed, the Contractor shall provide a certification letter to the Engineer that the seed was stored as specified herein.
         6. Legume seed shall be inoculated with appropriate bacteria cultures approved by the Owner’s Representative, in accordance with the culture manufacturer’s instructions.
         7. Tetrazolium staining shall be acceptable to test for germination and hard seed. Cut or fill testing will not be allowed. As directed by the Owner’s Representative, seeds with a expiration date past the acceptable test date or not meeting the specified conditions for storage shall be retested by the Contractor. The Owner’s Representative may perform random sampling of seeds throughout the project. Mixing of the specified seed at the project site shall be under the supervision of the Owner’s Representative.
         8. Application rates of seed as specified are for Pure Live Seed (PLS). PLS is determined by multiplying the sum of the percent germination of seeds, including hard or dormant seeds, by the percent purity.
      2. Native Seed Mix
         1. The native seed mix will consist of seeds from the following species and application rate:

Scientific Name Common Name PLS Pounds per Acre

Ambrosia deltoidea Triangleleaf Bursage 1.0

Ambrosia dumosa White Bursage 1.0

Aristida purpurea Purple Three-Awn 0.75

Asclepias subulata Milkweed 1.0

Baileya multiradiata Desert Marigold 1.0

Encelia farinosa Brittlebush 2.0

Eschscholtzia mexicana Mexican Gold Poppy 1.0

Larrea Iridentata Creosote Bush 1.0

Lesquerella gordonii Gordon Bladder Pod 1.0

Lupinus sparsiflorus Desert Lupine 1.0

Penstemon eatonii Firecracker Penstemon 0.5

Phacelia crenulate Desert Bluebells 1.5

Plantago ovata Desert Indian Wheat 0.5

Salvia columbariae Desert Chia 0.5

Sphaeralcea ambigua Globe Mallow 1.0

Sporobolus cryptandrus Sand Dropseed 0.1

Total 14.85 lbs/acre

* + - 1. The seed source will be from elevations below three thousand (3,000) feet.
      2. The seed will be delivered to the project site in standard, sealed, undamaged containers.
      3. Each container will be labeled in accordance with Arizona Revised Statutes and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act.
      4. Labels will indicate the following:
         1. Variety or strain of seed.
         2. The percentage of germination (pure live seed only).
         3. Purity and weed content.
         4. The date of analysis (not more than nine months before the delivery date).
      5. Weed content of seed will not exceed 0.5 percent.
    1. Tackifier
       1. Tacking agent shall be a naturally occurring organic compound and be non toxic.
       2. It shall be a product typically used for binding soil and mulch in seeding or erosion control operations. Approved types shall consist of mucilage or gum by dry weight as active ingredient obtained from guar or plantago.
       3. The tacking agent shall be labeled indicating the type and mucilage purity.
       4. The Contractor shall have the tacking agent swell volume tested by an approved testing laboratory using the USP method.
       5. The standard swell volume shall be considered at thirty (30) milliliters per gram. Material shall have a swell volume of at least twenty four (24) milliliters per gram.
       6. Certified laboratory test results shall be furnished to the Owner’s Representative for each shipment of homogenous consistency to be used on project areas or as directed by the Owner’s Representative.
       7. Tacking agent rates shall be adjusted to compensate for swell volume variation. Material tested with lesser volume shall have the tacking agent rate increased by the same percentage of decrease in swell volume from the standard thirty (30) milliliters per gram. Material tested with greater volume may reduce tacking agent rates by the same percentage of increase in swell volume from the standard 30 milliliters per gram.
       8. Tacking agent shall be pure material without other starches, bentonite, or other compounds that would alter the swell volume test results of mucilage, or the effectiveness of the tacking.
    2. Wood Fiber Mulch
       1. The cellulose fiber will consist of at least ninety percent (90%) specially prepared virgin wood cellulose fiber, which has been thermo-mechanically processed, for specific use as hydromulch. It will contain no growth inhibiting factors and will have the following properties:

|  |  |
| --- | --- |
| Virgin Wood Cellulose Fiber | 90 % (minimum) |
| Recycled Cellulose Fiber | 10% (maximum) |
| Ash Content | 0.8% +/- 0.3% (maximum) |
| pH | 4.5 +/- 1.0 |
| Water Holding Capacity  ratio: water:fiber | 10:1 |

* + - 1. Cellulose fiber will be delivered in undamaged containers with product labeled and bearing the name of the manufacturer.
      2. Containers must show the air-dry weight content as the maximum being 12 percent (±3 percent at the time of manufacture) and with a pH range of 4.5 to 6.5.
      3. The fiber will be dyed green to allow visual monitoring during application.
      4. The dye will be non-injurious to plant growth.
    1. Amendments
       1. Chemical fertilizer will be furnished in standard containers with the name, weight, and guaranteed analysis of the contents clearly marked.
       2. Fertilizer shall be composed of a mixture of the following:
          1. One part Sulfur-Coated Urea (25-4-8). Chemical fertilizer will be standard commercial fertilizer, suitable for application with approved equipment and containing the minimum analysis and in the physical form of 25-4-8.

The sulfur-coated urea, a blended fertilizer 25-4-8, shall have 80 percent of the nitrogen defined as slow release, and contain 5 percent Iron, 10 percent sulfur and trace amounts of zinc and manganese.

* + - * 1. One part Monammonium Phosphate Fertilizer (11-52-0). Chemical fertilizer will be standard commercial fertilizer, suitable for application with approved equipment and containing the minimum analysis and in the physical form of 11-52-0.
        2. Methylene Urea. Methylene Urea will be a water insoluble form, suitable for application with approved equipment and containing the minimum analysis and in the physical form of 38-0-0.
        3. The resulting 24-18-2 chemical blended fertilizer, as specified herein, shall be applied at the rate of 200 pounds per acre.
        4. In addition to the fertilizer mixture, agricultural sulfur compounds, comprised of between 80 percent and 96 percent sulfur, shall be applied at the rate of 200 pounds per acre.
        5. This fertilizer is available premixed from:

Fertizona – Casa Grande, L.L.C., 2850 South Peart Road, Casa Grande, Arizona 85293, ph: (520) 836-7477, fax: (520) 836-3447. Contact Person is Larry McGee.

* + - 1. Compost

A totally organic product that has been aerobically and naturally processed without the addition of coarse wood chips, in such a manner as to maintain a consistent temperature of 140 degrees Fahrenheit or greater for a period of time sufficient to create the following characteristics, measured by dry weight.

* + - * 1. Moisture content of 30%-35%
        2. Organic matter to nitrogen ratio: 25:1 to 30:1.
        3. pH: 6.0 to 8.0 pH.
        4. Salts: maximum of 10 mmhos/cm.
        5. Less than 1% soil, dirt or sand.
        6. Maximum particle size of 1/2 inch diameter.
        7. Eradication of all harmful weed seeds, pathogens and bacteria.
    1. Water
       1. Water will be in sufficient quantity to form a homogeneous mixture capable of being applied by commercial hydromulching equipment.
       2. The water will be potable and free of oil, acid, salts or other substances harmful to plants.
  1. native seed mix installation equipment

The Contractor will use equipment that will successfully apply the native seed mix slurry and tackifier in a two step process.

* 1. Source Quality Control
     1. Inspection
        1. Primarily for quality; however, other requirements are not waived even though visual inspection results in acceptance.
        2. Inspection will be made periodically during seeding, at completion and at end of Warranty Period by Owner’s Representative.
        3. Seed material is subject to inspection and acceptance. Owner’s Representative reserves the right to reject at any time prior to acceptance, any work and/or seed which in Owner’s Representative's opinion fails to meet specification requirements.
     2. Testing Requirements
        1. Seed and seed labels shall conform to current State and Federal regulations and be subject to testing provisions of the Association of Official Seed Analysis and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act.
        2. The Owner’s Representative may require tests of seed verification at the Contractor’s expense.

1. **execution**
   1. EXAMINATION

Verify that existing site conditions are as specified and indicated before beginning work under this section.

* + 1. Layout / Location
       1. Verify layout of seeding areas as indicated prior to starting seeding operations.
       2. Native seed mix installation will not be performed outside the construction limits of the project unless damage from construction occurs off site. Off-site treatment will be at the direction of the Owner’s Representative.
    2. Rough Grading
       1. Inspect to verify that rough grading is within 0.2 foot of grades specified and indicated.
    3. Scheduling
       1. Perform native seed mix installation only after other work affecting the areas to receive seed mix is complete.
       2. The Owner’s Representative, in conjunction with the Contractor, will establish exact dates to begin native seed mix installation.
       3. Depending on the timing of the hydroseed operations as called out on the plans, in the contract documents and herein all areas of the site must be stabilized per the Arizona Department of Environmental Quality Approved Storm Water Pollution Prevention Plan (refer to Section 010000 Special Conditions Part 16 - Environmental herein).
    4. Unsatisfactory Conditions
       1. Report in writing to Contractor with a copy to the Owner’s Representative.
       2. Native seed mix installation will not be performed when wind would prevent uniform applications of materials or would carry materials outside designated areas.
       3. The Owner’s Representative, in conjunction with the Contractor, may adjust the schedule of native seed mix installation, until conditions are suitable.
    5. Acceptance

Beginning of installation means acceptance of existing conditions by this Contractor.

* 1. PREPARATION
     1. All preparation will be by the Contractor.
     2. Protection
        1. Be responsible for proper repair to landscape, utilities, fences, pavements and other site improvements damaged by operations under this Section.
        2. Pay for repairs made by Contractor(s) designated by Owner.
        3. Identify prepared seeding areas requiring protection and erect barriers for proper protection and traffic control.
     3. Erosion Control
        1. Take measures and furnish equipment and labor necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited materials on the site throughout the duration of work.
        2. All areas that are eroded shall be restored to the specified condition, grade and slope as directed before seeding.
     4. Seeding Areas
        1. Remove weeds, debris and rocks one half (1/2) inch in diameter or greater in the top six (6) inches of the soil which may binder seeding or subsequent operations.
        2. Dispose of accumulated debris at direction of Owner’s Representative.
     5. Fine Grading

Perform as required to maintain positive drainage, prevent ponding and direct run-off into catch basins, drainage structures, etc. and as required to provide smooth well-contoured surface prior to proceeding. Tolerance: + 0.04 foot.

* + 1. Soil Preparation
       1. Soil preparation in all native seed areas is critical to the success and establishment of the plant material. Contractor is to ensure that all areas receive proper and adequate soil preparation per this specification and industry standards.
       2. If the area to be developed is infested with noxious or invasive weeds, a chemical application will be required, at a rate recommended on the chemical’s product label.
       3. Ripping and Loosening Soil
          1. Prior to irrigation installation for adjacent planting area, prepare the areas to be seeded by using the appropriate equipment to rip and loosen the surface soil along the natural site contours to a minimum depth of four (4”) inches.
          2. Break up large clods and fill voids where required to produce a friable soil.
       4. Soil Amendments
          1. Incorporate a custom blend 24-18-2 fertilizer at 200 pounds per acre during the soil scarification process (ripping and loosening soil).
          2. Incorporate compost at a rate of 12 cu. yds. per acre during the soil scarification process (ripping and loosening soil).
    2. Pre-Installation Weed Control
       1. Contractor will take all precautions necessary to keep planting areas totally free from any grass or weeds before starting the hydromulch process.
       2. No pre-emergent herbicides will be applied to areas designated to receive hydromulch.
  1. Hydroseeding
     1. The hydromulch mixture will be applied in a two-step process.
        1. Step one - apply approved premixed seed mix at the rates called for in 2.01 B along with the wood cellular mulch at a rate of 200 pounds per acre and the high swell tackifier at a rate of 40 pounds per acre shall be applied in a slurry mix.
        2. Seed shall not be in the slurry for more than thirty (30) minutes.
        3. Step two (erosion control) apply Wood Fiber Mulch at the following rates based on the slope at which the mulch is being applied. See chart below:

|  |  |  |
| --- | --- | --- |
| **WOOD FIBER MULCH** | | |
| **Slope (H:V)** | **Tacking agent (Pounds pure mucilage per acre)** | **Wood Fiber Mulch**  **(Pounds per acre)** |
| Flat to 4:1 | 50 | 1,000 |
| From greater than 4:1  to 3:1 | 100 | 2,000 |
| From greater than 3:1 to 2:1 | 150 | 2,500 |
| Greater than 2:1 | 200 | 3,000 |
| Erosive Soil Slopes\* | 300 | 3,500 |
| \*As determined by Engineer | | |

* + 1. Slurry Mix Requirements
       1. Each mix will be thoroughly mixed a minimum of five minutes to make a homogenous slurry before starting the application.
    2. Time Limits
       1. The slurry will be applied within thirty (30) minutes after mixing with water.
  1. Reseeding

Areas shall be reseeded if they exhibit areas greater than the acceptable amounts noted in Part 1 of this Section. Reseeding shall occur continually during the Establishment Period.

* 1. EROSION CONTROL
     1. Apply erosion control netting to any area which is vulnerable to soil erosion such as swales or steep slopes.(2:1 or steeper slopes)
     2. If Contractor fails to net such areas and soil erosion subsequently occurs, Contractor shall re-establish finish grade, soil preparation, seed bed, and apply jute netting at his own expense.
     3. Erosion Control Netting
        1. Roll out in direction of flow after seeding and mulching.
        2. Apply material loosely and smoothly on soil surface without stretching.
        3. Avoid walking directly on seed-bed either before or after jute is applied.
        4. In cases where one roll of netting ends and second roll is needed, overlap up-channel piece over second roll by at least eighteen (18) inches. Where two or more widths of netting are applied side by side, make overlap of at least four (4) inches.
        5. Outside Edges of Netting
           1. Spread loose topsoil over edges to allow for smooth entry of water.
        6. Stapling
           1. Staple overlaps which run parallel to direction of flow in channel bottoms on two (2) foot intervals. Staple outside edges, centers and overlaps on banks on two (2) foot intervals.
        7. Each Width of Cloth
           1. Install row of staples down center as well as along each side.
           2. Staple check slots and junctions of new rolls across channel on six (6) inch intervals.
           3. On soft or sandy soil or in windy areas, apply staples in alternate slanting position and space at fourteen (14) inches to eighteen (18) inches.
           4. For extra hard soil or shale areas, use sharp hardened steel three (3) inch fence type staples. Do not use three (3) staples on normal turf.
  2. NOTIFICATION AND INSPECTION
     1. Inspection
        1. When germination is complete, and plants are visible, the Contractor shall notify the Owner’s Representative. Owner’s Representative shall be notified at least forty eight (48) hours prior to inspection. The inspection will be used to determine if the area is substantially complete and if the Warranty Period should commence.
        2. All washouts, thin, weak, or dead areas should be repaired prior to the inspection.
     2. Seeding Acceptance
        1. After application the Owner’s Representative has inspect the seeded areas or sub-areas for conformance to the contract requirements. The Contractor shall correct, to the satisfaction of the Owner’s Representative, any areas not conforming to the specifications. The 42-day maintenance period will begin upon acceptance of the area by the Owner’s Representative.
        2. The Contractor shall maintain and stabilize each area or sub-area, including shoulder build‑up areas, for a minimum period of forty two (42) calendar days (6 weeks) after application of the seeding and mulching materials, and acceptance by the Owner’s Representative unless otherwise required by the Arizona Department of Environmental Quality’s Storm Water Pollution Prevention Plan.
     3. Deficiencies
        1. Any areas damaged from erosion, or that has less than ninety percent (90%) of applied mulch remaining, shall be re-seeded, re-mulched, and re-tacked at no additional cost to the Owner.
        2. Owner’s Representative will specify deficiencies to Contractor who shall make satisfactory adjustments and shall again notify Owner’s Representative for final inspection.
  3. CLEANING
     1. Remove debris and excess materials from site. Clean paved and finished areas soiled as a result from work under this Section, in accordance with direction given by Owner’s Representative. Clean out drainage inlet structures.
     2. Remove mulch, from seeding operations, immediately from trees, shrubs and sod to prevent damage to same.
  4. PROTECTION
     1. Protection of Native Seed Mix Areas
        1. The Contractor will provide protective devices / barriers as required and as directed by Owner’s Representative or as required by the Arizona Department of Environmental Quality’s Storm Water Pollution Prevention Plan.
        2. The Contractor shall protect seeded areas from damage from pedestrian and vehicular traffic for forty two (42) calendar days (6 weeks). Contractor is responsible for malicious destruction of seeding caused by others.
        3. Repair and re-seed areas damaged by erosion or poor growth.
     2. Protection of Surfaces
        1. Any materials spilled or sprayed onto areas not indicated for hydroseed will be cleaned up at the Contractor’s expense to the satisfaction of the Owner’s Representative.
     3. Protection of Existing Features
        1. Protect existing utilities, paving, irrigation systems, and other facilities from damaged caused by hydromulch operations.

**END OF SECTION**

1. ¹ The “Unit Price” column shall indicate unit or lump sum prices for each bid item and shall be indicated in written and numerical form. [↑](#footnote-ref-1)
2. ² The “Item Total Costs” column shall indicate the extension of the unit prices, which is obtained by multiplying the “Estimated Quantity” column by the “Unit Price” column. [↑](#footnote-ref-2)
3. ¹ The “Unit Price” column shall indicate unit or lump sum prices for each bid item and shall be indicated in written and numerical form.

   ² The “Item Total Costs” column shall indicate the extension of the unit prices, which is obtained by multiplying the “Estimated Quantity” column by the “Unit Price” column.

   ³ The “Bid Total” amount shall be the sum of all costs listed in the “Item Total Costs” column. [↑](#footnote-ref-3)