FINAL AGENDA

REGULAR COUNCIL MEETING
TUESDAY
MARCH 5, 2019

COUNCIL CHAMBERS
211 WEST ASPEN AVENUE
4:30 P.M. AND 6:00 P.M.

4:30 P.M. MEETING

Individual Items on the 4:30 p.m. meeting agenda may be postponed to the 6:00 p.m. meeting.

1. CALL TO ORDER

NOTICE OF OPTION TO RECESS INTO EXECUTIVE SESSION

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the City Council and to the general public that, at this regular meeting, the City Council may vote to go into executive session, which will not be open to the public, for legal advice and discussion with the City's attorneys for legal advice on any item listed on the following agenda, pursuant to A.R.S. §38-431.03(A)(3).

2. ROLL CALL

NOTE: One or more Councilmembers may be in attendance telephonically or by other technological means.

MAYOR EVANS	
VICE MAYOR SHIMONI	COUNCILMEMBER ODEGAARD
COUNCILMEMBER ASLAN	COUNCILMEMBER SALAS
COUNCILMEMBER MCCARTHY	COUNCILMEMBER WHELAN

3. PLEDGE OF ALLEGIANCE AND MISSION STATEMENT

MISSION STATEMENT

The mission of the City of Flagstaff is to protect and enhance the quality of life for all.

4. PUBLIC PARTICIPATION

Public Participation enables the public to address the Council about an item that is not on the agenda. Comments relating to items that are on the agenda will be taken at the time that the item is discussed. If you wish to address the Council at tonight's meeting, please complete a comment card and submit it to the recording clerk as soon as possible. Your name will be called when it is your turn to speak. You may address the Council up to three times throughout the meeting, including comments made during Public Participation. Please limit your remarks to three minutes per item to allow everyone an opportunity to speak. At the discretion of the Chair, ten or more persons present at the meeting and wishing to speak may appoint a representative who may have no more than fifteen minutes to speak.

5. APPOINTMENTS

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the City Council and to the general public that the City Council may vote to go into executive session, which will not be open to the public, for the purpose of discussing or considering employment, assignment, appointment, promotion, demotion, dismissal, salaries, disciplining or resignation of a public officer, appointee, or employee of any public body...., pursuant to A.R.S. §38-431.03(A)(1).

A. **Consideration of Appointments:** Library Board.

STAFF RECOMMENDED ACTION:

Make one appointment to a term expiring November 2019.
Make two appointments to terms expiring November 2020.
Make one appointment to a term expiring November 2021.

B. **Consideration of Appointments:** Airport Commission.

STAFF RECOMMENDED ACTION:

Make two appointments to terms expiring October 2021.
Make one appointment to term expiring October 2019.

6. ROUTINE ITEMS

A. **Consideration and Approval:** Flagstaff Airport Air Carrier Incentive Policy

STAFF RECOMMENDED ACTION:

Approve the City of Flagstaff, Flagstaff Airport Air Carrier Incentive Policy

B. **Consideration and Approval of Contract:** Approve the Minimum Revenue Guarantee Agreement for air services between the City of Flagstaff and United Airlines.

STAFF RECOMMENDED ACTION:

Approve the Minimum Revenue Guarantee Agreement (MRG) with United Airlines for air services from the Flagstaff Airport (FLG).

C. **Consideration and Approval of Contract:** Lease Agreement with United Airlines

STAFF RECOMMENDED ACTION:

Approve Lease Agreement and authorize the City Manager to make any non-substantive changes to the Lease Agreement.

RECESS

6:00 P.M. MEETING

RECONVENE

NOTICE OF OPTION TO RECESS INTO EXECUTIVE SESSION

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the City Council and to the general public that, at this regular meeting, the City Council may vote to go into executive session, which will not be open to the public, for legal advice and discussion with the City's attorneys for legal advice on any item listed on the following agenda, pursuant to A.R.S. §38-431.03(A)(3).

7. ROLL CALL

NOTE: One or more Councilmembers may be in attendance telephonically or by other technological means.

MAYOR EVANS	
VICE MAYOR SHIMONI	COUNCILMEMBER ODEGAARD
COUNCILMEMBER ASLAN	COUNCILMEMBER SALAS
COUNCILMEMBER MCCARTHY	COUNCILMEMBER WHELAN

8. PLEDGE OF ALLEGIANCE

9. PUBLIC PARTICIPATION

10. CARRY OVER ITEMS FROM THE 4:30 P.M. AGENDA

11. REGULAR AGENDA

A. Consideration and Approval of Contract: City Court Facility Project - Award of Amendment #1 to the Design-Build Services Agreement #2018-63. This amendment contains the Guaranteed Maximum Price (GMP) #1 agreement for preliminary construction work.

STAFF RECOMMENDED ACTION:

1) Award the Design-Build Services Amendment GMP #1 to Kinney Construction Services, Inc. of Flagstaff Arizona in an amount not to exceed $1,518,175.00 with a 148 calendar-day contract period; and
2) Authorize the City Manager to execute the necessary documents.

B. **Consideration and Approval of Contract:** Approve the construction contract with PCL Construction, Inc. in the amount of $1,067,535.00 for the Wildcat Hill Water Reclamation Plant Digester Gas Conveyance System Improvements Project.

STAFF RECOMMENDED ACTION:

1. Approval of contract with PCL Construction, Inc.("Contractor") in the amount of $1,067,535.00, which includes a contract allowance of $50,835.00 and a contract time of 365 calendar days.
2. Authorize the City Manager to execute the necessary documents.

12. DISCUSSION ITEMS

A. **Active Transportation/FUTS Master Plans**

B. **Discussion/Direction:** Current Issues Before Arizona Legislature and Federal Issues.

13. COUNCIL LIAISON REPORTS

14. FUTURE AGENDA ITEM REQUESTS

After discussion and upon agreement by three members of the Council, an item will be moved to a regularly-scheduled Council meeting.

A. **Future Agenda Item Request (F.A.I.R.):** A request by Councilmember Whelan to place on a future agenda a discussion about continuing to communicate with the Arizona Board of Regents and invite them to a meeting or send a letter with our concerns about impact on our city.

B. **Future Agenda Item Request (F.A.I.R.):** A request by former Councilmember Putzova to place on a future agenda a discussion on changing the City's organizational structure to create a Sustainability division and elevate the function of the section.

15. INFORMATIONAL ITEMS AND REPORTS FROM COUNCIL AND STAFF, FUTURE AGENDA ITEM REQUESTS

16. ADJOURNMENT

CERTIFICATE OF POSTING OF NOTICE

The undersigned hereby certifies that a copy of the foregoing notice was duly posted at Flagstaff City Hall on _____, at _____ a.m./p.m. in accordance with the statement filed by the City Council with the City Clerk.

Dated this _____ day of _____, 2018.

_____
Stacy Saltzburg, MMC, City Clerk

5. A.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Stacy Fobar, Deputy City Clerk
Date:	02/27/2019
Meeting Date:	03/05/2019

TITLE:

Consideration of Appointments: Library Board.

STAFF RECOMMENDED ACTION:

Make one appointment to a term expiring November 2019.
Make two appointments to terms expiring November 2020.
Make one appointment to a term expiring November 2021.

Executive Summary:

The Flagstaff City-Coconino County Public Library Board consists of two County residents, four City residents, and one each non-voting member, or designee, of the City Council and the Board of Supervisors. The Library Board serves as a citizen's advisory board to the Library Director. There are currently four City resident vacancies and the Library Board is having difficulty establishing a quorum for meetings. It is important to fill vacancies on boards and commissions quickly so as to allow them to continue meeting on a regular basis.

There are five applications on file for consideration by the Council as follows:

Holly Allar (new applicant)
Kristen Dikeman (new applicant)
Kim Hensley Owens (new applicant)
Kim Khatibi (new applicant)
Dorothy Renstrom (current commissioner)

In an effort to reduce exposure to personal information the applicant roster and application will be submitted to the City Council separately.

COUNCIL APPOINTMENT ASSIGNMENT: Councilmember McCarthy, Councilmember Salas, Councilmember Whelan, and Vice Mayor Shimoni.

Financial Impact:

These are voluntary positions and there is no budgetary impact to the City of Flagstaff.

Policy Impact:

Not applicable.

Connection to Council Goal, Regional Plan and/or Team Flagstaff Strategic Plan:

There is no Council goal that specifically addresses appointments to Boards and Commissions; however, boards and commissions do provide input and recommendations based on City Council goals that may pertain to the board or commission work plan.

Has There Been Previous Council Decision on This:

None

Options and Alternatives:

1) Appoint four Board Members: By appointing four members at this time, the Library Board will be at near full membership, allowing the group to meet and provide recommendations to the City Council.

2) Postpone the action to allow for further discussion or expand the list of candidates.

Community Benefits and Considerations:

The City's boards, commissions, and committees were created to foster public participation and input and to encourage Flagstaff citizens to take an active role in city government.

Community Involvement:

INFORM: The vacancies are posted on the City's website and individual recruitment and mention of the opening by Commission members and City staff has occurred, informing others of this vacancy through word of mouth.

Attachments: Library Board Authority

Official Records of Coconino County 3545683
Candace Owens - Recorder 11/23/2009 03:20 PM Pgs: 5
CITY OF FLAGSTAFF AM $11.00

A2009-1118.1

After recording, return to:
City Clerk
City of Flagstaff
211 W. Aspen Avenue
Flagstaff, AZ 86001

INTERGOVERNMENTAL AGREEMENT

Coconino County
and
City of Flagstaff

Flagstaff City – Coconino County Public Library Board

This Intergovernmental Agreement (IGA) is entered into this 18th day of Nov., 2009 (the "Effective Date"), by and between the City of Flagstaff ("Flagstaff"), an Arizona municipal corporation with offices at 211 West Aspen Avenue, Flagstaff, Arizona 86001, and Coconino County (the "County"), a body politic and corporate as provided in Sections 11-105 and 11-201 of the Arizona Revised Statutes, with offices at 219 East Cherry Street, Flagstaff, Arizona 86001. The City and the County may also be referred to as "Party" or "Parties" in this Agreement.

RECITALS

A. The Parties belong to the Coconino County Free Library District and sponsor or operate one or more public libraries ("Library") funded by and under the auspices of the District;

B. The Parties wish to set forth their agreement regarding the formation, membership and duties of a Flagstaff City – Coconino County Public Library Board (the Library Board");

NOW, THEREFORE, in consideration of the mutual covenants contained in this Agreement the Operating Parties agree as follows:

1. Formation of the Library Board.

There is hereby established the Flagstaff City – Coconino County Public Library Board to consider and deliberate upon matters of concern to the City Council of the City of Flagstaff, the Board of Supervisors of the County, and the citizens of the City and the County that affect the operation and efficiency of the Library in order to provide an optimum level of library services using available resources. The Library Board shall act in an advisory capacity to, and make recommendations to, the Library Director, the City Manager, the City Council and the Board of Supervisors.

2. Membership.

The Board shall be composed of one (1) City Council Member, four (4) City residents, three (3)

Board members appointed by the Board of Supervisors of the County, one (1) appointee being a member of the County Board of Supervisors and two (2) being County residents. The City Council Member and the Supervisor shall be ex officio, non voting members.

3. Terms of Board Members; Vacancies.

3.1 Of the City residents first appointed to the Board, one shall be designated to serve for a term of one (1) year, one shall be designated to serve for a term of two (2) years, and two shall be designated to serve a term of three (3) years from the date of their appointment. Thereafter, City residents shall be appointed for a term of office of three (3) years.

3.2 Of the two County residents first appointed to the Board, one shall be designated to serve for a term of one (1) year, and the other shall be designated to serve for a term of two (2) years. Thereafter, County residents shall be appointed for a term of office of three (3) years.

3.3 The City Council and the Board of Supervisors shall promptly fill vacancies for the unexpired term of any member of the Board of appointments for which each governing body is responsible.

4. Organization of the Board

4.1 Within sixty (60) days after the effective date of this Agreement, and at the first meeting of the Board, the members of the Board shall elect a chairperson and a Vice-Chairperson. Elections for those officers shall be held thereafter annually on or about that anniversary date. No member shall serve more than three (3) successive terms as Chairperson.

4.2 The Library Director may be an ex-officio, non voting member of the Board.

5. Meetings.

5.1 The Board shall hold not less than ten (10) regular meetings annually which shall at all times be open to the public. The time and place of the meetings shall be posted in accordance with any currently applicable State statutes, including but not limited to the Arizona Open Meeting Law, regulating public meetings and proceedings.

5.2 A quorum shall be one more than half the voting membership of the Board.

5.3 If any Board member has two (2) consecutive unexcused absences, the remaining Board members may vote to terminate the appointment of the unexcused member. The Chairperson shall determine prior to any meeting if a member's absence is excusable.

6. Effective Date and Term

6.1 This Agreement shall be effective with respect to the City and the County at the time of its adoption by their governing bodies.

6.2 This Agreement shall continue in force and effect until midnight on June 30, 2020, unless sooner terminated as indicated in this Agreement; provided, however, that this Agreement shall be automatically renewed for an additional term of two (2) year unless notice of intent not to renew is given by either Party no less than sixty (60) days prior to the end of its initial term.

6.3 Notwithstanding anything to the contrary contained in this Agreement, it may be terminated by either Party, with respect to such Party, upon six (6) months' prior written notice of its intent to do so, without penalty or further obligation, in accordance with the provisions of Arizona Revised Statutes § 38-511.F, in the event of the occurrence of any of the circumstances described in A.R. S. § 38-511.A.

7. Indemnification

Each party (as "Indemnitor") agrees to indemnify, defend and hold harmless the other party (as "Indemnitee") for, from and against any and all claims, losses, liability, costs or expenses, including reasonable attorney fees, (hereinafter collectively referred to as "Claims") arising out of noncompliance with State or Federal law or arising out of bodily injury of any person, including death, or property damage, but only to the extent that such Claims which result in vicarious or derivative liability to the Indemnitee are caused by the act, omission, negligence, misconduct or other fault of the Indemnitor, its officers, officials, agents, employees or volunteers.

7.1 Notwithstanding any other provision of this Agreement to the contrary, any agreement by one party to hold harmless or indemnify the other party shall be limited to, and be payable only from, the indemnifying party's available insurance or self-insurance coverage for liability assumed by contract available as a part of its general liability insurance program.

8. Notices

Unless otherwise specified in this Agreement, any notice or other communication required or permitted to be given under this Agreement shall be in writing and sent to the address given below for the party to be notified, or to such other address notice of which is given in accordance with this Section:

If to Flagstaff:

Deputy City Manager
City of Flagstaff
211 West Aspen Avenue
Flagstaff, Arizona 86001

If to the County:

Deputy County Manager
Coconino County
219 East Cherry Street
Flagstaff, Arizona 86001

9. Authority to Contract

Each of the Operating Parties represents and warrants that it has full power and authority to enter into and perform its obligations under this Agreement, in accordance with A.R.S. Sec. 11-952.

10. Prior Agreements, Integration, Modification

10.1 The parties acknowledge and agree that they have not relied upon any statements, representations, agreements or warranties, except as expressed in this Agreement, and that this constitutes the parties' entire agreement with respect to the matters addressed in the Agreement. All prior or contemporaneous agreements and understandings, oral or written, with respect to such matters are superseded and merged in this Agreement.

10.2 This Agreement may be modified or amended only by written agreement signed by or for all parties, and any such modification or amendment will become effective on the date specified in the amendment.

11. Severability

In the event that a court of competent jurisdiction shall hold any part or provision of this Agreement void or of no effect, the remaining provisions of this Agreement shall remain in full force and effect, to the extent that the enforcement of such remaining terms shall continue to reflect substantially the intent of the parties to this Agreement.

12. Waiver

No failure to enforce any condition or covenant of this Agreement shall imply or constitute a waiver of the right to insist upon performance of such condition or covenant, or of any other provision of this Agreement, nor shall any waiver by any party of any breach of any one or more conditions or covenants of this Agreement constitute a waiver of any succeeding or other breach of this Agreement.

13. Headings

The headings used in this Agreement are for convenience only and are not intended to alter or affect the meaning of any provision of this Agreement.

14. Governing Law

This Agreement shall be governed, interpreted and enforced in accordance with the laws of the State of Arizona.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed as of the day and year first above written.

City of Flagstaff

By: Sara Presler, Mayor

Coconino County

By: Matthew G. Ryan, Chairman
Board of Supervisors

Attest:

Laura Matthews for
City Clerk

Approved as to form and as to authority granted by law:

Jana H. Kyllgren for
City Attorney

Attest:

Wendy Ecklund
Clerk of the Board

Approved as to form and as to authority granted by law:

Jean E. Wilcox
Deputy County Attorney

5. B.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Stacy Fobar, Deputy City Clerk
Date:	02/27/2019
Meeting Date:	03/05/2019

TITLE:

Consideration of Appointments: Airport Commission.

STAFF RECOMMENDED ACTION:

Make two appointments to terms expiring October 2021.
Make one appointment to term expiring October 2019.

Executive Summary:

The Airport Commission consists of seven citizens, and is responsible for reviewing and reporting to the Council on the development of the Airpark and on matters affecting the operation and efficiency of the airport, using the Airport Master Plan as a guide. There are currently three seats available because of a resignation of commissioner Mary Lou Hagan on 2/28/19. It is important to fill vacancies on Boards and Commissions quickly so as to allow the Commission to continue meeting on a regular basis.

There are three applications on file and they are as follows:

Cal McLoy (new applicant)
Amanda Shankland (new applicant)
Miranda Sweet (new applicant)

In an effort to reduce exposure to personal information the applicant roster and applications will be submitted to the City Council separately.

COUNCIL APPOINTMENT ASSIGNMENT: Vice Mayor Shimoni, Councilmember McCarthy, and Mayor Evans

Financial Impact:

These are voluntary positions and there is no budgetary impact to the City of Flagstaff.

Policy Impact:

None.

Connection to Council Goal, Regional Plan and/or Team Flagstaff Strategic Plan:

There is no Council goal that specifically addresses appointments to Boards and Commissions; however, boards and commissions do provide input and recommendations based on City Council goals that may pertain to the board or commission work plan.

Has There Been Previous Council Decision on This:

None.

Options and Alternatives:

1) Appoint three Commissioners: by appointing members at this time, the Airport Commission will be at full membership, allowing the group to meet and provide recommendations to the City Council.

2) Table the action to allow for further discussion or expand the list of candidates.

Community Benefits and Considerations:

The City's boards, commissions, and committees were created to foster public participation and input and to encourage Flagstaff citizens to take an active role in city government.

Community Involvement:

INFORM: Board members and City staff have informed the community of these vacancies though word of mouth in addition to the vacancies being posted on the City's website.

Attachments: Airport Commission Authority

CHAPTER 2-11
FLAGSTAFF AIRPORT COMMISSION

SECTIONS:

2-11-001-0001 COMMISSION CREATED:
2-11-001-0002 COMPOSITION; TERMS:
2-11-001-0003 ORGANIZATION:
2-11-001-0004 COMPENSATION:
2-11-001-0005 MEETINGS:
2-11-001-0006 ACTIONS OF THE COMMISSION:

2-11-001-0001 COMMISSION CREATED:

There is hereby established the Flagstaff Airport Commission to be composed of seven (7) members who shall meet as hereinafter provided to consider and deliberate upon matters of concern to the City Council and citizens that affect the operation and efficiency of the airport toward the end of providing an optimum level of services within available resources using the Airport Master Plan as a basic guide. (Ord. 1897, Amended, 11/21/95)

2-11-001-0002 COMPOSITION; TERMS:

The composition of the membership of the Commission shall be as follows:

A. Seven (7) members to be appointed by the City Council who shall serve for three (3) year terms, on a staggered basis.

B. Ex Officio Members: The following persons shall be ex officio members of the Commission, but shall have no vote:

The Mayor;

The City Manager;

The Airport Manager;

The FAA Tower Operator.

C. A quorum shall shall consist of four (4) voting members of the Commission. (Res. 1045, 9-20-77; Ord. 1897, Amended, 11/21/95; Ord. 2007-03, Amended, 02/06/2007; Ord. 2014-28, Amended, 11/18/2014; Ord. 2016-30, Amended, 07/05/2016)

2-11-001-0003 ORGANIZATION:

At the first meeting after appointment and at the first meeting held in any calendar year thereafter, the members of the Commission shall elect a Chairperson and Vice-Chairperson. (Ord. 2007-03, Amended 02/06/2007)

2-11-001-0004 COMPENSATION:

The members of the Commission may be reimbursed by the City for necessary travel and subsistence expenses, but shall not receive compensation for their services. Any such travel must be approved in advance by the City Council or the City Manager with all budgetary considerations taken into account.

2-11-001-0005 MEETINGS:

The Commission shall hold regular monthly meetings, which shall at all times be open to the public, the time and place of said meetings shall be posted in accordance with any currently applicable Arizona State Statutes regulating public meetings and proceedings (open meeting laws). Special meetings may be called by the Chairperson on twenty-four (24) hours' notice.

2-11-001-0006 ACTIONS OF THE COMMISSION:

A. The Commission, with the consent of the City Manager, may call on all City divisions for assistance in the performance of its duties, and it shall be the duty of such divisions to render such assistance to the Commission as may be reasonably required.

B. All discussions, deliberations, actions and recommendations of the Commission shall be advisory to the City Council, and such advisories as the Commission may from time to time make shall be forwarded to the City Council through the City Manager. (Res. 1045, 9-20-77)

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Stacey Brechler-Knaggs, Grants and Contracts Manager

Co-Submitter: Barney Helmick

Date: 02/27/2019

Meeting Date: 03/05/2019

TITLE:

Consideration and Approval: Flagstaff Airport Air Carrier Incentive Policy

STAFF RECOMMENDED ACTION:

Approve the City of Flagstaff, Flagstaff Airport Air Carrier Incentive Policy

Executive Summary:

The Flagstaff Airport (FLG) wishes to establish and implement a robust, consistent, responsible, and non-discriminatory Air Carrier Incentive Policy. The policy is applicable to new airlines and incumbent airlines with new direct routes and complies with the U.S. Department of Transportation, Federal Aviation Administration guidelines.

Incentives, similar to the landing fee waiver found in this proposed policy, are common practice with competitive airports. This policy is being presented to the Council for consideration and hopeful approval.

Financial Impact:

The airport will waive landing fees to encourage the establishment of new nonstop service to and from the Flagstaff market.

The frequency of new service must meet or exceed one roundtrip flight daily to qualify for this program. All incentives shall apply to new airlines or existing airlines offering new routes not offered by that airline within the last 24 months. This Airport Incentive Policy will not be aimed at a specific airline, aircraft type or seat configuration.

New routes will be eligible for up to 12-months of waived landing fees. The current landing fees are $1.09 per thousand pounds of declared maximum certified gross landing weight of the aircraft landed.

Policy Impact:

Approving the Air Carrier Incentive Policy may enhance air carrier service at our airport and may create an opportunity to increase air traffic. Additional air service will support tourism and business growth in Flagstaff.

Connection to Council Goal, Regional Plan and/or Team Flagstaff Strategic Plan:

Transportation and other public infrastructure: Support the airport with needed infrastructure upgrades in order to enhance our tenant and patron experience as well as additional airline attraction.

Previous Council Decision on This:

No

Options and Alternatives:

- Approve the policy.
- Do not approve the policy.
- Council could provide alternative financial funding to attract new carriers and routes.

Background/History:

The FLG Air Carrier Incentive Policy has been created to encourage airlines currently serving the Flagstaff Airport, as well as potential new entrant airlines, to initiate new nonstop routes.

Key Considerations:

Incentives offered under this policy are applicable only to FAR (Federal Aviation Regulations) Part 121, 129, and 14 CFR (Code of Federal Regulations) Part 380 certificated commercial air carriers, or third-party companies who contract with such carriers and provide new air service at the airport beginning on or after the effective date.

Expanded Financial Considerations:

None

Community Benefits and Considerations:

The policy will assist in retaining air carrier service at the Flagstaff Airport.

Community Involvement:

The Economic Vitality Director and Airport Director presented to several groups in our local community about our current air service and what needed to be done to secure additional service. We were able to retrieve information on desired routes and more.

Expanded Options and Alternatives:

None

Attachments: S:\Economic Vitality\Airport\Airline\3879_Airport Air Service Incentive Policy-02-19-19.docx

City of Flagstaff, Flagstaff Airport
AIR CARRIER INCENTIVE POLICY

DRAFT

POLICY STATEMENT

It is the desire of Flagstaff Pulliam Airport (FLG) to establish and implement a robust, consistent, responsible, and non-discriminatory Air Carrier Incentive Policy. The policy is applicable to new airlines and incumbent airlines with new direct routes, and complies with Federal Aviation Administration guidelines.

PURPOSE

The FLG Air Carrier Incentive Policy has been created to encourage airlines currently serving the Flagstaff Pulliam Airport ("Airport"), as well as potential new entrant airlines, to initiate new nonstop service to markets not currently available from the Airport or by an existing airline.

FLG may amend, suspend or change this Policy at any time without prior notification. The Director shall have the authority to suspend, amend, or change the policy in the event the City and or Airport have decided to discontinue Air Carrier Incentive Policy in the future.

APPLICABILITY

Incentives offered under this Policy are available only to FAR Part 121, 129, and 14 CFR Part 380 certificated commercial air carriers, or third-party companies who contract with such carriers (singularly "Airline" and collectively "Airlines"), and that provide new air routes (as defined herein) at the Airport beginning on or after the Effective Date. This incentive is not applicable to an Airline that has discontinued this route in the previous 24 months.

INCENTIVES

The Airport will waive up to twelve (12) months of landing fees to encourage new air routes, defined as either the establishment of a new Airline providing nonstop service or an existing Airline providing nonstop service for a new route that has not been discontinued in the previous twenty-four (24) months.

Frequency of service on the new air route must meet or exceed one roundtrip flight daily to qualify for this policy. All incentives shall apply to new air routes not currently offered by Airline at the Airport and will not be aimed at a specific Airline, aircraft type or seat configuration.

6. B.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Stacey Brechler-Knaggs, Grants and Contracts Manager

Co-Submitter: Charity Lee, Real Estate Manager

Co-Submitter: Barney Helmick

Date: 02/27/2019

Meeting Date: 03/05/2019

TITLE:

Consideration and Approval of Contract: Approve the Minimum Revenue Guarantee Agreement for air services between the City of Flagstaff and United Airlines.

STAFF RECOMMENDED ACTION:

Approve the Minimum Revenue Guarantee Agreement (MRG) with United Airlines for air services from the Flagstaff Airport (FLG).

Executive Summary:

The City of Flagstaff has requested that United Airlines commence operating scheduled non-stop air service between Flagstaff Airport (FLG) and Denver International Airport (DEN) and in connection therewith the City shall, if United Airlines does not generate sufficient revenue, compensate United Airlines, from funds received by the City through a U.S. Department of Transportation Small Community Air Service Development Program Grant.

Financial Impact:

The financial performance guarantee during the period that United Airlines is operating the FLG flights, the City will unconditionally guarantee that United Airlines will receive "Minimum Revenues" (as such term is defined below) for operating the FLG flights.

The MRG payments the City will be required to pay with respect to the FLG flights under this Agreement for the one year term shall not exceed $550,000 (the MRG Cap).

Policy Impact:

Connection to Council Goal, Regional Plan and/or Team Flagstaff Strategic Plan:

Transportation and other public infrastructure: Support the airport with needed infrastructure upgrades in order to enhance our tenant and patron experience as well as additional airline attraction.

Has There Been Previous Council Decision on This:

No

Options and Alternatives:

- Approve the MRG Agreement
- Do not approve the MRG Agreement and de-obligate the grant. This may potentially jeopardize our airline service with United Airlines.

Background/History:

On September 29, 2011, the city received a grant from the U.S. Department of Transportation, Small Community Air Service Grant in the amount of $800,000 to assist in the City's efforts to address the air service needs of the community.

This Small Community Air Service Grant Program is developed on a "first come, first served" basis. The City staff met with many potential carriers to market a new route and shared the revenue guarantee and its parameters. MRG's for new routes are the norm throughout the airline industry and have been used to launch many new routes using community revenue guarantees.

Commercial air service is essential to Flagstaff businesses to ensure continued growth, sustainability, and future prosperity. Flagstaff's largest private employers are W.L. Gore & Associates, Northern Arizona Healthcare, Joy Cone, and Nestle Purina. Each of these companies relies on quality, dependable air service to stay connected to their suppliers and customers. Flagstaff is home to Northern Arizona University and has experienced tremendous enrollment growth, where 36% of the freshmen class is outside of the state of Arizona.

Business attraction efforts are currently focused on digital products and bioscience sectors. This work relies on reliable air service so businesses are able to thrive in our bustling economy and travel as needed.

Flagstaff's current data indicates that the Flagstaff Airport had over 70,176 enplanements in 2018. This was a record year for our market even with experiencing a runway overlay project that shut the runway down for a week.

In 2018, the City of Flagstaff put together a team from Flagstaff including the Deputy City Manager, Economic Vitality Director, Convention and Visitor Center Director, Business Attraction Manager, Associate Vice President of Northern Arizona University, and Airport Director who attended a meeting with United Airlines at their Chicago Headquarters. The group presented a broad spectrum of information on Flagstaff, the business community and how our passengers flying patterns fit into the Denver and San Francisco markets served by United Airlines. We created a 12-page brochure for this meeting and left several copies for the entire group as well as presented on each of the pages. The meeting was well received and follow-up information was provided to the United Team. United consultants expressed that Flagstaff was being considered because they desired to expand their market in the west.

This meeting was made possible after attending several airline conferences throughout the years. At these conferences, we would meet with United Airlines as well as other airlines seeking additional service for Flagstaff.

Key Considerations:

Air service in Flagstaff and the surrounding community is critical to the economic vitality of the region.

Starting March 31, 2019, Flagstaff Airport (FLG) will partner with United Airlines to provide daily, non-stop service to Denver International Airport (DEN). This flight will provide an additional carrier for FLG and a new market for United Airlines.

The route will fly seven days a week, with two flights per day departing in the morning and mid-day on an ERJ-145 aircraft which seats 50. This new carrier offers customers new opportunities to connect to United's domestic and international route network.

Expanded Financial Considerations:

None

Community Benefits and Considerations:

Our airport having a second airline and route will offer another flying option for our community. The Flagstaff to Denver route will help assist business and leisure travelers with making their east coast connections the same day.

Community Involvement:

The Airport Director and Economic Vitality Director made over 25 presentations in the community to several groups such as the Economic Collaborative of Northern Arizona (ECoNA), Moonshot at Northern Arizona Center for Entrepreneurship (NACET), Flagstaff Rotary, Flagstaff Leadership Program, AZ@Work Business Services Team, Northern Arizona University (NAU) Leadership Group and more sharing our work to gain additional service as well as asking what routes they desired.

Expanded Options and Alternatives:

None

Attachments: United Airline Minimum Revenue Guarantee Agreement

MINIMUM REVENUE GUARANTEE AGREEMENT
FOR AIR SERVICES
BETWEEN UNITED AIRLINES AND
CITY OF FLAGSTAFF, ARIZONA

This Minimum Revenue Guarantee Agreement for Air Services (this "**Agreement**") is entered into to be effective on the __ day of _____, 2019, by and between UNITED AIRLINES, INC. ("**United**"), a Delaware corporation having its principal offices at 233 S. Wacker Drive, Chicago, Illinois 60606 and CITY OF FLAGSTAFF, an Arizona municipal government entity whose address is 211 West Aspen, Flagstaff, AZ 86001 ("**Guarantor**").

WHEREAS, Guarantor owns and operates certain real property located at 6200 S. Pulliam Drive, Flagstaff, Arizona in the County of Coconino, State of Arizona, known as Flagstaff Pulliam Airport, Flagstaff, AZ (hereinafter called "**FLG**"), and

WHEREAS, the Guarantor has an interest in promoting air service to and from FLG;

WHERAS, United is engaged in the business of providing services for the commercial transportation of persons, property, cargo and mail by air; and

WHEREAS, United is a certified air carrier conducting scheduled and unscheduled flight operations within the U.S. and between the U.S. and a number of foreign locations;

WHEREAS, Guarantor desires to increase access to and from FLG from and to locations where United operates so as to benefit the citizens of the surrounding community and Guarantor's interest therein;

WHEREAS, Guarantor has requested that United commence operating scheduled non-stop air service between FLG and Denver International Airport ("**DEN**"), and in connection therewith Guarantor shall compensate United, from funds received by the Guarantor through a U.S. Department of Transportation Small Community Air Service Development Program grant, and to make certain concessions as provided herein; and

WHEREAS, subject to the foregoing and to the obtainment of appropriate governmental authorizations, United is willing to operate scheduled air service between DEN and FLG;

NOW, THEREFORE, in consideration of the mutual promises made herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. Schedule to be Operated.

A. United will, or will cause a cobranded regional carrier to, operate scheduled round-trip air service to and from FLG as follows:

- Operates with a 50 seat ERJ-145 aircraft 9

- Departs DEN at approximately 9:35 a.m. and arrives FLG at approximately 10:15 a.m.; departs FLG at approximately 11:55 a.m. and arrives DEN at approximately 2:40 p.m.; departs DEN at approximately 7:00 p.m. and arrives FLG at approximately 7:40 p.m.; and departs FLG at approximately 7:00 a.m. and arrives DEN at approximately 9:45 a.m.

- Operates daily from March 31, 2019 through March 31, 2020 (both dates inclusive)

The flights between DEN and FLG referenced above are, collectively, referred to as the "**FLG Flights**" and each such flight is referred as an "**FLG Flight**."

B. The parties acknowledge that due to operating conditions, including weather related issues, United may operate the FLG Flights with fewer passengers than the capacity of aircraft used for operating the FLG Flights.

C. At its discretion, United may change the schedule or aircraft operating the FLG Flights. FLG Flights will be operated under the direction and control of United and/or a cobranded regional carrier and Guarantor shall have no right to make decisions with respect to the operation of the FLG Flights. Without limiting the generality of the foregoing provisions of this paragraph and the provisions of Section 2 below, United agrees to use good faith efforts to consider Guarantor's comments on issues related to marketing, pricing and revenue management of the FLG Flights.

D. For the avoidance of doubt, Guarantor acknowledges that if United operates flights to and from FLG in addition to the FLG Flights or operates flights to and from FLG after the end of the Term (as defined in Section 9) of this Agreement, such other flights shall not be governed by or operated under the terms of this Agreement.

2. Air Fares. United agrees to establish fares for the FLG Flights that are consistent with United's current internal pricing strategies while remaining competitive within the airline industry generally; provided, however, for the avoidance of doubt, United shall have no obligation to establish fares for the FLG Flights that are the same as or similar to fares established by other airlines.

3. Financial Performance Guaranty. During the period that United is operating the FLG Flights, the Guarantor will unconditionally guaranty that United will receive "Minimum Revenues" (as such term is defined below) for operating the FLG Flights, which shall be calculated as follows:

The sum of:

i. the product of US $11,857 per round-trip (the "**Per Round-Trip Cost**") and one-half of the total number of FLG Flights;
ii. the product of US $13.86 and one-half of the total number of all passengers on the FLG Flights; and
iii. the product of 6.3% and the total passenger fare revenue (not to include ancillary, cargo, or baggage revenue).

The sum of i, ii, and iii. above constitutes the "**Guaranteed Amount**" and may also be referred to herein as the "**Minimum Revenues**".

4. Revenues, Guaranty Payments, Final Accounting and MRG Cap.

A. For the purposes of this Agreement, "**Revenues**" shall mean the total segment revenues (including passenger, cargo and any other revenue, but excluding revenues estimated to be accrued with respect to and/or under this Agreement) received by United from the operation of the FLG Flights, as measured by (and using methodology used by) United's Flight Profitability System ("**FPS**"); provided, however, and for the avoidance of doubt, "Revenues" shall exclude any revenues, such as MileagePlus Premium revenue, not directly attributable to the operations of the FLG Flights.

B. To the extent United receives less than the Guaranteed Amount in Revenues from the FLG Flights for any given Period, as defined below, Guarantor shall pay to United an amount equal to the difference between the Guaranteed Amount applicable to the FLG Flights for such Period and the amount of Revenue for such Period actually received by United from operating the FLG Flights (the aggregate difference for each Period being the "**Guaranty Payment**," and the term "**Guaranty Payments**" shall be construed accordingly).

The term "**Period**" shall mean each three-month period (i) beginning on March 31, 2019 and ending on June 30, 2019, (ii) beginning on July 1, 2019 and ending on September 30, 2019, (iii) beginning on October 1, 2019 and ending on December 31, 2019, and (iv) beginning on January 1, 2020 and ending on March 31, 2020.

C. Guarantor shall pay any Guaranty Payment owed to United in U.S. dollars, within thirty (30) days of Guarantor's receipt of an invoice for the Guaranty Payment. If United receives more than the Guaranteed Amount in Revenues from the FLG Flights during a Period, then any such excess of Revenues for the Period over the Guaranteed Amount for the same Period shall be credited against the Guaranty Payment next owed by Guarantor, until such credit is exhausted but and only to the extent a Guaranty Payment is owed for a subsequent Period; provided, however, in no case and at no time shall United otherwise be required to remit (except as a credit against the Guaranty Payment owed for a subsequent Period as provided herein) to the Guarantor any such excess of Revenues over the Guaranteed Amount and the sole means by which Guarantor shall receive such credit is if, to the extent and when a Guaranty Payment is owed to United by Guarantor during the Term.

D. Notwithstanding anything contained herein to the contrary, no failure or delay by United to render the invoices shall prejudice United's right to receive or the Guarantor's obligation to pay the Guaranty Payments upon United's rendering the invoice for the Guaranty Payment for any applicable Period.

E. The aggregate Guaranty Payments the Guarantor will be required to pay with respect to the FLG Flights under this Agreement for the Term shall not exceed US **$550,000** (the "**MRG Cap**").

F. Guarantor's obligation to make payments in accordance with the provisions of this Agreement shall survive the expiration or earlier termination of this Agreement.

5. Cost of Service.

A. United shall bear all costs of providing the service described and provided for in this Agreement, including by way of illustration but not by way of limitation, the costs of all required aircraft, equipment and facilities (including facilities for ticketing, baggage handling, and like services); personnel, ground costs, including landing fees and use charges; credit card commissions; travel agent commissions; deicing; and fuel ferrying.

B. The amounts/percentages referred to in Section 3 are based on United's assumed total cost of jet fuel (into plane) inclusive of all charges, including taxes (the "**Assumed Baseline Fuel Cost**") for the FLG Flights. The Assumed Baseline Fuel Cost for the FLG Flights is $2.27 per gallon. Notwithstanding anything contained herein to the contrary, the parties will adjust the Per Round-Trip Cost for each of the FLG Flights, and hence the Guaranteed Amount owed, on a cent for cent basis to the extent the monthly Average FPS Fuel Cost (as defined below) varies, either up or down, from the Assumed Baseline Fuel Cost for the FLG Flights to take into account changes in the price of fuel. At the end of each month, United will determine, through FPS, the monthly average cost of jet fuel per gallon for the FLG Flights (the "**Average FPS Fuel Cost**"). If the Average FPS Fuel Cost for the applicable FLG Flights for a month varies from the Assumed Baseline Fuel Cost, the Guaranteed Amount will be adjusted as follows (subject to the MRG Cap):

i. by $12 for the per penny difference between the Assumed Baseline Fuel Cost for the FLG Flights for a month and the Average FPS Fuel Cost for the FLG Flights for that month.

For example: If United determines that the Average FPS Fuel Cost in December for the FLG Flights is $2.28 per gallon, then the Per Round-trip Cost in December for the FLG Flights will reflect an increase of $12 per each round-trip of the FLG Flights. Likewise, if United determines that the Average FPS Cost in December for the FLG Flights is $2.25 per gallon, then the Per Round-Trip Cost in December for the FLG Flights will reflect a decrease of $24 per each round-trip of the FLG Flights.

6. Letter of Credit. To secure Guarantor's performance under this Agreement, including Guarantor's prompt payment of the Guaranty Payment, Guarantor will provide to United an initial irrevocable standby letter of credit or purchase order with accompanying budget approval, or other form of security acceptable to United, with a bank that is reasonably acceptable to United in the amount of US $550,000 on or before January 31, 2019 at 12:00 p.m. Central Time. The letter of credit or purchase order, as the case may be, shall remain in effect for the Term of this Agreement and until the later of April 30, 2020 or the date on which all amounts owed by Guarantor to United have been paid in full. If Guarantor fails to make payment of the Guaranty Amount, as provided in this Agreement, United shall have the right to draw upon such letter of credit or purchase order (or other form of security approved by United and provided by Guarantor). United's obligations under this Agreement (including with respect to the FLG Flights) shall, at all times, be conditioned upon the Guarantor having timely complied with the provisions of this Section 6. The provisions of this Section 6 shall survive the expiration or earlier termination of this Agreement.

7. Marketing Support. Guarantor will work with United in good faith to market the FLG Flights in a mutually beneficial cost-effective manner. In furtherance thereof, Guarantor will give United prominent placement (such placement to be, in any event, no less than that received by any other carrier) in any marketing campaign conducted by Guarantor to promote similar service to and from FLG.

8. Government Authority and Slot Availability. United's ability and willingness to operate the FLG Flights is contingent on United's being able to maintain all necessary governmental approvals to operate the FLG Flights, access to departure and arrival slots that are acceptable to United and ticket counter and other facilities that are acceptable to United.

9. Term. The term (the "**Term**") of this Agreement shall commence on the date first written above and shall continue, unless terminated earlier as provided herein, until and including March 31, 2020.

10. Termination, Renegotiation, and Flight Cancellation/Diversion

A. In addition to the exercise of any rights that it may have at law and/or in equity under this Agreement, either party shall have the right to terminate this Agreement upon written notice if the other party fails to perform any of its material obligations under this Agreement and such failure continues un-remedied during the thirty (30) day period following the receipt by the other party of the notice of termination. The effective date of any such termination shall be the date provided in the notice from the party terminating this Agreement, but may not be less than the thirty (30) day period provided above.

B. This Agreement will terminate immediately if United ceases to hold the governmental authorities or slots necessary to operate the FLG Flights.

C. United shall have the right to terminate this Agreement upon no less than ninety (90) days' prior written notice to Guarantor.

D. United may terminate this Agreement upon no less than thirty (30) days' prior written notice to the Guarantor, if United believes the MRG Cap, as calculated by United's FPS, may be achieved at any time (without regard to the timing of the monthly close out of United's FPS) during the Term.

E. United may terminate this Agreement upon no less than five (5) days' prior written notice to Guarantor if a "Material Cost Circumstance", as defined below, occurs and upon such termination all of United's obligations under this Agreement shall cease. For the purposes of this Agreement, "Material Cost Circumstance" means that, at any time during the Term of this Agreement, the Spot Price for Kerosene-Type Jet fuel, U.S. Gulf Coast as published by the U.S. Energy Information Administration in its weekly "Petroleum Status Report" exceeds $2.40.

F. United may request a renegotiation of the round-trip cost and/or MRG Cap if prior to or during the period that United is operating the FLG Flights (i) Guarantor markets and/or subsidizes any additional flights from FLG, or (ii) any additional air service to/from FLG is announced during the Term. If, within ten (10) business days of such request, negotiations do not result in terms reasonably acceptable to United, United

may terminate this Agreement upon no less than five (5) days' prior written notice to Guarantor, at which time all of United's obligations under this Agreement shall cease.

G. United may terminate this Agreement upon no less than fourteen days (14) days' prior written notice and an opportunity to cure within that time period to Guarantor if Guarantor fails to timely comply with its obligation in Section 6 hereof.

H. United and Guarantor acknowledge that United may be required to cancel or divert flights, including the FLG Flights, due to mechanical problems, weather conditions, or other circumstances beyond the reasonable control of United. If circumstances or conditions result in canceled or diverted FLG Flights, United, at its sole cost, shall have the obligation to provide alternate air and/or ground transportation to FLG for passengers who are ticketed on the FLG Flights to FLG in compliance with United's standard procedures for such circumstances.

Except as otherwise provided in this Agreement, upon termination of this Agreement, neither party shall have any rights or obligations to the other party except for those obligations that may have accrued through the date of such termination (including Guarantor's obligation to pay any amounts due to United hereunder) and such obligations which by their nature or the express terms of this Agreement survive the expiration or earlier termination of this Agreement.

11. Remedies Upon Termination.

A. A termination pursuant to Section 11 shall not limit United's right to pursue or enforce any of its rights under this Agreement or otherwise.

B. Any termination or expiration of this Agreement shall not affect Guarantor's obligation to pay United all amounts owed to United as of the effective date of such expiration or termination.

C. In the event of a termination of this Agreement prior to its natural expiration for any reason, in accordance with the provisions of this Agreement, Guarantor shall pay all amounts owed to United, as of the effective date of the termination, within ten (10) days after receipt of an invoice from United.

The provisions of this Section 11 shall survive the expiration or earlier termination of this Agreement.

12. Force Majeure. United shall have no obligation to operate the FLG Flights where cessation of such flights is due to an event or events beyond United's reasonable control, including, without limitation, equipment failures, air traffic control, governmental actions, strikes and Acts of God ("**Force Majeure**"); provided, however, and for the avoidance of doubt, in case of cessation of the FLG flights as a result of Force Majeure, as provided above, so long as such event of Force Majeure was not caused by Guarantor's acts or omissions, Guarantor shall only be required to pay the Guaranteed Amount to United for the FLG Flights that were operated prior to such cessation of the FLG Flights as a result of Force Majeure.

13. Audit. Upon reasonable notice, the Guarantor, at its expense, shall have the right to audit and inspect, at United's offices during normal business hours, United's books and records as they related

to the determination of Revenue on the FLG Flights for the sole purpose of ensuring that, in determining the amount of Revenue, United is utilizing the same methodology as is applied to all of United's similar routes.

14. Confidentiality. Guarantor and United both acknowledge that Guarantor is subject to Arizona Public Records law and most, if not all, information and materials provided by United to Guarantor may be subject to public disclosure. Subject to the requirements of Arizona Public Records law, Guarantor will use good faith efforts to keep confidential any information designated proprietary received from United. Guarantor will use good faith efforts to allow United the opportunity to seek protection from a court of law before disclosing to the public information United has designated as proprietary and confidential.

15. Indemnification and Hold Harmless. To the extent permitted by law, each party (the "**Indemnifying Party**") shall indemnify and hold harmless the other party, and its officers, directors, employees and agents (each an "**Indemnified Party**" and collectively, the "**Indemnified Parties**") from and against all liabilities, damages, losses, claims, suits, judgments, costs and expenses (including reasonable attorneys' fees) of any nature whatsoever suffered by the Indemnified Party as a result of claims by third parties arising out of the willful misconduct or negligent acts, errors or omissions of the Indemnifying Party in connection with this Agreement, except to the extent caused by any Indemnified Party's negligence or willful misconduct. The provisions of this Section 15 shall survive the expiration or earlier termination of this Agreement.

16. Insurance.

A. United. At all times during the Term of this Agreement, United shall carry and maintain, at its sole cost and expense, airline liability insurance in an amount not less than $10,000,000 combined single limit, including advertisers liability with aggregate limits of at least $10,000,000, USD for bodily injury (including death of any person) and any damage to (including destruction of) property. If Guarantor so requests, United will furnish Guarantor within thirty (30) days of such request, an insurance certificate which: (i) indicates that the insurer has accepted and insured United as provided in this Section 16.A of this Agreement; (ii) includes the insurer's commitment to give Guarantor not less than thirty (30) days' advance written notice in the event of cancellation or adverse material change in coverage.

B. Guarantor. At all times during the Term of this Agreement, Guarantor shall carry and maintain, at its sole cost and expense, commercial general liability insurance including advertisers liability insurance in an amount not less than $10,000,000 USD combined single limit covering all liability arising out of any bodily injury (including death of any person) and any damage to (including destruction of) property. If United so requests, Guarantor will furnish United within thirty (30) days of such request, and upon each annual renewal, an insurance certificate(s) which (i) indicates that the insurer has accepted and insured Guarantor as provided in this Section 16.B of this Agreement; (ii) include the insurer's commitment to give United not less than thirty (30) days' advance written notice in the event of cancellation or adverse material change in coverage.

17. Attorneys' Fees. In the event of any litigation between the parties hereto concerning this Agreement and the enforcement hereof, the prevailing party in such action shall be entitled to receive from the other party all reasonable costs and expenses, including reasonable attorneys' fees, incurred by the prevailing party in such action.

18. Counterparts and Headings. This Agreement may be executed in several counterparts, which together shall constitute one and the same instrument, and any party hereto may execute this Agreement by pdf or other electronic signature, which shall be effective as an original signature for all intents and purposes. The headings used to identify sections and paragraphs/subsections are for reference purposes only and shall have no bearing on the interpretation of this Agreement.

19. Notice. All notices and other communications required or permitted under this Agreement shall be in writing and shall be deemed given (A) upon delivery by hand, (B) one (1) day after delivery to a commercial courier (example, FedEx) for next business day delivery properly addressed and prepaid, or (C) within three (3) days after placement in the U.S. mail properly addressed and with sufficient postage for certified mail, return receipt requested to the addresses set forth in the first paragraph of this Agreement or such address as a party may designate in writing pursuant to this notice provision (provided, however, and notwithstanding the foregoing, any invoices rendered by United may be sent to Guarantor via electronic communication to Stacey Brechler-Knaggs at Sknaggs@flagstaffaz.gov and Barney Helmick at BHelmick@flagstaffaz.gov).

20. Miscellaneous.

A. This Agreement constitutes the entire understanding between the parties with respect to the subject matter hereof. This Agreement or any provision of this Agreement may not be amended, modified or waived except by a written agreement signed by both parties hereto.

B. This Agreement may not be assigned by either party hereto without the written consent of the other party; provided that United may assign this Agreement without such consent to an air carrier that is its corporate affiliate or successor without such consent.

C. THIS AGREEMENT SHALL BE INTERPRETED AND CONSTRUED IN ACCORDANCE WITH THE SUBSTANTIVE LAW OF THE STATE OF ARIZONA.

D. The parties hereto represent that they have the authority to enter into this Agreement.

[Signature Page Follows]

IN WITNESS WHEREOF, United and Guarantor have each caused this Agreement to be signed and delivered by its duly authorized representative, all as of the date first written above.

UNITED AIRLINES, INC.

By:_____
Ankit Gupta
Vice President Domestic Network

CITY OF FLAGSTAFF

_____
Mayor, Coral Evans

Attest:

_____
City Clerk

Approved as to form:

_____
City Attorney

Date of formal approval by governing body:

_____, ____, 2018

6. C.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Charity Lee, Real Estate Manager

Co-Submitter: Barney Helmick, Airport Director, Stacey Brechler-Knaggs, Grants & Contracts Manager

Date: 02/27/2019

Meeting Date: 03/05/2019

TITLE:

Consideration and Approval of Contract: Lease Agreement with United Airlines

STAFF RECOMMENDED ACTION:

Approve Lease Agreement and authorize the City Manager to make any non-substantive changes to the Lease Agreement.

Executive Summary:

Staff was directed by previous Councils and City Manager's office to secure an additional airline. Approval of the Lease Agreement with United Airlines will allow for an additional airline which will provide competition and new destinations for the citizens of Flagstaff and surrounding areas.

The final lease agreement will be attached to the staff summary for the Final Agenda.

Financial Impact:

Article 2. Term
2.02 Term
- The term of the Lease shall be for 10 years with two 5-year extensions. Either party can terminate Lease upon 90 day written notice.

Article 6. Rents, Fees and Utilities
6.01 Rental Amount
- $36,000 per year for 1,027 square feet of Ticket Counter space/storage.

6.01.1 Storage
- $.34 per square foot for semi-permanent storage unit.

6.01.2 Landing Fee
- Airline shall pay City $1.09 per thousand pounds of declared maximum certified gross landing weight of aircraft landed.

6.05 Rate Adjustment.

- 2% increase annually at anniversary date of commencement of lease.

6.06 Utilities
- City to pay water, gas, sewer, electric.

Article 7. Payment Provisions
7.02 Taxes
- Airline responsible for all taxes.

7.04 Fuel Charges
- Airline responsible for all fuel costs.

Policy Impact:

None

Connection to Council Goal, Regional Plan and/or Team Flagstaff Strategic Plan:

ECONOMIC DEVELOPMENT
Grow and strengthen a more equitable and resilient economy

Has There Been Previous Council Decision on This:

No

Options and Alternatives:

Approve the Lease Agreement
Do not approve and redirect Staff

Background/History:

Staff was directed by previous Councils and City Managers to secure an additional airline. Staff has visited with various air carriers and attended multiple conferences to encourage an airline to come to Flagstaff. Two marketing campaigns were developed and which helped to increase enplanements by 3% the first year and 9.2% the second year. The marketing campaigns consisted of multiple videos, business reports, enplanement charts, and travel reports which showed an increased demand for air service for the city of Flagstaff. The staff received multiple letters of support from NAU, the business community, Sedona, Winslow, and Williams. Additionally, Staff secured a U.S. Department of Transportation, Small Community Air Service Development Grant for $800,000 to offset startup costs for a new air carrier.

Key Considerations:

Approving the Lease Agreement with United Airlines will provide additional air transportation options for Flagstaff and surrounding areas which in turn may increase tourism and provide for additional business growth in our community.

80% of those who live in the Flagstaff and surrounding areas choose to fly out of Phoenix. With additional air service, the City will be able to capture a portion of this market to recoup revenue that's lost.

Expanded Financial Considerations:

The Minimum Revenue Guarantee Agreement with United Airlines will be presented to Council for approval. This agreement provides grant funds in the amount of $800,000 through the Small Community Air Service Development Grant which will provide reimbursement to the City of Flagstaff for a guaranteed minimum revenue to United Airlines.

Community Benefits and Considerations:

United Airlines is a new carrier that will provide a new destination with additional travel options for our community. Initial startup will be seven days a week, with two flights per day departing in the morning and mid-day on an ERJ-145 aircraft which seats 50 passengers between Flagstaff and Denver. United offers final destinations that our current carrier does not offer. If this route is successful it could lead to additional non-stop destinations. This new carrier offers customers new opportunities to connect to United's domestic and international route network.

Community Involvement:

Northern Arizona Center for Technology (NACET), Economic Collaborative of Northern Arizona (ECONA), Northern Arizona University (NAU), W. L. Gore & Associates, Coconino Community College, and other business leaders have worked with the City to encourage new air service.

Expanded Options and Alternatives:

None

Attachments: Draft Lease Agreement
Exhibit A
Exhibit B

LEASE AGREEMENT

LEASE OF TICKET COUNTER AND OFFICE SPACE AT FLAGSTAFF PULLIAM AIRPORT TERMINAL BUILDING FOR SCHEDULED COMMERCIAL AIR SERVICE

CITY OF FLAGSTAFF

ARIZONA

DRAFT

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EXHIBIT A FAA Airport Assurances.....

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PULLIAM AIRPORT LEASE AGREEMENT

This is a Lease Agreement ("Lease Agreement") dated_____, 201__, between the City of Flagstaff (hereinafter referred to as "City"'), a municipal corporation with offices located at 211 West Aspen Avenue, Flagstaff, Arizona 86001, and _____"Airline"') with its corporate office located at_____. City and Airline may be referred to in this Lease Agreement individually as "Party" or together as "Parties," as the case may be.

WITNESSETH

WHEREAS, City owns and operates certain real property located at 6200 S. Pulliam Dr., Flagstaff, Arizona in the County of Coconino, State of Arizona, known as Flagstaff Pulliam Airport (hereinafter called "Airport"), and

WHEREAS, Airline is engaged in the business of providing services for the commercial transportation of persons, property, cargo and mail by air ("Air Services"); and

WHEREAS, Airline desires to occupy and use certain premises and facilities on the Airport premises, together with obtaining certain rights and privileges thereon for the purpose of providing Air Services; and

WHEREAS, City, by virtue of its sole ownership of the Airport premises, has the authority to impose and collect all rentals, fees and charges related and incidental to Airline's use of the Airport and its appurtenances for providing Air Services;

NOW, THEREFORE, City does hereby agree to lease to Airline, and Airline does hereby agree to lease from City, certain premises and facilities, rights, services and privileges in connection with and on the Airport as follows:

Article 1. Definitions

The following words, terms and phrases wherever used in this Lease Agreement shall for the purposes of this Lease Agreement have the following meanings:

1.01 Air Transportation Business shall mean that business operated by Airline at the Airport for the commercial transportation by air of persons, property, mail, parcels and/or cargo.

1.02 Air Transportation Company shall mean a legal entity certificated by the Secretary of Transportation and engaged in the business of scheduled or non- scheduled commercial transportation by air of persons, property, mail, parcels and/or cargo.

1.03 Airfield shall mean those portions of the Airport, including the Terminal Aircraft Aprons and the Cargo Aircraft Aprons, provided for the landing, taking off, and taxiing of aircraft, including without limitation approach and turning zones, clear zones, avigation or other easements, runways, a fully integrated taxiway system, runway and taxiway lights, and other

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appurtenances related to the aeronautical use of the Airport, including any airfield property purchased for noise or other environmental mitigation purposes.

1.04 Airline Premises shall mean those areas in the Terminal assigned to Airline as Exclusive Use Premises or Common Use Areas as defined herein.

1.05 Cargo Aircraft Aprons shall mean those areas of the Airport that are primarily designated for the parking of cargo aircraft and support vehicles and the loading and unloading of cargo aircraft

1.06 Chargeable Landings shall mean all Revenue Landings and Non-Revenue Landings except for those Non-Revenue Landings which are of an emergency nature.

1.07 City shall mean the City of Flagstaff and the person, division, department, bureau, or agency as may from time to time be expressly designated by the City to exercise functions equivalent or similar to those now exercised by the City with respect to rights and obligations of City under this Lease Agreement.

1.08 Common Use Areas shall mean those areas of the Airport, including without limitation common use gates, and baggage areas, not assigned on a preferential use basis (excluding Public Space) but rather used in common by Airline and one or more other Air Transportation Companies.

1.09 Director shall be the Airport Director and shall include such person or persons as may from time to time be authorized in writing by City or by the Director or applicable law to act for the Director with respect to any or all matters pertaining to this Lease Agreement.

1.10 Environmental Laws shall mean and include all federal, state, and local laws, statutes, ordinances, regulations, resolutions, decrees, and/or rules now or hereinafter in effect, as may be amended from time to time, and all implementing regulations, directives, orders, guidelines, and federal or state court decisions, interpreting, relating to, regulating or imposing liability (including, but not limited to, response, removal, remediation and damage costs) or standards of conduct or performance relating to industrial hygiene, occupational health and/or safety conditions, environmental conditions, or exposure to, contamination by, or clean-up of, any and all Hazardous Materials, including without limitation, all federal or state super lien or environmental clean-up statutes.

1.11 Exclusive Use Premises shall mean any office space, storage area, VIP lounge, employee break room or other area of the Terminal designated by City for exclusive use by Airline, which Exclusive Use Premises are described in Exhibit B attached hereto.

1.12 FAA shall mean the Federal Aviation Administration or its authorized successor(s).

1.13 Hazardous Materials shall mean any and all (a) substances, products, by-products, waste, or other materials of any nature or kind whatsoever which are or become listed or regulated under any Environmental Laws, and (b) any materials, substances, products, by-products, waste, or other materials of any nature or kind whatsoever whose presence in and of itself or in combination with other materials, substances, products, by-products, or waste may give rise to liability under any Environmental Laws or any statutory or common law theory

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based on negligence, trespass, intentional tort, nuisance, strict or absolute liability or under any reported decisions of any state or federal court; and (c) any substance, product, by-product, waste or any other material which may be hazardous or harmful to the air, water, soil or environment or affect industrial hygiene, occupational health or safety, including without limitation, petroleum and/or asbestos materials, products, by-products, or waste.

1.14 Landing Fee shall mean a fee expressed in dollars and cents per thousand pounds of the Maximum Gross Landed Weight of each type of Airline's aircraft and shall be multiplied by the total of all Maximum Gross Landed Weight for all Chargeable Landings of each type of aircraft landed at the Airport by Airline.

1.15 Maximum Gross Landed Weight shall mean the maximum gross certificated landing weight in one thousand-pound units for each aircraft operated at the Airport by Airline as certificated by the FAA or its successor.

1.16 Non-Revenue Landing shall mean any aircraft landed by Airline at the Airport for a flight for which Airline receives no revenue, including without limitation emergency flights that shall include any flight that after having taken off from the Airport and without making a landing at any other airport returns to land at the Airport because of meteorological conditions, mechanical or operating causes, or any other reason of emergency or precaution.

1.17 Public Space shall mean all hallways, elevators, escalators, entrance-ways, public lobbies and areas, public toilet areas and other areas used for the operation, maintenance or security of the Terminal, even if used solely by City.

1.18 Revenue Landing shall mean a landing of any aircraft by Airline at the Airport for which Airline receives revenue.

1.19 Revenues shall mean income, revenues, receipts and moneys accrued by City in accordance with generally accepted accounting practices, including investment earnings, from or in connection with the ownership or operation of the Airport or any part thereof or the leasing or use thereof, but excluding:

1.20 Rules and Regulations shall mean Airport's Rules and Regulations governing the conduct of operations at the Airport as well as the City's Termination Resource Use, Assignment and Scheduling Procedures, as they currently exist or as they may be amended or supplemented during the Term of this Lease Agreement; provided, however, no such Rules and Regulations shall be in conflict with the terms of this Lease Agreement.

1.21 Scheduled Airline shall mean an Air Transportation Company performing Scheduled Operations at the Airport.

1.22 Scheduled Operation shall mean a Scheduled Airline's operation (arrival or departure) that occurs pursuant to a schedule that is published in the Official Airline Guide (OAG) or any successor publication so long as such schedule is made available to City at least forty-five (45) days prior to the commencement or rescheduling of the operation.

1.23 Term shall mean the period of time during which Airline's activities at the Airport shall be governed by this Lease Agreement. Said Term shall begin on the Effective Date (as set

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forth in Article 2 hereof), and, except as otherwise set forth herein, terminate on the termination date set forth in Article 3 (subject to extension as provided in Article 2 hereof).

1.24 Terminal Aircraft Aprons shall mean those areas of the Airport that are primarily designated for the parking of passenger aircraft and support vehicles and the loading and unloading of passenger aircraft.

1.25 Terminal shall mean the passenger terminal buildings.

1.26 Ticket Counter shall mean those areas made available by the Airport for ticketing passengers and receiving baggage.

Article 2. Term

2.01 Effective Date. This Lease Agreement, along with the determinations of rentals, fees, and charges set forth herein, shall be effective on _____ (the "Effective Date").

2.02 Term. The term ("Term") of this Lease shall be for an initial ten (10) year period, with the Airline having the option to extend this Lease Agreement for two (5) year periods, exercised by the Airline, at its option, upon written notice to the City provided no less than ninety (90) days' prior to the end of then current Term. During the term, either party can terminate the Lease upon ninety (90) days' written notice.

Article 3. Grant of Rights to Use Airport

3.01 Airline Rights and Privileges. In addition to all rights granted elsewhere in this Lease Agreement, Airline shall have the right to use, in common with others so authorized by City, areas (other than areas leased preferentially or exclusively to others), facilities, equipment, and improvements at the Airport for the operation of Airline's Air Transportation Business (collectively "Leased Premises") and all activities reasonably necessary for such operations, including but not limited to:

3.01.1 The landing, taking off, flying over, taxiing, towing, and conditioning of Airline's aircraft and, in areas designated by City, the extended parking, servicing, deicing, loading or unloading, storage, or maintenance of Airline's aircraft and support equipment subject to the availability of space and subject to such reasonable charges and regulations as City may establish; provided, however, Airline shall not permit the use of the Airfield by any aircraft operated or controlled by Airline which exceeds the design strength or capability of the Airfield as described in the then-current FAA-approved Airport Layout Plan ("ALP") or other engineering evaluations performed subsequent to the then-current ALP, including the then-current Airport Certification Manual, without prior permission.

3.01.2 The loading and unloading of persons, property, cargo, parcels and mail by motor vehicles or other means of conveyance reasonably approved by City at Terminal Aircraft Aprons or such other locations as may be designated by the Director; provided Airline shall not use Terminal Aircraft Aprons immediately adjacent to the passenger Terminal to load or unload all-cargo aircraft unless otherwise authorized in writing by the Director.

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3.01.3 The sale of air transportation tickets and services, the processing of passengers and their baggage for air travel, the sale, handling, and providing of mail, cargo, and express services, and reasonable and customary airline activities.

3.01.4 The use of the Common Use Areas at the Airport for its employees/service providers, agents and directors in common with other employees.

3.01.5 The training of personnel in the employ of or to be employed by Airline and the testing of aircraft and other equipment being utilized at the Airport in the operation of Airline's Air Transportation Business; provided, however, said training and testing shall be incidental to the use of the Airport in the operation by Airline of its Air Transportation Business and shall not hamper or interfere with the use of the Airport and its facilities by others entitled to the use of same. City reserves the right to restrict or prohibit such training and testing operations which it deems to interfere with the use of the Airport, including excessive noise as reasonably determined by City.

3.01.6 The sale, disposition, or exchange of Airline's aircraft, engines, accessories, oil, grease, lubricants, fuel, or other similar equipment or supplies; provided, however, Airline shall not sell or permit to be sold aviation fuels or propellants except (i) to such Air Transportation Company which is a successor company to Airline, (ii) for use in aircraft of others which are being used solely in the operation of Airline's Air Transportation Business, including, but not limited to, Airline's code sharing partner(s), or (iii) when a comparable grade and type of fuel desired by others is not available at the Airport except from Airline.

3.01.7 The purchase at the Airport or elsewhere of fuels, lubricants, and any other supplies and services from any person or company, subject to City's right to require that each provider of services and/or supplies to Airline secures a permit from City to conduct such activity at the Airport, pays required fees, and abides by all reasonable Rules and Regulations established by City. No discriminatory limitations or restrictions shall be imposed by City that interfere with such purchases; provided, however, nothing herein shall be construed to permit Airline to store aviation fuels at the Airport. This Lease Agreement grants no right to store aviation fuels; the granting of any right to store aviation fuels shall be subject to the execution of a separate agreement between Airline and City.

3.01.8 The servicing by Airline or its suppliers of aircraft and other equipment being utilized at the Airport by Airline on the Terminal Aircraft Aprons or such other locations as may be designated by the Director.

3.01.9 The provision, either alone or in conjunction with other Air Transportation Companies or through a nominee, of porter/skycap service for the convenience of the public, at no cost to City.

3.01.10 Airline shall have the right to purchase, contract or otherwise obtain property, facilities or services deemed by Airline to be required by, or incident to, its Airport operations under this Lease from any persons or organizations Airline may choose. This shall include the receipt of services from, and/or the operation of flights by any domestic Air Transportation Company that is (i) a parent or subsidiary of Airline or (ii) otherwise operates under essentially the same trade name as Airline at the Airport and uses essentially the same livery as Airline, for the purpose of operating aircraft on behalf of Airline. Said operations shall be included as operations of the Airline for the determination, assessment, invoicing, and allocation of applicable airport fees, rates, and charges to the Airline.

3.01.11 Airline shall have the right to ingress and egress from the Airport and Airline Premises for Airline's officers, employees, agents, and invitees, including passengers, suppliers of materials, furnishers of services, aircraft, equipment, vehicles, machinery and other property. Such right shall be subject to 49 CFR Part 1542, applicable laws, and City's right in accordance with its applicable law to establish reasonable and nondiscriminatory Rules and Regulations governing (i) access by the general public, including Airline's passengers, and (ii) access to non-public areas at the Airport by Airline's employees, suppliers of materials, and furnishers of services; provided, however, any such Rules and Regulations of City shall not unreasonably interfere with the operation of Airline's Air Transportation Business. City may at any time temporarily or permanently close, re-route, or consent to or request the closing or re-routing of any roadway or access to the Airport, so long as a means of ingress and egress reasonably equivalent is concurrently made available to Airline. Notwithstanding the foregoing, as part of the obligations of Airline set forth in Article 11, Airline hereby releases and discharges City from any and all claims, demands, or causes of action which Airline may now or at any time hereafter have arising or alleged to arise out of such a closing or re-routing.

3.01.12 Subject to any applicable Airport Rules and Regulations, nothing in this paragraph shall prohibit Airline from (i) providing food and beverages, at Airline's sole cost and expense, in its non-public Exclusive Use Premises solely for Airline's employees, (ii) installing or maintaining vending machines in Airline's non-public Exclusive Use Premises solely for Airline's employees, the type, kind, and locations of which shall be subject to the approval of the Director, and (iii) providing under a separate agreement with City for its own flight kitchen at the Airport for catering services to its passengers and crews for consumption aboard aircraft or (iv) selling or providing food and beverages in a "VIP room" or similar private club at the Airport so long as Airline (A) purchases all alcoholic beverages or other beverages and any related food service items sold at or within any such area from an Airport concessionaire or (B) pays a concession fee related for the sale of all alcoholic beverages or other beverages and any related food service items sold at or within any such area (such concession fee shall be equal to the concession fee(s) for related items in the other areas of the Terminal). Nothing contained herein shall preclude Airline from providing food and beverages to its passengers in case of flight delays or cancellations without complying with the provisions of this Section 3.01.12.

3.01.13 Airline may exercise on behalf of any other Air Transportation Company having an operating agreement or permit with City any of the rights granted to Airline herein, so long as Airline is concurrently exercising those same rights in the operation of Airline's own Air Transportation Business at the Airport, subject to the provisions hereof.

3.01.14 Airline may only enter into agreements providing for pay telephones or internet access for the public in its airline clubs and VIP rooms, and Airline shall not enter into any agreements providing for pay telephones or internet access for the public anywhere else within the Airport.

3.01.15 Except as herein otherwise specified, Airline and its suppliers or contractors of property, facilities or services shall have the right to use the Airport and appurtenances free of any charges or fees by City of any nature, direct or indirect, for Airline's Airport operations as described herein under this Lease, including the necessary purchasing, selling, using, storing, withdrawing, handling, consuming, loading, unloading or delivering any such property or transporting the same to, from or at the Airport.

3.02 Employee Parking Facilities. Airline shall have the right to the reasonable use of adequate vehicular parking facilities for its employees/service providers at the Airport in common with other Airport employees. Such facilities shall be located in an area designated by the Airport Director. City reserves the right to impose a reasonable charge for such employee parking facilities, if deemed necessary, based on the cost of providing, operating, and maintaining the parking facilities.

3.03 Exclusions and Reservations. Nothing in this Article 3 shall be construed as authorizing Airline to conduct any business separate and apart from the conduct of its Air Transportation Business.

3.04 Limitations on Use by Airline. In connection with the exercise of its rights under this Lease, Airline shall not:

3.04.1 Airline shall not knowingly interfere or permit interference with the use, operation, or maintenance of the Airport, including but not limited to, the effectiveness or accessibility of the drainage, sewerage, water, communications, fire protection, utility, electrical, or other systems installed or located from time to time at the Airport.

3.04.2 Airline shall not dispose of nor permit any other person to dispose of any waste material into the sanitary or storm sewers at the Airport or elsewhere (whether liquid or solid) unless such waste materials or products are first properly treated in compliance with law. Nothing herein shall prohibit Airline from disposing of human waste taken from its aircraft in properly designated sanitary sewer facilities.

3.04.3 Keep or store, during any twenty-four (24) hour period, flammable liquids within the enclosed portion of the Leased Premises in excess of Airline's working requirements during said twenty-four (24) hour period, except in storage facilities especially constructed for such purposes in accordance with standards established by the National Board of Fire Underwriters, and approved by the Airport Director from the standpoint of safety. Any such liquids having a flash point of less than one hundred degrees Fahrenheit (100F) shall be kept and stored in safety containers of a type approved by the Underwriters Laboratories.

3.04.4 Do or permit its agents, employees, directors or officers to do any act or thing upon the Airport premises that will jeopardize the Airport's operating certificate.

3.04.5 Do or permit its agents, employees, directors or officers to do any act or thing in conflict with the Airport's TSA approved security plan.

3.04.6 Airline shall not engage in any activity prohibited by City's approved FAR Part 150 Noise Compatibility Study and Preferential Runway Use Program as amended or supplemented from time to time in accordance with applicable law.

3.04.7 Airline shall not do or permit to be done anything, either by act or failure to act, that shall cause the cancellation or violation of the provisions, or any part thereof, of any policy of insurance for the Airport or that shall cause a hazardous condition so as to increase the risks normally attendant upon operations permitted by this Lease Agreement. If Airline shall do or permit to be done any act not permitted under this Lease Agreement, or fail to do any act

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required under this Lease Agreement, regardless of whether such act shall constitute a breach of this Lease Agreement, which act or failure, in and of itself, causes an increase in City's insurance premiums, Airline shall immediately remedy such actions and/or pay the increase in premiums, upon notice from City to do so.

3.04.8 Airline shall not maintain or operate in the Terminal or elsewhere at the Airport a cafeteria, restaurant, bar, or cocktail lounge for the purpose of selling food and beverages to the public or to Airline's employees and passengers, except as may be permitted under Section 3.01.12 above.

3.04.9 City may, at its sole option, install or cause to be installed advertising and revenue generating devices, including vending machines, in Common Use Areas. City may also, at its sole option, install pay telephones or internet access in any part of the Terminal excluding airline clubs and VIP rooms. City shall be entitled to reasonable access to all lease hold areas to install or service such telephones, internet access and devices. Income generated by such telephones, internet access and devices shall be accounted for in the same manner as other non-airline Revenues of the Airport.

3.04.10 Except as otherwise provided in Section 3.01.12 above, Airline shall not install or operate amusement machines or vending machines.

3.04.11 Airline shall not disturb any asbestos at the Airport without first obtaining all permits and approvals as required by applicable Environmental Laws or by the City.

3.04.12 The rights and privileges granted Airline pursuant to this Article 3 shall be subject to any and all reasonable and nondiscriminatory Rules and Regulations established by City, as such Rules and Regulations may be amended from time to time, and to the provisions of this Lease Agreement. Airline covenants and agrees that it will not violate or permit its agents, contractors or employees to violate any such Rules and Regulations. City may prescribe civil penalties and injunctive remedies for violations of any Rules and Regulations, and the same may be applied to Airline for violations of Airline’s agents, contractors or employees.

3.04.13 Any and all rights and privileges not specifically granted to Airline for its use of and operations at the Airport pursuant to this Lease Agreement are hereby reserved for and to City.

Article 4. Assignment and Subleasing

4.01 Assignment. This Lease Agreement may be assigned by Airline with prior written consent of the City, which will not be unreasonably withheld. Any assignment without such consent shall be null and void. No assignment shall relieve Airline (Assignor) from any of its obligations and liabilities under the Lease Agreement with respect to City. The City Manager shall have authority to consent to an assignment on behalf of City. Notwithstanding anything contained herein to the contrary, this Lease Agreement may be assigned by Airline, without the City’s consent, to an entity with whom Airline may merge or consolidate or to an entity that may succeed to all or substantially all of the Airline’s assets.

4.02 Successors and Assigns. All covenants and conditions of this Lease Agreement shall bind and shall inure to the benefit of the legal representatives, successors and assigns of the

respective Parties to this Lease Agreement, provided that any such representation, succession or assignment is authorized and permitted under this Lease Agreement and by law. Any and all agreements that Airline shall make with any permitted assignee, and/or contracted airline of the Leased Premises, or any part thereof, shall be deemed to include all provisions contained in this Lease Agreement.

Article 5. Operation and Maintenance of the Airport

5.01 Maintenance of Airport by City. City shall operate, maintain and keep in good repair the Airport, Administration Building, and all appurtenances, facilities and services now or hereafter connected with the foregoing, and shall maintain and operate the Airport Premises in all respects in a manner at least equal to the highest standards or ratings for airports of similar size and character issued by the Federal Aviation Administration ("FAA"), and in accordance with all rules and regulations of the FAA. Without limiting the generality of the foregoing, the maintenance provided for herein shall include the keeping of runways, aprons, strips, and ramps free of snow and other obstructions insofar as reasonably possible.

5.02 Maintenance of Airport by Airline.

5.02.1 Airline shall, at its sole expense, maintain the Exclusive Use Premises in good repair, normal wear and tear, provided, however, that Airline shall not be obligated to repair any damages because of structural defects in the Terminal, nor shall Airline be required to make any replacements or substantial repairs, which were not occasioned by damage caused by Airline).

5.02.2 Airline shall, at its sole expense, maintain its Terminal Aircraft Aprons in a neat, clean, and orderly condition, free from litter, debris, refuse, petroleum products, or grease that may result from activities of its passengers, employees, agents, or suppliers; and remove all oil and grease spillage that is attributable to Airline's aircraft or equipment from its aircraft parking positions.

5.02.3 Airline shall, at its sole expense, perform ordinary preventative maintenance and ordinary upkeep and nonstructural repair of all facilities, personal property, and equipment, including, but not limited to, fixtures, doors and windows, floor coverings, ticket counters (except for the facade), and baggage and passenger examination and inspection facilities within Airline's Exclusive Use Premises of the Terminal, including all electrical work, plumbing, appliances, and fixtures. City, at its own expense, shall maintain and keep in good repair the exterior portions of the walls and roof of the Airport and all central mechanical distribution systems.

5.02.4 Airline shall, at its sole expense, promptly repair any damage in any other location at the Airport caused by the fault or negligence of Airline, its servants, agents, employees, licenses, passengers, and invitees.

5.02.5 Airline expressly agrees that City shall not be liable to Airline, for bodily injury or for any loss or damage to real or personal property caused by flood, fire, earthquake, lightning, windstorm, hail, explosion, riot, strike, civil commotion, smoke, vandalism, malicious mischief, acts of civil authority, or any other cause beyond the control of City.

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5.02.6 If Airline fails to perform any of its obligations under this Section of the Lease, City may elect to do so after prior reasonable written notice and recover its entire cost plus a fifteen percent (15%) administrative charge from Airline.

5.03 Alterations or Improvements by Airline.

5.03.1 Airline shall have the right to install, maintain, and operate, at no cost to City, such radio communication, company telephone system, computer, meteorological and aerial navigation equipment and facilities on Airline's Exclusive Use Premises as may be necessary or convenient for the operation of its Air Transportation Business; provided, however, that except for equipment and facilities already in place, such installations shall be subject to the prior written approval of the Director. Prior to any written approval, Airline shall provide the Director with all necessary supporting documentation related to such installations.

5.03.2 City shall grant to Airline such rights of way as may reasonably be required by Airline for communications, computer equipment, teletype, telephone, interphone, conveyor systems and power, and other transmission lines in areas preferentially-leased by Airline, subject to the availability of space and/or ground areas as determined by the Director. City reserves the right to require the execution of a separate agreement between City and Airline for the lease and use of such space and/or ground area outside Terminal.

5.03.3 Airline shall have the right to install personal property, including furniture, furnishings, supplies, machinery, and equipment, in Airline's Exclusive Use Premises as Airline may deem necessary, useful or prudent for the operation of its Air Transportation Business (the installation of such personal property shall be permitted only as provided in the Airport Rules and Regulations). Title to any such personal property (including removable trade fixtures but excluding other fixtures and improvements to the Terminal) shall remain with Airline, subject to the provisions of this Lease Agreement.

5.03.4 Airline shall make no improvements to the Exclusive Use Premises until it has first, at its sole cost and expense, submitted all design and construction plans, specifications and related documents for the improvements to City's Planning and Development Services Division, and that Division has issued a building permit for the improvements, where applicable. Airline shall further diligently pursue and obtain all other permits, licenses and authorizations required.

5.03.5 Before commencing any improvement or equipment installation at the Exclusive Use Premises, Airline shall require that its construction contractors procure and maintain insurance for any construction and installation protecting both Airline and City, as well as the construction contractors, with policy amounts and coverage as City in each instance determines and provide certificates of insurance with respect to all such policies to City prior to commencement of construction. Such policies shall name City as an additional insured.

5.03.6 Airline shall ensure that all improvements, additions or alterations constructed by Airline within the Leased Premises are constructed in a good and workmanlike manner and conform to all applicable statutes, ordinances, building codes, rules and regulations of any governmental authority having jurisdiction, and to the general architectural scheme of the Terminal Building. Airline shall require in all contracts for construction that all contractors also

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comply with all applicable statutes, ordinances, codes, rules and regulations. Airline's construction work shall be subject to inspection by City's Planning and Development Services Division and its authorized personnel upon prior reasonably notice and during reasonable business hours. Airline shall keep the Leased Premises free and clear of liens for labor and material and shall hold the City harmless from any liability arising therefrom.

5.03.7 Construction Period. Airline shall commence construction of improvements at the Leased Premises not later than thirty (30) days from the date of its receipt of a building permit and all other required permits, licenses and authorizations and shall complete construction of all improvements expeditiously. The issuance of a Certificate of Occupancy for the Leased Premises following a satisfactory final inspection by City's Planning and Development Services Division shall signify completion of construction and City's acceptance of Airline's improvements.

5.03.8 Cost of Improvements. Airline shall bear all costs of the construction of any and all improvements, alterations and additions to the Leased Premises by or for Airline.

5.03.9 Additional Alterations, Additions or Replacements. Airline shall obtain a building permit, where applicable, prior to making no alterations, additions, replacements or improvements to the Leased Premises for which a building permit (where applicable) is required. Airline shall not install any equipment which requires any electrical connection (other than by ordinary wall plug or floor receptacle) nor make any changes in those electrical connections installed on the Leased Premises, without the prior written consent of the Airport Director. Any electrical service needed by Airline other than that provided at the execution of this Lease Agreement shall be installed and provided at Airline's sole cost and expense.

5.04 Signs. Except as may be otherwise provided in this Lease Agreement, Airline shall not erect, install, operate or cause or permit to be erected, installed or operated at the Leased Premises, the Terminal Building or any other Airport property, any signs or similar advertising devices without having first obtained the written consent of the Airport Director, which consent shall not be unreasonably withheld, conditioned or delayed. All such signs or similar advertising devices shall not conflict with the rights of other airlines or concessionaires at the Airport and shall conform in all respects to the applicable requirements of City's Sign Code.

5.05 Airline Operating Plans. Airline shall be responsible for submitting a plan of reasonable operation for all of the services provided as part of its Air Transportation Business under this Lease Agreement. The operation plan shall be subject to approval by the Airport Director. The operation plan shall include placement of equipment and general operating procedures including the procedures and methodology for deicing planes. Procedures shall include the brand name and chemical description of the deicing agent, and methods for application. Aircraft maintenance runups shall only be conducted in areas designated by the Airport Director.

5.06 Damage or Destruction. In the event that due to the negligence or willful act or omission of Airline, its employees, its agents, or licensees, Airline Premises shall be damaged or destroyed by fire, other casualty or otherwise, there shall be no abatement of rent during the repair or replacement of said Airline Premises. To the extent that the costs of repairs shall

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exceed the amount of any insurance proceeds payable to City by reason of such damage or destruction, Airline shall pay the amount of such additional costs to City.

5.07 Removal of Disabled Aircraft. Airline shall after release, if applicable, from any government authorities or agencies with jurisdiction over such disabled aircraft promptly remove any of its disabled aircraft from any part of the Airport (including, without limitation, runways, taxiways, aprons, and gate positions) and place any such disabled aircraft in such storage areas as may be designated by the Airport Director. Airline may store such disabled aircraft only for such length of time and on such terms and conditions as may be determined by City. If Airline fails to remove any of its disabled aircraft promptly, after release, if applicable, from any government authorities or agencies with jurisdiction over such disable aircraft, the Airport Director may, after informing Airline of his intent to do so, but shall not be obligated to, cause the removal of such disabled aircraft; provided, however, the obligation to remove or store such disabled aircraft shall not be inconsistent with Federal laws and regulations. All costs expended by City in the removal of such aircraft shall be paid by Airline.

Article 6. Rents, Fees and Utilities

6.01 Rental Amount. The minimum annual rental amount for the Leased Premises shall be $36,000.00 per year for 1,027 square feet of Ticket Counter space, office space and storage and an additional rental fee for 0 square feet of additional office space at $0per square foot per year, inclusive of applicable taxes. The annual rental amount shall be payable monthly, in advance, beginning on ____ 2019. If payments are more than thirty (30) days late, a penalty charge of ten percent (10%) of the amount of the rent, plus interest at the rate of one percent (1%) per month or fraction of a month, is due and payable until paid.

6.01.1 Storage. The City will allow a semi-permanent storage unit adjacent to the Terminal Building at an agreed upon location determined by the Airline and Airport Director and the Airline will pay $.34 per square foot for such storage unit. Such storage shall not interfere with the movement of aircraft.

6.02 Landing Fee. At the beginning of each month, Airline shall provide the Airport Director or designee with a landing report containing the following data from the previous month: the number or scheduled flights, the number of actual flights, the number of deplanements, the number of enplanements, the aircraft type(s) used during the previous month, and a calculation of landing weight based on total aircraft landings for the report month. All calculations for aircraft weight must be based on FAA Certificated weight rounded to the nearest 1,000 pounds. The City will generate an invoice based on the total landing weight for the month. Except to the extent the City has approved an incentive agreement related to new routes, Airline shall pay to City, on or before the fifteenth (15th) day of each month, a landing fee at the rate of $1.09 per thousand pounds of declared maximum certified gross landing weight of the aircraft landed at the Airport by Airline during the previous month. If the aircraft has returned to field landing for mechanical, emergency, or weather-related instances, this fee will be waved.

6.02.1 For calculation of the monthly landing fee, the maximum certified gross certificated weight in one thousand-pound units for which each aircraft operated at the Airport by Airline as certificated by the FAA or its successor shall be used. Landing fees shall be calculated on the

basis of the total number of actual landings made during the previous month. Airline shall provide the Airport Director with a verified copy of Airline's total previous month's landings which shall be used as the basis for determining the actual monthly landing fee amount on or before the 15th day of each month. Airline shall submit this information in addition to other information, i.e., enplanements and deplanements, in a manner prescribed by the Airport Director.

6.03 Fees. Airline shall be responsible for payment of all current and future fees in effect during the term of this Lease Agreement. The City will provide written notification to Airline one hundred and twenty (120) prior to implementing a new fee.

6.04 Current Status. All of Airline's accounts with City shall be kept current during the term of this Lease Agreement.

6.05 Rental Rate Adjustment. The annual rental rate owed by Airline to City shall be adjusted annually at the anniversary date of the commencement of this Lease Agreement. The rental rate adjustment shall be an increase of 2% of the preceding year's annual rental payment.

6.06 Utilities. City hereby agrees to provide water, gas, sewer, electric to the Leased Premises as well as to all public and non-exclusive areas of the Terminal Building at the Airport at no additional charge to Airline.

Article 7. Payment Provisions

7.01 Invoices. City shall send an invoice, on a monthly basis, to Airline for the rent payable by Airline pursuant to Section 6.01 hereof. The rent payable under Section 6.01 hereof is payable in advance, monthly, regardless of when, or if, the invoice is received by Airline. The City may include any applicable fees in the monthly invoice for rent or the City may separately invoice any applicable fees. Either way, the invoice will set forth the due date for payment of those fees.

7.02 Taxes. Airline shall be responsible for payment of all taxes including federal, state, and local taxes related to or arising out of Airline's operations pursuant to this Lease Agreement. Such taxes include but are not limited to federal and state income tax, social security tax, unemployment insurance taxes, transaction privilege taxes, use taxes, and any other taxes or business license fees as applicable.

7.03 Federal Excise Taxes. The City is exempt from paying certain Federal Excise Taxes and will furnish an exemption certificate upon request.

7.04 Fuel Charges. Airline, at its own expense, is liable for all fuel costs related to performance. No fuel surcharges will be accepted or paid by City.

Article 8. Compliance with Laws, Rules and Regulations

8.01 General. Airline, its employees, representatives and agents, shall comply at all times with all present or future applicable laws, rules, ordinances and regulations, and all amendments or supplements thereto, governing or relating to the use of the Airport, the Terminal

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or the Airport Premises, as may from time to time be promulgated by federal, state or local governments and their authorized agencies.

8.02 Airport Rules and Regulations. Airline covenants and agrees to observe and obey all rules and regulations adopted by the City with respect to the use of, conduct and operation of the Airport, the Terminal Building or any additions or improvements therein.

8.03 Energy Conservation. Airline shall comply with mandatory standards and policies relating to energy efficiency as contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 USC 6201*et seq*).

8.04 Compliance with Airport Improvement Program. Airline covenants and agrees that this Lease Agreement may be amended by the City, after consultation with Airline, in a manner necessary to comply with any requirement of the FAA or other instrumentality of the federal government or State of Arizona in order for the City to qualify or maintain its qualification under the Airport Improvement Program, as authorized and administered under the Airport and Airway Improvement Act of 1982, 49 U.S.C. § 47101 et seq., as amended.

8.05 Compliance with FAA Assurances. Airline covenants and agrees to comply in all respects with the FAA Airport Assurances attached to and incorporated into this Lease Agreement as Exhibit A, and any subsequent amendments thereto (in which the term "sponsor" shall be deemed to mean and include the City), to the extent that its terms shall be applicable to Airline and its operations under this Lease Agreement.

8.06 Airline to Observe Rules and Regulations. Airline shall observe and obey all reasonable nondiscriminatory and lawful Rules and Regulations which may from time to time be promulgated by City for operations at the Terminal Building and at the Airport, provided, the same are consistent with safety, do not conflict with the provisions of this Lease Agreement or regulations and procedures prescribed by the FAA for operations of Airline's aircraft at the Airport.

8.07 Nondiscrimination. Airline shall not discriminate against any employee or applicant for employment or person to whom it provides services because of race, color, religion, sex, national origin, disability, genetic information, veteran’s status, pregnancy, familial status and represents and warrants that it complies with all applicable federal, state and local laws and executive orders regarding employment. In addition, any Airline located within City of Flagstaff limits shall comply with Flagstaff City Code, Chapter 14-02, Civil Rights, which also prohibits discrimination based on sexual orientation or gender identity or expression.

8.08 Federal and State Immigration Laws. Pursuant to A.R.S. § 41-4401, Airline hereby warrants to the City that the Airline shall and shall require that each of its subcontractors comply with, and are contractually obligated to comply with, all State and Federal Immigration laws and regulations that relate to its 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 Lease Agreement and shall subject the Airline to penalties up to and including termination of this Lease Agreement at the sole discretion of the City. The City retains the legal right to inspect employment verification documents of any Airline or subcontractor employee who works on this Lease Agreement to ensure compliance with the Contractor

Immigration Warranty. Airline 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 Airline and any subcontractors to ensure compliance with Contractor's Immigration Warranty. Airline agrees to assist the City in regard to any random verification performed. Neither Airline nor any subcontractor shall be deemed to have materially breached the Contractor Immigration Warranty if Airline 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(A).

8.09 Security. The Airport operates under a TSA approved Security Program ("Security Program''), and in accordance with the Aviation and Transportation Security Act, 49 U.S.C. Section 40101 et seq., 49 CFR Part 1542.The Security Program requires all air service carriers at the Airport to comply with the Security Program. City shall provide a sterile screening and holding room for the non-exclusive use of Airline at the Terminal Building. All areas airside of the Terminal shall be controlled. Entry by unauthorized persons, ground equipment, and aircraft is prohibited. All enplaning passengers shall be screened prior to boarding the aircraft. Airline's personnel shall closely monitor enplaning passengers to ensure each passenger remains sterile during the boarding process. Airline shall be responsible for unclaimed baggage. Each piece of unclaimed baggage unloaded from Airline's aircraft, which remains unclaimed, forty-five (45) minutes after the arrival of the flight on which the baggage was transported, shall be retrieved by Airline and stored in Airline's secure baggage area.

Article 9. Environmental

9.01 Hazardous Materials.

9.01.1 Standards of Operation – Disposal, Use and Storage of Hazardous Materials. The voluntary or involuntary release or discharge of Hazardous Materials on the Airport is strictly prohibited (except to the extent, if any, that disposal of Hazardous Materials through the City's sewerage system complies with all applicable Environmental Laws). Storage and use of Hazardous Materials on the Airport is prohibited, except:

(a) Airline may store and use Hazardous Materials on the Airline Premises in a safe and prudent manner and in accordance with the requirements of all applicable Environmental Laws but only for those kinds and quantities of Hazardous Materials that are normally used in conducting the activities permitted under this Lease Agreement. Airline shall provide Director with a copy of any application for a permit, if required, for use or storage of Hazardous Materials on the Airline Premises from any regulatory agency responsible for enforcement of Environmental Laws and shall also provide a copy of any permit received from such agency; and

(b) Airline may use Hazardous Materials on the Airport other than the Airline Premises only in a safe and prudent manner and in accordance with the requirements of all applicable Environmental Laws but only for those kinds and quantities of Hazardous Materials which are commonly used in conducting the activities permitted under this Lease Agreement and for which no permit is required to be obtained from any regulatory agency under any Environmental Law.

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9.01.2 Liability. Airline shall be solely and fully responsible and liable for:

(a) Storage, use or disposal of Hazardous Materials on the Airline Premises or the Airport by Airline, Airline's officers, agents, employees, contractors, permittees or invitees; or

(b) Any Hazardous Materials release or discharge which is caused by or results from the activities of Airline, Airline's officers, agents, employees, contractors, permittees or invitees on the Airline Premises or the Airport.

9.01.3 Prevention of Release or Discharge. Airline shall take all reasonable precautions to prevent its activities from causing any Hazardous Materials release or discharge to occur on the Airline Premises or the Airport and shall take all reasonable precautions to prevent any unlawful release or discharge into soil, groundwater, or City's sewage or storm drainage system. All spills must be reported to the Airport Operations/ARFF staff immediately (928-213-2936).

9.01.4 Obligation to Investigate and Remediate. Airline, at Airline's sole cost and expense, shall promptly investigate and remediate, in accordance with requirements of all applicable Environmental Laws, any release or discharge or threat of release or discharge of Hazardous Materials on the Airline Premises or the Airport, including but not limited to any release or discharge or threat of release or discharge into soil or groundwater which was caused or results in whole or in part from the activities of Airline, Airline's officers, agents, employees, contractors, permittees or invitees but excluding the disposal of Hazardous Materials through the City's sewerage system so long as such disposal complies with all applicable Environmental Laws. In addition to all other rights and remedies of City hereunder, if Airline does not promptly commence investigation of any such release or discharge or threat of release or discharge or diligently pursue appropriate remedial activities as required by applicable Environmental Laws, City, in its discretion, may pay to have same investigated and remediated as required by applicable Environmental Laws, and Airline shall reimburse City for its share of the costs within thirty (30) days of City's demand for payment. The failure to commence investigation and provide City with a schedule for diligent completion of any required remediation within thirty (30) business days after (a) Airline's discovery of such release or discharge or threat of release or discharge or (b) notice of such release or discharge or threat of release or discharge to Airline shall constitute prima facie evidence of failure to promptly commence investigation and remediation.

9.01.5 Indemnification. In addition to the obligations of Airline as set forth in Section 11.01 hereof, Airline shall defend (with counsel acceptable to City in City's reasonable discretion), indemnify and hold City harmless from and against all loss, damage, liability (including all consequential damages) and expense (including, without limitation, the reasonable and necessary costs of any cleanup and remediation of Hazardous Materials as required by applicable Environmental Laws) which City may sustain as a result of storage, use or disposal of Hazardous Materials on the Airline Premises or the Airport by Airline, Airline's officers, agents, employees, contractors, permittees or invitees; or (b) Any Hazardous Materials release or discharge on the Airline Premises or the Airport other than the Exclusive Use Premises, including but not limited to any release or discharge into soil or groundwater, or City's sewage or storm drainage system,

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which is caused by or results from the activities of Airline, Airline's officers, agents, employees, contractors, permittees or invitees.

9.01.6 Release of Claims Against City. Airline releases, acquits and forever discharges City from any and all claims, actions, causes of action, demands, rights, damages, costs, including but not limited to loss of use, lost profits, or expenses, which Airline may now have, or which may hereafter accrue on account of or in any way growing out of all known and unknown, foreseen and unforeseen bodily and personal injuries and property damage, and the consequences thereof resulting or arising out of the presence or cleanup of any Hazardous Materials on the Airline Premises or the Airport, but only to the extent the presence of such Hazardous Materials was not caused by or did not result from the negligence, willful misconduct, acts or omissions of City, City's officers, agents, employees contractors, permittees or invitees. This release shall not apply to any claims for contribution that Airline may have against City in the event that Airline incurs any cost in undertaking any cleanup of Hazardous Materials from the Airline Premises or the Airport ordered by a governmental agency, to the extent that the cleanup order and costs result from a release or discharge of Hazardous Materials for which Airline is not responsible and liable under this Lease Agreement.

9.01.7 Records and Inspections.

(a) If Airline makes any written disclosure, or provides any report, to any governmental agency concerning Hazardous Materials at the Airport, Airline shall concurrently also provide a copy of such disclosure or report to City.

(b) Airline shall promptly deliver to City all notices that Airline receives from any governmental agency or third party concerning Hazardous Materials at the Airport.

(c) Airline shall maintain, during the term of this Lease Agreement and for a period of not less than five (5) years after the expiration or termination of this Lease Agreement, or for any longer period of time required by any applicable law, regulation, policy, order or decree, separate and accurate daily records pertaining to the use, handling and disposal of any Hazardous Materials by Airline, Airline's officers, agents, employees, contractors, permittees or invitees on or from the Airport.

9.01.8 Airline Obligations Upon Termination. Prior to vacating the Airline Premises, and in addition to all other requirements under this Lease Agreement and without limiting Airline's indemnification obligations under Section 11.01, Airline shall remove any Hazardous Materials placed on the Airline Premises during the Term by Airline or as a result of Airline's use or occupancy of the Airline Premises during the Term and shall demonstrate to City's reasonable satisfaction that such removal is in compliance with all applicable Environmental Laws, including without limitation conducting any environmental audits as may be required by City to demonstrate such removal has been completed according to the terms of this Lease Agreement. This removal and demonstration shall be a condition precedent to City's return of the Contract Security to Airline upon termination or expiration of this Lease Agreement.

9.01.9 Survival of Obligations. Airline's obligations under this Section 10.01 shall survive the expiration or earlier revocation or suspension of this Lease Agreement.

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9.02 Stormwater.

9.02.1 Notwithstanding any other provisions or terms of this Lease Agreement, Airline acknowledges that certain properties within the Airport, or on City owned land, are subject to federal and state stormwater rules and regulations. Airline agrees to observe and abide by such stormwater rules and regulations as may be applicable to City's property and Airline's uses thereof.

9.02.2 Airline acknowledges that any stormwater discharge permit issued to City may name Airline as a co-permittee. City and Airline both acknowledge that cooperation is necessary to insure compliance with any stormwater discharge permit terms and conditions, as well as to insure safety and to minimize cost of compliance. Airline acknowledges further that it may be necessary to undertake such actions to minimize the exposure of stormwater to "significant materials" generated, stored, handled or otherwise used by Airline, as such term may be defined by applicable stormwater rules and regulations, by implementing and maintaining "best management practices" as that term may be defined in applicable stormwater rules and regulations.

9.02.3 City will provide Airline with written notice of any stormwater discharge permit requirements applicable to Airline and with which Airline may be obligated to comply from time-to-time, including but not limited to: certification of nonstormwater discharges; collection of stormwater samples; preparation of stormwater pollution prevention or similar plans; implementation of best management practices; and maintenance of necessary records. Such written notice shall include applicable deadlines. Airline agrees that within thirty (30) days of receipt of such written notice it shall notify City in writing if it disputes any of the stormwater permit requirements it is being directed to undertake. If Airline does not provide such timely notice, Airline will be deemed to assent to undertake such stormwater permit requirements. In that event, Airline agrees to undertake, at its sole expense, unless otherwise agreed to in writing between City and Airline, those stormwater permit requirements for which it has received written notice from City, and Airline agrees that it will hold harmless and indemnify City for any violations or non-compliance with any such permit requirements.

Article 10. Indemnification, Waiver of Claims and Insurance

10.01 Indemnification.

10.01.1 Airline shall indemnify, defend and hold harmless City, its officers, officials, agents, employees and volunteers (each an "Indemnitee") from and against all third-party claims, demands, actions, liabilities, damages, losses, or expenses, including court costs, costs of claim processing, investigation, and litigation, and reasonable attorney's fees (collectively referred to hereinafter as "Claims") whether or not meritorious, for bodily injury or personal injury, including death, or property damage, caused by or arising from, in whole or in part, the acts, errors, omissions, negligence, or alleged negligence of Airline, or any of Airline's directors, officers, agents, employees, volunteers, contractors or subcontractors.

10.01.2 This indemnification includes all Claims arising or recovered under the Workers' Compensation laws or arising out of the failure of Airline to comply with any federal, state

or local law, statute, ordinance, rule, regulation or court decree. It is the specific intention of the Parties that the Indemnitee shall be indemnified by Airline from and against all Claims, except to the extent same arise from the sole negligence of any Indemnitee. Airline shall be responsible for all primary loss investigation, defense, and judgment costs where this indemnification is applicable. This indemnification by the Airline shall extend, but not be limited to, the following:

(a) Construction by or through Airline of any improvements or any other work or thing done in, on or about the Leased Premises or any part thereof;

(b) Any use, nonuse, possession, occupation, alteration, repair, condition, operation, maintenance or management of the Leased Premises, areas adjacent thereto or improvements thereon by or through Airline, or any nuisance made or suffered thereon, or any failure by Airline to keep the Leased Premises or space comprising a part thereof in a safe condition;

(c) Any fire, accident, injury (including death) or damage to any person or property occurring in, on or about the Leased Premises, areas adjacent thereto or improvements thereon, or any part thereof;

(d) Any lien or claim which may be alleged to have arisen against or on the Leased Premises, or improvements thereon, or any part thereof, or any of the assets of, or funds appropriated to, City, or any liability which may be asserted against City with respect thereto;

(e) Any acts or omissions of Airline, Airline's assignee or subtenant or any of its or their respective agents, contractors, servants, employees, licensees or invitees;

(f) Any failure on the part of Airline to pay rent or landing fees, or to perform or comply with any of the covenants, agreements, terms or conditions contained in this Lease Agreement, and the exercise by City of any remedy provided in this Lease Agreement with respect thereto;

(g) Any tax which Airline is obligated to pay or cause to be paid, including any tax attributable to the execution, delivery or recording of this Lease Agreement.

10.01.3 The foregoing provisions shall survive the expiration or earlier termination of this Lease Agreement to the extent that the act, error, omission, negligence or alleged negligence arose prior to such expiration or termination.

10.01.4 Airline shall hold all goods, materials, furniture, fixtures, equipment, machinery and other property whatsoever on the Leased Premises at the sole risk of Airline, and, to the extent set forth above, hold City harmless from any loss or damage thereto by any cause whatsoever, except to the extent caused by the City or its employees', contractors', agents', or invitees' sole negligence or intentional misconduct. The obligations of Airline under this Lease Agreement shall not in any way be affected by the absence of insurance coverage, or by the failure or refusal of any insurance carrier to perform any obligation on its part to be performed under insurance policies affecting this Lease Agreement.

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10.01.5 In the event that any Claims are made or brought against City by reason of any Claim for which Airline is required to indemnify the City hereunder, then, upon demand by City, Airline, at its sole cost and expense, shall defend such Claims in City's name.

10.01.6 Notwithstanding the foregoing, City may engage its own attorneys to defend it or to assist in its defense, and Airline shall pay the reasonable fees and disbursements of such attorneys. City recognizes the broad nature of this indemnification and hold harmless clause and voluntarily makes this covenant and expressly acknowledges that the terms and conditions of this Lease Agreement constitute good and valuable consideration provided by Airline in support of this indemnification in accordance with laws of the State of Arizona.

10.02 Waiver of Claims.

10.02.1 Airline hereby waives all claims or causes of action against City, its officers, officials, agents, employees and volunteers which it may now or hereafter have for damages to any property on, about, or related to the Airport, and for injuries or death to persons on, about or related to the Airport, from any cause or causes arising at any time, except from the sole negligence of City, its officers, officials, agents, volunteers or employees.

10.02.2 By way of example and not limitation, save and except as arises out of the negligent or willful act of City, its officers, or employees, Airline hereby waives any and all claims or causes of action which it may now or hereafter have against City, its officers, or employees:

(a) for loss, injury, or damage sustained by reason of any deficiency, impairment, and interruption of any water, electrical, gas, plumbing, air conditioning, or sewer service or system serving any portion of the Airport;

(b) [reserved]; and

(c) for any loss or damage to the property of, or injury or damage to Airline, its officers, employees, agents, contractors, or any other person whomsoever, from any cause or causes arising at any time because of Airline's use or occupancy of the Airline's premises or of the Airport, or its operations thereon (City will use its best efforts to control the activities of other users).

10.03 Insurance.

10.03.1 Insurance Requirements. In addition to such insurance as may be required by law or regulation, Airline, at its sole cost and expense, shall maintain in full force and effect throughout the term of this Lease Agreement the insurance coverages, limits and endorsements required herein. The insurance requirements contained herein shall be minimum requirements for this lease and in no way limit the indemnification covenants contained in Article 10. Neither the insurance requirements nor the City's review or acceptance of insurance, shall in any manner limit or qualify the liabilities and obligations assumed by Airline hereunder.

10.03.1.1 Minimum Scope and Limits of Insurance.

(a) Aircraft Liability Insurance. Airline shall maintain Aircraft Liability Insurance with respect of all aircraft owned, leased or operated by Airline for bodily injury (including

death) and property damage liability at limits in accordance with Code of Federal Regulations Title 14 Part 205. Coverage shall include Airport premises, all ground operations, including Ramp and Taxiway, Aircraft Products and Completed Operations.

(b) Commercial General Liability Insurance - Occurrence Form. Airline shall maintain Commercial General Liability Insurance at limits of not less than $5,000,000 Combined Single Limit per occurrence for Personal Injury, Bodily Injury (including death) and Property Damage Liability and shall include, but not be limited to Premises and Operations, Personal Injury, Products-Completed Operations, and Contractual. Fire Damage (Damage to Rented Premises) shall be not less than $100,000. In the event Airline operates a VIP Room, an endorsement or separate coverage for Liquor Liability shall be maintained at $1,000,000. Coverage shall be provided on a primary basis.

(c) Business Automobile Liability Insurance. Airline shall maintain Business Automobile Liability Insurance covering all Owned, Hired, and Non-Owned Vehicles used on the Airport in an amount of not less than $1,000,000 Combined Single Limit per occurrence for Bodily Injury (including death) and Property Damage Liability; provided however, that if the scope and conduct of Airline's operations under this Lease Agreement require vehicle access to the Ramp Area, Airline shall maintain Business Automobile Liability Insurance in an amount no less than $5,000,000 Combined Single Limit per occurrence for Bodily Injury (including death) and Property Damage Liability. Notwithstanding the foregoing, if the scope and conduct of Airline's operations under this Lease Agreement do not involve the operation, ownership or use of any vehicle, then this requirement shall include automobile liability for Hired and Non-Owned vehicles only.

(d) Workers Compensation Insurance. Airline shall maintain Workers Compensation and Employers Liability insurance written in accordance with the laws of the State of Arizona providing coverage for any and all employees of Airline. Coverage shall include Employers liability with minimum limits of $500,000 each accident, $500,000 Disease-Policy limit and $500,000 Disease-Each Employee. Coverage shall include Broad Form All States Endorsement and Waiver of Subrogation in favor of City of Flagstaff. In the event Airline subcontracts any portion of the work or services under this Lease Agreement to another party, Airline shall be responsible for ensuring its subcontractors maintain Worker's Compensation & Employers Liability Insurance. Evidence of self-insurance in the State of Arizona as approved by the State's Industrial Commission may be substituted.

10.03.2 Other Insurance Requirements. All policies shall contain the following provisions:

(a) Additional Insured Endorsement. Except for Workers Compensation/Employer's Liability Insurance, Personal Injury Liability and Aviation Products Liability:

(i) The City of Flagstaff, its officers, officials, and employees shall be named as additional insureds with respect to liability arising out of the use and/or occupancy of the Leased Premises subject to this Lease Agreement and activities performed by or on behalf of

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Airline, including products and completed operations of Airline; and automobiles owned, leased, hired or borrowed by Airline.

(ii) The City of Flagstaff, its officers, officials, agents, employees and volunteers, shall be named as additional insureds to the full limits of liability purchased by Airline even if those limits of liability are in excess of those required by this Lease Agreement.

(b) Airline's insurance coverage shall be primary insurance with respect to City, its officers, officials, agents, employees and volunteers. Any insurance or self-insurance maintained by City, its officers, officials, agents, employees or volunteers, shall be in excess to the coverage of Airline's insurance and shall not contribute to it.

(c) Airline's insurance shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the limits of the insurer's liability.

(d) Workers' Compensation policy shall contain a waiver of subrogation against the City of Flagstaff, its officers, officials, agents, employees and volunteers for losses arising from Airline's operations, occupancy and use of the Leased Premises subject to this Lease Agreement.

10.04 Notice of Cancellation. Each insurance policy required by the insurance provisions of this Lease Agreement shall not be suspended, voided, cancelled, reduced in coverage or in limits except after thirty (30) days' prior written notice has been given to City. Such notice shall be sent directly to the Airport Director as provided in Section 15.03 herein.

10.05 Acceptability of Insurers. Airline shall obtain insurance coverage hereunder with insurers duly licensed, or approved unlicensed companies, in the State of Arizona and with a "Best's" rating of not less than A-: VII or a comparable rating from a comparable rating service. City does not represent or warrant that the above required minimum insurer rating is sufficient to protect Airline from potential insurer insolvency. The City recognizes that a self-insurance layer may be substituted.

10.06 Verification of Coverage. A signed Certificate or Certificates of Insurance, evidencing that required insurance coverage(s) has been procured or maintained by Airline in the types and amount(s) required hereunder, shall be delivered to City prior to the effective date of Lease Agreement. The Certificate(s) of Insurance shall clearly state that the City of Flagstaff is an "Additional Insured" as required herein. Certificate(s) of insurance shall also endeavor to provide thirty (30) days written notice to City prior to cancellation (ten (10) days for nonpayment of premium) or non-renewal of coverage. The certificates for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf. Any policy endorsements that restrict or limit coverage shall be clearly noted on the certificate of insurance.

10.06.1 Required insurance shall be subject to the review, acceptance, and approval of City, at its reasonable discretion, as to form and types of coverage. City's failure to maintain all insurance policies required herein shall constitute a material default of the Lease

Agreement by Airline, entitling City to exercise any remedies available to it under this Lease Agreement, at law and in equity, including the right to terminate this agreement. All certificates of insurance shall be sent directly to the Airport Director as set forth in Section 15.03 hereof.

10.07 Self-Insurance. The City may allow insurance coverage required herein to be provided by Airline's self-insurance plan, subject to prior written approval of City's Risk Management Division.

10.08 Deductibles, Coinsurance and Self-Insured Retention. Airline shall be fully and solely responsible for any deductible, or self-insured retention, including any losses, damages or expenses not covered due to an exhaustion of limits or failure to comply with the policy.

10.09 Approval. Any modification or variation from the insurance requirements in this Lease Agreement shall have the prior approval of the City's Risk Manager. Such action shall not require a formal Lease Agreement amendment but may be made by administrative action.

10.10 Policy Review and Adjustment. City, by and through its Risk Management Division, reserves the right to periodically review any and all policies of insurance and to reasonably adjust the limits of coverage required hereunder from time to time throughout the term of this Lease Agreement. City may reject any insurer or self-insurance plan providing coverage because of poor financial condition or failure to operate legally in such event, City shall provide Airline written notice of such adjusted limits or rejection and Airline shall comply within ninety (90) days of receipt thereof. Airline shall be responsible for any premium revisions as a result of any such reasonable adjustment.

10.11 Invalidation of Policies. Airline shall not knowingly use or permit the use of the premises for any purpose which would invalidate any policies of insurance, now existing or hereafter written on the Airline's premises or airport or airline. In the event Airline's acts or failure to act shall cause cancellation of any policy, then Airline shall immediately, prior to notification by City, take such action as is necessary to reinstate or replace the required insurance.

10.12 No Representation of Coverage Adequacy. Airline acknowledges the limits, coverages and endorsements required by Article 10 are intended to minimize liability for City. Airline agrees that it will not rely upon the requirements of this Article 10 when assessing the extent or determining appropriate types or limits of insurance coverage to protect Airline against any loss exposures, whether as a result of this Lease Agreement or otherwise.

Article 11. Reservation of Rights

11.01 Right to Enter. City shall have the right to enter the Exclusive Use Premises at reasonable times for the purpose of inspection to determine compliance with Airline's covenants herein upon no less than twenty-four (24) hours' prior notification to Airline. City shall have the right to enter the Exclusive Use Premises immediately and without notification, if an emergency exists and the entry is necessary to protect life or property.

11.02 Airport Development and Expansion. City reserves the right to further develop, improve and expand the landing area or any other area, building or other improvement within the

present or future boundaries of the Airport as it sees fit in its sole judgment, regardless of the desires or views of Airline and without interference or hindrance by Airline.

11.02.1 Further, the City retains the absolute right to maintain, repair, develop, improve and expand the Terminal, or any other Airport facility, Airport improvement or Airport property free from any and all liability to Airline for loss of business or damage of any nature whatsoever as may be occasioned during or because of the performance of such maintenance, repair, development, improvement or expansion.

11.03 Maintenance and Repair. City shall have the right to maintain and keep in repair the landing area of the Airport and all publicly owned facilities of the Airport, including but not limited to, such areas that are necessary to serve the aeronautical users of the Airport, other than as may be leased to or under the control of other Airport tenants, together with the right to direct and control all activities of Airline in this regard.

11.04 Airspace. There is hereby reserved to City and its successors and assigns, for the use and benefit of the public, a right of flight for the passage of aircraft in the airspace above the surface of the Terminal, including but not limited to the right to cause or allow in said airspace any noise inherent in the operation of any aircraft used for navigation or flight through the airspace or landing at, taking off from or operation at the Airport, without liability or obligation of any kind.

Article 12. Termination

12.01 Termination by City.

12.01.1 Termination for Cause. Airline acknowledges and agrees that City may, at its option, upon the occurrence of any of the following events, upon thirty (30) days' prior written notice, terminate this Lease Agreement and, enter into and upon the Leased Premises or any part thereof and repossess the same and expel Airline and any persons claiming by, through or under Airline, and remove its or their property and effects, if any, forcibly if necessary, from the Leased Premises or elsewhere at the Airport, without being deemed guilty of trespass and without prejudice to any remedy which otherwise might be available for arrearage of rent or breach of any provision of this Lease Agreement:

(a) If Airline shall be in arrears in the payment of any rent or fee due under this Lease Agreement for a period of thirty (30) days or more following City's written notice to Airline;

(b) The failure, refusal or neglect of Airline to perform any of the covenants, terms and conditions of this Lease Agreement (other than payment of rent or fee and continuous operation of Airline's business operations), and the failure or neglect continues for a period of at least thirty (30) days after City has notified Airline in writing of the failure or neglect, or, in the event that the failure or neglect cannot be completely corrected within the thirty (30) day period, if Airline has not actively begun correcting the failure or neglect within the thirty (30) day period;

(c) The voluntary abandonment by Airline of the Leased Premises or its operations at the Airport for a period of sixty (60) days or more;

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(d) The seizure or taking of possession for a period of thirty (30) days or more, of all or substantially all of the property used on the Airport premises belonging to Airline by or pursuant to lawful authority of any legislative act, resolution, rule, order or decree of any court or governmental board, agency, officer, receiver, trustee or liquidator;

(e) The filing of any lien against the Leased Premises because of any act or omission of Airline which is not discharged or contested in good faith (as City shall determine in its sole discretion) by proper legal proceedings within twenty (20) days of receipt of actual notice of the lien by Airline;

(f) Airline's willful falsification of any of its business records or books with the intent of depriving City of any rents, fees or other rights under the terms of this Lease Agreement;

(g) Any permanent injunction of Airline's conduct of business on the Airport premises by a court of final jurisdiction; provided, however, that if Airline is temporarily enjoined from doing business at the Airport, any resulting cessation of business by Airline so long as the injunction remains in effect shall not be considered a breach of this Lease Agreement or cause for termination by City, unless and until the injunction becomes permanent.

12.01.2 Termination Without Cause. In addition to any other rights of termination City may have under this Lease Agreement, City may, at any time that City is not in default, terminate this Lease Agreement without cause by giving Airline ninety (90) days' prior written notice of termination.

12.02 Termination by Airline.

12.02.1 Termination for Cause. In addition to any other rights of cancellation it may have under this Lease Agreement or by law, Airline may, at any time that Airline is not in default, terminate this Lease Agreement at its option by giving City thirty (30) days' prior written notice of termination, upon the occurrence of any of the following events:

(a) An order or action by the FAA or any other governmental authority substantially terminating Airline's right to conduct its operations at the Airport;

(b) The issuance, by a court of competent jurisdiction, of an injunction of at least thirty (30) days' duration, prohibiting or restraining the use of the Airport as an airport, or Airline's business operations at the Airport;

(c) A national emergency resulting in a curtailment of the use of aircraft and/or motor vehicles by the general public, or a limitation of the supply of gasoline and/or aircraft fuel available to general use either by executive decree or legislative action, which results, in fact, in a substantial curtailment of Airline's business operations at the Airport;

(d) A breach by City of any material covenant of this Lease Agreement, which remains uncured for a period of thirty (30) days following written notice of the breach to City, or, in

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the event that the breach cannot be completely cured within the thirty (30) day period, if City has not actively begun curing the breach within the thirty (30) day period;

(e) Airline's inability to use the Leased Premises or to conduct its business operations at the Airport due to City's failure to maintain the Airport, and/or to unsafe conditions at the Airport; or

(f) The seizure or other assumption of control of the Airport by any governmental entity other than City.

12.02.2 Termination Without Cause. In addition to any other rights of termination Airline may have under this Lease Agreement, Airline may, at any time that Airline is not in default, terminate this Lease Agreement without cause by giving City ninety (90) days' prior written notice of termination.

12.03 Property Upon Termination.

12.03.1 Condition of Leased Premises. Airline covenants and agrees that upon any termination of this Lease Agreement, however caused, Airline shall quit and surrender the Leased Premises, and perform all repairs of the Leased Premises reasonably necessary to restore the Leased Premises to substantially the same condition it was in at the time this Lease Agreement was entered into, reasonable wear and tear excepted.

12.03.2 Fixtures. All fixtures installed and permanently affixed to the realty of the Leased Premises or the Airport property during the term of this Lease Agreement shall become and remain the property of City. All signs, decorations, fixtures and equipment, which Airline may install during the term of this Lease Agreement that have not been permanently attached to the Leased Premises or the Airport property shall remain the property of Airline.

12.03.3 Removal of Personal Property. Within thirty (30) days of any termination of this Lease Agreement, however caused, Airline shall remove from the Leased Premises all signs, decorations, equipment, trade fixtures and other personal property belonging to Airline, its agents, contractors, assignees or subcontractors, if any, that have not been permanently attached to the Leased Premises, or to any part of the Airport property.

Article 13. Remedies

13.01 Statutory Remedies. In addition to any other remedies provided in this Lease Agreement, City shall be entitled to all of the remedies enumerated in Title 33, Chapter 3, Article 4 of the Arizona Revised Statutes, the provisions of which are hereby incorporated by reference into this Lease Agreement, as if the same were set forth in their entirety, upon the occurrence of any of the events set forth therein.

13.02 Remedies Cumulative. The remedies of City set forth in this Lease Agreement shall be cumulative and are not intended to be exclusive of any other remedies or means of redress to which City may be lawfully entitled in the event of Airline's breach of any provision of this Lease Agreement in addition to any other remedies set forth in this Lease Agreement, City shall be

entitled to specific performance and to restraint by injunction of any breach, or attempted or threatened breach, of any of the terms, covenants, conditions or other provisions of this Lease Agreement.

Article 14. General Provisions

14.01 Airport Representative. City designates the Airport Director as its representative to administer this Lease at the Airport.

14.02 Quiet Enjoyment. City represents that it has the right to lease the Leased Premises together with the facilities, rights, licenses and privileges granted in this Lease Agreement, and has full power and authority to enter into this Lease Agreement. City agrees that upon payment of the rent and performance of the covenants of this Lease Agreement by Airline, Airline shall peaceably have and enjoy the Leased Premises and all rights and privileges of the Airport, its appurtenances and facilities as set forth in this Lease Agreement.

14.03 Inspection, Records, Administration.

14.03.1 Records. The City shall have the right to inspect and audit all Airline books and records related to the Lease Agreement for up to five (5) years after completion of the Lease Agreement.

14.03.2 Right to Inspect Business. The City shall have the right to inspect the place of business of the Airline or its subcontractor during regular business hours at reasonable times and upon prior reasonable notice, to the extent necessary to confirm Airline's compliance with the terms of this Lease Agreement.

14.03.3 Public Records. This Lease Agreement and any related materials are a matter of public record and subject to disclosure pursuant to Arizona Public Records Law, A.R.S. § 39-121 et seq. If Airline has clearly marked its proprietary information as confidential, the City will endeavor to notify Airline prior to release of such information.

14.04 Drug Free Workplace. The City has adopted a Drug Free Workplace policy for itself and those doing business with the City to ensure the safety and health of all persons working on City contracts and projects. Airline personnel shall abstain from use or possession of illegal drugs while engaged in performance of this Lease Agreement.

14.05 Conflict of Interest. Notwithstanding anything to the contrary contained in this Lease Agreement, the Parties acknowledge, in accordance with Arizona Revised Statutes § 38-511, that City may terminate this Lease Agreement upon written notice at any time within three (3) years of its execution without penalty or further obligation in the event that any person significantly involved in initiating, securing, drafting or creating this Lease Agreement on behalf of City shall become an employee or agent of Airline in any capacity or shall render consulting services to Airline with respect to the subject matter of this Lease Agreement.

14.06 Force Majeure. The performance of all covenants contained in this Lease Agreement, other than the covenants to pay rentals or other applicable fees or charges, shall be

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postponed and suspended during any period in which a Party's performance is prevented by acts of God, accidents, abnormal weather and conditions arising from them; strikes, boycotts, lockouts and other labor troubles; riot, fire, earthquake, flood, epidemic, insurrection, rebellion, revolution, civil war, hostilities, war, the declaration or existence of a national emergency and attendant conditions; the exercise of paramount power by the federal government, either through the taking of the Leased Premises or the imposition of regulations restricting the conduct of business at the Leased Premises; acts of enemies, sabotage, terrorism, interference, restriction, limitation or prevention by legislation, regulation, decree, order or request of any federal, state or local government or any instrumentality or agency thereof, including any court of competent jurisdiction; inability to secure labor or adequate supplies of materials, products or merchandise; or any other delay or contingency beyond the reasonable control of the Party whose performance is so prevented or delayed. Any Party desiring to invoke force majeure shall provide written notice to the other Party no later than fifteen (15) days following such Party's knowledge of the occurrence of such event and prompt notice of the cessation of such event.

14.07 Notices. Unless otherwise specified herein, any notice or other communication required or permitted to be given under this Lease Agreement shall be in writing and shall be effective and deemed received when hand-delivered or faxed or if sent by mail, three (3) business days after mailing, to the address given below for the Party to be notified or to such other address of which notice is given in accordance with this Lease Agreement:

If to City:	If to Airline:
City of Flagstaff	United Airlines, Inc.
Airport Director	Add Title/Contact
6200 South Pulliam Drive, Suite 204	Add Address.
Flagstaff, AZ 86005	
928-213-2930	Add Phone Number

14.08 Non-Exclusivity; Competing Uses. Nothing contained in this Lease Agreement shall be construed to grant or authorize the granting of an exclusive right prohibited by federal law. The rights and privileges granted under this Lease Agreement are nonexclusive, and City has the right to grant to others the privilege and right of conducting any and all of the aeronautical activities listed in this Lease Agreement. Notwithstanding the foregoing, unless otherwise permitted by FAA, City covenants and agrees not to enter into any similar agreement with respect to the Airport which contains more favorable terms than are contained in this Lease Agreement, or to grant to potential competitors of Airline privileges not authorized in this Lease Agreement, unless the same are also extended to Airline.

14.09 Intention of the Parties. This Lease Agreement is intended solely for the benefit of City and Airline, and is not intended to benefit, either directly or indirectly, any third party or members of the public at large. Any work done, or inspection of the Leased Premises performed by City is solely for the benefit of City and Airline.

14.10 Independence of Contract. Nothing in this Lease Agreement is intended or shall be construed as in any way creating a relationship of partners or joint ventures between the

Parties, or as constituting Airline as the agent or representative or employee of City for any purpose or in any manner whatsoever.

14.11 Waiver. The failure of either Party to insist in any instance upon a strict performance by Airline of any of the provisions, terms, covenants, reservations, conditions or stipulations contained in this Lease Agreement, shall not imply, constitute or be considered as a waiver or relinquishment of the right to insist upon performance of such condition or covenant, or of any other provision of this Lease Agreement, nor shall any waiver by either Party of any breach of any one or more conditions or covenants of this Lease Agreement constitute a waiver of any succeeding or other breach of this Lease Agreement. No waiver by City or Airline of any provision, term, covenant, reservation, condition or stipulation contained in this Lease Agreement, shall be deemed to have been made in any instance unless expressed in the form of a written waiver from the party, whether City or the Airline, giving such waiver.

14.12 Prior Agreements; Integration; Modification. The Parties acknowledge and agree that they have not relied upon any statements, representations, agreements or warranties, except as expressed in this Lease Agreement, and that this Lease Agreement constitutes the Parties' entire agreement with respect to the matters addressed. All prior or contemporaneous agreements and understandings, oral or written, with respect to such matters are hereby superseded and merged in this Lease Agreement. This Lease Agreement may be modified or amended only by written agreement fully executed by the Parties.

14.13 Severability. In the event that a court of competent jurisdiction holds any part or provision of this Lease Agreement invalid, void or of no effect, the remaining provisions of this Lease Agreement shall remain in full force and effect, provided that continued enforcement of such remaining provisions does not materially prejudice either Airline or City in their respective rights and obligations contained in any valid provisions of this Lease Agreement.

14.14 Headings. Headings or captions used in this Lease Agreement shall be used solely for convenience of the Parties, and shall not define, limit, describe, alter or affect the meaning of any provision of this Lease Agreement.

14.15 Attorneys' Fees.

Except as otherwise agreed upon by the Parties, any litigation brought by either Party against the other Party to enforce the provisions of this Lease Agreement, shall be filed in Coconino County Superior Court, Flagstaff, Arizona. In the event that any action at law, or in equity, is instituted between the Parties in connection with this Lease Agreement, the prevailing Party in the action shall be entitled to an award of costs, including reasonable attorney's fees and court costs, from the non-prevailing Party.

14.16 Governing Law and Jurisdiction. This Lease Agreement shall be governed by and construed in accordance with the laws of the State of Arizona.

14.17 Non-Exclusivity. Nothing contained herein shall be construed to grant or authorize the granting of an exclusive right prohibited by Section 308 of the Federal Aviation Act of 1985 as amended (49 USC 1349a). The rights and privileges granted hereunder are non-exclusive and

City has the right to grant to others the privilege and right of conducting any and all of the aeronautical activities listed herein.

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IN WITNESS WHEREOF
The parties have caused this Lease Agreement to be executed as of the effective date indicated above in Article 2.

CITY OF FLAGSTAFF	UNITED AIRLINES, INC.
_____	_____
By:	By:
ATTEST:	
_____	_____
CITY CLERK	
APPROVED AS TO FORM:	
_____	_____
CITY ATTORNEY	

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FAA
Airports

Passenger Facility Charge (PFC) Program Assurances

A. *General.*

1. These assurances shall be complied with in the conduct of a project funded with passenger facility charge (PFC) revenue.

2. These assurances are required to be submitted as part of the application for approval of authority to impose a PFC under the provisions of 49 U.S.C. 40117.

3. Upon approval by the Administrator of an application, the public agency is responsible for compliance with these assurances.

B. *Public agency certification.* The public agency hereby assures and certifies, with respect to this project that:

1. Responsibility and authority of the public agency. It has legal authority to impose a PFC and to finance and carry out the proposed project; that a resolution, motion or similar action has been duly adopted or passed as an official act of the public agency's governing body authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the public agency to act in connection with the application.

2. Compliance with regulation. It will comply with all provisions of 14 CFR part 158.

3. Compliance with state and local laws and regulations. It has complied, or will comply, with all applicable State and local laws and regulations.

4. Environmental, airspace and airport layout plan requirements. It will not use PFC revenue on a project until the FAA has notified the public agency that—

(a) Any actions required under the National Environmental Policy Act of 1969 have been completed;

(b) The appropriate airspace finding has been made; and

(c) The FAA Airport Layout Plan with respect to the project has been approved.

5. Nonexclusivity of contractual agreements. It will not enter into an exclusive long-term lease or use agreement with an air carrier or foreign air carrier for projects funded by PFC revenue. Such leases or use agreements will not preclude the public agency from funding, developing, or assigning new capacity at the airport with PFC revenue.

6. Carryover provisions. It will not enter into any lease or use agreement with any air carrier or foreign air carrier for any facility financed in whole or in part with revenue derived from a passenger facility charge if such agreement for such facility contains a carryover provision regarding a renewal option which, upon expiration of the original lease, would operate to automatically extend the term of such agreement with such carrier in preference to any potentially competing air carrier or foreign air carrier seeking to negotiate a lease or use agreement for such facilities.

7. Competitive access. It agrees that any lease or use agreements between the public agency and any air carrier or foreign air carrier for any facility financed in whole or in part with revenue derived from a passenger facility charge will contain a provision that permits the public agency to terminate the lease or use agreement if—

(a) The air carrier or foreign air carrier has an exclusive lease or use agreement for existing facilities at such airport; and

(b) Any portion of its existing exclusive use facilities is not fully utilized and is not made available for use by potentially competing air carriers or foreign air carriers.

8. Rates, fees and charges.

(a) It will not treat PFC revenue as airport revenue for the purpose of establishing a rate, fee or charge pursuant to a contract with an air carrier or foreign air carrier.

(b) It will not include in its rate base by means of depreciation, amortization, or any other method, that portion of the capital costs of a project paid for by PFC revenue for the purpose of establishing a rate, fee or charge pursuant to a contract with an air carrier or foreign air carrier.

(c) Notwithstanding the limitation provided in subparagraph (b), with respect to a project for terminal development, gates and related areas, or a facility occupied or used by one or more air carriers or foreign air carriers on an exclusive or preferential basis, the rates, fees, and charges payable by such carriers that use such facilities will be no less than the rates, fees, and charges paid by such carriers using similar facilities at the airport that were not financed by PFC revenue.

9. Standards and specifications. It will carry out the project in accordance with FAA airport design, construction and equipment standards and specifications contained in advisory circulars current on the date of project approval.

10. Recordkeeping and Audit. It will maintain an accounting record for audit purposes for 3 years after physical and financial completion of the project. All records must satisfy the requirements of 14 CFR part 158 and contain documentary evidence for all items of project costs.

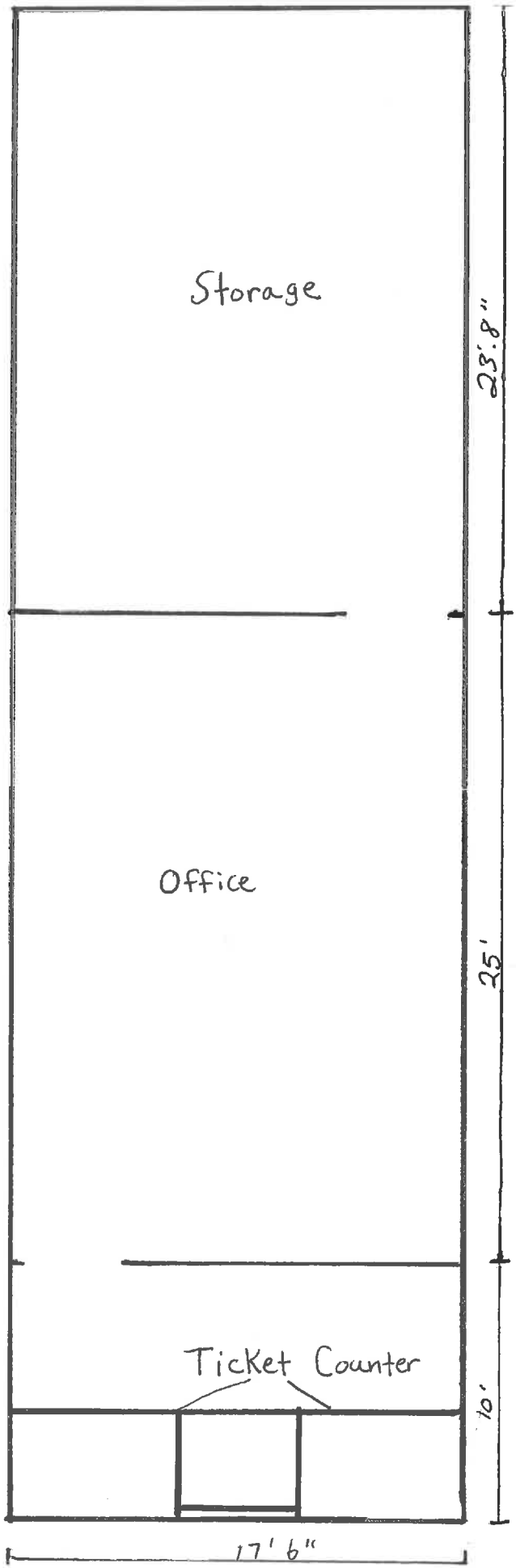
11. Reports. It will submit reports in accordance with the requirements of 14 CFR part 158, subpart D, and as the Administrator may reasonably request.

12. Compliance with 49 U.S.C. 47523 through 47528. It understands 49 U.S.C. 47524 and 47526 require that the authority to impose a PFC be terminated if the Administrator determines the public agency has failed to comply with those sections of the United States Code or with the implementing regulations published under the Code.

[Doc. No. 26385, 56 FR 24278, May 29, 1991, as amended by Amdt. 158–2, 65 FR 34543, May 30, 2000; Amdt. 158–4, 72 FR 28851, May 23, 2007]

Source: Title 14: Aeronautics and Space, PART 158—PASSENGER FACILITY CHARGES (PFC'S), Subpart F—Reduction in Airport Improvement Program Apportionment, Appendix A to Part 158—Assurances

EXHIBIT B



Scale
1" = 6'

11. A.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Christine Cameron, Project Manager III
Date:	02/27/2019
Meeting Date:	03/05/2019

TITLE:

Consideration and Approval of Contract: City Court Facility Project - Award of Amendment #1 to the Design-Build Services Agreement #2018-63. This amendment contains the Guaranteed Maximum Price (GMP) #1 agreement for preliminary construction work.

STAFF RECOMMENDED ACTION:

1) Award the Design-Build Services Amendment GMP #1 to Kinney Construction Services, Inc. of Flagstaff Arizona in an amount not to exceed $1,518,175.00 with a 148 calendar-day contract period; and
2) Authorize the City Manager to execute the necessary documents.

Executive Summary:

Kinney Construction Services, Inc. (KCS) was selected by a five-member evaluation committee as the most qualified service provider for the City Court Facility Project pursuant to the evaluation and ranking process per A.R.S. 34-603.

City Council awarded the original Design-Build Agreement #2018-63 on July 3, 2018, for design phase services. KCS and the Architect (CGL Companies) have been working over the last seven months on programming the building space and developing construction plans with Courts Administration, the City Prosecutor's Office, Flagstaff Police Department, City Manager's Office, and City Planning. In order to expedite site construction, GMP #1 is being submitted for award first while the full construction documents are being finalized. This will allow for hazardous materials abatement and demolition of the existing buildings at 101 W. Cherry and 15 N. Beaver and site work (grading, underground utility installation) at the 101 W. Cherry site. The proposed future GMP #2 Amendment will contain the remainder of the work for full construction of the facility and sites.

Financial Impact:

The City Court Facility is currently budgeted in the amount of $17,408,403.00 for FY19 and is anticipated to be budgeted in the amount of $4,009,024.00 for FY20. Project funding is in the General Government Fund, Account Number 408-09-426-3278-1.

Policy Impact:

Award of the Design-Build Services Amendment GMP #1 will allow KCS to proceed with building abatement, demolition, and site preparation necessary for the construction of the new facility as approved by Proposition 412 in the November 2016 ballot question.

Connection to Council Goal, Regional Plan and/or Team Flagstaff Strategic Plan:

Council Goal: Transportation and Other Pubic Infrastructure.
Deliver quality community assets and continue to advocate and implement a highly performing multi-modal transportation system.

Flagstaff Regional Plan 2030: Locating Facilities Goals and Policies.
Goal PF.2. - Provide sustainable and equitable public facilities, services and infrastructure systems in an efficient and effective manner to serve all population areas and demographics.

Team Flagstaff Strategic Plan: Foster a Resilient and Economically Prosperous City.
Deliver outstanding service through a healthy environment, resources and infrastructure.

Has There Been Previous Council Decision on This:

On June 14, 2016, Council reviewed options for the City Court Facility bond project and directed staff to prepare ballot language for a $12M bond project to be funded through secondary property tax.

On July 3, 2018, City Council awarded the Design-Build Contract #2018-63 to KCS for design phase services of the project.

Options and Alternatives:

1. Approve the Design-Build Services Amendment GMP #1 to KCS as presented.
2. Reject the Design-Build Services Amendment GMP #1 and direct staff to re-negotiate the terms and fee structure with KCS.

Background/History:

The physical condition of the existing City Court building located at 15 North Beaver Street has deteriorated to a point where significant financial resources would be needed to remediate, remodel and stabilize the structure. In addition, the need exists for current and future space to ensure continued operational viability.

On July 5, 2016, staff came before Council with the Consideration and Adoption of Resolution No. 2016-27. This Resolution allowed Council to adopt an official ballot question to be submitted to qualified electors of the City of Flagstaff. This ballot question asked the citizens of Flagstaff to approve a temporary increase in the City's secondary property tax and authorize the sale and issuance of bonds for purposes of constructing a new City Court Facility. Council adopted the Resolution and the question was placed on the ballot for the election of November 8, 2016. The ballot question was approved.

On April 1, 2018, the City advertised a Request for Statement of Qualifications from Arizona Registered Contractors for the qualification-based selection of a Design-Build team to provide design and construction services for the City Court Facility.

On April 23, 2018, the City received eight responses to the Request for Statements of Qualifications. A five-person committee was formed to evaluate the Statements of Qualifications and the committee selected 3 firms for interviews. Upon the completion of the interviews, the committee selected KCS as most qualified Design-Builder to perform the work.

On July 3, 2018, City Council awarded the Design-Build contract to KCS for design phase services. Over the last seven months the Design-Build team has been working on programming the building space and developing construction plans with Courts Administration, the City Prosecutor's Office, Flagstaff Police Department, City Manager's Office, and City Planning.

Key Considerations:

The new City Court Facility will be located on property owned by the City located at 101 W. Cherry Avenue. The existing buildings at this location are occupied by various City staff (Building and Safety, Risk Management, Sustainability, I.T. Lab, Environmental Inspection). The Space Planning Committee has developed a strategy and timeline to relocate City staff from the existing building ahead of the planned abatement and demolition.

To meet City of Flagstaff Zoning Code-Title 10, parking capacity requirements, the existing City Court located at 15 N. Beaver Street and the City Prosecutor's Offices located at 107 W. Aspen Avenue will need to be demolished. The new City Court Facility will also be designed to provide parking. The combined parking at these two parcels will meet the Zoning Code requirements for parking capacity.

The GMP #1 scope also includes the fee for abatement and demolition of the existing City Courts building and City Prosecutor's buildings. This work will not occur until the new facility is complete and staff is relocated in the spring of 2020.

Expanded Financial Considerations:

Total project funding for the project is as follows:

Prop 412 Voter Approved Courts Project Funding

Bonds	$12,000,000
Sale of Beaver Lot	$ 2,000,000
**Identified Funding (Courts Fees)	$ 7,500,000
Total	$21,500,000

****Identified Funding**

Court Fees	$2,080,000
Sale of Fire Station #1	$ 520,000
Re-development Fund	$ 500,000
Capital Funding Transfer	$ 400,000
Capital Financing	$4,000,000
Total	$7,500,000

The sale of the Beaver Street lot will not be included in the budget for this Project as this parcel will need to be used for surface parking in order to meet the City's Zoning Code requirement for parking capacity. The total project budget for the delivery of a new City Court Facility is $19.5M.

Community Benefits and Considerations:

The new City Court Facility will provide a safe and efficient Municipal building that will greatly improve the Court's operations now and into the future, enhance the staff and user experience, and provide an attractive amenity to downtown Flagstaff.

Community Involvement:

There have been multiple Council meetings to discuss the City Court Facility over the course of the last three years, in addition to, multiple public meetings prior to the ballot question of 2016.

A Public Meeting was held on February 20, 2019 to present the project design and engage the public on the project.

Expanded Options and Alternatives:

1. Approve the Design-Build Services Amendment #1 to KCS as presented. Upon Council authorization, KCS will begin the abatement, demolition, and site work necessary for construction of the new facility.
2. Reject the Design-Build Services Amendment #1 and direct staff to re-negotiate the terms and fee structure with KCS. It is anticipated that this action would delay the project approximately seven weeks and possibly would result in very little cost savings.
3. Reject the Design-Build Services Amendment #1 with KCS and continue Court operations in the existing facility. The current court space is in a state of deterioration and significant financial resources will be needed to remediate, remodel and stabilize the structure. Furthermore, there is a need for additional space to accommodate current operations and future growth in order to ensure continued operational viability, safety and security.

Attachments:

Full Courts GMP 1
Original Courts DB contract
Courts Context Map
Courts Vicinity Map
PowerPoint

AMENDMENT ONE

City of Flagstaff Court Facility
Design-Build Contract

Construction Services Phase – GMP 1

Project No. 03-18007
Contract No. 2018-63

This First Amendment ("Amendment") to the fully executed Design-Build Services Contract No. 2018-63 dated 7/17/18 (the "Agreement") for the City of Flagstaff Court Facility (the "Project") is made and entered into this ____ day of _____, 2019, by and between the City of Flagstaff, an Arizona municipal corporation with offices at 211 West Aspen Avenue, Flagstaff, Arizona 86001, and Kinney Construction Services, Inc., an Arizona corporation with offices at 121 E. Birch Avenue, Flagstaff, Arizona 86001.

The parties to the Agreement for City of Flagstaff Court Facility project, the City of Flagstaff and Kinney Construction Service, Inc., hereby agree to the following amendment; all other provisions of the Agreement shall remain unchanged in full force and effect. New text is underlined.

ARTICLE 5 – CONTRACT PRICE

5.3 – GMP

Design-Builder's GMP 1 for the construction phase services for the Phase 1 portion of (Demolition) work of the Project shall be **one million, five hundred eighteen thousand, one hundred and seventy-five dollars ($1,518,175.00).** The GMP shall be for the complete performance of Phase 1 portion of work in accordance with the Contract Documents and exhibits listed below, which are part of this Amendment, and which shall be incorporated into the Agreement by this First Amendment as if fully set forth therein.

EXHIBIT A – GMP 1 Summary Sheet, dated 2/11/19, 3 page(s).

EXHIBIT B – Basis of GMP 1 (Allowances, Assumptions and Clarifications on which the GMP is based), dated 2/11/19, 6 page(s).

EXHIBIT C – Enumeration of Drawings and Specifications, including Addenda, if any, on which the GMP is based, 1 page(s).

EXHIBIT D – Baseline Project Schedule, 1 page(s).

The total Contract Price under the Agreement, as amended by this Amendment, shall be **three million, one hundred eleven thousand, eight hundred and three dollars ($3,111,803.00).**

ARTICLE 6 – CHANGES TO CONTRACT PRICE AND TIME

The Scheduled Date of Completion of the work for the City of Flagstaff Court Facility project under this First Amendment is an additional 148 calendar days from the Notice to Proceed with a substantial completion date of X/X/20XX.

IN WITNESS WHEREOF, the parties have caused this Amendment to be executed by their duly authorized representatives as of the date first written above. This Amendment will be in full force and effect only when it has been approved and executed by the duly authorized City officials.

(Please sign in blue ink. Submit original signatures – photocopies not accepted)

City of Flagstaff	**Kinney Construction Services, Inc.**
By:_____	By:_____
Barbara Goodrich, City Manager	
	Title:_____
Dated:_____	Dated:_____

Attest:

_____
City Clerk

Approved as to form:

_____
City Attorney

PROJECT GMP PROPOSAL SUMMARY SHEET
COF Courts - Phase 1 GMP - Exhibit A

ITEM NO.	BUILDING/CONSTRUCTION TYPE		TOTALS
	PROFESSIONAL SERVICES		
1	Professional Services		
2	Reimbursables		
3	Construction Administration (Architect & Engineers)		$51,782.00
	Total Professional Services		**$51,782.00**
	CONSTRUCTION		
4	Cost of Construction		$1,031,605.00
5	Design-Builder's Contingency	5.00%	$54,169.00
	Indirect Costs	**Rate**	
6	General Conditions	12.50%	$142,190.00
7	Payment & Performance Bond	1.50%	$19,196.00
8	Insurance	1.21%	$15,587.00
9	Construction Fee	7.00%	$92,017.00
10	Sales Taxes	5.82%	$81,861.00
	Total Construction Cost		**$1,436,625.00**
11	Owner's Contingency (2%)		$29,768.00
	Grand Total (Construction & Professional Services)		**$1,518,175.00**

Dated: 02.11.2019

COF Courts GMP 1 Estimate 021119
Building Detail

DESCRIPTION	QUANTITY (UNITS)	UNIT	UNIT COST	TOTAL
DEMOLITION & ABATEMENT - CHERRY ST				**$135,210.00**
Building Abatement	1.00	ls	$33,400.00	$33,400.00
Building Demolition	1.00	ls	$59,400.00	$59,400.00
Private Utility Locating	16.00	hrs	$220.00	$3,520.00
Electrical Make-safe	40.00	hrs	$75.00	$3,000.00
Mechanical Make-safe	24.00	hrs	$75.00	$1,800.00
Plumbing Make-safe	40.00	hrs	$75.00	$3,000.00
Misc salvage prior to demolition	24.00	hrs	$35.00	$840.00
Additional demo of concrete footings/caissons	1.00	ls	$15,000.00	$15,000.00
Traffic Control	1.00	ls	$6,200.00	$6,200.00
Temp fencing	1.00	ls	$6,500.00	$6,500.00
Remove and salvage light fixtures at street	5.00	ea	$350.00	$1,750.00
Remove and salvage signage at street	10.00	ea	$80.00	$800.00
DEMOLITION & ABATEMENT - BEAVER ST				**$174,660.00**
Building Abatement	1.00	ls	$54,100.00	$54,100.00
Building Demolition	1.00	ls	$77,200.00	$77,200.00
Private Utility Locating	16.00	hrs	$220.00	$3,520.00
Electrical Make-safe	40.00	hrs	$75.00	$3,000.00
Mechanical Make-safe	24.00	hrs	$75.00	$1,800.00
Plumbing Make-safe	40.00	hrs	$75.00	$3,000.00
Misc salvage prior to demolition	24.00	hrs	$35.00	$840.00
Additional demo of concrete footings	1.00	ls	$25,000.00	$25,000.00
Traffic Control	1.00	ls	$1,500.00	$1,500.00
Temp fencing	1.00	ls	$4,700.00	$4,700.00

COF Courts GMP 1 Estimate 021119
Building Detail

DESCRIPTION	QUANTITY (UNITS)	UNIT	UNIT COST	TOTAL
SITEWORK - PHASE 1 ONLY - CHERRY ST SITE				**$721,735.00**
Sitework Demo & SWPPP				
SWPPP (construction entrance, wattles, and washout)	1.00	ls	$8,893.00	$8,893.00
ADEQ NOI	1.00	ls	$500.00	$500.00
Mobilization	1.00	ls	$8,384.00	$8,384.00
Survey	1.00	ls	$10,000.00	$10,000.00
Street Cleaning & Clean-up	13.00	wks	$729.31	$9,481.00
Demo Aspahlt, Concrete Sidewalk and Curb for utility work	1.00	ls	$16,104.08	$16,104.08
Demo Existing UG utiliies (Gas & Electrical)	190.00	lf	$17.45	$3,315.50
Utilities				
Private utility locating & potholing	8.00	hrs	$389.00	$3,112.00
Water Service - 2" with tapping sleeve	65.00	lf	$59.65	$3,877.00
Fire Line - 8" with tapping sleeve & riser	63.00	lf	$336.64	$21,208.62
Remote FDC Assembly, riser, & 4" Line	24.00	lf	$302.46	$7,258.92
Hydrant Assembly including bollards	1.00	ls	$7,341.00	$7,341.00
Backflow Assembly & Hot Box - does not include irrigation	1.00	ea	$7,480.00	$7,480.00
Cap & Abandon Existing Services	2.00	ea	$1,732.00	$3,464.00
Sleeves for irrigation	300.00	lf	$15.00	$4,500.00
Sewer Service	20.00	lf	$73.00	$1,460.00
Gas Service - trenching and backfill only	80.00	lf	$20.00	$1,600.00
Relocate OH Electrical to UG - primary	1.00	ls	$200,000.00	$200,000.00
Electrical UG Conduits - secondary	290.00	lf	$45.00	$13,050.00
Concrete Equip Pad	2.00	ea	$900.00	$1,800.00
Fiber Conduits - includes road crossings & borings - not included	0.00	ls	$0.00	$0.00
Earthwork & Grading				
Grading & Excavation	1850.00	sy	$1.81	$3,348.50
Import of Soils for Backfill	1481.00	cy	$52.56	$77,841.36
Finde Grade & Subgrade Prep for Hardscape - Offsite only	1.00	ls	$21,561.22	$21,561.22
Rock-excavation Allowance	1.00	ls	$50,000.00	$50,000.00
Temporary Water - Construction Water	1.00	ls	$4,423.00	$4,423.00
Geo Piers	1.00	ls	$125,000.00	$125,000.00
Haul-off Geo-pier Spoils	1.00	ls	$12,922.00	$12,922.00
Off-Site Concrete & Asphalt				
Sidewalks (Pavers) - salvage existing and reinstall	2852.00	sf	$10.00	$28,520.00
Tree wells & Ribbon Curb - existing & protect	8.00	ea	$175.00	$1,400.00
Tree wells & Ribbon Curb - new	4.00	ea	$950.00	$3,800.00
Concrete Driveways	375.00	sf	$25.00	$9,375.00
Curb & Gutter	83.00	lf	$58.00	$4,814.00
Concrete Sidewalks	2400.00	sf	$8.00	$19,200.00
Asphalt Patching at Street	152.00	sy	$85.00	$12,920.00
Striping & Paint Curb	1.00	ls	$13,781.00	$13,781.00
GENERAL CONDITIONS & REQUIREMENTS				**$142,190.00**
Project Director (part time)	104.00	hr	$ 142.00	$ 14,768.00
Project Manager (part time)	208.00	hr	$ 120.00	$ 24,960.00
Superintendent (full time)	520.00	hr	$ 112.00	$ 58,240.00
Assistant Project Manager (part time)	208.00	hr	$ 95.00	$ 19,760.00
Project Accountant	52.00	hr	$ 96.00	$ 4,992.00
Plans & Specifications Reproductions (paper)	4.00	sets	$100.00	$400.00
Job Site Office (include set-up & 3 months rental) and supplies	1.00	ls	$5,000.00	$5,000.00
Temporary Electric - hook-up only (electrical costs by owner)	1.00	ls	$2,500.00	$2,500.00
Temporary Sanitary Facilities	3.00	mths	$180.00	$540.00
Temp laydown yard across street	3.00	mths	$1,200.00	$3,600.00
Safety Requirements , First Aid, & Fes	1.00	ls	$1,800.00	$1,800.00
Barricades, Protection, and traffic Control - included in each phase				$0.00
Project Identification & Signs (Safety & Wayfinding)	1.00	ls	$1,800.00	$1,800.00
Testing Laboratory Services & Inspections - by owner				$0.00
Expendables, Small Tools, & Drinking Water	1.00	ls	$1,830.00	$1,830.00
Construction Software/Equipment/Management (Procore)	1.00	ls	$2,000.00	$2,000.00
CONSTRUCTION ADMINISTRATION	3.00	mths	17,261.00	**$51,782.00**

EXHIBIT 'B'
Statement of Clarifications and Assumptions
COF Courts Facility – Phase 1 GMP
02.11.2019

Purpose & Intent

The intent of the qualifications is to provide a supplement scope design and cost control guide. They are included to further the "Team's" understanding of what is included in the scope of this project based on Kinney Construction Services' interpretation of the design intent.
Since cost control is largely the result of scope control, we have clarified and elaborated based on this proposal for areas where systems were incomplete or anticipated to be revised, and where scope was unclear.

Basis of Qualifications

Documents as outlined in Exhibit C – Enumeration of Drawings

General Clarifications

1. Pricing is based on an approximate 15 month total duration starting April 1st, 2019. Phase 1 GMP only includes a portion of this schedule for the scope of work outlined below and in Exhibit A with a duration of 13 weeks total.
2. A payment and performance bond for Kinney Construction Services, Inc. is included.
3. Any costs associated with a building permit or reviews are not included. Permits and fees required by City of Flagstaff (COF) are to be paid for by the owner including all water and sewer impact feeds.
4. All temporary utility consumption costs are assumed to be by the Owner and are therefore not included.
5. Costs for preconstruction and design services are not included as part of this GMP.
6. Material testing and special inspections are not included. COF to procure & provide all special inspections. Contractor to coordinate with COF and 3rd Party Testing representative to schedule required testing and inspection during construction.
7. A (1) one-year warranty from date of substantial completion has been included.
8. All work is intended on being performed during normal business hours, Monday thru Friday.
9. KCS has registered this project with GreenGlobes with the intent of reaching 3 Globes certification. KCS will provide necessary documentation to achieve this certification.
10. All work will abide by MAG specs with COF modifications as required.
11. Construction Administration by CGL and it's consultants will be provided for Phase 1 including RFI response, submittal review, attending meetings via teleconference, and one site visit (if necessary).

General Conditions

- KCS will provide adequate project management, supervision, tools, equipment, waste management containers and temporary construction facilities for the duration of this project.
- A temporary construction office will be provided at the site or adjacent laydown area. KCS intends on leasing the property across the street from FSL for the duration of the project for contractor parking and laydown. No public parking is included.
- All necessary project documentation will be maintained from project start to closeout including paper / electronic copies of all plan iterations, ASIs, submittals, RFIs, weekly reports, meeting minutes, and safety logs. KCS intends on using Procore Construction Management Software as a tool to assist with this documentation management. COF staff will have access to this web-based software as well.
- KCS will provide protection of existing site and necessary traffic and pedestrian signage and control. A temporary chainlink fence with screening will be installed around the entire property including the sidewalks, but will not be installed in the street impeding traffic. Sidewalks will be closed and proper signage will be placed at the nearest adjacent intersection directing pedestrian traffic to open walkways.

Abatement

- Prior to abatement activities, COF staff shall remove all FF&E from building – this is to include any stationary items not fixed to the building such as furniture and shelving.
- KCS will provide necessary ADEQ notices prior to beginning work.
- Asbestos removal will occur in two phases. Abatement of the existing APS buildings - 101 W Cherry (2 buildings) will occur first to make room for the new facility. Once the new facility is built and existing tenants have been moved into new building, abatement of the existing court - 15 N Beaver (1 building) and prosecutor's office - 107 W Aspen (1 building) can occur. GMP #1 includes all necessary costs for a second mobilization for phase 2 demo and abatement activities.
- 107 W Aspen asbestos containing materials - 3,300 sf of drop grid ceiling tiles including asbestos containing debris in and above ceiling area.
- 15 N Beaver asbestos containing materials - 9,900 sf of roofing material including duct sealant at existing RTU's, 5 sf caulking compound in equipment/computer room, 231 sf of drywall texture, 30 fire doors, 1 vault door, 125 sf of FRP mastic, 20 sf of cove base mastic, anchoring mastic from up to 4 mirrors, and 4 sf of window caulking and putty from 4 window units.
- 101 W Cherry (Main Building) asbestos containing materials - 32 fire doors, 200 sf of window base plate including caulking attached to each, and 14,800 sf of mastic under carpet and VFT.
- 101 W Cherry (Annex Building) asbestos containing materials - 8 windows with caulking and glazing, 1,500 sf of roofing, and 8 fire doors.

- Abatement scope is based on the following reports and adjacent addendums by Four Corners - 107 W Aspen (1 building), 101 W Cherry (2 buildings), and 15 N Beaver (1 building) per the current consolidated hazardous material reports including addendums prepared by Four Corners Environmental, Inc. dated 12.17.18 - 101 West Cherry Ave, 12.31.18-15 N Beaver, and 12.31.18-107 W Aspen Ave.
- All quantities listed above are approximate and taken from reports provided to KCS and listed in Exhibit C.
- No additional material testing has been included.
- No lead based paint abatement has been included. LBP disposal is included in demolition scope as approved by COF. It is understood that LBP materials meet the TCLP standards and can be properly disposed of at the Cinder Lakes Landfill.
- No 3rd party monitoring or specification has been included.
- No underground utility abatement has been included.
- No additional asbestos removal other than what has been identified within the reports mentioned above.

Demolition

- All materials and equipment necessary to demolish a total of 4 buildings at 3 locations - 107 W Aspen (1 building), 101 W Cherry (2 buildings), and 15 N Beaver (1 building).
- Items to be demolished include but are not limited to the following: exterior walls (concrete and masonry), interior walls including any insulation (concrete, masonry, drywall steel/wood framed), all flooring, concrete slab on grade, cast in place concrete floors/columns/beams, steel columns and beams, ACT and drywall ceilings, electrical/fixtures/conduit/wire/panels/equipment, mechanical fixtures/duct/trim/insulation/roof top units/equipment, plumbing fixtures/pipe/insulation/trim/equipment, roofing materials including all metal fascia trim/gutters/downspouts, brick, stone veneer, interior furniture, interior and exterior glazing and storefronts, doors, door frames, door hardware, accessories, exterior asphalt paving, exterior trees and grates, exterior sidewalk and curb attached to building entrances, exterior escape ladders, sprinkler system, fire alarm system, etc.
- KCS will salvage building signage as directed by owner prior to demolition.
- KCS will salvage light fixtures, tree grates, and pavers as necessary during course of construction for reinstallation along Beaver and Cherry Streets.
- KCS will provide MPE make-safe prior to demolition of existing facilities.
- Includes removal of footings as required to accommodate new construction.
- Includes removal and disposal of all lead-based paint materials. All LBP's to be disposed of at cinder lakes landfill.
- Includes dumpsters and sorting for all metal, concrete, drywall (optional), masonry, asphalt, and stone. This project will be Green Globes certified to receive 3 Green

Globes. Includes weight tickets from waste facility including all other necessary Green Globes sustainability documentation as it relates to this scope of work.

- Existing stone on exterior and interior of buildings will not be salvaged.
- Includes complete haul off from site.
- Includes removal of all parking signage and wheel stops within demo limits.
- Includes all temporary protection necessary in order to protect above ground and underground utilities to remain, light poles, power poles, adjacent buildings and structures to remain, existing adjacent sidewalk and roadways to remain, existing adjacent parking areas to remain, etc.
- Demolition of the existing APS buildings - 101 W Cherry (2 buildings) will occur first to make room for the new facility. Once the new facility is built, demolition of the existing court - 15 N Beaver (1 building) and prosecutor's office - 107 W Aspen (1 building) can be demoed after the existing tenants have moved into the new building. Includes all necessary cost for a second mobilization.
- KCS will provide all dust control as necessary using water during demolition activities.
- Does not include provisions for unforeseen removals.
- Does not include contaminated soil removal.

Sitework

Sitework Demo & SWPPP

- KCS to provide ADEQ NOI and proper SWPPP protection during demolition and sitework at Cherry St site. This includes a construction entrance off of Cherry St. and maintenance during this scope of work. A portion of the site is within the 100-year floodplain limit. KCS will abide by regulations pertaining to this limit including not storing materials or stockpiling materials overnight.
- Construction surveying will be provided to indicate demolition limits, grading limits, building layout for grading, and location of geo-piers.
- KCS will provide street cleaning as necessary during the duration of this scope of work.
- Existing underground utilities for APS and Unisource will be removed once these entities disconnect, cap, and make-safe these areas.

Utilities

- New utilities will be provided for new facility including connection to existing sewer, new 8” fire line, new 2” water assembly, gas service, and electrical service.
- KCS has included necessary traffic control and protection while working in the street for tie-in of these utilities.
- KCS will patch back asphalt, concrete sidewalk, and concrete curb after installation of new utilities.
- A new backflow preventor for the domestic water service will be provided including a hotbox.

- A remote fire department connection (FDC) will be provided as shown on plans including a 4" line to riser room.
- A new fire hydrant assembly will be provided at the SE corner of the building as shown on the plans. KCS has included bollards at this assembly.
- KCS assumes sewer service will be tied in as show on the plans and a main line tap and work within the street will not be required.
- KCS has included relocation of the overhead electrical service to underground. This allowance of $200,000 includes APS fees for new primary service and equipment necessary to place these lines underground.
- KCS has included 2 equipment pads; one for a new APS transformer and switching cabinet.

Earthwork & Grading

- Once site demolition has occurred, KCS will provide general grading work for new building pad and parking lot.
- KCS has included necessary import of fill material as necessary to establish building pad grades
- KCS has included an allowance of $50,000 for rock excavation associated with utility trenching and building excavations.
- KCS will provide geo-pier foundations at new building foundation prior to installation of concrete foundations and Phase 2 GMP scope of work.
- All additional spoils from geo-pier installation will be hauled off from site.

Off-site Concrete & Asphalt

- Off-site concrete and asphalt work will be provided as shown on plans including new concrete driveways, curb & gutter, sidewalks, and asphalt patching at street.
- Salvaged pavers will be re-installed at parkway adjacent to Beaver and Cherry Streets to accommodate new work.
- Existing trees and tree wells will be protected during the course of construction. New tree wells including ribbon curb will be provided at parkway as indicated on plans.
- New concrete driveway will be provided off of Cherry St to new parking lot.
- Off-site curb and gutter will be provided at abandoned driveway locations and utility tie-in locations.
- Asphalt patching will be provided at driveway and curb tie-ins along with utility work at street. All asphalt patching will include necessary t-top. It assumes that existing subgrade and base are suitable at existing streets. Remediation of unsuitable soils at street is not included.
- KCS will include new off-site concrete sidewalks at perimeter of new courts facility.
- KCS will provide re-striping of adjacent off-street parking spaces at new facility including curb markings as necessary. It is assumed that the markings will be epoxy based paint.

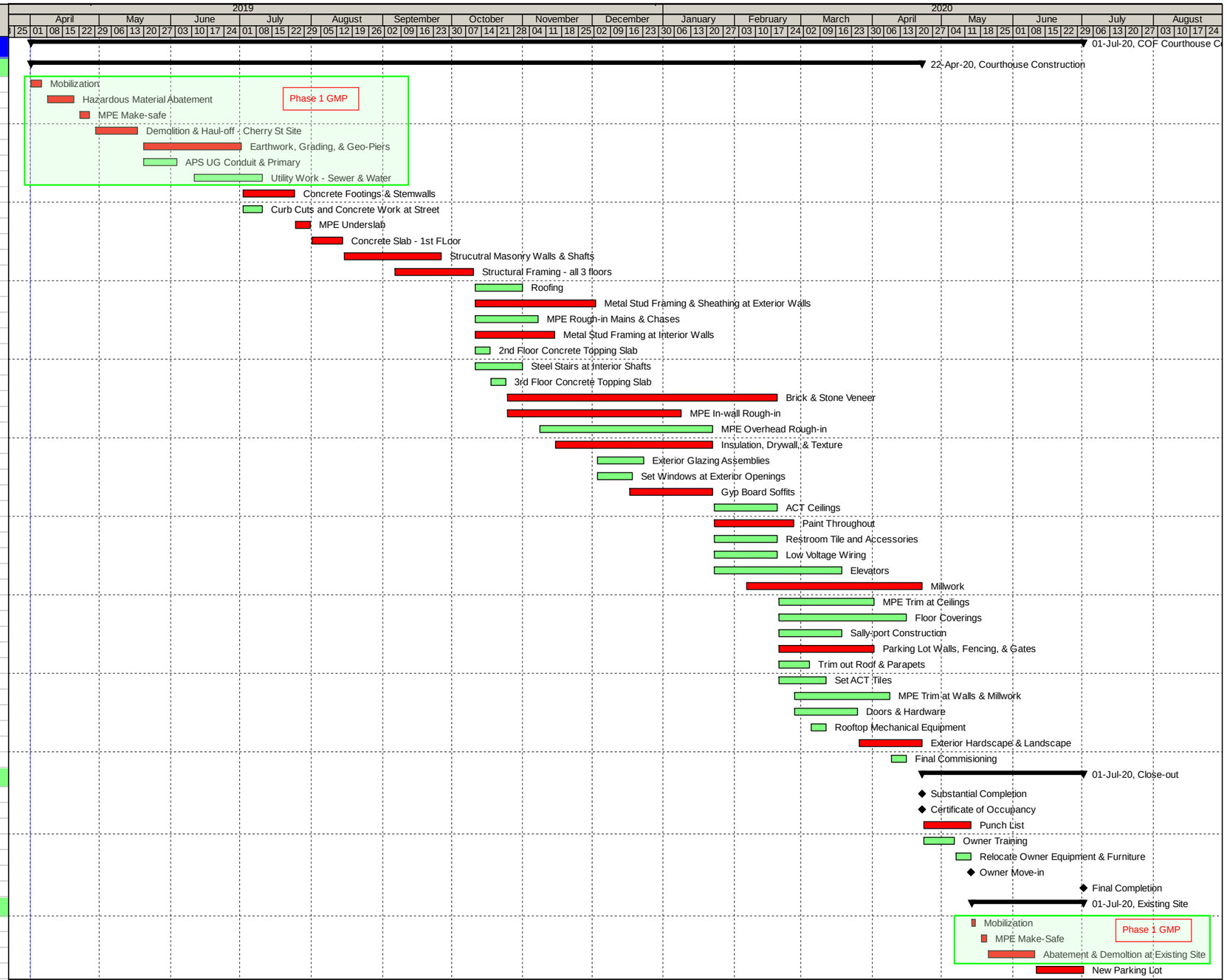
Exclusions

- Electrical Power Consumption Costs – KCS has included hook-up of temp power, but the assumption is that the meter will be in COF name and costs for electricity consumption will be by owner.
- 3rd Party Testing – assume costs by owner. KCS to coordinate inspections and providing copies of reports as necessary.
- On-site concrete and asphalt
- Structural concrete
- Parking Lot improvements at existing site
- Landscaping & Irrigation
- Fiber & Conduit Installation
- Gas Service – Unisource will bill COF direct for the actual installation of the UG pipe; KCS to provide trenching and backfill only
- 3rd Party Oversight for Abatement Activities
- Utility Impact Fees

Exhibit C - Enumeration of Documents
COF Courts - Phase 1 GMP

Number	Title	Date
	Asbestos & LCP Re-survey - 101 W Cherry	12.17.2018
	Asbestos & LCP Re-survey - 107 W Aspen	12.17.2018
	Asbestos & LCP Re-survey - 15 N Beaver	12.31.2018
	Asbestos Addendum - 101 W Cherry	1.11.2019
	Asbestos Addendum - 107 W Aspen	12.31.2018
	Asbestos Addendum - 15 N Beaver	12.31.2018
**All documents above created by Four Corners Environmental, Inc.*		
	Preliminary Drainage Report	2.7.2019
AS-100	Site Plan	2.5.2019
A-111	Floor Plan - Level 1	12.11.2018
A-112	Floor Plan - Level 2	12.11.2018
A-113	Floor Plan - Level 3	12.11.2018
A-131	Roof Plan	12.11.2018
A-211	Perspective Views	2.5.2019
A-221	Elevations - Exterior	2.5.2019
A-222	Elevations - Exterior	2.5.2019
A-223	Elevations - Exterior	2.5.2019
A-224	Elevations - Exterior	2.5.2019
A-310	Schematic Section	2.5.2019
A-501	Exterior Details - Signage Plan	2.5.2019
M-100	Materials	2.5.2019
ES-100	Electrical Site Plan	11.21.2019
ES-200	Lighting Fixture Cut Sheets	11.21.2019
10	Landscape Plan	2.7.2019
11	Landscape Plan	2.7.2019
12	Landscape Plan	2.7.2019
CVR	Cover Sheet	Feb, 2019
SP01	Civil Site Plan	Feb, 2019
GD01	Grading and Drainage	Feb, 2019
**All documents above created by CGL & SWI*		

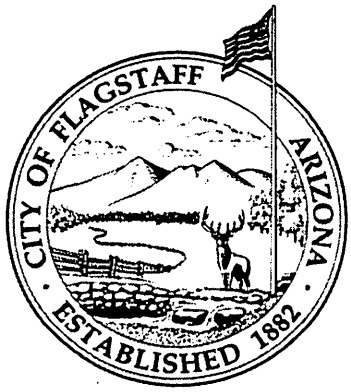
Activity ID	Activity Name	Original Duration	Start	Finish
COF Courthouse Construction Schedule		320	01-Apr-19	01-Jul-20
Courthouse Construction		270	01-Apr-19	22-Apr-20
A1080	Mobilization	5	01-Apr-19	05-Apr-19
A1440	Hazardous Material Abatement	10	08-Apr-19	19-Apr-19
A1180	MPE Make-safe	5	22-Apr-19	26-Apr-19
A1100	Demolition & Haul-off - Cherry St Site	15	29-Apr-19	17-May-19
A1460	Earthwork, Grading, & Geo-Piers	30	20-May-19	01-Jul-19
A1480	APS UG Conduit & Primary	10	20-May-19	03-Jun-19
A1470	Utility Work - Sewer & Water	20	11-Jun-19	10-Jul-19
A1450	Concrete Footings & Stemwalls	15	02-Jul-19	24-Jul-19
A1510	Curb Cuts and Concrete Work at Street	5	02-Jul-19	10-Jul-19
A1490	MPE Underslab	5	25-Jul-19	31-Jul-19
A1500	Concrete Slab - 1st FLoor	10	01-Aug-19	14-Aug-19
A1350	Strucutral Masonry Walls & Shafts	30	15-Aug-19	26-Sep-19
A1110	Structural Framing - all 3 floors	25	06-Sep-19	10-Oct-19
A1600	Roofing	15	11-Oct-19	31-Oct-19
A1620	Metal Stud Framing & Sheathing at Exterior Walls	35	11-Oct-19	02-Dec-19
A1630	MPE Rough-in Mains & Chases	20	11-Oct-19	07-Nov-19
A1640	Metal Stud Framing at Interior Walls	25	11-Oct-19	14-Nov-19
A1650	2nd Floor Concrete Topping Slab	5	11-Oct-19	17-Oct-19
A1860	Steel Stairs at Interior Shafts	15	11-Oct-19	31-Oct-19
A1660	3rd Floor Concrete Topping Slab	5	18-Oct-19	24-Oct-19
A1610	Brick & Stone Veneer	80	25-Oct-19	19-Feb-20
A1700	MPE In-wall Rough-in	50	25-Oct-19	08-Jan-20
A1690	MPE Overhead Rough-in	50	08-Nov-19	22-Jan-20
A1710	Insulation, Drywall, & Texture	45	15-Nov-19	22-Jan-20
A1670	Exterior Glazing Assemblies	15	03-Dec-19	23-Dec-19
A1680	Set Windows at Exterior Openings	12	03-Dec-19	18-Dec-19
A1740	Gyp Board Soffits	25	17-Dec-19	22-Jan-20
A1720	ACT Ceilings	20	23-Jan-20	19-Feb-20
A1730	Paint Throughout	25	23-Jan-20	26-Feb-20
A1770	Restroom Tile and Accessories	20	23-Jan-20	19-Feb-20
A1820	Low Voltage Wiring	20	23-Jan-20	19-Feb-20
A1870	Elevators	40	23-Jan-20	18-Mar-20
A1780	Millwork	55	06-Feb-20	22-Apr-20
A1750	MPE Trim at Ceilings	30	20-Feb-20	01-Apr-20
A1790	Floor Coverings	40	20-Feb-20	15-Apr-20
A1800	Sally-port Construction	20	20-Feb-20	18-Mar-20
A1810	Parking Lot Walls, Fencing, & Gates	30	20-Feb-20	01-Apr-20
A1830	Trim out Roof & Parapets	10	20-Feb-20	04-Mar-20
A1900	Set ACT Tiles	15	20-Feb-20	11-Mar-20
A1760	MPE Trim at Walls & Millwork	30	27-Feb-20	08-Apr-20
A1890	Doors & Hardware	20	27-Feb-20	25-Mar-20
A1840	Rooftop Mechanical Equipment	5	05-Mar-20	11-Mar-20
A1850	Exterior Hardscape & Landscape	20	26-Mar-20	22-Apr-20
A1880	Final Commisioning	5	09-Apr-20	15-Apr-20
Close-out		50	22-Apr-20	01-Jul-20
A1090	Substantial Completion	0		22-Apr-20
A1320	Certificate of Occupancy	0		22-Apr-20
A1330	Punch List	15	23-Apr-20	13-May-20
A1370	Owner Training	10	23-Apr-20	06-May-20
A1340	Relocate Owner Equipment & Furniture	5	07-May-20	13-May-20
A1360	Owner Move-in	0		13-May-20
A1380	Final Completion	0		01-Jul-20
Existing Site		35	14-May-20	01-Jul-20
B1000	Mobilization	2	14-May-20	15-May-20
B1010	MPE Make-Safe	3	18-May-20	20-May-20
B1100	Abatement & Demoltion at Existing Site	15	21-May-20	10-Jun-20
B1020	New Parking Lot	15	11-Jun-20	01-Jul-20



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

COF Courthouse Construction Schedule
Project Schedule

Kinney Construction Services, Inc.
06-Feb-19



Kinney Construction Services

CITY OF FLAGSTAFF COURT FACILITY

PROJECT NUMBER: 03-18007

CONTRACT NO.: 2018-63

DESIGN-BUILD SERVICES AGREEMENT

Mayor
Coral Evans

Council

Jamie Whelan
Scott Overton
Jim McCarthy
Celia Barotz
Charlie Odegaard
Eva Putzova

Interim City Manager
Barbara Goodrich

Water Services Director
Brad Hill

Community Development Director
Mark G. Landsiedel

Public Works Director
Andy Bertelsen

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CITY OF FLAGSTAFF COURT FACILITY PROJECT

DESIGN-BUILD SERVICES AGREEMENT
PROJECT NO. 03-18007

CONTRACT NO. 2018-63

THIS AGREEMENT, made and entered by and between the CITY OF FLAGSTAFF, an Arizona municipal corporation, hereinafter designated the "CITY" and KINNEY CONSTRUCTION SERVICES, INC., an Arizona corporation, hereinafter designated the "DESIGN-BUILDER."

RECITALS

A. The City Manager of the City of Flagstaff, Arizona, is authorized and empowered by Article VIII, Section 2 of the City Charter to execute contracts for professional services and construction services.

B. The City intends to construct the **City of Flagstaff Court Facility** as more fully described in Exhibit A attached hereto, hereinafter referred to as the "Project".

C. The Design-Builder has represented to the City its ability to design and construct the Project, and based on this representation the City has engaged [Contractor's Name], to design and construct the Project.

AGREEMENT

NOW THEREFORE, for and in consideration of the mutual covenants and considerations hereinafter contained, it is agreed by and between the City and the Design-Builder as follows:

ARTICLE 1 - DEFINITIONS

"Addenda" written or graphic instruments issued prior to the submittal of the GMP proposal(s), which clarify, correct or change the GMP proposal(s) requirements.

"Agreement" or "Contract" means this written document signed by the City and Design-Builder covering the design and construction of the Project, and including other documents itemized and referenced in or attached to and made part of this Contract. This term shall also include the RSOQ, all Attachments and Exhibits, and all Appendices.

"Change Order" (Amendment) means a written instrument issued after execution of this Agreement signed by City and Design-Builder, stating their agreement upon all of the following: the scope of the change in the Work; the amount of the adjustment to the Contract Price; the extent of the adjustment to the Contract Time(s) or modifications of other contract terms.

"City" (Owner) means the City of Flagstaff, a municipal corporation, with whom Design-Builder has entered into this Contract and for whom the services are to be provided pursuant to said Contract. Regulatory activities handled by the City of Flagstaff Community Development Department, Utilities Department or any other City Department are not subject to the responsibilities of the City under this Agreement.

"City's Representative" means the person designated in section 8.4.1.2.

"City's Senior Representative" means the person designated in section 8.4.1.1.

"Commissioning" means the process prescribed in section 2.21 for achieving, validating and documenting the performance of the total Project and its systems to meet the design needs and requirements of the City.

"Construction Documents" means the plans, specifications and drawings prepared by the Design-Build team and include documents as prescribed by section 2.8.

"Construction Drawings" means the detailed drawings, corrected for permit requirements, approved as part of the Construction Documents.

"Construction Fee" means the Design-Builder's administrative costs, home office overhead, and profit.

"Contract Documents" means the following items and documents in descending order of precedence executed by the City and the Design-Builder: (i) all written modifications, amendments and Change Orders (ii) this Agreement, including all exhibits and attachments; (iii) Construction Documents; (iv) Design-Builder's GMP proposal, and (v) Design-Builder's Statement of Qualifications.

"Contract Price" means the amount or amounts set forth in Article 5, subject to adjustment in accordance with this Agreement.

"Contract Time" means the period of time, as set forth in Article 4, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

"Cost of the Work" means the direct costs necessarily incurred by the Design-Builder in the proper performance of the Work. The Cost of the Work shall include direct labor costs, subcontract costs, costs of materials and equipment incorporated in the completed construction, costs of other materials and equipment, temporary facilities, permit and license fees (if not paid for by City), materials testing, and related items. The Cost of the Work shall not include the Design-Builder's Construction Fee, General Conditions Costs, or taxes.

"Critical Path" means the sequence of activities from the start of the Work to the Substantial Completion of the Project. Any delay in the completion of these activities will extend the Substantial Completion date.

"Day(s)" means calendar days unless otherwise specifically noted in the Contract Documents.

"Deliverables" means the work products prepared by the Design-Builder in performing the scope of work described in this Contract. Some of the major Deliverables to be prepared and provided by the Design-Builder during the design phase may include but are not limited to: Construction Management Plan, Project Schedule, Schedule of Values, alternative system evaluations, procurement strategies and plans, cost estimates, construction market surveys, cash flow projections, GMP proposals, Subcontractor procurement plan, Statement of Proposed MBE/WBE Utilization as may be required or appropriate, Subcontractor agreements, Subcontractor bid packages, Supplier agreements, and others as indicated in this Contract or required by the Project Team.

"Design Services" means all professional services to be performed or procured by the Design-Builder to provide required Project design under this Agreement and any subsequent amendments.

"Design-Builder" means the firm, corporation, or other approved legal entity with whom the City has entered into this Contract to provide services as detailed in this Contract.

"Design-Builder's Contingency" means a fund to cover cost growth during the Project used at the discretion of the Design-Builder, usually for costs that result from Project circumstances. The amount of the Design-Builder's Contingency will be negotiated as a separate line item in each GMP package. Use and management of the Design-Builder's Contingency is described in sections 5.3.3.4 and 5.3.3.6.

"Design-Builder's Senior Representative" means the person designated in section 8.4.2.1.

"Design-Builder's Representative" means the person designated in section 8.4.2.2.

"Differing Site Conditions" means concealed or latent physical conditions or subsurface conditions at the Site that, (i) materially differ or are not reasonably inferable from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work.

"Final Completion" means the completion of the Project as prescribed in section 4.4.

" Float" means the number of Days by which an activity can be delayed without lengthening the Critical Path and extending the Substantial Completion date.

"General Conditions Costs" includes, but is not limited to the following types of costs for the Design-Builder during the construction phase: (i) payroll costs for project manager or construction manager for work conducted at the Site; (ii) payroll costs for the superintendent and full-time general foremen; (iii) payroll costs for other management personnel resident and working at the Site; (iv) workers not included as direct labor costs engaged in support (e.g. loading/unloading, clean-up, etc.); (v) administrative office personnel; (vi) costs of offices and temporary facilities set up solely for this Project including office materials, office supplies, office equipment, and minor expenses; (vii) utilities, fuel, sanitary facilities and telephone services at the Site; (viii) costs of liability and other applicable insurance premiums not included in labor burdens for direct labor costs; (ix) costs of bond premiums; and (x) cost of consultants not in the direct employ of the Design-Builder or Subcontractors.

"Guaranteed Maximum Price" or "GMP" means the sum of the cost for design, permitting and maximum cost of the construction including the Design-Builder's Construction Fee, General Conditions Costs; sales tax, and Design-Builders Contingency.

"GMP Plans and Specifications" means the plans and specifications upon which the Guaranteed Maximum Price proposal is based.

"Legal Requirements" means all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project, Site or Work.

"Notice to Proceed" or "NTP" means the directive issued by the City authorizing the Design-Builder to start Work.

"Owner's Contingency" means a fund to cover cost growth during the Project used at the discretion of the City usually for costs that result from City's directed changes or Differing Site Conditions, or as the City may otherwise elect. The amount of the Owner's Contingency will be set solely by the City and will be in addition to the Project costs included in the Design-Builder's GMP packages. Use and management of the Owner's Contingency is described in section 5.3.4.

"Payment Request" means the City form used by the Design-Builder to request payment for Work in accordance with Article 7.

"Performance Period" means the period of time allotted in the Contract Documents to complete the construction comprised within a GMP. The Performance Period shall be stated with each GMP and shown on the Project Schedule.

"Product Data" means illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Design-Builder to illustrate materials or equipment for some portion of the construction.

"Project" means the Work to be completed in the execution of this Agreement and as amended and as described in the Recital above and in Exhibit A.

"Project Schedule" means a schedule as prescribed in section 2.4.

"Record Documents" means the documents created pursuant to section 2.19.

"Recovery Schedule" means a schedule created pursuant to section 2.4 generally, and section 2.4.5.9 specifically, which clearly and realistically identifies adjustments proposed to bring the Project back to the initial project Substantial Completion date.

"Samples" means physical examples which illustrate materials, equipment or workmanship and establish standards by which the construction will be judged.

"Scheduled Substantial Completion Date" means the date on which the Work, or an agreed upon portion of the Work, is anticipated to be sufficiently complete so that City can occupy and use the Project or a portion thereof for its intended purposes.

"Schedule of Values (SOV)", means the Document specified in the construction phase, which divides the Contract Price into pay items, such that the sum of all pay items equals the Contract Price for the construction phase Work, or for any portion of the Work having a separate specified Contract Price. The SOV may or may not be output from the Project Schedule depending on if the Project Schedule is cost-loaded or not.

"Shop Drawings" means drawings, diagrams, schedules and other data specially prepared for the construction by the Design-Builder or a Subcontractor, Sub-subcontractor, manufacturer, Supplier or distributor to illustrate some portion of the construction.

"Site" means the land or premises on which the Project is located.

"Subcontractor" or "Subconsultant" means an individual or firm having a direct contract with the Design-Builder or any other individual or firm having a contract with the aforesaid contractors at any tier, who undertakes to perform a part of the Work for which the Design-Builder is responsible.

"Substantial Completion" means the established date when the Work or designated portion thereof is sufficiently complete, in accordance with the Contract Documents so that the City may occupy the Work, or designated portion thereof, for the use for which it is intended. This may include, but is not limited to: (i) Approval by the City or State Fire Marshall and/or other state or local authorities having jurisdiction over the Work or a portion thereof (Certificate of Occupancy); (ii) all systems in place, functional, and displayed to, and accepted by, the City or it's representative; (iii) City operation and maintenance training complete; (iv) HVAC test and balance completed with reports provided to the Design Professional for review; (v) Operational and Maintenance manuals and final Project Record Documents delivered to the City or Design Professional for review, (vi) landscaping and site work complete; and (vii) final cleaning complete.

"Supplier" means a manufacturer, fabricator, supplier, distributor, material manager or vendor having a direct contract with Design-Builder or any Subcontractor to furnish materials or equipment to be incorporated in the construction phase Work by Design-Builder or any Subcontractor.

"Work" means all design, construction, and Commissioning services, including procuring and furnishing materials, equipment, services, and labor reasonably inferable from the Contract Documents

ARTICLE 2 – DESIGN-BUILDER'S SERVICES AND RESPONSIBILITIES

2.0 The following sections prescribe the services and responsibilities required for the proper execution and completion of the Work by the Design-Builder. They are not organized in any specific order and may pertain to all phases of the Work.

2.1 General Services

2.1.1 Design-Builder shall, through personnel employed by Design-Builder, or procured from qualified Subconsultants or Subcontractors, perform all Work, and provide all material, equipment, tools and labor necessary to complete the Work described in and reasonably inferable from this Agreement.

2.1.1.1 This Agreement shall be executed and signed by City and Design-Builder, stating their agreement to proceed with design in accordance with all codes, standards and requirements as adopted by ordinance or as may be referenced in Exhibit B – Scope of Services.

2.1.1.2 An amendment to this Agreement may be executed and signed by City and Design-Builder, stating their agreement to a GMP, or multiple GMP's, and to proceed with the completion of the design and construction of the Project.

2.1.2 The City hereby acknowledges its acceptance of the key personnel of the design-build team as submitted by the Design-Builder in its statement of qualifications or as amended subsequently during the selection process. At any time hereafter that the Design-Builder desires to reassign or change key personnel while performing under this Agreement, the Design-Builder shall submit a request to reassign or change key personnel and the qualifications of the proposed new key personnel to the City for prior approval.

2.1.3 The Design-Builder will maintain an adequate and competent staff of qualified persons, as may be determined by the City, throughout the performance of this Agreement. If the City objects, with reasonable cause, to any of the Design-Builder's design professionals, the Design-Builder shall take prompt corrective action acceptable to the City and, if required, remove such persons from the Project and replace with new design professionals agreed to by the City.

2.1.4 Design-Builder's Representative shall be reasonably available to City and shall have the necessary expertise and experience required to supervise the Work. Design-Builder's Representative shall communicate regularly with City and shall be vested with the authority to act on behalf of Design-Builder. Design-Builder's Representative may be replaced as described in section 2.1.2.

2.1.5 The parties will meet within seven (7) Days after execution of this Agreement to discuss issues affecting the administration of the Work, the Project Schedule, and to implement the necessary procedures, including those relating to submittals and payment, to facilitate the ability of the parties to perform their obligations under this Agreement. The Notice to Proceed (NTP) date prescribed in section 4.1 will be established.

2.2 Professional Services.

2.2.1 Design-Builder shall, consistent with applicable state licensing laws, provide qualified, licensed design professionals employed by Design-Builder, or procured from qualified, independent licensed design consultants, the necessary Design Services, including architectural, engineering and other design professional services, for the preparation of the required drawings, specifications and other design submittals to permit Design-Builder to complete the Work consistent with the Contract Documents. The Design-Builder's design professionals shall seal with an Arizona registered professional seal all plans, works, and Deliverables prepared by them for this Agreement as required by state law.

2.2.2 The Design-Builder understands and agrees that the City's Senior City Representative or City Representative, shall be the sole contacts for administering this Agreement. The Design-Builder is not precluded from discussing the Project, or its requirements with the tenants or other entities which will ultimately use the facility, but all specific directions to or requests of the Design-Builder must be authorized by the Senior City Representative or the City Representative.

2.3 Standard of Care for Design Professional Services and Corrections

2.3.1 The standard of care for all design professional services performed to execute the Work shall be the care and skill ordinarily used by members of the design profession practicing under similar conditions at the same time and locality of the Project. Notwithstanding the preceding sentence, if the parties agree upon specific performance standards for any aspect of the services, which standards are to be set forth in an exhibit to this Agreement entitled "Performance Standard Requirements," the design professional services shall be performed to achieve such standards.

2.3.2 The Design-Builder shall be responsible for the completeness and accuracy of the plans, specifications, supporting data, and other work prepared or compiled under its obligation for this Project and shall correct, at its expense, all errors, omissions and negligent acts therein which may be discovered. Correction of errors, omissions and negligent acts discovered on architectural or engineering plans and specifications shall be the responsibility of the Design-Builder. The cost of the design necessary to correct those errors attributable to the Design-Builder shall not be reimbursable costs to the Design-Builder. Any damage incurred by the City as a result of additional construction cost caused by such errors, omissions or negligent acts shall not be reimbursed to the Design-Builder to the extent that such errors, omissions and negligent acts fall below the standard of care and skill that a registered professional in Arizona would exercise under similar conditions. The fact that the City has accepted or approved the Design-Builder's product shall in no way relieve the Design-Builder of any of its responsibilities.

2.4 Project Schedule

2.4.1 The Project Schedule shall be established within seven (7) Days of the NTP and, updated and maintained throughout the Work. An updated Project Schedule shall be part of any GMP amendment.

2.4.2 The Project Schedule shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve Design-Builder of its obligations to complete the Work within the Contract Time(s), as such dates may be adjusted in accordance with the Contract Documents.

2.4.3 An updated Project Schedule shall be submitted monthly to the City five (5) working Days prior to the Design-Builder's monthly Payment Request as prescribed in Article 7 of this Agreement.

2.4.3.1 Design-Builder shall provide City with a monthly status report with each Project Schedule detailing the progress of the Work, including whether (i) the Work is proceeding according to schedule, (ii) discrepancies, conflicts, or ambiguities exist in the Contract Documents that require resolution, and (iii) other items require resolution so as not to jeopardize Design-Builder's ability to complete the Work for the Contract Price(s) and within the Contract Time(s).

2.4.3.2 With each Project Schedule submitted, the Design-Builder shall include a transmittal letter including the following.

- Description of problem tasks (referenced to field instructions, requests for information (RFIs), change order or claim numbers) as appropriate.
- Current and anticipated delays not resolved by approved change order, including:
  - Cause of the delay
  - Corrective action and schedule adjustments to correct the delay
  - Known or potential impact of the delay on other activities, milestones, and the date of Substantial Completion
  - Changes in construction sequence
- Pending items and status thereof including but not limited to:
  - Pending change orders
  - Time extension requests
  - Other items
- Substantial Completion date status:
  - If ahead of schedule, the number of Days ahead
  - If behind schedule, the number of Days behind
- Other Project or scheduling concerns

2.4.1 City's review of and response to the Project Schedule is only for general conformance with the scheduling requirements of the Contract Documents. The review shall not relieve the Design-Builder from compliance with the requirements of the Contract Documents or be construed as relieving the Design-Builder of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.

2.4.1.1 Upon the City's request, the Design-Builder shall participate in the review of the Design-Builder's Project Schedule submissions. The City may request the participation of Subconsultants and/or Subcontractors in these reviews, as determined necessary by the City.

2.4.5 The Project Schedule shall include a Critical Path Method (CPM) diagram schedule that shall show the sequence of activities, the interdependence of each activity and indicate the path of critical activities.

2.4.5.1 The CPM diagram schedule shall be in Days and indicate duration, earliest and latest start and finish dates, and total Float times for all activities except critical activities. The CMP diagram shall be presented in a time scaled graphical format for the Project as a whole.

2.4.5.2 The CPM diagram schedule shall indicate all relationships between activities.

2.4.5.3 The activities making up the schedule shall be of sufficient detail to assure that adequate planning has been done for proper execution of the Work and such that it provides an appropriate basis for monitoring and evaluating the progress of the Work.

2.4.5.4 The CPM diagram construction schedule shall be based upon activities, which would coincide with the Schedule of Values.

2.4.5.5 The CPM diagram schedule shall show all submittals associated with each work activity and the review time for each submittal.

2.4.5.6 The schedule shall show milestones, including milestones for City-furnished information, and shall include activities for City-furnished equipment and furniture when those activities are interrelated with the Design-Builder's activities.

2.4.5.7 The schedule shall include a Critical Path activity that reflects anticipated weather delay during the performance of the Contract. The duration shall reflect the average climatic range and usual industrial conditions prevailing in the locality of the Site. Weather data shall be based on the information set forth on the City of Flagstaff's Table of "Monthly Anticipated Adverse Weather Calendar Days" and the explanatory paragraphs attached thereto.

2.4.5.8 The Project Schedule shall consider the City's occupancy requirements showing portions of the Project having occupancy priority, and Contract Time.

2.4.5.9 In the event of significant delays, lags or changes in the planned sequence of activities, as determined by Owner, Contractor shall provide to Owner a Recovery Schedule indicating proposed rescheduling of activities to achieve completion of the Project by the Scheduled Substantial Completion Date.

2.4.6 Float time shall be as prescribed below:

2.4.6.1 The total Float within the overall schedule, is not for the exclusive use of either the City or the Design-Builder, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet contract milestones and the Project completion date.

2.4.6.2 The Design-Builder shall not sequester shared Float through such strategies as extending activity duration estimates to consume available Float, using preferential logic, or using extensive crew/resource sequencing, etc. Since Float time within the schedule is jointly owned, no time

extensions will be granted nor delay damages paid until a delay occurs which extends the Work beyond the Substantial Completion date, and then only if such extensions or damages are shown to be justified under the Contract Documents.

2.4.6.3 Since Float time within the construction schedule is jointly owned, it is acknowledged that City-caused delays on the Project may be offset by City-caused time savings (i.e., Critical Path submittals returned in less time than allowed by the Contract, approval of substitution requests and credit changes which result in a savings of time to the Design-Builder, etc.). In such an event, the Design-Builder shall not be entitled to receive a time extension or delay damages until all City-caused time savings are exceeded, and the Substantial Completion date is also exceeded.

2.5 Cost Estimates

2.5.1 The Project budget available for the Work will be communicated to the Design-Builder through separate correspondence. The Design-Builder is responsible for the delivery of the Project covered by the Contract Documents within the Project budget.

2.5.2 With each Project Schedule submittal pursuant section 2.4.3, the Design-Builder shall provide a detailed cost estimate and a written review of the documents.

2.5.2.1 If any estimate submitted to the City exceeds previously accepted estimates or the City's Project budget, the Design-Builder shall make at its sole expense appropriate recommendations on methods and materials to the City that it believes will bring the Project back into the Project budget.

2.5.2.2 In between these milestone estimates, the Design-Builder shall periodically provide a tracking report which identifies the upward or downward movements of costs due to value engineering or scope changes. It shall be the responsibility of the Design-Builder to keep the City informed as to the major trend changes in costs relative to the City's budget.

2.5.3 If requested by the City, the Design-Builder shall prepare a preliminary "cash flow" projection based upon historical records of similar type projects to assist the City in the financing process.

2.6 Not Used

2.7 Construction Management Plan

2.7.1 The Design-Builder will prepare a Construction Management Plan (CMP).

2.7.2 The CMP shall include:

- Project milestone dates and the Project Schedule, including the broad sequencing of the design and construction of the Project,
- Investigations, if any, to be undertaken to ascertain subsurface conditions and physical conditions of existing surface and subsurface facilities and underground utilities,
- Alternate strategies for fast-tracking and/or phasing the construction,
- Goal compliance strategy,
- The number of separate sub-agreements to be awarded to Subcontractors and Suppliers for the Project construction,
- Permitting strategy,
- Safety and training programs,
- Construction quality control,
- Commissioning program,
- Cost estimate and basis of the model, and
- Matrix summarizing each Project Team member's responsibilities and roles.

2.7.3 The Design-Builder shall add detail to its previous version of the CMP to keep it current throughout

the design phase, so that the CMP is ready for implementation at the start of construction.

2.8 Design Services

2.8.1 Design-Builder shall provide all interim design submissions and Deliverables as prescribed in the Performance Standards Requirements provided by the City, and as shown on the Project Schedule.

2.8.1.1 Within seven (7) Days after a scheduled submission, the Design-Builder and City shall meet and confer about the submissions, with Design-Builder identifying during such meetings, among other things, the evolution of the design and any significant changes or deviations from the Contract Documents, or previously submitted design submissions.

2.8.1.2 The Design-Builder, with each required submittal, shall submit and distribute ten, or as otherwise identified in the Performance Standards Requirements, hard copy sets of plans and specifications.

2.8.1.3 Minutes of the meetings will be maintained by Design-Builder and provided within five Days following the design review meeting to all attendees for review.

2.8.1.4 City shall review and approve the interim design submissions in a time that is consistent with the turnaround times set forth in Design-Builder's Owner approved Project Schedule.

2.8.1.5 Design-Builder shall not cause the design to proceed until City approves the interim design submissions as prescribed in this section. If the Design-Builder allows the design to proceed without City approval, the cost of any resultant redesign is not a reimbursable cost.

2.8.1.6 City's review and approval of interim design submissions and the Construction Documents is for the purpose of mutually establishing a conformed set of Construction Documents compatible with the requirements of the Project. Neither City's review nor approval of any interim design submissions and Construction Documents shall be deemed to transfer any design liability to the City.

2.8.2 The Project design must meet all applicable (i) Maricopa Association of Governments (MAG) Uniform Standard Technical Specifications and Uniform Standard Details and Drawings, latest revision; (ii) the City of Flagstaff Supplements and Amendments to the latest revision of the MAG Uniform Standard Technical Specifications and Uniform Details and Drawings; (iii) the City of Flagstaff Engineering Design and Construction Standards and Specifications, latest edition, (iv) all City building standards; and (v) shall include any general provisions provided by the City.

2.8.3 The Project design criteria and specifications shall be in accordance with all codes, standards and requirements as adopted by ordinance or as may be referenced in Exhibit C – Performance Standards Requirements. Variances from the standards and guidelines must be identified in writing by the Design-Builder and approved by the City. The Design Builder shall identify conflicts between the design standards and guidelines and the requirements in section 2.8.2 above or Legal Requirements and shall obtain concurrence with resolution of the conflict. The design standards and guidelines or approval of variances or resolution of conflicts shall not be deemed to transfer any design liability to the City.

2.8.4 The Design-Builder shall not specify any construction materials known to be hazardous or potentially hazardous, including asbestos, lead or any derivative thereof unless specifically approved in writing by the City.

2.8.5 The Design-Builder shall coordinate with private, public and City utilities (i.e., Information Technology Department, Water Services Department) regarding standard utility issues and incorporate pertinent information in the plans.

2.8.6 The Design-Builder shall be responsible for scheduling, submitting to, obtaining approval and retrieving all required Construction Documents from the various required reviewing agencies.

2.8.7 Until such time as a GMP amendment has been executed, Design-Builder when requested by the City, will attend, make presentations, and participate as may be appropriate in public agency and/or community meetings relative to the Project. Design-Builder will provide drawings, schedule diagrams, budget charts and other materials describing the Project, when their use is required or appropriate in any such meetings.

2.8.8 Design-Builder shall submit to the City, Construction Documents setting forth in detail drawings and specifications describing the requirements for construction.

2.8.8.1 The Construction Documents shall be consistent with the latest set of interim design submissions, as such submissions may have been modified in a design review meeting.

2.8.8.2 The Design-Builder shall provide the drawings in AutoCAD format compatible with City of Flagstaff Community Development Department CADD technology using City layering standards.

2.8.8.3 The drawing format will be a 24" x 36" sheet size unless otherwise authorized in writing by the City.

2.8.8.4 The parties shall have a design review meeting to discuss, and City shall review and approve, the Construction Documents in accordance with the procedures set forth this section.

2.8.8.5 Prior to commencement of construction, Design-Builder shall submit to the City the following.

- One set of approved Construction Drawings in AutoCAD format on electronic media (CD-ROM);
- Five print sets of approved Construction Drawings and five half-size sets; and
- Five sets of specifications.

2.8.9 To the extent not prohibited by Legal Requirements, Design-Builder may arrange for interim design submissions and Construction Documents for a portion of the construction to permit construction to proceed on that portion prior to completion of the Construction Documents for the entire construction.

2.9 Not Used

2.10 Government Approvals and Permits

2.10.1 Design-Builder shall obtain all necessary permits, approvals, and licenses required for the prosecution of the Work by any government or quasi-government entity having jurisdiction over the Project. **The Design-Builder is specifically reminded of the need to obtain the necessary environmental permits and/or file the necessary environmental notices.**

2.10.2 Copies of these permits and notices must be provided to the City's Representative prior to starting the permitted activity. In the case of Fire Department permits, a copy of the application for permit shall also be provided to the City's Representative. This provision does not constitute an assumption by the City of any obligation of any kind for violation of said permit or notice requirements.

2.10.3 City shall be responsible for City of Flagstaff review and permit(s) fees for building and demolition permits. City will also pay review fees for grading and drainage, water, sewer, and landscaping. City shall also pay for utility fees for permanent services.

2.10.4 Design-Builder shall be responsible for all other permits and review fees not specifically listed in section 2.10.3 above.

2.10.5 Design-Builder is responsible for the cost of water meter(s), water and sewer taps and fire lines and taps, and all utility fees including incremental billings until Substantial Completion. Arrangements for construction water and associated fees are the Design-Builder's responsibility.

2.11 Subcontractor Selection

2.11.1 Subcontractors shall be selected by a combination of qualifications and price derived through competitive bidding.

2.11.1.1 Design-Builder shall employ only Subcontractors who are duly licensed in Arizona and qualified to perform the Work per the requirements of the Contract Documents.

2.11.2 The Design-Builder will develop Subcontractor interest, submit the names of a minimum of three qualified Subcontractors selected pursuant to a qualifications based procedure, for each trade in the Project for approval by the City and solicit bids for the various construction categories. If there are not three qualified Subcontractors available for a specific trade or there are extenuating circumstances warranting such, the Design-Builder may request approval by the City to submit less than three names. Without prior approval by the City, no change in the City-approved Subcontractors will be allowed.

2.11.2.1 If the Design-Builder desires to self-perform certain portions of the construction, it will request to be one of the approved Subcontractor bidders for those specific bid packages. The Design-Builder's bid will be evaluated in accordance with the process identified below. If after selection of a Subcontractor, events warrant and the City concurs, the Design-Builder may self perform construction without bidding or re-bidding.

2.11.2.2 If the City objects to any nominated Subcontractor or to any nominated self-performed construction for good reason, the Design-Builder will nominate a substitute Subcontractor.

2.11.2.3 The Design-Builder will distribute drawings and specifications, and when appropriate, conduct a prebid conference with prospective Subcontractors.

2.11.2.4 The Design-Builder shall receive, open, record and evaluate the bids. The apparent low bidders will be interviewed to determine the responsiveness of their proposals. In evaluating the responsiveness of bid proposals the Design-Builder, in addition to bid price, shall consider the following factors: past performance on similar projects, qualifications and experience of personnel assigned, quality management plan, approach or understanding of the Work to be performed, and performance schedule to complete the Work. The final evaluation of Subcontractor bids will be done with the City Representative in attendance to observe and witness the process. The Design-Builder will resolve any Subcontractor bid withdrawal, protest or disqualification in connection with the award at no increase in the cost of the construction.

2.11.3 Upon completion of the Subcontractor selection process, the Design-Builder shall submit a summary report to the City of the entire Subcontractor selection process. The report will indicate, by bid process, all Subcontractors contacted to determine interest, the Subcontractors solicited, the bids received and costs negotiated, and the selected Subcontractors for each category of Work.

2.11.4 The selected Subcontractors will provide a Schedule of Values, which will be used to create the overall Project Schedule of Values.

2.12 General Construction Services

2.12.1 Unless otherwise provided in the Contract Documents to be the responsibility of City or a separate contractor, Design-Builder shall provide through itself or Subcontractors the necessary supervision, labor, taxes, inspection, testing, start-up, material, equipment, machinery, arrangements for temporary utilities and other temporary facilities to permit Design-Builder to complete construction of the Project consistent with the Contract Documents.

2.12.2 The Design-Builder shall completely and totally construct the Project and install the material therein for the City, in a good and workmanlike and substantial manner. The Work shall be to the satisfaction of the City and strictly pursuant to and in conformity with the Contract Documents as amended.

2.12.3 Design-Builder shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents. Design-Builder shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

2.13 Pre-construction Conference

2.13.1 After approval of Construction Documents and prior to the commencement of any construction, the City's Representative will schedule a pre-construction conference.

2.13.2 The purpose of this conference is to establish a working relationship between the Design-Builder, utility firms, and various City agencies. The agenda will include critical elements of the construction schedule, submittal schedule, cost breakdown of major lump sum items, the level of Record Project Documents required, Payment Requests and processing, coordination with the involved utility firms, and emergency telephone numbers for all representatives involved in the course of construction.

2.13.3 The construction start date will be concurred with. After the meeting a Notice to Proceed letter will be issued confirming the construction start date, duration of the construction and if applicable the Substantial Completion date. If a Substantial Completion date is established the conditions of the Substantial Completion will be listed.

2.13.4 The Design-Builder shall provide a Schedule of Values based on the categories used in the buy out of the construction, but not greater than the approved GMP, and identifying the construction contingency. The Schedule of Values will subdivide the construction into all items comprising the construction.

2.13.5 Minimum attendance by the Design-Builder shall be the Design-Builder's Representative who is authorized to execute and sign documents on behalf of the firm, the Design-Builder's Design and Contractor Representatives, the job superintendent, and the Design-Builder's safety officer.

2.14 Supervision of Construction

2.14.1 Design-Builder or the Design-Builder's Representative shall at all times be present at the Site when construction activities are taking place.

2.14.1.1 All elements of the construction, such as concrete work, pipe work, etc., shall be under the direct supervision of a foreman or his designated representative on the Site, who shall have the authority to take actions required to properly carry out that particular element of the construction.

2.14.1.2 In the event of noncompliance of this section 2.14, the City may require the Design-Builder to stop or suspend the construction in whole or in part. Such suspension, due to the Design-Builder's noncompliance shall not be considered a basis for an increase in the Contract Price or extension of Contract Time.

2.14.2 Where the Contract Documents require that a particular product be installed and/or applied by an applicator approved by the manufacturer, it is the Design-Builder's responsibility to ensure the Subcontractor employed for such Work is approved.

2.14.3 During construction the City may reasonably object to any Subcontractor and the Subcontractor shall be removed from the construction, provided that the Contract Price and/or Contract Time(s) may be adjusted to the extent that City's decision impacts Design-Builder's cost and/or time of performance.

2.14.4 Any person employed by the Design-Builder or any Subcontractor who, in the opinion of the City, does not perform his work in a proper, skillful and safe manner or is intemperate or disorderly shall, at the written request of the City, be removed from the construction by Design-Builder or Subcontractor employing such person, and shall not be employed again in any portion of construction without the

written approval of the City. The Design-Builder or Subcontractor shall keep the City harmless from damages or claims, which may occur in the enforcement of this section.

2.14.5 Design-Builder shall be solely responsible to City for the proper performance of the Work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between City and any Subcontractor, including but not limited to any third-party beneficiary rights.

2.14.6 Design-Builder shall coordinate the activities of all Subcontractors. If City performs other work on the Project or at the Site with separate contractors under City's control, Design-Builder agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.15 Control of Construction Site

2.15.1 Throughout all phases of construction, including suspension of Work, Design-Builder shall keep the Site reasonably free from debris, trash and construction wastes to permit Design-Builder to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the construction, or a portion of the construction, Design-Builder shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the construction or applicable portions thereof to permit City to occupy the Project or a portion of the Project for its intended use.

2.15.2 Design-Builder shall take whatever steps, procedures or means to prevent any dust nuisance due to construction operations. The dust control measures shall be maintained at all times to the satisfaction of the City and in accordance with the requirements of the Arizona Department of Environmental Quality (ADEQ).

2.15.3 Design-Builder shall maintain ADA and ANSI accessibility requirements during construction activities in an occupied building or facility. ADA and ANSI accessibility requirements shall include, but not be limited to, parking, building access, entrances, exits, restrooms, areas of refuge, and emergency exit paths of travel. Design-Builder shall be responsible for the coordination of all Work to minimize disruption to building occupants and facilities.

2.15.4 In the event of abnormal weather conditions, such as windstorms, rainstorms, snowstorms, etc., the Design-Builder shall immediately inspect the work site and take all necessary actions to insure public access and safety are maintained, and that the Work in place and site conditions are protected from damage.

2.15.5 Only materials and equipment, which are to be used directly in the construction, shall be brought to and stored on the Site by the Design-Builder. When equipment is no longer required for the construction, it shall be removed promptly from the Site. Protection of construction materials and equipment stored at the Site from weather, theft, damage and all other adversity is solely the responsibility of the Design-Builder.

2.16 Shop Drawings, Product Data and Samples

2.16.1 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the construction for which submittals are required the way the Design-Builder proposes to conform to the information given and the design concept expressed in the Construction Documents.

2.16.2 The Design-Builder shall review, approve, verify, and submit to the City three copies of each Shop Drawing, Product Data, Sample, and similar submittal required by the Construction Documents in accordance with the approved construction schedule as prescribed in section 4.2 as to cause no delay in the Work or in the activities of the City or of separate contractors.

2.16.3 By approving, verifying and submitting Shop Drawings, Product Data, Samples and similar submittals, the Design-Builder represents that the Design-Builder has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the construction and of the Construction Documents.

2.16.4 The Design-Builder shall not be relieved of responsibility for deviations from requirements of the Contract Documents unless the Design-Builder has specifically informed the City in writing of such deviation at the time of submittal and the City has given written approval to the specific deviation.

2.16.5 When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the City shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

2.17 Quality Control, Testing and Inspection

2.17.1 All materials used in the construction shall be new and unused, unless otherwise agreed to in writing by the parties, and shall meet all quality requirements of the Contract Documents.

2.17.2 All construction materials to be used on the construction or incorporated into the construction, equipment, plant, tools, appliances or methods to be used in the construction may be subject to the inspection and approval or rejection of the City. Any material rejected by the City shall be removed immediately and replaced in an acceptable manner.

2.17.3 The procedures and methods used to sample and test material will be determined by the City. Unless otherwise specified, samples and tests shall be made in accordance with (i) Maricopa Association of Governments (MAG) Uniform Standard Technical Specifications and Uniform Standard Details and Drawings, latest revision, (ii) the City of Flagstaff Supplements and Amendments to the latest revision of the MAG Uniform Standard Technical Specifications and Uniform Details and Drawings, (iii) City of Flagstaff Engineering Design and Construction Standards and Specifications latest revision, and (iv) ASHTO and ASTM standards, latest revisions.

2.17.4 The City will select a pre-qualified City or independent testing laboratory and will pay for initial City acceptance testing.

2.17.4.1 When the first and subsequent tests indicate noncompliance with the Contract Documents, the cost associated with that noncompliance and the cost of all tests, except the first test, will be paid for by the Design-Builder. Construction contingency cannot be utilized for the cost of re-testing.

2.17.4.2 When the first and subsequent tests indicate noncompliance with the Contract Documents, all retesting shall be performed by the same testing agency.

2.17.5 The Design-Builder will cooperate with the selected testing laboratory and all others responsible for testing and inspecting the Work and shall provide them access to the Work at all times.

2.17.6 At the option of the City, materials may be approved at the source of supply before delivery is started.

2.17.7 Code compliance testing and inspections required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid by the Design-Builder, unless otherwise provided in the Contract Documents.

2.17.8 Design-Builder's convenience and quality control testing and inspections shall be the sole responsibility of the Design-Builder and paid by the Design-Builder.

2.18 Trade names and Substitutions. Construction Document references to equipment, materials or

patented processes by manufacturer, trade name, make or catalog number, unless indicated that no substitutions are permitted, may be substituted. Substitute or alternate items may be permitted, subject to the following:

2.18.1 The substitution shall be submitted by Design-Builder in writing to the City.

2.18.2 The Design-Builder shall certify that the substitution will perform the functions and achieve the results called for by the general design, be similar and of equal substance, and be suited to the same use as that specified.

2.18.3 The submittal shall state any required changes in the Construction Documents to adapt the design to the proposed substitution.

2.18.4 The submittal shall contain an itemized estimate of all costs and credits that will result directly and indirectly from the acceptance of such substitution, including cost of design, license fees, royalties, and testing. Also, the submittal shall include any adjustment in the Contract Time created by the substitution. Substitutions will only be considered if they do not extend Contract Time.

2.18.5 The Design-Builder if requested by the City shall submit Samples or any additional information that may be necessary to evaluate the acceptability of the substitution.

2.18.6 The City will make the final decision and will notify the Design-Builder in writing as to whether the substitution has been accepted or rejected. If accepted, the Design-Builder will cause the Construction Documents to be revised as approved at the Design-Builder's cost.

2.18.7 The Design-Builder shall continue to perform the construction in accordance with the Construction Documents unless the City accepts the substitution and there is no extension of Contract Time.

2.19 Project Record Documents

2.19.1 During the construction period, the Design-Builder shall maintain at the Site a set of blueline or blackline prints of the Construction Drawings and Shop Drawings for Project Record Document purposes.

2.19.1.1 The Design-Builder shall mark these drawings to indicate the actual installation where the installation varies appreciably from the original Construction Drawings. The Design-Builder shall give particular attention to information on concealed elements, which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

- Dimensional changes to the drawings.
- Revisions to details shown on drawings
- Depths of foundations below first floor
- Locations and depths of underground utilities
- Revisions to routing of piping and conduits.
- Revisions to electrical circuitry.
- Actual equipment locations.
- Duct size and routing.
- Locations of concealed internal utilities.
- Changes made by Change Order, Field Order, Report of Field Change, ASI or RFI.
- Details not on original Construction Drawings.

2.19.1.2 The Design-Builder shall mark completely and accurately Project record drawing prints of Construction Drawings or Shop Drawings, whichever is the most capable of indicating the actual physical condition. Where Shop Drawings are marked, show cross-reference on Construction Drawings location.

2.19.1.3 The Design-Builder shall mark Project record drawings sets with red erasable colored pencil.

2.19.1.4 The Design-Builder shall note RFI Numbers, ASI Numbers and Change Order numbers, etc, as required to identify the source of the change to Construction Drawings.

2.19.1.5 The Design-Builder shall as a condition of Substantial Completion, submit Project record drawing prints and Shop Drawings to the City or its representative for review and comment.

2.19.2 Final Project record drawings: Upon receipt of the reviewed Project record drawings from the City, the Design-Builder shall correct any deficiencies and/or omissions to the drawings and prepare the following for submission to the City within 14 Days:

2.19.2.1 On electronic media: (i) a complete set of Project record drawings prepared in Autocad format compatible with City of Flagstaff Community Development Department CADD technology using City layering standards, each drawing shall be clearly marked with "As-Built Document;" (ii) a complete set of Project specifications in Microsoft Word format; and (iii) Shop Drawings in CADD or graphic file format.

2.19.2.2 On hard copy media: (i) a complete set of reproducible mylars from the final AutoCAD drawings in the format compatible with City of Flagstaff Community Development Department CADD technology using City layering standards; and (ii) two edge bound blueline or blackline sets reproduced from these mylars.

2.19.2.3 The original copy of the Project record drawings (redline mark-ups).

2.20 Project Safety

2.20.1 Design-Builder recognizes the importance of performing the construction in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the construction, including materials and equipment incorporated into the construction or stored on-Site or off-Site, and (iii) all other property at the Site or adjacent thereto.

2.20.2 Design-Builder assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the construction.

2.20.3 Design-Builder shall, prior to commencing construction, designate a safety representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the construction. Unless otherwise required by the Contract Documents, Design-Builder's safety representative shall be an individual stationed at the Site who may have responsibilities on the Project in addition to safety.

2.20.4 The safety representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with Design-Builder's personnel, Subcontractors and others as applicable.

2.20.5 Design-Builder and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any City-specific safety requirements set forth in the Contract Documents, provided that such City-specific requirements do not violate any applicable Legal Requirement.

2.20.6 Design-Builder will immediately report in writing any safety-related injury, loss, damage or accident arising from the construction to City's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the construction.

2.20.7 Design-Builder's responsibility for safety under this section is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters, and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injury, losses, damages or accidents resulting from their performance of the construction.

2.21 Commissioning

2.21.1 The Design-Builder shall develop a Commissioning program, subject to the City's approval, as part of its CMP pursuant to section 2.7.

2.21.2 The Commissioning program shall include the roles and responsibilities of the City, tenants, and the Design-Builder.

2.21.3 The Design-Builder will provide a final Commissioning report indicating that the Project and all its systems and components are functioning as prescribed in the Contract Documents and training has been completed as required by the Contract Documents.

2.22 Design-Builder's Warranty

2.22.1 Design-Builder warrants to City that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship.

2.22.2 Design-Builder's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Project by persons other than Design-Builder and anyone for whose acts Design-Builder may be liable.

2.22.3 Design-Builder's warranty obligation shall be for one (1) year, except for such greater periods as may be required by the technical specifications.

2.22.4 Nothing in this warranty is intended to limit any manufacturer's warranty, or any other remedy at law available to the City, which provides City with greater warranty or other rights than set forth in this section or the Construction Documents.

2.22.5 Design-Builder will provide City with all manufacturers' warranties upon Substantial Completion.

2.23 Correction of Defective Construction

2.23.1 Design-Builder agrees to correct any construction that is found to not be in conformance with the Construction Documents, including that part of the construction subject to section 2.22 hereof. A progress payment, or partial or entire use or occupancy of the Project by the City shall not constitute acceptance of construction not in accordance with the Construction Documents.

2.23.2 Design-Builder shall, within seven Days of receipt of written notice from City that the construction is not in conformance with the Construction Documents, take meaningful steps to commence correction of such nonconforming construction, including the correction, removal or replacement of the nonconforming construction and any damage caused to other parts of the construction affected by the nonconforming construction.

2.23.3 If Design-Builder fails to commence the necessary steps within such seven Day period, City, in addition to any other remedies provided under the Contract Documents, may provide Design-Builder with written notice that City will commence correction of such nonconforming construction with its own forces. If City does perform such corrective construction, Design-Builder shall be responsible for all reasonable costs incurred by City in performing such correction. Any such Work performed by the City as a result of the Design-Builder's failure to commence corrective action shall not impact, in any way, the remaining warranty of the affected construction.

2.23.4 If the nonconforming construction creates an emergency requiring an immediate response, the Design-Builder will respond and initiate corrections within twenty-four hours.

2.23.5 Sections 2.22 and/or 2.23 above shall not limit any rights or remedies the City may have regarding Design-Builder's obligations under the Contract Documents.

ARTICLE 3 - CITY'S SERVICES AND RESPONSIBILITIES

3.1 Duty to Cooperate

3.1.1 City shall, throughout the performance of Work, cooperate with Design-Builder and perform its responsibilities, obligations and services in a timely manner to facilitate Design-Builder's timely and efficient performance of the Work and so as not to delay or interfere with Design-Builder's performance of its obligations under the Contract Documents.

3.1.2 City shall provide timely reviews and approvals of interim design submissions and Construction Documents consistent with the turnaround times set forth in the Project Schedule.

3.1.3 City's Representative as identified in section 8.4.1.2 shall be responsible for providing City-supplied information and approvals in a timely manner to permit Design-Builder to fulfill its obligations under the Contract Documents. City's Representative shall also provide Design-Builder with prompt notice if it observes any failure on the part of Design-Builder to fulfill its contractual obligations, including any errors, omissions or defects in the performance of the Work.

3.1.4 Appropriate City staff will be available and will participate in required training as part of the Commissioning activities.

3.1.4 If requested by the Design-Builder, the City's Representative will provide assistance and guidance in obtaining necessary permits. Regulating agencies of the City, such as the Community Development Department and the Utilities Department, enforce Legal Requirements. These enforcement activities are not subject to the responsibilities of the City under this Agreement.

3.2 Furnishing of Services and Information

3.2.1 The City will be responsible for the payment of the following:

3.2.1.1 City review and permit(s) fees for building and demolition permits.

3.2.1.2 City review fees for grading and drainage, water, sewer, and landscaping.

3.2.1.3 Utility fees for permanent services.

3.2.2 Unless expressly stated to the contrary in the Contract Documents, City will provide, at its own cost and expense, for Design-Builder's information, the following:

3.2.2.1 To the extent available, surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.2.2.2 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable Design-Builder to perform the Work;

3.2.2.3 A legal description of the Site.

3.2.2.4 To the extent available, as-built record and/or historical drawings of any existing structures at the Site;

3.2.2.5 To the extent available, environmental studies, reports and impact statements describing the environmental conditions, including hazardous materials, in existence at the Site; and

3.2.2.6 To the extent available, geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.2.3 City will provide all City standards and guidelines, supplementary conditions and special provisions that shall be included in the plans and specifications for the Project. These may include but are not limited to: disposal of surplus material, special security provisions, investigation of underground facilities, traffic controls and regulations, special quality control testing and termite treatment requirements.

3.2.4 City is responsible for securing and executing all necessary agreements with adjacent land or property owners that are necessary to enable Design-Builder to perform the construction. City is further responsible for all costs, including attorneys' fees, incurred in securing these necessary agreements.

3.3 Field Inspections

3.3.1 The City may utilize field inspectors to assist the City's Representative during construction in observing performance of the Design-Builder. The inspector is for the purpose of assisting the City's Representative and should not be confused with an inspector with a City regulatory agency or with an inspector from a City laboratory pursuant to section 2.17.

3.3.2 Through onsite observation of the Work in progress and field checks of materials and equipment, the inspector shall endeavor to provide protection against defects and deficiencies in the Work.

3.3.2.1 The inspector will be authorized to inspect all Work and materials furnished. Such inspection may extend to all or part of the Work and to the preparation, fabrication or manufacture of the materials to be used.

3.3.2.2 The inspector will not be authorized to issue instructions contrary to the Construction Documents or to act as foremen for the Design-Builder.

3.3.2.3 The inspector shall have the authority to reject Work or materials until any questions at issue can be decided by the City's Representative.

3.3.3 The furnishing of such services for the City shall not make the City responsible for or give the City control over construction means, methods, techniques, sequence or procedures or for safety precautions or programs or responsibility for the Design-Builder's failure to perform the Work in accordance with Contract Documents.

3.4 City's Separate Contractors. City is responsible for all Work performed on the Project or at the Site by separate contractors under City's control. City shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Design-Builder in order to enable Design-Builder to timely complete the Work consistent with the Contract Documents.

3.5 Project Management Services (if applicable to this Project)

3.5.1 The City may contract separately with one or more technical consultants to provide project management assistance of the Project. The technical consultant's contract as well as other firms hired by the City shall be furnished to the Design-Builder. The Design-Builder shall not have any right however, to limit or restrict any contract modifications that are mutually acceptable to the City and technical consultant.

3.5.2 The technical consultant services will augment the City staffing resources to effectively manage the objectives of the City and this Project with the goal of managing the key project communication, cost

and time parameters. The City and the Design-Builder shall endeavor to communicate through the technical consultant.

3.5.3 The technical consultant may provide preprogramming and design standards.

3.5.4 The City may contract with the technical consultant to provide some or all of the following services during the performance of the construction:

3.5.4.1 Oversight of the construction.

3.5.4.2 Site visits at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed construction and to determine in general if the construction is being performed in accordance with the Construction Documents. The technical consultant will keep the City informed of progress of the construction, and will endeavor to guard the City against defects and deficiencies in the construction. The technical consultant may have authority to reject construction which does not conform to the Construction Documents and to require additional inspection or testing of the construction in accordance with section 2.17.

3.5.4.3 Review and recommend approval of the Design-Builder's Payment Requests.

3.5.4.4 Interpretations of matters concerning performance under and requirements of the Contract Documents on written request of the City. The technical consultant's response to such requests will be made with reasonable promptness and within any time limits agreed upon.

3.5.4.5 Analyze, recommend and assist in negotiations of Change Orders.

3.5.4.6 Conduct inspections to determine Substantial Completion and Final Acceptance.

3.5.4.7 Receive and forward to the City for the City's review and records written warranties and related documents required by the Contract Documents and assembled by the Design-Builder.

3.5.5 Commissioning Services. The technical consultant may supervise and/or participate in the Commissioning activities.

ARTICLE 4 – CONTRACT TIME

4.1 Contract Time.

4.1.1 Contract Time shall start with the Notice to Proceed (NTP) and end with Substantial Completion.

4.1.2 The City shall issue a NTP letter establishing the mutually agreed upon NTP date for this Agreement and design.

4.1.3 The Design-Builder shall provide a Project Schedule of the design activities within seven (7) Days after the NTP.

4.1.3.1 The Project Schedule shall provide fourteen (14) Days to be used by the City or its designee for reviews and approvals for any interim design submissions pursuant to section 2.8.

4.1.3.2 Failure on the part of the Design-Builder to adhere to the Project Schedule may be the basis for termination of this Agreement by the City.

4.1.4 Each GMP amendment to this Agreement will establish a separate construction NTP date Performance Period and Substantial Completion date for the entire Project. The Performance Period(s) for individual GMP's may be sequential or concurrent as established in the individual Notices To Proceed.

4.1.5 Design-Builder agrees that it will commence performance of the Work and achieve Performance Periods and the Contract Time.

4.1.6 All of the times set forth in this Article 4 or by amendments to this Agreement shall be subject to adjustment in accordance with Article 6.

4.2 **Construction Schedule.** Each approved GMP proposal shall include a Project Schedule as prescribed in section 2.4 with a CPM diagram construction schedule that will indicate the path of critical activities and establish the Performance Period encompassed by the GMP. The Design-Builder will maintain the construction schedule throughout the construction.

4.3 **Substantial Completion**

4.3.1 Substantial Completion shall be for the entire Project unless a partial Substantial Completion is identified in the approved GMP schedule and stated in the Notice to Proceed letter. Substantial Completion shall be in accordance with its definition in Article 1 and with the criteria set forth in the Notice to Proceed.

4.3.2 Prior to notifying the City in accordance with section 4.3.3 below, the Design-Builder shall inspect the construction and prepare and submit to the City a comprehensive list of items to be completed or corrected. The Design-Builder shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Design-Builder to complete all construction in accordance with the Construction Documents.

4.3.3 Design-Builder shall notify City when it believes the construction, or a portion of the construction, is substantially complete.

4.3.4 Within five Days of City's receipt of Design-Builder's notice, City and Design-Builder will jointly inspect such construction to verify that it is substantially complete in accordance with the requirements of the Construction Documents.

4.3.5 If such construction is substantially complete, City shall prepare and issue a Certificate of Substantial Completion that will set forth (i) the date of Substantial Completion of the construction or portion thereof, (ii) the remaining items of construction that have to be completed within thirty Days before Final Acceptance, (iii) provisions (to the extent not already provided in the Contract Documents) establishing City's and Design-Builder's responsibility for the Project's security, maintenance, utilities and insurance pending Final Acceptance, and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

4.3.6 City, at its option, may use a portion of the construction which has been determined to be substantially complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of construction addressing the items set forth in section 4.3.5 above, (ii) Design-Builder and City have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project, and (iii) City and Design-Builder agree that City's use or occupancy will not interfere with Design-Builder's completion of the remaining construction.

4.4 **Final Completion and Acceptance.** The Work, or identified portions of the Work must be finally complete within thirty Days from the date the Certificate of Substantial Completion is issued unless there is a written agreement of the parties that establishes another date for Final Completion. Upon receipt of written notice that the construction or identified portions of the Work is ready for final inspection and acceptance, City and Design-Builder will jointly inspect to verify that the remaining items of Work have been completed as set forth in section 4.3.5. The City will issue a Final Acceptance letter when the City finds the Work or identified portions of the Work to be finally

complete.

4.5 **Liquidated Damages – Substantial Completion.** Design-Builder understands that if Substantial Completion is not attained within the Contract Time as may be adjusted, City will suffer damages which are difficult to determine and accurately specify. Design-Builder agrees that if Substantial Completion is not attained within the Contract Time as may be adjusted, Design-Builder shall pay the City (to be determined separately for each GMP) as liquidated damages, and not as a penalty, for each Day that Substantial Completion extends beyond the date determined by the Contract Time as adjusted and further agrees that such amount is reasonable under the circumstances.

4.6 **Liquidated Damages – Final Completion.** Design-Builder understands that if Final Completion is not attained within the time allowed in section 4.4 above, as may be adjusted, the City will suffer damages which are difficult to determine and accurately specify. Design-Builder agrees that if Final Completion is not attained within the specified time as may be adjusted, Design-Builder shall pay the City (to be determined separately for each GMP) as liquidated damages, and not as a penalty, for each Day that Final Completion extends beyond the date for Final Completion as determined by the Agreement and further agrees that such amount is reasonable under the circumstances.

ARTICLE 5 – CONTRACT PRICE

5.1 Contract Price.

5.1.1 The Contract Price will be the amounts prescribed for design in section 5.2 below plus GMPs and Owner's Contingency.

5.1.2 The Contract Price is subject to adjustments made in accordance with Article 6 and by amendment.

5.1.2.1 GMP amendments are cumulative except for contingency. The amount of contingency for each GMP amendment will be negotiated separately.

5.1.2.2 If the GMP requires an adjustment due to changes in the Work, the cost of such changes is determined subject to Article 6. The markups that shall be allowed on such changes shall be no greater than the markups delineated in the approved GMP.

5.1.3 Unless otherwise provided in the Contract Documents, the Contract Price is deemed to include all sales, use, consumer and other taxes which are legally enacted when negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

5.2 Design

5.2.1 The Design-Builder's fee for providing, through personnel employed by Design-Builder or procured from qualified Subconsultants, Design Services and GMP preparation for the construction of the City Court Facility Project. The Fee Schedules in Exhibit B shall determine the basis for payment depending on how and when the individual Sites become available. Any savings from the design shall revert to the City for use during construction.

5.2.2 The contract fees for Design-Builder and Subconsultants are based upon the approved cost proposal dated June 10, 2018 attached hereto as Exhibit B as reimbursable, not to exceed amount of $1,593,628.00.

5.3 GMP

5.3.1 At the end of the design phase or at a time determined by the City, the City will request the Design-Builder to provide a GMP or series of GMP's at the same or different times. The approved GMP(s) will be made part of this Agreement by amendment. The GMP(s) will include amounts for completion of design, if applicable, in the same format as prescribed above and a price for construction in

accordance with section 5.3.3.

5.3.2 The Design-Builder guarantees to bring the completion of the design and construction within the GMP or Design-Builder alone will be required to pay the difference between the actual cost and the GMP.

5.3.2.1 Any savings of the Design-Builder's bid contingency used to buy out the construction at the conclusion of the selection of Subcontractors may be used during construction by the Owner as a construction contingency.

5.3.2.2 Any savings realized during construction may be, at the City's sole discretion, incorporated into the construction of the Project to fund additional scope items or will be returned to the City upon the City's request.

5.3.3 The GMP is composed of the following not-to-exceed cost reimbursable or lump sum amounts defined below.

5.3.3.1 The Cost of the Work is actual costs and is a not-to-exceed reimbursable amount.

5.3.3.2 The General Conditions Costs are firm fixed lump sum amount which will include bonds and insurance premiums based on the full Contract Price for construction.

5.3.3.3 The Construction Fee is a firm fixed lump sum.

5.3.3.4 Design-Builder's Contingency is an amount the Design-Builder may use under the following conditions: (1) at its discretion for increases in the Cost of the Work, or (2) with written approval of the City for increases in General Condition Costs. Design-Builder Contingency is assumed to be a direct Project cost so will receive all markups at the time of GMP submission.

5.3.3.5 Taxes are deemed to include all sales, use, consumer and other taxes which are legally enacted when negotiations of the GMP were concluded, whether or not yet effective or merely scheduled to go into effect. Taxes are actual costs and are a not-to-exceed reimbursable amount.

5.3.3.6 When the Design-Builder utilizes Design-Builder's Contingency funds, the Design-Builder shall make the appropriate changes to the Schedule of Values with the next regular progress Payment Request. The Design-Builder shall deduct the amount of Design-Builder's Contingency funds used from the Design-Builder's Contingency line item and add the same amount to the line item on the Schedule of Values where the funds were used. If the Design-Builder's Contingency funds are used for a new line item that was not given with the original Schedule of Values, that will be so indicated.

5.3.4 The Owner's Contingency is funds to be used at the sole discretion of the City to cover any increases in Project costs that result from City directed changes, Differing Site Conditions, or as the City may otherwise elect. Owner's Contingency will be added to the GMP amount provided by the Design-Builder, the sum of which will be the full Contract Price for construction. Markups for Construction Fee and taxes will be applied by the Design-Builder at the time that Owner's Contingency is used.

5.3.5 GMPs are cumulative except for Design-Builder's Contingency. The amount of Design-Builder Contingency for each GMP amendment will be negotiated separately and shall reflect the Design-Builder's risk from that point in the Project forward.

5.4 GMP Proposal

5.4.1 When requested, the Design-Builder shall submit three (3) sets of the approved sealed design submittal to be used to establish the GMP.

5.4.1.1 The Design-Builder shall sign and date the face of each document of each set used as the basis of the proposed GMP.

5.4.1.2 The Design-Builder shall send two (2) sets of these documents to the City's Representative, while keeping one set for itself.

5.4.2 The GMP proposal shall include:

5.4.2.1 A list of the documents including the latest approved plans and design criteria, with latest issuance date including all Addenda thereto which were used in preparation of the GMP proposal;

5.4.2.2 A list of allowances and a statement of their basis;

5.4.2.3 A list of the clarifications and assumptions made by the Design-Builder in the preparation of the GMP proposal, to supplement the information contained in the documents;

5.4.2.4 A summary of the GMP with a total for each of the components of the GMP as shown in the table below. On the table the percentages requested should be calculated as the percent of the "Total Construction Cost." The sub-amount shown under General Conditions should be included in the General Conditions amount.

PROJECT GMP PROPOSAL SUMMARY SHEET

PROFESSIONAL SERVICES				
	Professional Services			$
	Reimbursables			
	Construction Administration			
			TOTAL PROFESSIONAL SERVICES	$
CONSTRUCTION				
	Cost of the Construction (Labor, Materials, Equipment, Warranty)			$
	Design-Builder's Contingency			
	Indirect Costs		RATE	AMOUNT
	General Conditions, Total		%	$
	Payment and Performance Bond	$	%	
	Insurance	$	%	
	Construction Fee (overhead & profit)		%	$
	Sales Taxes		%	$
			TOTAL CONSTRUCTION COST	$
			Owner's Contingency	$
			GRAND TOTAL	$

5.4.2.5 A spread sheet showing the basis for professional services, with hours and hourly costs for basic services and Subconsultant services indicating overhead and profit.

5.4.2.6 A list and estimated cost of reimbursables and other not-to exceed costs.

5.4.2.7 An itemized detail of any costs proposed to be included in the General Conditions.

5.4.2.8 A statement of proposed additional services, if any.

5.4.2.9 The GMP shall include in the Cost of the Work those taxes that are applicable at the time the GMP is executed. If, in accordance with the City's express written direction an exemption is claimed for taxes, the City agrees to indemnify, defend and hold Design-Builder harmless for any liability,

penalty, interest, fine, tax assessment, attorney's fees or other expense or cost incurred by Design-Builder as a result of any action taken by Design-Builder in accordance with the City's direction relative to the taxes as described in this section only.

5.4.2.10 The GMP shall exclude the actual costs of any jurisdictional or regulatory agency permit or fee as well as those for testing and inspection services that are to be paid per section 2.10. However, a detailed estimate of all anticipated direct costs for permits, fees, inspection and testing shall be attached to the GMP.

5.4.2.11 A Schedule of Values for the construction, with the costs organized by subcontract categories, allowances, contingency, General Conditions Costs, and the Design-Builder's construction phase fee.

5.4.2.12 A Project Schedule as prescribed in section 4.2 and establishing the Performance Period and the Scheduled Substantial Completion Date.

5.4.2.13 The updated CMP as prescribed in section 2.7.

5.4.2.14 The street or physical address of the Site of the Work for each GMP, phased GMP, or separate location at which Work, or a portion of the Work, will be performed shall be set forth in each GMP amendment.

5.5 GMP Approval

5.5.1 The Design-Builder shall meet with the City to review the GMP proposal and the written statement of its basis. In the event that the City discovers any inconsistencies or inaccuracies in the information presented, the City shall promptly notify the Design-Builder, who shall make appropriate adjustments to the GMP proposal, its basis or both.

5.5.2 Upon receiving the GMP proposal from the Design-Builder, the City may submit the same documents that were used by Design-Builder in developing its GMP to an independent third party for review and verification. The third party shall develop an independent estimate and review the CPM schedule.

5.5.2.1 If the Design-Builder's GMP proposal is greater than the independent third party estimate, the City may require the Design-Builder to reconfirm its proposal.

5.5.2.2 The Design-Builder shall describe the differences between the two, and explain why its GMP reflects the scope of the Work and is correct.

5.5.3 If the City accepts the Design-Builder's GMP proposal and the GMP proposal is within the City's budget, the City may accept the Design-Builder's GMP proposal without comment. If the GMP proposal exceeds the City's budget, the City must indicate in writing to the Design-Builder that the budget has been increased to fund the excess cost.

5.5.4 If the City accepts the Design-Builder's GMP, the City and the Design-Builder will execute an amendment to this Agreement for the GMP amending the Contract Price and establishing the Performance Period and the Contract Time.

5.5.5 The City shall authorize and cause the Design-Builder to revise the documents to the extent necessary to reflect the agreed-upon assumptions and clarifications contained in the GMP proposal.

5.5.6 After final submission of the GMP the City may, at the City's sole discretion and for any or no reason, accept or reject the GMP. If the City rejects the Design-Builder's GMP, the City may terminate the Design-Builder's Contract. If the Contract is terminated pursuant to this section, the Design-Builder's compensation shall be limited to the direct cost of its completed Work and materials supplied as of the date of termination. Design-Builder shall not be entitled to any unearned or anticipated profit or overhead. If the Contract is terminated pursuant to this section, Design-Builder shall deliver to the

City all drawings, plans, specifications, special provisions, estimates and other work entirely or partially completed, together with all unused materials supplied by the City.

ARTICLE 6 – CHANGES TO CONTRACT PRICE AND TIME

6.1 Delays

6.1.1 If Design-Builder is delayed in the performance of the Work that will cause a change in the date of Substantial Completion due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own or of those for whom Design-Builder is responsible, the Contract Times for performance may be reasonably extended by Change Order.

6.1.2 The Design-Builder shall request an increase in the Contract Time by written notice including an estimate of probable effect of delay on progress of the Work.

6.1.2.1 In the case of a continuing delay only one (1) request is necessary.

6.1.2.2 Written notice by the Design-Builder shall be provided to the City within thirty (30) Days of the commencement of the cause.

6.1.2.3 If written notice is received by the City more than thirty (30) Days after commencement of the cause, the period of delay shall be deemed to commence thirty (30) Days prior to the giving of such notice.

6.1.3 By way of example, events that may entitle Design-Builder to an extension of the Contract Time include acts or omissions of City or anyone under City's control (including separate contractors), changes in the Work, Differing Site Conditions, hazardous conditions, delays by regulating agencies, wars, floods, labor disputes, unusual delay in transportation, epidemics abroad, earthquakes, adverse weather conditions not reasonably anticipated, and other acts of God.

6.1.4 If adverse weather conditions are the basis for a request for additional Contract Time, such requests shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the scheduled Substantial Completion. All terms, conditions and definitions necessary for the application of this paragraph shall be as set forth on the City of Flagstaff's Table of "Monthly Anticipated Adverse Weather Calendar Days" and the explanatory paragraphs attached thereto.

6.1.5 It is understood, however, that permitting the Design-Builder to proceed to complete any Work, or any part of the Work, after the date to which the time of completion may have been extended, shall in no way act as a waiver on the part of the City of any of its legal rights herein.

6.1.6 In addition to Design-Builder's possible right to a time extension for those events set forth in this section, Design-Builder may also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for those events set forth in this section that are beyond the control of both Design-Builder and City, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated, and other acts of God.

6.2 Differing Site Conditions

6.2.1 If Design-Builder encounters a Differing Site Condition, Design-Builder may be entitled to a Change Order to adjust the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance are impacted by the Differing Site Condition.

6.2.2 Upon encountering a Differing Site Condition, Design-Builder shall provide prompt written notice to City of such condition, which notice shall not be later than seven Days after such condition has been encountered. Design-Builder shall, to the extent reasonably possible, provide such notice before the

Differing Site Condition has been substantially disturbed or altered.

6.3 **Legal Requirements.** The Contract Price and/or Contract Time(s) shall be adjusted by Change Order to compensate Design-Builder for the effects of any changes in the Legal Requirements enacted after the date of this Agreement negatively affecting the performance of the Work, or if a Guaranteed Maximum Price is established after the date of this Agreement, the date the parties agree upon the Guaranteed Maximum Price. Such effects may include, without limitation, revisions Design-Builder is required to make to the Construction Documents because of changes in Legal Requirements.

6.4 **City Requested Change in Work.**

6.4.1 The City reserves the right to make, at any time during the progress of the Work, such alterations as may be found necessary or desirable in the City's sole discretion.

6.4.2 Such alterations and changes shall not invalidate this Agreement, and the Design-Builder agrees to perform the Work as altered, the same as if it has been a part of the original Contract.

6.4.3 Upon receipt of a request for proposal for a change in Work, the Design-Builder shall prepare a proposal in significant detail, using the rates and markups established in the Contract Documents as a basis of the Contract Price adjustment. The Design-Builder's proposal shall include a detailed description of any schedule impact.

6.4.4 City and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the adjustment.

6.4.5 If City requests a proposal for a change in the Work from Design-Builder and subsequently elects not to proceed with the change, a Change Order may be issued to reimburse Design-Builder for reasonable costs incurred for estimating services and other services involved in the preparation of proposed revisions to the Contract Documents.

6.5 **Minor Changes.** The City may make minor changes in the Work that do not involve an adjustment in the Contract Price and/or Contract Time(s) and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however that Design-Builder shall immediately inform City, in writing, of any such changes and record such changes on the documents maintained by Design-Builder.

6.6 **Emergencies.** In any emergency affecting the safety of persons and/or property, Design-Builder shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or Contract Time on account of emergency work shall be determined as provided in this Article 6.

ARTICLE 7- PROCEDURE FOR PAYMENT

7.1 **Design Services**

7.1.1 Design-Builder will be paid 100% of the amount earned for Design Services minus the value or cost arising from any deficiencies or defects in the Design Services.

7.1.2 The Design-Builder shall pay all sums due to Subconsultants for services and reimbursable expenses within fourteen calendar Days after the Design-Builder has received payment for those services from the City.

7.1.3 Requests for monthly payments by the Design-Builder shall be submitted on the City's "Payment Request" form and shall be accompanied by a design progress report, detailed invoices and receipts,

if applicable. This submittal shall include, as a minimum, a narrative description of the tasks accomplished during the billing period, a listing of any Deliverables submitted, and the Subconsultants' actual requests for payment plus similar narrative and listing of their Work.

7.1.4 After approved completion of design and GMP(s) for the total construction of the Project in accordance with section 2.8 and 5.4, Design-Builder will be paid 100% of the amount for Design Services less the total of payments previously made, subject to section 7.1.1.

7.1.5 Payments for those services negotiated as a lump sum shall be made in accordance with the percentage of the services completed during the preceding month. Those services negotiated as a not-to-exceed fee shall be paid in accordance with the actual cost of the service expended during the preceding month.

7.1.6 All Payment Requests shall be submitted to the City for review and approval.

7.2 Request for Payment for Construction Services. The Design-Builder agrees at its own cost and expense, to perform all construction, as called for by this Agreement free and clear of all claims, liens, and charges whatsoever, in the manner and under the conditions specified within the time, or times, stated in this Agreement.

7.2.1 The Schedule of Values submitted as prescribed in section 2.13.5, subject to adjustment in accordance with this Agreement will serve as the basis for monthly progress payments made to Design-Builder throughout the construction.

7.2.2 Design-Builder shall submit to City's Representative the construction phase services "Payment Request" form no later than the **3rd** of the month to be paid on the **15th** check run, or by the **19th** of the month to be paid on the **30th** check run. If the 3rd or 19th falls on a Saturday or Sunday invoices are due on the preceding **Fri**day.

7.2.3 At least five (5) working Days **pr**ior to the date estab**lished** for a Payment Request, the Des**ign**-Builder shall submit an updated Project Schedule and meet with the City's Representative to review **the** progress of the construction, as it will be reflected on the Payment Request.

7.2.4 The Design-Builder Payment Request may request payment for equipment and materials not yet incorporated into the Project if construction progress is in reasonable conformance with the approved schedule.

7.2.4.1 For equipment and materials suitably stored at the Site, the equipment and materials shall be protected by suitable insurance and City shall receive the equipment and materials free and clear of all liens and encumbrances.

7.2.4.2 For materials and equipment stored off the Site, the City must approve the storage facility. The material and equipment must be stored within Coconino County or other sites as may be approved and be accessible for City's inspection. The Design-Builder must establish City title to such materials and equipment or otherwise protect the City's interest and shall include applicable insurance, bonding, storage and transportation to the Site.

7.2.4.3 All bonds and insurance required for stored materials shall name the City as the loss payee to the extent of its interest in the stored materials.

7.2.5 The Payment Request shall constitute Design-Builder's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Payment Request, and all construction will pass to City free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the construction into the Project.

7.3 Progress Payment

7.3.1 City shall make payment in accordance with A.R.S. § 34-607 such that payment will be made no later than fourteen (14) Days after Payment Request is certified and approved. City shall review Payment Request and make recommendation of approval or denial within seven (7) Days after City's receipt of each properly submitted and accurate Payment Request, but in each case less the total of payments previously made, and less amounts properly withheld under section 7.3.2 below.

7.3.2 City shall pay Design-Builder all amounts properly due. If City determines that Design-Builder is not entitled to all or part of the Payment Request, it will notify Design-Builder in writing at least seven (7) Days after the date the Payment Request is received by the City. The notice shall indicate the specific amounts City intends to withhold, the reasons and contractual basis for the withholding, and the specific measures Design-Builder must take to rectify City's concerns. Design-Builder and City will attempt to resolve City's concerns. If the parties cannot resolve such concerns, Design-Builder may pursue its rights under the Contract Documents, including those under Article 8 hereof.

7.3.3 Notwithstanding anything to the contrary in the Contract Documents, City shall pay Design-Builder all undisputed amounts in a Payment Request within the times required by the Agreement.

7.4 Retention on Progress Payments

7.4.1 City will retain ten percent (10%) of the amount on each Payment Request provided, however, that when fifty percent (50%) of the construction has been completed by Design-Builder, upon request of the Design-Builder, City may reduce the amount retained to five percent (5%) from Design-Builder's subsequent Payment Requests, if the Design-Builder's performance of construction has been satisfactory.

7.4.2 In lieu of retention, the Design-Builder may provide as a substitute any of the following: an assignment of time certificates of deposit (CDs) from a bank licensed by Arizona; securities guaranteed by the United States; securities of the United States, the State of Arizona, Arizona counties, Arizona municipalities, or Arizona school districts; or shares of savings and loan institutions authorized to transact business in Arizona.

7.4.2.1 CDs assigned to the City must be maintained at the City's single servicing bank, currently Wells Fargo, Arizona, in the form of time deposit receipt accounts.

7.4.2.2 Securities deposited in lieu of retention must be deposited into a separate account with a financial institution within the state of Arizona.

7.4.2.3 CDs and Securities shall be assigned exclusively for the benefit of the City of Flagstaff pursuant to the City's form of escrow agreement. Escrow agreement forms may be obtained from the Management Services Department by calling (928)779-7685 x7267.

7.5 Substantial Completion. Upon Substantial Completion of the entire construction or, if applicable, any portion of the construction, City shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount up to two and one half times (2.5) the reasonable value of all remaining, deficient or incomplete items of construction as noted in the Certificate of Substantial Completion.

7.6 Final Payment

7.6.1 After receipt of a final Payment Request from Design-Builder, City shall make final payment within 60 Days after the receipt by the City, provided that a Final Acceptance Letter has been issued by the City in accordance with section 4.4.

7.6.2 At the time of submission of its final Payment Request, Design-Builder shall provide the following information:

7.6.2.1 An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the construction which will in any way affect City's interests.

7.6.2.2 A general release executed by Design-Builder waiving, upon receipt of final payment by Design-Builder, all claims, except those claims previously made in writing to City and remaining unsettled at the time of final payment, and

7.6.2.3 Consent of Design-Builder's surety, if any, to final payment.

7.7 Payments To Subcontractors or Suppliers

7.7.1 Design-Builder shall pay its Subcontractors or Suppliers within seven Days of receipt of each progress payment from the City. The Design-Builder shall pay for the amount of construction performed or materials supplied by each Subcontractor or Supplier as accepted and approved by the City with each progress payment. In addition, any reduction of retention by the City to the Design-Builder shall result in a corresponding reduction to Subcontractors or Suppliers who have performed satisfactory work. Design-Builder shall pay Subcontractors or Suppliers the reduced retention within fourteen Days of the payment of the reduction of the retention to the Design-Builder. No contract between Design-Builder and its Subcontractors and Suppliers may materially alter the rights of any Subcontractor or Supplier to receive prompt payment and retention reduction as provided herein.

7.7.2 If the Design-Builder fails to make payments in accordance with these provisions, the City may take any one or more of the following actions and Design-Builder agrees that the City may take such actions:

7.7.2.1 To hold the Design-Builder in default under this Agreement;

7.7.2.2 Withhold future payments including retention until proper payment has been made to Subcontractors or Suppliers in accordance with these provisions;

7.7.2.3 Reject all future offers to perform work for the City from the Design-Builder for a period not to exceed one year from Substantial Completion date of this Project.

7.7.2.4 Terminate this Agreement.

7.7.3 If Design-Builder's payment to a Subcontractor or Supplier is in dispute, it shall act in compliance with A.R.S. § 32-1129.02 and related statutes as amended, and shall further hold the City harmless from any ensuing damages, claims or costs.

7.7.4 Should the City fail or delay in exercising or enforcing any right, power, privilege, or remedy under this section, such failure or delay shall not be deemed a waiver, release, or modification of the requirements of this section or of any of the terms or provisions thereof.

7.7.5 Design-Builder shall include these prompt payment provisions in every subcontract, including procurement of materials and leases of equipment for this Agreement.

7.8 Record Keeping and Finance Controls

7.8.1 Records of the Design-Builder's direct personnel payroll, reimbursable expenses pertaining to this Project and records of accounts between the City and Design-Builder shall be kept on a generally recognized accounting basis and shall be available for up to three (3) years following Final Completion of the Project.

7.8.2 The City, its authorized representative, and/or the appropriate federal agency, reserve the right to audit the Design-Builder's records to verify the accuracy and appropriateness of all pricing data, including data used to negotiate Contract Documents and any change orders.

7.8.3 The City reserves the right to decrease Contract Price and/or payments made on this Agreement if, upon audit of the Design-Builder's records, the audit discloses the Design-Builder has provided false, misleading, or inaccurate cost and pricing data.

7.8.4 The Design-Builder shall include a similar provision in all of its agreements with Subconsultants and Subcontractors providing services under the Contract Documents to ensure the City, its authorized representative, and/or the appropriate federal agency, has access to the Subconsultants' and Subcontractors' records to verify the accuracy of cost and pricing data.

7.8.5 The City reserves the right to decrease Contract Price and/or payments made on this Agreement if the above provision is not included in Subconsultant's and Subcontractor's contracts, and one or more Subconsultants and/or Subcontractors do not allow the City to audit their records to verify the accuracy and appropriateness of pricing data.

ARTICLE 8- CLAIMS AND DISPUTES

8.1 Requests for Contract Adjustments and Relief.

8.1.1 If either Design-Builder or City believes that it is entitled to relief against the other for any event arising out of or related to the Work, such party shall provide written notice to the other party of the basis for its claim for relief.

8.1.2 Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of the Agreement.

8.1.3 In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed twenty-one Days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later.

8.1.4 Such notice shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request.

8.2 Dispute Avoidance and Resolution

8.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design-Builder and City each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

8.2.2 Design-Builder and City will first attempt to resolve disputes or disagreements at the field level through discussions between Design-Builder's Representative and City's Representative.

8.2.3 If a dispute or disagreement cannot be resolved through Design-Builder's Representative and City's Representative, Design-Builder's Senior Representative and City's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) Days after such a request is made, to attempt to resolve such dispute or disagreement. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute or disagreement.

8.2.4 Except as otherwise agreed by the parties, any litigation brought by either party against the other to enforce the provisions of this Agreement must be filed in the Coconino County Superior Court and Arizona law shall apply and control. In the event any action at law or in equity is instituted between

the parties in connection with this Agreement, the prevailing party in the action will be entitled to its costs including reasonable attorneys' fees and court costs from the non-prevailing party.

8.3 **Duty to Continue Performance.** Unless provided to the contrary in the Contract Documents, Design-Builder shall continue to perform the Work and City shall continue to satisfy its payment obligations to Design-Builder pending the final resolution of any dispute or disagreement between Design-Builder and City.

8.4 **Representatives of the Parties**

8.4.1 City's Representatives

8.4.1.1 City designates the individual listed below as its Senior Representative ("City's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under section 8.2.3:

James Duval, Senior Project Manager
City of Flagstaff
211 W. Aspen Ave.
Flagstaff, AZ 86001

8.4.1.2 City designates the individual listed below as its City's Representative, which individual has the authority and responsibility set forth in section 8.2.2:

James Duval, Senior Project Manager
City of Flagstaff
211 W. Aspen Ave.
Flagstaff, AZ 86001

8.4.2 Design-Builder's Representatives

8.4.2.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under section 8.2.3:

Tim Kinney, President
Kinney Construction Services
121 E. Birch Avenue, Suite 500
Flagstaff, AZ, 86001

8.4.2.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in section 8.2.2:

Mike Thomas, Vice President of Operations
Kinney Construction Services
121 E. Birch Avenue, Suite 500
Flagstaff, AZ, 86001

ARTICLE 9 – SUSPENSION AND TERMINATION

9.1 **City's Right to Stop Work**

9.1.1 City may, at its discretion and without cause, order Design-Builder in writing to stop and suspend the Work. Immediately after receiving such notice, the Design-Builder shall discontinue advancing the Work specified under this Agreement

9.1.2 Such suspension shall not exceed one hundred eighty (180) consecutive Days during the duration of the Project.

9.1.3 Design-Builder may seek an adjustment of the Contract Price and Time, if its cost or time to perform the Work has been adversely impacted by any suspension or stoppage of Work by City.

9.2 Termination for Convenience.

9.2.1 Upon receipt of written notice to Design-Builder, City may, at its discretion and without cause, elect to terminate this Agreement. If the City suspends the Work for 181 consecutive Days or more, such suspension shall be deemed a termination for convenience.

9.2.2 Upon such termination during Design Services, the Design-Builder shall deliver to the City all drawings, plans, specifications, special provisions, estimates and other Work entirely or partially completed, together with all unused materials supplied by the City.

9.2.2.1 The Design-Builder shall estimate the value of the Work it has completed and submit its appraisal to the City for evaluation. The City shall have the right to inspect the Subconsultant's Work to appraise the Work completed.

9.2.2.2 The Design-Builder shall receive compensation for services performed to the date of such termination as set forth in section 9.2.5 The fee shall be paid in accordance with Article 7 of this Agreement, and shall be an amount mutually agreed upon by the Design-Builder and the City. If there is no mutual agreement, the final determination shall be made in accordance with Article 8.

9.2.2.3 Design-Builder shall not be entitled to anticipated profit or anticipated overhead. In no event shall the fee exceed that set forth in Article 5 of this Agreement or as amended.

9.2.2.4 The City shall make the final payment within sixty Days after the Design-Builder has delivered the last of the partially completed items and the final fee has been agreed upon.

9.2.2.5 If City terminates this Agreement pursuant to this section and proceeds to design and construct the Project through its employees, agents or third parties, City's rights to use the work product shall be as set forth in section 12.4 hereof.

9.2.3 Upon such termination during construction services, the Design-Builder shall proceed with the following obligations:

9.2.3.1 Stop Work as specified in the notice.

9.2.3.2 Place no further subcontracts or orders.

9.2.3.3 Terminate all subcontracts to the extent they relate to the Work terminated.

9.2.3.4 Assign to the City all right, title and interest of the Design-Builder under the subcontracts terminated, in which case the City shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

9.2.3.5 Take any action that may be necessary for the protection and preservation of the property related to the Contract that is in the possession of the Design-Builder and which the City has or may acquire an interest.

9.2.4 The Design-Builder shall submit complete termination inventory schedules no later than sixty (60) Days from the date of the notice of termination.

9.2.5 The City shall pay Design-Builder the following.

9.2.5.1 The direct value of its completed Work and materials supplied as of the date of termination.

9.2.5.2 The reasonable costs and expenses attributable to such termination.

9.2.5.3 Design-Builder shall be entitled to profit and overhead on completed Work only, but shall not be entitled to anticipated profit or anticipated overhead. If it appears the Design-Builder would have sustained a loss on the entire Work had the Project been completed, the Design-Builder shall not be allowed profit and the City shall reduce the settlement to reflect the indicated rate of loss.

9.2.6 The Design-Builder shall maintain all records and documents for three years after final settlement. These records shall be maintained and subject to auditing as prescribed in section 7.8.

9.3 City's Right to Perform and Terminate for Cause

9.3.1 If the City provides the Design-Builder with a written order to correct deficiencies to provide adequate maintenance of traffic, adequate cleanup, adequate dust control, or to repair damage resulting from abnormal weather conditions, and the Design-Builder fails to comply in a time frame specified, the City may have Work accomplished by other sources at the Design-Builder 's expense.

9.3.2 If Design-Builder persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Subconsultants and/or Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work are completed by the Contract Time, as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then City, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth in sections 9.3.3 and 9.3.4 below.

9.3.3 Upon the occurrence of an event set forth in section 9.3.2 above, City may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) Days of Design-Builder's receipt of such notice.

9.3.3.1 If Design-Builder fails to cure, or reasonably commence to cure, such problem within such seven (7) Day period, then City may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) Day period.

9.3.3.2 If Design-Builder, within such second seven (7) Day period, fails to cure, or reasonably commence to cure, such problem, then City may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration.

9.3.4 Upon declaring the Agreement terminated pursuant to section 9.3.3.2 above, City may enter upon the Site and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Design-Builder hereby transfers, assigns and sets over to City for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items.

9.3.5 In the event of such termination, Design-Builder shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, the Design-Builder will only be entitled to be paid for Work performed and accepted by the City prior to its default.

9.3.6 If City's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Design-Builder shall be obligated to pay the difference to City. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by City in connection with the re-procurement and defense of claims arising from Design-Builder's default.

9.3.7 If City improperly terminates the Agreement for cause, the termination for cause shall be converted to a termination for convenience in accordance with the provisions of section 9.2.

ARTICLE 10 – INSURANCE AND BONDS

10.1 Insurance Requirements

10.1.1 Design-Builder and Subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Agreement 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 Design-Builder, his agents, representatives, employees or Subcontractors.

10.1.2 The insurance requirements herein are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement.

10.1.3 The City in no way warrants that the minimum limits contained herein are sufficient to protect the Design-Builder from liabilities that might arise out of the performance of the Work under this Agreement by the Design-Builder, his agents, representatives, employees, or subcontractors. Design-Builder is free to purchase such additional insurance as may be determined necessary.

10.2 Minimum Scope And Limits Of Insurance. Design-Builder shall provide coverage with limits of liability not less than those stated below:

10.2.1 Commercial General Liability – Occurrence Form
Policy shall include bodily injury, property damage, broad form contractual liability and XCU coverage.

• General Aggregate/for this Project	$2,000,000/$1,000,000
• Products – Completed Operations Aggregate	$1,000,000
• Personal and Advertising Injury	$1,000,000
• Each Occurrence	$1,000,000

The policy shall be endorsed to include the following additional insured language: **"The City of Flagstaff shall be named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Design-Builder".**

10.2.2 Automobile Liability - Bodily injury and property damage for any owned, hired, and non-owned vehicles used in the performance of this Agreement.

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

The policy shall be endorsed to include the following additional insured language: **"The City of Flagstaff shall be named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Design-Builder, including automobiles owned, leased, hired or borrowed by the Design-Builder".**

10.2.3 Worker's Compensation and Employers' Liability

Workers' Compensation	Statutory
Employers' Liability	
Each Accident	$100,000
Disease - Each Employee	$100,000
Disease – Policy Limit	$500,000

10.2.4 Professional Liability

Each Claim	$1,000,000

10.2.4.1 The required professional liability coverage must cover Work done or to be done or on the behalf of the Design-Builder.

10.2.4.2 In the event that professional liability insurance required by this Agreement is written on a "claims made" basis, coverage shall be maintained for two years past completion and acceptance of the Work or services required by this Contract.

10.2.4.3 Any professional liability shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

10.2.5 **Builders' Risk Insurance or Installation Floater** to be determined at time of GMP
In an amount equal to the initial Agreement amount plus additional coverage equal to Agreement amount for all subsequent Change Orders.

10.2.5.1 The City of Flagstaff, the Design-Builder, Subcontractors, design professional and design professional's consultant and any others with an insurable interest in the Work shall be **Named Insureds** on the policy.

10.2.5.2 Coverage shall be written on an all risk, replacement cost basis and **shall include coverage for soft costs, flood and earth movement.**

10.2.5.3 Policy shall be maintained until whichever of the following shall first occur: (i) final payment has been made; or, (ii) until no person or entity, other than the City of Flagstaff, has an insurable interest in the property required to be covered.

10.2.5.4 Policy shall be endorsed such that the insurance shall not be canceled or lapse because of any partial use or occupancy by the City.

10.2.5.5 Policy must provide coverage from the time any covered property becomes the responsibility of the Design-Builder, and continue without interruption during construction, renovation, or installation, including any time during which the covered property is being transported to the construction installation site, or awaiting installation, whether on or off Site.

10.2.5.6 Policy shall contain a **waiver of subrogation** against the City of Flagstaff.

10.2.5.7 Design-Builder is responsible for the payment of all policy deductibles.

10.3 **Additional Insurance Requirements.** The policies shall include, or be endorsed to include, the following provisions:

10.3.1 The City, its officers, officials, agents, employees and volunteers shall be additional insured to the full limits of liability purchased by the Design-Builder even if those limits of liability are in excess of those required by this Agreement.

10.3.2 The Design-Builder's insurance coverage shall be primary insurance and non-contributory with respect to all other available sources.

10.3.3 Coverage provided by the Design-Builder shall not be limited to the liability assumed under the indemnification provisions of this Agreement.

10.3.4 The policies shall contain a waiver of subrogation against the City, its officers, officials, agents, and employees for losses arising from Work performed by the Design-Builder and Subcontractors for the City.

10.4 **Notice Of Cancellation.** Each insurance policy required by the insurance provisions of this

Agreement shall provide the required coverage and shall not be suspended, voided, canceled, reduced in coverage or endorsed to lower limits except after thirty (30) Days prior written notice has been given to the City. Such notice shall be sent directly to the City Senior Representative and shall be sent by certified mail, return receipt requested.

10.5 **Acceptability Of Insurers.** Insurance is to be placed with insurers duly licensed companies in the state of Arizona and with an "A.M. Best" rating of not less than A-,7, or as approved by the City and licensed in the State of Arizona with policies and forms satisfactory to the City. The City in no way warrants that the above-required minimum insurer rating is sufficient to protect the Design-Builder from potential insurer insolvency.

10.6 **Verification Of Coverage**

10.6.1 Design-Builder shall furnish the City with certificates of insurance (ACORD form or equivalent approved by the City) as required by this Agreement. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf.

10.6.2 All certificates and endorsements are to be received and approved by the City before Work commences. Each insurance policy required by this Agreement must be in effect at or prior to commencement of Work under this Agreement and remain in effect for the duration of the Project. Failure to maintain the insurance policies as required by this Agreement or to provide evidence of renewal is a material breach of contract.

10.6.3 All certificates required by this Agreement shall be sent directly to City's Procurement Section. The City project/contract number and project description shall be noted on the certificate of insurance. The City reserves the right to require complete, certified copies of all insurance policies required by this Agreement at any time.

10.6.4 If the Certificate of Insurance reflecting policy coverage and cancellation notice does not conform to the City's requirements, the Design-Builder or Subcontractors, as the case may be, must:

- Submit a current insurance certificate (dated within 15 Days of the Payment Request submittal) with each form. The Payment Request will be rejected if the insurance certificate is not submitted with the Payment Request.

10.7 **Subcontractors.** Design-Builders' certificate(s) shall include all Subcontractors as additional insureds under its policies. All coverage's for Subcontractors shall be subject to the minimum requirements identified above.

10.8 **Approval.** Any modification or variation from the insurance requirements in this Contract shall be made by the Risk Manager, whose decision shall be final. Such action will not require a formal Contract amendment, but may be made by administrative action.

10.9 **Bonds and Other Performance Security.**

10.9.1 Prior to execution of this Agreement and/or amendment to this Agreement for any Work that includes construction, the Design-Builder must provide a performance bond and a labor and materials bond, each in an amount equal to the full amount of the construction set forth in the GMP.

10.9.2 Each such bond shall be executed by a surety company or companies holding a Certificate of Authority to transact surety business in the state of Arizona, issued by the Director of the Arizona Department of Insurance. A copy of the Certificate of Authority shall accompany the bonds. The Certificate shall have been issued or updated within two years prior to the execution of this Agreement.

10.9.3 The bonds shall be made payable and acceptable to the City of Flagstaff.

10.9.4 The bonds shall be written or countersigned by an authorized representative of the surety who is either a resident of the state of Arizona or whose principal office is maintained in this state, as by law required, and the bonds shall have attached thereto a certified copy of Power of Attorney of the signing official.

10.9.4.1 If one Power of Attorney is submitted, it shall be for twice the total GMP amount.

10.9.4.2 If two Powers of Attorney are submitted, each shall be for the total GMP amount. Personal or individual bonds are not acceptable.

10.9.5 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract Documents, the Design-Builder shall promptly furnish a copy of the bonds or shall permit a copy to be made.

10.9.6 All bonds submitted for this Project shall be provided by a company which has been rated "A-, 7, or better" by the A.M. Best Company.

ARTICLE 11 - INDEMNIFICATION

11.1 Intellectual Property

11.1.1 The Design-Builder shall pay all royalties and license fees associated with its performance of services herewith.

11.1.2 The Design-Builder shall defend any action or proceeding brought against City based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. City shall give prompt written notice to Design-Builder of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Design-Builder shall indemnify, defend and hold harmless City from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against City or Design-Builder in any such action or proceeding. Design-Builder agrees to keep City informed of all developments in the defense of such actions.

11.1.3 If City is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim, or proceeding, Design-Builder shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Design-Builder cannot so procure such right within a reasonable time, Design-Builder shall promptly, at Design-Builder's option and at Design-Builder's expense, (i) modify the Work so as to avoid infringement of any such patent or copyright or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

11.1.4 Sections 11.1.2 and 11.1.3 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating solely to a particular process or product of a particular manufacturer required by City and not offered or recommended by Design-Builder to City and to which Design-Builder has objected in writing or (ii) arising from modifications to the Work by City or its agents after acceptance of the Work

11.1.5 The obligations set forth in this section 11.1 shall constitute the sole agreement between the parties relating to liability for infringement of violation of any patent or copyright.

11.2 General Indemnification.

11.2.1 The Design-Builder hereby agrees to indemnify, defend and hold harmless the City, any of its departments, agencies, officers, or employees from all damages, claims or liabilities and expenses (including reasonable Attorneys' fees) arising out of or resulting in any way from the performance of professional services for the City in the Design-Builder's capacity as a Design-Builder, and caused by

any error, omission, or negligent act of the Design-Builder or any person employed by it or anyone for whose acts the Design-Builder is legally liable. In consideration of the award of this Contract, the Design-Builder agrees to waive all rights of subrogation against the City, its officers, agents and employees for losses arising from the Work performed by the Design-Builder for the City.

11.2.2 The Design-Builder agrees to indemnify, defend and save harmless the City of Flagstaff, its officers, agents and employees, and any jurisdiction or agency issuing permits for any Work included in the Project, their officers, agents and employees, hereinafter referred to as indemnitee, from all suits and claims, including attorney's fees and cost of litigation, actions, loss, damage, expense, cost or claims of any character or any nature arising out of the Work done in fulfillment of the terms of this Agreement or on account of any act, claim or amount arising or recovered under workmen's compensation law or arising out of the failure of the Design-Builder to conform to any statutes, ordinances, regulation, law or court decree. It is agreed that the Design-Builder will be responsible for primary loss investigation, defense and judgment costs where this Agreement of indemnity applies. In consideration of the award of this Agreement, the Design-Builder agrees to waive all rights of subrogation against the City, its officers, officials, agents and employees for losses arising from the Work performed by the Design-Builder for the City.

ARTICLE 12 - GENERAL PROVISIONS

12.1 Interpretation and Intent

12.1.1 The Contract Documents form the entire Agreement between City and Design-Builder and by incorporation herein are as fully binding on the parties as it repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

12.1.2 The Contract Documents are intended to permit the parties to complete the Work and all obligations required by the Contract Documents within the Contract Times for the Contract Price. The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards.

12.1.3 In the event of any inconsistency, conflict, or ambiguity between or among the Contract Documents, the Contract Documents shall take precedence in the order in which they are listed in the definition of Contract Documents in Article 1. In the event conflicts occur between the drawings and specifications, the Design-Builder is deemed to have estimated the more expensive method unless he has asked for and receive a written decision from the City determining which method or material will be required.

12.2 Time is of the Essence. City and Design-Builder mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents.

12.3 Mutual Obligations. City and Design-Builder commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents.

12.4 Work Product.

12.4.1 All Work products (electronically or manually generated) including but not limited to: cost estimates, studies, design analyses, original mylar drawings, Computer Aided Drafting and Design (CADD) file diskettes or CD's, and other related documents which are prepared or procured in the performance of this Agreement (collectively referred to as documents) are to be and remain the property of the City and are to be delivered to the City before the final payment is made to the Design-Builder or pursuant to section 9.2.1. In the event these documents are altered, modified or adapted without the written consent of the Design-Builder or the Subconsultants, which consent the Design-Builder or the Subconsultants shall not unreasonably withhold, the City agrees to hold the Design-Builder and the

Subconsultants harmless to the extent permitted by law from any liability arising out of the City's alteration, modification or adaption of the documents.

12.4.2 City acknowledges Design-Builder's plans and specification as instruments of professional service. Nevertheless, the plans and specifications prepared under this Agreement shall become property of the City upon completion and approval of the Construction Documents and payment in full of all monies then due to Design-Builder for services, or upon termination of this Agreement at an earlier time and upon City payment of any pro rata amount due Design-Builder for Design Services at the time of such termination. Design-Builder shall not use the drawings and specifications, therefore, for any purpose not related to the Project without City's consent. City will not reuse, for matters unrelated to the Work any phase of the Work as set forth in the Scope of Work in Exhibit A and its subsequent usage, or make any modification to the plans and specifications without the prior written authorization of the Design-Builder. City agrees to hold the Design-Builder harmless, to the extent permitted by law, from any liability arising out of the City's modification or alteration of the Construction Documents without the written authorization of Design-Builder. The City specifically reserves the right to use or reuse any design concept, feature, or aspect of the Work incorporated into the plans and specifications in any subsequent City project. The City specifically reserves the right to use or reuse any design concept or aspect of the Work incorporated into the plans and specifications to complete the Project in the event that the City and Design-Builder are unable, after good faith efforts, to execute a GMP. Design-Builder shall incorporate such use rights into any agreement with a Subcontractor or consultant, and shall indemnify the City from any claims from such for copyright or patent infringement.

12.4.3 With this Agreement, the Design-Builder and its Subconsultants hereby grant a license to the City, its agents, employees, and representatives for an indefinite period of time to reasonably use, make copies, and distribute as appropriate the documents, works or Deliverables developed or created as a result of the Project and this Agreement and to which Design-Builder and its Subconsultants may retain rights. This license also includes the making of derivative works. In the event that the derivative works require the City to alter or modify the documents, then the provisions of section 12.4.1 apply.

12.5 **Assignment.** Design-Builder shall not, without the written consent of the City, assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents. Notwithstanding the City's consent to assignment, Contractor as Assignor, and the Assignee shall both remain liable under all rights, obligations, terms and conditions of the contract.

12.6 **Successorship.** Design-Builder and City intend that the provisions of the Contract Documents are binding upon the parties and their successors and assigns.

12.7 **Third Party Beneficiary.** Nothing under this Agreement shall be construed to give any rights or benefits in the Agreement to anyone other than the City and the Design-Builder, their successors and assigns, and all duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of City and the Design-Builder and not for the benefit of any other party.

12.8 **Governing Law.** The Agreement and all Contract Documents shall be deemed to be made under, and shall be construed in accordance with and governed by the laws of the State of Arizona without regard to the conflicts or choice of law provisions thereof. Any action to enforce any provision of this Agreement or to obtain any remedy with respect hereto shall be brought in the Superior Court, Coconino County, Arizona, and for this purpose, each party hereby expressly and irrevocably consents to the jurisdiction and venue of such Court.

12.9 **Severability.** If any provision of this Agreement or the application thereof to any person or circumstance shall be invalid, illegal or unenforceable to any extent, the remainder of this Agreement and the application thereof shall not be affected and shall be enforceable to the fullest extent permitted by law.

12.10 **No Waiver.** The failure of either party to enforce any of the provisions of this Agreement or to require performance of the other party of any of the provisions hereof shall not be construed to be a waiver of

such provisions, nor shall it affect the validity of this Agreement or any part thereof, or the right of either party to thereafter enforce each and every provision.

12.11 Headings. The headings used in this Agreement, or any other Contract Documents, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

12.12 Notice.

12.12.1

Many notices or demands required to be given, pursuant to the terms of the Agreement, may be given to the other party in writing, delivered in person, sent by facsimile transmission, emailed, deposited in the United States mail, postage prepaid, or deposited with any commercial air courier or express service at the addresses set forth below, or to such other address as the parties may substitute by written notice, given in the manner prescribed in this paragraph. However, notices of termination, notices of default, and any notice regarding warranties shall be sent via registered or certified mail, return receipt requested, at the addresses set forth below ***and*** to legal counsel for the party to whom the notice is being given.

If to City:	**If to Contractor**
Patrick Brown, C.P.M. **Purchasing Manager** **211 W. Aspen Ave** **Flagstaff, AZ. 86001**	**Tim Kinney, President** **121 E. Birch Street, Suite 500** **Flagstaff, AZ 86001**

or to such other place and with such other copies as either party may designate as to itself by written notice to the other party. Rejection, any refusal to accept, or the inability to deliver because of changed address of which no notice was given shall be deemed to be receipt of the notice as of the date of such rejection, refusal or inability to deliver.

12.12.2 Notices Related to Payment, Securities-In-Lieu, Bonds. Any notice, request, instruction or other document to be given under this Agreement by any party to any other party related to payment, securities-in-lieu, bonds or other instrument securing the performance of this Agreement, including but not limited to, bid bonds, performance bonds, or payment bonds shall be in writing and shall be delivered in person or by courier or mailed by certified mail, postage prepaid, return receipt requested and shall be deemed given upon (a) confirmation of receipt of a facsimile transmission, (b) confirmed delivery by hand or standard overnight mail or (c) upon the expiration of three (3) business Days after the Day mailed by certified mail, to the parties listed in section 8.4 with a copy to:

Patrick Brown, C.P.M.
Purchasing Manager
211 W. Aspen Ave
Flagstaff, AZ. 86001

or to such other place and with such other copies as either party may designate as to itself by written notice to the other party. Rejection, any refusal to accept or the inability to deliver because of changed address of which no notice was given shall be deemed to be receipt of the notice as of the date of such rejection, refusal or inability to deliver.

12.13 Amendments. The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

12.14 Equal Opportunity/Affirmative Action

12.14.1 The Design-Builder shall comply with the provisions of this Agreement, including the requirements of Article 1-150 of the City of Flagstaff Employee Handbook of Regulations pertaining to discrimination and accepting applications or hiring employees. The Design-Builder shall not discriminate against

any worker, employee or applicant, or any member of the public, because of race, color, religion, gender, national origin, age or disability nor otherwise commit an unfair employment practice. The Design-Builder will take affirmative action to ensure that applicants are employed, and employees are dealt with during employment, without regard to their race, color, religion, gender or national origin, age or disability. Such action shall include but not be limited to the following: employment, promotion, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship as well as all other labor organizations furnishing skilled, unskilled and union labor, or who may perform any such labor or services in connection with this Agreement. The Design-Builder further agrees that this clause will be incorporated in all subcontracts, job-consultant contracts of this Contract entered into by the Design-Builder.

12.14.2 The City of Flagstaff extends to each individual, firm, vendor, Supplier, contractor, and Subcontractor an equal economic opportunity to compete for City business and strongly encourages voluntary utilization of Disadvantaged and/or Minority-owned or Woman-owned business to reflect both the industry and community ethnic composition.

The following two paragraphs apply to the Design-Builder named herein and shall appear in all contracts between the Design-Builder and any and all Subcontractors who are employed on this Project. The Design-Builder further agrees that the two paragraphs will be incorporated in all subcontracts with all labor organizations furnishing skilled, unskilled and union labor, or who may perform any such labor or services in connection with this Contract.

"Any Party (Subcontractor), in performing under this Contract, shall not discriminate against any worker, employee or applicant, or any member of the public, because of race, color, religion, gender, national origin, age or disability nor otherwise commit an unfair employment practice.

The Party (Subcontractor) will take affirmative action to ensure that applicants are employed, and employees are dealt with during employment without regard to their race, color, religion, gender or national origin, age or disability. Such action shall include, but not be limited to the following: employment, promotion, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rate of pay or other forms of compensation; and selection for training; including apprenticeship."

The Design-Builder further agrees that the above two paragraphs will be incorporated in all subcontracts with all labor organizations furnishing skilled, unskilled and union labor, or who may perform any such labor or services in connection with this Contract.

12.15 **Compliance with Federal Laws.** Design-Builder understands and acknowledges the applicability of the Americans with Disabilities Act, the Immigration Reform and Control Act of 1986, and the Drug Free Workplace Act of 1989 to it. The Design-Builder agrees to comply with these laws in performing this Agreement and to permit the City to verify such compliance.

12.16 **Independent Contractor.** The Design-Builder is and shall be an independent contractor. Any provisions in this Agreement that may appear to give the City the right to direct the Design-Builder as to the details of accomplishing the Work or to exercise a measure of control over the Work means that the Design-Builder shall follow the wishes of the City as to the results of the Work only.

12.17 **City's Right Of Cancellation.** All parties hereto acknowledge that this Agreement is subject to cancellation by the City of Flagstaff pursuant to the provisions of A.R.S. § 38-511.

12.18 **Data Confidentiality**

12.18.1 As used in this Agreement, data means all information, whether written or verbal, including plans, photographs, studies, investigations, audits, analyses, samples, reports, calculations, internal memos, meeting minutes, data field notes, work product, proposals, correspondence and any other similar documents or information prepared by or obtained by the Design-Builder in the performance of this Agreement.

12.18.2 The parties agree that all data, including originals, images, and reproductions, prepared by, obtained by, or transmitted to the Design-Builder in connection with the Design-Builder's performance of this Agreement is confidential and proprietary information belonging to the City.

12.18.3 The Design-Builder shall not divulge data to any third party without prior written consent of the City. The Design-Builder shall not use the data for any purposes except to perform the services required under this Agreement. These prohibitions shall not apply to the following data provided the Design-Builder has first given the required notice to the City:

12.18.3.1 Data which was known to the Design-Builder prior to its performance under this Agreement unless such data was acquired in connection with Work performed for the City;

12.18.3.2 Data which was acquired by the Design-Builder in its performance under this Agreement and which was disclosed to the Design-Builder by a third party, who to the best of the Design-Builder's knowledge and belief, had the legal right to make such disclosure and the Design-Builder is not otherwise required to hold such data in confidence; or

12.18.3.3 Data, which is required to be disclosed by virtue of law, regulation, or court order to which the Design-Builder is subject.

12.18.4 In the event the Design-Builder is required or requested to disclose data to a third party, or any other information to which the Design-Builder became privy as a result of any other contract with the City, the Design-Builder shall first notify the City as set forth in this section of the request or demand for the data. The Design-Builder shall give the City sufficient facts so that the City can be given an opportunity to first give its consent or take such action that the City may deem appropriate to protect such data or other information from disclosure.

12.18.5 Unless prohibited by law, within ten (10) Days after completion of services for a third party on real or personal property owned or leased by the City, the Design-Builder shall promptly deliver, as set forth in this section, a copy of all data to the City. All data shall continue to be subject to the confidentiality agreements of this Agreement.

12.18.6 The Design-Builder assumes all liability for maintaining the confidentiality of the data in its possession and agrees to compensate the City if any of the provisions of this section are violated by the Design-Builder, its employees, agents or Subconsultants. Solely for the purposes of seeking injunctive relief, it is agreed that a breach of this section shall be deemed to cause irreparable harm that justifies injunctive relief in court.

12.19 Conflict Of Interest

12.19.1 To evaluate and avoid potential conflicts of interest, the Design-Builder shall provide written notice to the City, as set forth in this section, of any work or services performed by the Design-Builder for third parties that may involve or be associated with any real property or personal property owned or leased by the City. Such notice shall be given seven (7) business Days prior to commencement of the Project by the Design-Builder for a third party, or seven (7) business Days prior to an adverse action as defined below. Written notice and disclosure shall be sent to the City Senior Representative identified in section 8.4.1.1.

12.19.2 Actions that are considered to be adverse to the City under this Agreement include but are not limited to:

12.19.2.1 Using data as defined in this Agreement acquired in connection with this Agreement to assist a third party in pursuing administrative or judicial action against the City;

12.19.2.2 Testifying or providing evidence on behalf of any person in connection with an administrative or judicial action against the City; and

12.19.2.3 Using data to produce income for the Design-Builder or its employees independently of performing the services under this Agreement, without the prior written consent of the City.

12.19.3 The Design-Builder represents that except for those persons, entities and projects identified to the City, the services to be performed by the Design-Builder under this Agreement are not expected to create an interest with any person, entity, or third party project that is or may be adverse to the interests of the City.

12.19.4 The Design-Builder's failure to provide a written notice and disclosure of the information as set forth in this section shall constitute a material breach of this Agreement.

12.19.5 This Contract is subject to the conflict of interest provisions of A.R.S. § 38-511.

12.20 **Legal Requirements**. Design-Builder shall perform the Work in accordance with all Legal Requirements and shall provide all notices applicable to the Work as required by the Legal Requirements.

12.21 Confidentiality of Plans and Specifications

12.21.1 Any plans or specifications the Design-Builder generates regarding this Project are for official use only. They may not be shared with others except as required to fulfill the obligations of the Design-Builder's contract with the City.

12.21.2 All Record Documents, Shop Drawings and other plans or drawings prepared or submitted by the Design-Builder shall include the following language: "These plans are official use only and may not be shared with others except as required to fulfill the obligations of the Design-Builder's contract with the City of Flagstaff."

12.22 Hazardous Materials

12.22.1 Unless included in the Work, if the Design-Builder encounters onsite or as material to be incorporated in the Work any material which it reasonably believes to contain asbestos, polychlorinated biphenyl (PCB), or other hazardous substances or materials regulated by public health laws, it shall immediately stop work and report the condition to the City.

12.22.2 If the material is found to contain asbestos, PCB or other hazardous substances or materials regulated by public health laws, the Design-Builder shall not resume work in the affected area until the material has been abated or rendered harmless. The Design-Builder and the City may agree, in writing, to continue work in non-affected areas onsite.

12.22.3 An extension of Contract Time may be granted in accordance with Article 6.

12.22.4 The Design-Builder will comply with all applicable laws/ordinances and regulations and take all appropriate health and safety precautions upon discovery.

12.22.5 Notwithstanding the preceding provisions of this section 12.22, the City is not responsible for hazardous conditions introduced to the Site by Design-Builder, Subcontractors or anyone for whose acts they may be liable. Design-Builder shall indemnify, defend and hold harmless the City and City's officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from those hazardous conditions introduced to the Site by Design-Builder, Subcontractors or anyone for whose acts they may be liable.

12.23 **Design-Builder and Subcontractor Employee Security Inquiries.** The parties acknowledge that security measures required in this section are necessary in order to preserve and protect the public health, safety and welfare. In addition to the specific measures set forth below, Design-Builder shall take such other measures as it deems reasonable and necessary to further preserve and protect the

public health, safety and welfare.

12.23.1 Security Inquiries. Design-Builder acknowledges that all of the employees that it provides pursuant to this Agreement shall be subject to background and security checks and screening ("Security Inquiries"). Design-Builder shall perform all such security inquiries and shall make the results available to City for all employees considered for performing Work (including supervision and oversight) under this Agreement. City may make further security inquiries. Whether or not further security inquires are made by City, City may, at its sole, absolute and unfettered discretion, accept or reject any or all of the employees proposed by Design-Builder for performing Work under this Agreement. Employees rejected by City for performing services under this Agreement may still be engaged by Design-Builder for other Work not involving the City of Flagstaff. An employee rejected for work under this Agreement shall not be proposed to perform Work under other City contracts or engagements without City 's prior approval.

12.23.2 Criteria for Evaluating Security Inquiries. Once formally adopted by City, criteria for excluding an individual from performing Work under this Agreement shall be communicated by City to Design-Builder and used by Design-Builder as a factor in making its decision. Prior to such adoption, Design-Builder shall use its best judgment in making its decision using, among other criteria, applicable law, administrative regulations of federal, state and local agencies concerned with Work performed under this Agreement, specific local concerns that deal with the specific Work and Work location(s) of the project, and standards used by City in evaluating its own personnel.

12.23.3 Additional City Rights Regarding Security Inquiries. In addition to the foregoing, City reserves the right to: (i) have an employee/prospective employee of Design-Builder be required to provide fingerprints and execute such other documentation as may be necessary to obtain criminal justice information pursuant to A.R.S. § 41-1750(G)(4); (ii) act on newly acquired information whether or not such information should have been previously discovered; (iii) unilaterally change its standards and criteria relative to the acceptability of Design-Builder 's employees and/or prospective employees; and, (iv) object, at any time and for any reason, to an employee of Design-Builder performing Work (including supervision and oversight) under this Agreement.

12.23.4 Terms of This Provision Applicable to all of Design-Builder 's Contracts and Subcontracts. Design-Builder shall include the terms of this provision for employee background and security checks and screening in all contracts and subcontracts for Work performed under this Agreement, including supervision and oversight.

12.23.5 Materiality of Security Inquiry Provisions. The Security Inquiry provisions of this Agreement, as set forth above, are material to City 's entry into this Agreement and any breach thereof by Design-Builder may, at City 's option, sole and unfettered discretion, be considered to be a breach of contract of sufficient magnitude to terminate this Agreement. Such termination shall subject Design-Builder to liability for its breach of contract.

12.24 Computer Systems. Design-Builder shall warrant fault free performance in the processing of date and date-related data including, but not limited to calculating, comparing, and sequencing by all equipment and software products, individually and in combination, from the commencement of the Work. Fault free performance shall include the manipulation of data when dates are in the 20th or 21st centuries and shall be transparent to the user. Failure to comply with "Year 2000" requirements shall be considered a breach of contract.

12.25 Traffic Control. Design-Builder will comply with all provisions of the latest version of the Manual on Uniform Traffic Control Devices and any other traffic control provisions as may be provided in the technical specifications.

12.26 Covenant Against Contingent Fees. The Design-Builder warrants that no person has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, and that no member of the City Council, or any

employee of the City of Flagstaff has any interest, financially, or otherwise, in the Design-Builder's firm, or the firms of Design-Builder's Design Consultant, or Design-Builders other consultants or Subcontractors. For breach or violation of this warrant, the City of Flagstaff shall have the right to annul this Agreement without liability, or at its discretion to deduct from the compensation or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

12.27 Fair Treatment of Workers. The Design-Builder shall keep fully informed of all Federal and State laws, County and City ordinances, regulations, codes and all orders and decrees of bodies or tribunals having jurisdiction or authority, which in any way affects the conduct of Work. The Design-Builder shall at all times observe and comply with all such laws, ordinances, regulations, codes. orders and decrees; this includes but is not limited to laws and regulations ensuring fair and equal treatment for all employees against unfair employment practices, including OSHA and the Fair Labor Standards Act (FLSA). The Design-Builder shall protect, defend and indemnify the City and its representatives against any claim or liability arising from or based on the violation of such, whether by itself or its employees.

12.28 All Work performed shall conform to all applicable City of Flagstaff codes, ordinances and requirements as outlined in this Agreement. If there is a conflict in interpretation between provisions in this Agreement and those in Exhibit "A", the provisions in this Agreement shall prevail.

12.29 The following exhibits are included in this Agreement:

Exhibit A – Project Description
Exhibit B – Scope of Services
Exhibit C – Performance Standards Requirements
Exhibit D – Monthly Anticipated Adverse Weather Days

12.30 Compliance with Federal Immigration Laws and Regulations. Proposer warrants that it complies with all Federal Immigration laws and regulations that relate to its employees and complies with A.R.S. § 23-214.A. Proposer acknowledges that pursuant to A.R.S. § 41-4401 a breach of this warranty is a material breach of this contract subject to penalties up to and including termination of this contract, and that the City retains the legal right to inspect the papers of any employee who works on the contract to ensure compliance with this warranty.

12.31. No Boycott of Israel. Pursuant to A.R.S. §§ 35-393 and 35-393.01, the Parties certify that they are not currently engaged in and agree, for the duration of the agreement, not to engage in a boycott of Israel.

CITY COURT FACILITY PROJECT
DESIGN-BUILD CONTRACT
PROJECT NO. 03-18007

CONTRACT NO. 2018-63

This Contract will be in full force and effect only when it has been approved and executed by the duly authorized City officials.

(Please sign in blue ink. Submit original signatures – photocopies not accepted)

IN WITNESS WHEREOF, the parties hereto have executed this Contract on July 17, 2018.

CITY OF FLAGSTAFF, ARIZONA,
an Arizona Municipal Corporation
Barbara Goodrich, Interim City Manager

By: Barbara Goodrich
Barbara Goodrich
Interim City Manager

KINNEY CONSTRUCTION SERVICES, INC.
an Arizona Corporation

By:
Title: President

ATTEST:

Stacy Saltzburg
City Clerk

APPROVED AS TO FORM:

Christina Parsons for
City Attorney

EXHIBIT A – PROJECT DESCRIPTION

The City (Owner) is planning to develop a parcel of land for the City Court Facility Project. The location of the parcel is the south west corner of Beaver Street and Cherry Avenue. The parcel is located at 101 W. Cherry Avenue, Flagstaff, Arizona 86001. The Coconino County Assessor Parcel Number(s) for the subject parcels are 100-10-010C (0.51 ac.) and 100-10-009A (0.13 ac.).

The project will include facility programming, design, cost estimating, value engineering and construction of a 30,000 to 40,000 square foot municipal court facility. The facility shall be designed to meet and obtain one of the following; LEED (Silver certification), Green Globes (3 Globes) or Living Building Challenge (full certification). The project includes demolition of three City owned buildings; one located at 101 W. Cherry Avenue, the second located at 15 N. Beaver Street and the third at 107 W. Aspen Avenue, Flagstaff AZ.

The facility shall include, but is not limited to; courtrooms (jury and non-jury), hearing rooms, judicial chambers, jury assembly and deliberation space, court administration offices, supporting staff offices, security screening, customer service transaction area, lobby, conference room, training room, court enforcement unit with interview rooms, prisoner holding and staging areas, supporting spaces such as mail/copy room, janitorial closet, IT/telephone closet, mechanical room, public and staff toilets. This facility shall also include well-defined office space for the prosecution division of the City Attorney's Office.



EXHIBIT B – SCOPE OF SERVICES

Refer to attached Design & Pre-Construction Services Proposal from Kinney Construction Services dated June 10, 2018.

Design & Pre-Construction Services Proposal

06/10/2018

Mr. James Duval
Senior Project Manager
City of Flagstaff

Re: City of Flagstaff – Courts Facility

Dear Mr. Duval:

Kinney Construction Services, Inc. (KCS), in conjunction with our design team, is pleased to provide this proposal for the design & pre-construction services related to the **City of Flagstaff – Courts Facility** project. Please see cost summary as outlined below.

General Understanding of the Project

The City of Flagstaff (COF) has requested a proposal for design and pre-construction of the new City Courts Facility as outlined in RFQ#2018-63. This proposal is for full design from programming thru construction documents and permitting. KCS will work thru design for this project in order to provide a permitted set of documents and a GMP estimate. The current budget for the project is $19.5M inclusive of all costs including pre-construction, design, construction, FF&E, fees, City Staff time, utility impact fees, permitting & inspections fees, electronics security/surveillance, AV components, and necessary features for a fully functional Municipal Court facility.

Scope of Services

- KCS and its consultants will provide design services as outlined within RFQ#2018-63 and further clarified below.
- The final deliverable at the end of design and pre-construction phase will be a permitted set of construction documents for this project and a GMP estimate for the defined scope of work. Total design duration is estimated at 7 months; contract time will be 250 calendar days from Notice to Proceed (NTP).
- KCS, along with its consultants, will present design iterations throughout the course of pre-construction from schematic thru construction documents. COF is responsible for providing timely review and feedback prior to KCS moving forward with design progression.
- The design will include approximately 30,000 to 40,000 sf of new construction at the Cherry Street site along with demolition of the existing courts facility and construction of surface parking.
- Architectural design, civil engineering, structural engineering, and MEP engineering is included as part of this proposal.
- Fire protection and fire alarm engineering will be done as a deferred submittal after permitting. KCS will include basis of design as part of the package.
- A consultant for security and technology has been included for the courts facility.
- FF&E layout will be provided as part of the architectural design including space planning for existing equipment that will be relocated from the existing facility. COF to provide inventory of existing equipment for use by KCS and its consultants.
- Design workshops (~10 total) will be held in Flagstaff with stakeholders identified by COF.

- KCS will take the lead on behalf of the COF with stakeholder and community group engagement and participation during the design phase. This will include (2) public open houses and meetings with local specialty groups to solicit feedback for the project. Rich Bowen will be part of the team leading this effort on a consulting basis. KCS will also participate in (2) COF council meetings and presentations.
- KCS assumes that existing hazardous material testing reports (already received by KCS) are still valid and no additional testing is required during the design phase.
- KCS will facilitate a chartering session at the beginning of the design and pre-construction phase of the project.
- KCS will facilitate coordination meetings between architect and engineering consultants during the course of the design phase. These meetings are meant to ensure that the design will meet the budget, schedule, and quality requirements outlined by the owner and users.
- KCS will manage and present regular schedule updates during the course of design including design components, procurement, and construction.
- KCS will participate in site investigation as necessary during the design phase to ensure existing conditions are documented within the design.
- The final estimate at the end of construction documents will be the GMP and basis for contract for construction services.
- KCS has included allowances for Geotech investigation, mock-ups, and a 3rd party commissioning agent participation in pre-construction.
- Early on in the design phase of the project, KCS will assist the team in deciding on the path for sustainability certification (Green Globes vs. LEED vs. Living Building Challenge). KCS and the design consultants will provide input and manage the initial portion of the certification process including energy modeling. Costs associated with registration and certification of the chosen sustainability performance organization, either Green Globes or LEED, will be paid for by COF.
- It is assumed that the courtrooms will be fairly standard with low to mid-range finishes and there will also be limited hard surfaces. For this reason, we believe that an acoustical consultant will not be required.
- A Threat Assessment Study has not been included for blast consulting nor engineering.
- KCS assumes that surface parking will be provided at the existing site (Aspen St) and at the new site (Cherry St). There is a possibility of basement level parking and the sally port entrance below finished floor at the Cherry St location. A parking garage is not included.
- A traffic impact analysis (TIA) is not included as part of these services.
- A floodplain study and mapping I s not included. Hydrology and hydraulics is limited to the project area only. The finished floor elevation will be designed to be 1' above the 100 year flood elevation. Un-occupied space including parking and the sally port may be within the floodplain.
- ADEQ submittal won't be required since we are tying into existing mains.
- Design of off-site infrastructure is excluded. KCS assumes surface drainage to Beaver Street will be allowed. LID requirements will be reviewed with COF staff, but it is assumed that on-site detention will not be required. Costs associated with LID design are included in this proposal.
- Franchise Utility (Unisource, APS, SuddenLink, Century Link) coordination during design is included. Fees for franchise utility infrastructure and/or design are not included and will be paid for directly by COF. KCS will work with franchise utilities early on to help establish budgets to be used for the duration of the project.
- Expendables including travel are included as a lumpsum cost within the proposal.
- KCS will submit and coordinate permitting for COF and Authorities Having Jurisdiction (AHJ) permits. Costs including impact fees to be paid by COF.
- KCS' design consultants will provide E&O insurance. No additional coverage will be provided by KCS.
- Construction administration (CA) services by design consultants are not included as part of this proposal; these will be included in the GMP.

Cost Breakdown by Discipline & Phase

Description	Totals	SD Phase	DD Phase	CDs & Permits
KCS Management & Pre-Construction Services	$ 428,440.00	$ 188,930.00	$ 102,220.00	$ 137,290.00
Architecture & Interiors	$ 680,000.00	$ 212,500.00	$ 170,000.00	$ 297,500.00
Civil Engineering & Landscape	$ 56,058.00	$ 8,465.00	$ 14,660.00	$ 32,933.00
Structural Engineering	$ 66,880.00	$ 12,540.00	$ 16,720.00	$ 37,620.00
MEP Engineering	$ 242,670.00	$ 50,570.00	$ 101,110.00	$ 90,990.00
Security & Technology Consultant	$ 69,280.00	$ 12,990.00	$ 17,320.00	$ 38,970.00
Mock-up Allowance	$ 7,000.00		$ 7,000.00	
Survey & Topo	$ 13,300.00	$ 13,300.00		
Geo-tech Testing & Evaluation	$ 10,000.00	$ 10,000.00		
Commissioning Agent Allowance	$ 10,000.00		$ 5,000.00	$ 5,000.00
Reproductions, Technology, & Expendables	$ 10,000.00	$ 2,500.00	$ 2,500.00	$ 5,000.00
Grand Total	**$ 1,593,628.00**	**$ 511,795.00**	**$ 436,530.00**	**$ 645,303.00**

Thank you for this opportunity to provide you with our services.

Sincerely,

Michael Thomas
Vice President of Operations

CGL
2485 Natomas Park Drive, Suite 300
Sacramento CA 95833

7 June 2018

Mike Thomas
Kinney Construction Services, Inc.
121 E Birch - Ste 500
Flagstaff, AZ 86001

Mark-ups in proposal by KCS (Mike Thomas) based on conversations with consultants on 6-7-18 and 6-8-18.

RE: Flagstaff Municipal Courthouse Scope of Services and Fee Proposal

Dear Mike:

It is with great pleasure that CGL welcomes the opportunity to collaborate with Kinney Construction Services, Inc. on the Flagstaff Municipal Courthouse Design-Build project. CGL is confident that the combined experience of our organizations and collaborative spirit will translate into a successful partnership for the Courthouse project and for other potential projects in the future.

The following outline reflects CGL's proposed scope of work for architectural, interiors and engineering design services based on earlier discussions with the team and industry standards. We believe a partnering approach will establish a strong message on how our firms will collaborate throughout the project and how the City of Flagstaff will benefit from our combined expertise.

CGL will serve as the Prime Architect performing all architectural design services as outlined in this proposal. The CGL team will include the following sub-consultants:

- SWI, Inc. – Civil Engineering and Landscape Design
- Caruso Turley Scott – Structural Engineering
- Energy Systems Design - MEP/FP Engineering
- Pennell Consulting Inc. – Electronic Security, Audio-Visual, Voice/Data, Fire Alarm Engineering

BASIS OF SCOPE AND COST PROPOSAL

The following are the conditions and assumptions that form the basis of the Scope of Work and corresponding Cost of Services:

1. A new two to three story courthouse building of approximately 40,000 GSF, $15,000,000 construction cost located in downtown Flagstaff, AZ.

2. Design-bid-build project delivery with maximum of one Bid Package (Permit Set). A separate site development package as required by the City of Flagstaff will be developed for City planning approvals.

3. The Cost Proposal of professional fees is valid through 2020 2019, then subject to escalation and/or renegotiation.

4. Design schedule for Schematic design through Permitting documents of approximately 6-7 months.

5. Drawings will be developed in Revit 2018. Drawings will adhere to "BIM Forum 2017 Level of Development Specification". Electronic drawings can be provided to the City in AutoCad format as requested. Facility Management information is not included in the BIM model.

6. The following activities are assumed to be the responsibility of the City and/or Kinney Construction Services, Inc.:

   6.1 Environmental/Hazardous Materials analysis, report and/or remediation
   6.2 All Regulatory, Permit and Filing fees

7. Travel and/or site visits for meetings in Flagstaff, AZ for CGL staff includes the following:

   7.1 Design Phase (Schematic Design through Bidding/Permitting phase) – Twelve 1.5 day trips (total)
   7.2 Construction Administration Phase – Sixteen 1 day trips (total, including punch list)

   Travel and site visits for the engineering sub-consultants is outlined in the attached proposals from each sub-consultant.

8. All printing for owner and permit submittals shall be by Kinney. CGL shall provide files in digital format to Kinney for all printing required. All printing for internal use by CGL shall be by CGL.

The following describes the general scope and deliverables for CGL and the sub-consultants by phase:

SCHEMATIC DESIGN

Chartering Meeting - Attend Chartering meeting with Kinney, Owner and Users

Data Collection - Review previous Space Program

Program Verification - Meet with Users and Owner to review and update Space Program

Blocking and Stacking

CGL will develop two to three conceptual blocking and stacking options for the proposed building. The "blocking and stacking diagrams" define identify the number of courts per floor and the location of all major program areas. The site plan for the conceptual designs will include the proposed building footprint and massing diagrams. The City, Kinney and CGL shall collaborate to select the recommended solution for the project.

Architectural

All scales will be per COF requirements

- Architectural site plan
- Floor and roof plans – 1/16"=1'-0" scale
- Exterior elevations – 1/16"=1'-0" scale
- Building sections – 1/16"=1'-0" scale
- Two three-dimensional views of the general building design concept
- Coordinate with engineering sub-consultants to integrate preliminary engineering and design criteria
- Calculate space allocations in comparison to the Space Program
- Prepare system descriptions to generally describe the materials and systems
- Meet with City officials to discuss code requirements and design issues that may impact the design and identify potential concerns

Structural

- See attached proposal

Civil/Landscape

- See attached proposal

Mechanical, Electrical, Plumbing and Fire Protection (M/E/P/FP)

- See attached proposal

Electronic Security/AV/Voice-Data/Fire Alarm

- See attached proposal

DESIGN DEVELOPMENT

Architectural

All scales will be per COF requirements

- Site plan
- Floor and roof plans – 1/8"=1'-0" scale
- Demolition plans
- Reflected ceiling plans - 1/8"=1'-0" scale
- Exterior elevations - 1/8"=1'-0" scale
- Building sections - 1/8"=1'-0" scale
- Preliminary typical wall sections – 1/2"=1'-0" scale
- Preliminary stair and elevator plans and sections
- Enlarged courtroom plans – 1/4"=1'-0" scale

- Preliminary interior elevations -v1/4"=1'-0" scale
- Partition types
- Preliminary FF&E plans – 1/8"-1'-0"
- Coordinate with consultants to integrate engineering and design criteria
- Outline specifications in narrative form to describe the materials and systems (CSI format)
- Meet with local and City officials if required to discuss code requirements and design issues that may impact the design and identify potential concerns

Structural
- See attached proposal

Civil/Landscape
- See attached proposal

Mechanical, Electrical, Plumbing and Fire Protection (M/E/P/FP)
- See attached proposal

Electronic Security/AV/Voice-Data/Fire Alarm
- See attached proposal

CONSTRUCTION DOCUMENTS

Architectural
- Architectural site plan
- Floor and roof plans, dimensioned and annotated – 1/8"=1'-0" scale
- Demolition plans
- Life Safety plans
- Reflected ceiling plans, dimensioned and annotated – 1/8"=1'-0" scale
- Exterior elevations, dimensioned and annotated – 1/8"=1'-0" scale
- Building sections, dimensioned and annotated – 1/8"=1'-0" scale
- Wall sections, dimensioned and annotated – 1/2"=1'-0" scale
- Stair and elevator plans, sections and details, dimensioned and annotated
- Enlarged courtroom plans, reflected ceiling plans, interior elevations – 1/4"=1'-0" scale
- Courtroom and miscellaneous millwork details
- Exterior and interior details
- Interior elevations
- Door and finish schedules, door details
- Partition types
- FF&E plans – 1/8"-1'-0"
- Coordinate with consultants to integrate engineering and design criteria
- Specifications (CSI format)
- Meet with local and Commonwealth officials if required to discuss code requirements and design issues that may impact the design and identify potential concerns.

All scales will be per COF requirements

Structural

- See attached proposal

Civil/Landscape

- See attached proposal

Mechanical, Electrical, Plumbing and Fire Protection (M/E/P/FP)

- See attached proposal

Electronic Security/AV/Voice-Data/Fire Alarm

- See attached proposal

BIDDING AND PERMITTING

General

- Kinney will coordinate the construction bidding process, establishing the bidding procedures, terms and conditions of the contract, and general requirements.
- One bid package is included in the Work. Inclusion of additional bid packages will be an Additional Service.
- Kinney will assemble, print, and distribute all bid packages to potential bidders.

Architect

- Prepare Addenda to supplement the documents and clarify bidding sub-contractor questions.
- Review requests for substitutions.

All Architect Sub-consultants

- Respond to requests for substitutions for their respective discipline.
- Prepare portions of Addenda related to their respective disciplines.

CONSTRUCTION ADMINISTRATION

CA not part of this contract

General

- Kinney Construction Services, Inc. shall be responsible for the documentation, preparation and submission of all As-built documents required by the City.

Architect

- Attend up to 16 on-site meetings to observe the construction progress and perform punch list. Prepare Field Reports of each onsite visit.
- Review and respond to Requests for Information.
- Prepare Bulletin (supplemental drawings and/or specifications) for

clarification of details as needed.
- Review of all contractor submittals and shop drawings, up to three times.
- Prepare punch lists.

All Architect Consultants

Structural
- See attached proposal

Civil/Landscape
- See attached proposal

Mechanical, Electrical, Plumbing and Fire Protection (M/E/P/FP)
- See attached proposal

Electronic Security/AV/Voice-Data/Fire Alarm
- See attached proposal

OPTIONAL SUPPLEMENTAL SERVICES

The following Supplemental Services can be performed as Additional Services pending prior approval by Kinney Construction Services, Inc. See attached engineering proposals for optional Supplemental Services available to be performed by the engineering sub-consultants.

Existing Physical Conditions Survey
- Floor plan survey confirming location of all walls, columns, stairs, masonry, elevators, stairs, shafts, toilets, fire standpipes, slab height changes, etc. of existing buildings.
- Elevation study to confirm the measurement of height and width of all exterior elevations, including windows of existing buildings.
- Section documentation to confirm the floor-to-floor heights and floor to underside of structural slab.

Acoustics
- Acoustic consulting

Measured 'As-Built" Drawings of the Final Construction
- Compile mark-up drawings from the Construction Manager and Contractors
- Provide electronic as-built documents for County long-term facility maintenance purposes.

Geotechnical Engineer and Report by KCS
- Report determines the criteria for foundation design, temporary and

permanent groundwater control, and soil/rock slope stabilization.

Subsurface Soil Borings — by KCS

- Provide drilling of the subsurface soil borings and data report of the findings.

Legal Survey — by KCS

- Measured and scaled topographical survey, utility survey, and boundary survey of existing site conditions in a combined drawing document.

Leadership in Energy and Environmental Design (LEED), Green Globes — Part of base contract to assist KCS with LEED or Green Globes

- Green building rating system providing a framework of minimum criteria in the design and documentation of sustainable buildings.
- Documentation, tracking and coordination of all LEED points between the design team, owner, construction manager and general contractors.

Swing Space

- Provide design and furniture layouts of temporary swing space for building components determined by the City.

Physical Model

- Provide physical professional scale model of proposed design.

Traffic Studies or Traffic Impact Analysis

Threat Assessment Studies

- Threat assessment to determine potential project vulnerabilities, focusing on physical, architectural, electronic and/or staffing components of the project. Blast consulting and engineering for the design of the structural and architectural systems needed to absorb the energy of the potential vulnerabilities defined by the threat assessment.

Publicity and Credit:

CGL will be identified in any written of graphic material connected with the project as the Design Architect / Architect of Record. This includes all published deliverables during design and construction, including but not limited to: reports; drawings; title blocks; specification books; etc. This also applies to all material submitted for publication, awards, exhibits, etc. CGL is entitled to use of any images prepared in connection with this project, and, agrees to allow similar privilege to other design team members.

Fees:

Professional services fees for the scope of services described in this proposal shall be $1,353,800 (One million three hundred fifty three thousand eight hundred dollars). Payment shall be made in the form of monthly progress payments, paid within 30 days of receipt of invoices and based on the percentage

completed of each phase. Expenses for travel to meetings and workshops, telephone and printing are included in the total fee.

CA not part of this contract

	SD	DD	CD	P	CA
Architecture/Specs/Interiors Total	$ 212,500	$ 170,000	$ 255,000	$ 42,500	$ 170,000
Civil / Landscape Total	$ 8,465	$ 14,660	$ 32,933	$ -	$ 4,542
Structural	$ 12,540	$ 16,720	$ 33,440	$ 4,180	$ 16,720
HVAC, Plumbing/FP Electrical Total	$ 50,570	$ 101,110	$ 90,990	$ -	$ 30,330
Program Verification	$ -	$ -	$ -	$ -	$ -
LEED	$ -	$ -	$ -	$ -	$ -
FF&E	$ -		$ -	$ -	$ -
Cost Estimator/Schedule	$ -	$ -	$ -	$ -	$ -
Acoustics	$ -				
Code/Life Safety	$ -	$ -	$ -	$ -	$ -
Elec. Sec/AV/Voice-Data/Fire Alarm	$ 12,990	$ 17,320	$ 34,640	$ 4,330	$ 17,320
Way Finding - Signage	$ -	$ -	$ -	$ -	$ -
Elevator	$ -	$ -	$ -	$ -	$ -
Roofing / Envelope	$ -	$ -	$ -	$ -	$ -
Special Lighting	$ -	$ -	$ -	$ -	$ -
Travel SD-B/P	$ -	$ -	$ -		$ -
Travel CA	$ -	$ -	$ -		$ -
Printing	$ -	$ -			$ -
Sub-total per phase	$ 297,065	$ 319,810	$ 447,003	$ 51,010	$ 238,912
	21.9%	23.6%	33.0%	3.8%	17.6%
Sub-totals SD-P / CA	$1,114,888				$238,912
	82.4%				17.6%
Total	~~$1,353,800~~				
	100.0%				

Please feel free to contact us if you have any questions or comments,

Sincerely,

Enrique Macia, AIA, LEED AP
Senior Vice President
CGL Companies

Shephard ▲ Wesnitzer, Inc.
Engineering an environment of excellence

110 West Dale Avenue
Flagstaff, AZ 86001

928.773.0354
928.774.8923

www.swiaz.com

Engineering an environment of excellence.

PROPOSAL/ AGREEMENT FOR PROFESSIONAL SERVICES

Ref. No. 18073
June 1, 2018

BETWEEN: **Kinney Construction Services**
Attn: Tim Kinney
121 E. Birch Ave. Suite 500
Flagstaff, AZ 86001
("CLIENT")

AND: **Shephard – Wesnitzer, Inc.**
110 West Dale Avenue
Flagstaff, Arizona 86001 ("SWI")

FOR THE PROJECT: **Civil Engineering Services**
City Court Facility Project ("PROJECT")
101 W. Cherry Avenue
Flagstaff, Arizona
APN: 101-10-010A ("SITE")

The Client and SWI do hereby agree as follows:

2.0 DESCRIPTION OF PROJECT

Information provided by the Client indicates that the Project consists of demolition of three City buildings (101 W. Cherry Ave, 15 N. Beaver Street, 107 W. Aspen Ave.) and the construction of a new City Court Facility and associated parking lot improvements at the site located on Cherry Avenue in Flagstaff, Arizona.

2.0 PURPOSE

The purpose of our Engineering Services will be to prepare a Civil Plans for review and approval the City of Flagstaff (City) as part of the City's development process.

Client's Initials _____

3.0 SCOPE OF SERVICES

We propose to provide the following:

Survey Services:

Item No.	Description	Fee
1.	**Pre-Design Services**	**$8,500.00**
	Survey Control: Verify existing survey control, establish new permanent survey control and elevation benchmarks for use through duration of the project.	
	Results of Survey: Perform a boundary survey and prepare Results of Survey for Assessor Parcel Numbers 100-10-010C & 100-10-009A.	
	Topographic Survey: Provide a detailed topographic survey of all existing site improvements, drainage structures and utility appurtenances within the subject parcel boundaries and adjacent street15 Right-of-Way. Provide a signed and sealed topographic survey and associated CAD files.	
	Utilities: Locate all visible utility bluestake markings and surface utility appurtenances including, but not limited to: sewer manhole rim and inverts, cleanouts, water meters, water valves, gas meters, electric pullboxes/transformers.	
2.	**Lot Combination:** Prepare a Legal Description and Exhibit, and Lot Combination form for submittal to the City of Flagstaff for approval, and recording with Coconino County (City of Flagstaff Fee: $175.00, County Recording Fee: $10.00).	**$1,500.00**
3.	**Legal Descriptions:** Prepare up to 4 legal descriptions for PUE's, TCE's, and sidewalk easements as required by the City of Flagstaff.	**$1,800.00**
4.	**As-Built Survey:** Provide as-built survey data for finished construction of all site utilities, grading and drainage features in preparation of Record Drawings as required by the City of Flagstaff.	**$1,500.00**
	Survey Services Subtotal:	**$13,300.00**

Client's Initials _____

Concept Plan:
Items below are tasks that will be completed by SWI for the Concept Plan review process, and are based on **two (2)** Concept Plan submittals. It is assumed that the Court Site and Parking Site will be submitted under one concept plan application.

Item No.	Description	Fee
5.	**Concept Plan:** Review the Concept Plans as provided to SWI by the Client to make the necessary Civil Engineering related adjustments to conform to City codes: including preliminary utilities, drainage systems, low impact development systems, impervious areas, pedestrian access, and traffic circulation support. This includes all three parcels. The City comments provided to SWI by the Client will be incorporated into adjustments made by SWI. This includes one (1) iteration of Concept Plan development with the Client and architect to ensure the site works with the Civil Improvements: turning analysis, preliminary grades, driveway location, etc. This item also includes comment coordination with the City. **Additional plans and meetings will be billed on a time and material basis only upon Client's approval.**	**$8,200.00**
	Preliminary Landscape Plan: Morning Dew Landscaping will prepare a Preliminary Landscape Plan in accordance with the City's Concept Plan checklist.	
	Concept Plan Subtotal:	**$8,200.00**

Site Plan:
Items below are tasks that will be completed by SWI per the City's Site Plan conditions of approval and will be required prior to Construction Plan review. Items will be completed for the Formal Site Plan submittal and are based on **two (2)** Site Plan Submittals. Additional submittals will be considered as additional services. It is assumed that the Court Site and Parking Site will be submitted under one site plan application.

Item No.	Description	Fee
6.	**Grading and Drainage Plan:** Prepare a stand-alone Grading and Drainage Plan per City requirements. This plan will contain its own cover sheet, will be on an SWI border, and may contain information such as existing and finish grade contours, approximate retaining wall heights, finish floor elevations, detention/LID locations and required volumes, the proposed driveway and turn lane, and existing & proposed utilities.	**$14,200.00**

Client's Initials _____

Preliminary Drainage Report:
Prepare and submit a preliminary drainage report. Hydrologic calculations will be performed for the existing and developed conditions and approximate detention and LID volumes will be estimated. The results of this preliminary analysis will be documented in this report and will include a description of the preliminary drainage scheme. This report will also provide justification ~~than~~ that an area reserved for surface and/or underground detention is satisfactory. The area needed for detention will be coordinated with the Site Plan.

Preliminary Landscape Plan:
Morning Dew Landscaping will update the Preliminary Landscape Plan in accordance with the City's Site Plan checklist.

Site Plan Coordination:
Coordination and Meetings: Includes coordination with Client and City staff through the Site Plan preparation and approval process. Includes one (1) in person project kickoff meeting with the Client and Client's architect, one (1) site visit, and attendance at one (1) Formal Site Plan meeting with City staff. This item assumes that all meetings will be held in Flagstaff at SWI or City offices. Includes comment coordination with the City of Flagstaff after their review of the Site Plan. SWI will receive finished PDF's by others, print the appropriate number of copies, include an electronic copy of everything on a disc, and submit the complete submittal to the City of Flagstaff for review.

KCS

Site Plan Subtotal: **$14,200.00**

Client's Initials _____

Final Design and Construction Plans:
These tasks are based on the Preliminary Plat approved by the City and will be utilized for Final Design with only minor modifications as necessary to address their comments. The fees for the Final Design and Construction Plans assume three (3) submittals (2 for review and 1 for final approval) to the City which is typical for projects of this type.

Item No.	Description	Fee
7.	**Construction Plans for Improvements:** Prepare and submit construction plans to the City representing the detailed design of public and private improvements associated with the Project infrastructure per *The City of Flagstaff's Civil Construction Plan Submittal & Processing for Residential & Commercial Development Projects* standards. Private improvements located on-site will be designed per City standards and details. Specifications for construction will be listed on the plans. Private improvements include: curb, gutter, sidewalk, pavement plan (does not include the design of pavement structural section), on-site water and gravity sewer systems, horizontal control sheets, on-site access road, retaining wall, and site grading. Public improvements include driveway connections to the adjacent roadway and water and sewer connections.	**$31,900.00**

Provided by geotech; contracted directly by KCS

Storm Water Pollution Prevention Plan:
Prepare a SWPPP to be included in the Construction Plans that will identify temporary and permanent erosion protection facilities per ADEQ requirements. The SWPPP developed under this scope of work will address initial SWPPP best management practices and controls only; modifications to the SWPPP to address on-site changes are the responsibility of the Contractor. ADEQ National Emissions Standard for Hazardous Air Pollutants (NESHAP) is typically obtained directly by the Contractor and is not included in this scope of work. Permit fees shall be paid by the Contractor.

Client's Initials _____

Final Drainage Report:
Prepare and submit a Drainage Report per the requirements set forth by the City of Flagstaff Stormwater Management Design Manual (COFSMDM). Specifically, the report will address the existing and post development drainage peak discharge rates on the site. The report will also discuss how offsite runoff will be routed through the site if necessary. This assumes no change to the approved Site Plan and does not account for iterative drainage design. Work will be coordinated with the Grading Plans. The report will include detailed calculations for stormwater conveyances, detention areas, and Low Impact Development Integrated Management Practices.

Engineer's Opinion of Probable Cost (EOPC):
Prepare and submit an EOPC for any improvements for which an Assurance of Performance is required. The EOPC will be prepared in accordance with City standards.

Final Landscape & Irrigation Plan:
Morning Dew Landscaping will prepare a final landscape and irrigation plan in accordance with the City's Civil Construction Plan checklist. The landscape and irrigation plan will be incorporated into the Civil Construction Plans.

Final Design and Construction Plan Coordination:
Includes coordination with Client, Client's architect, Geotechnical Engineers, City staff, and utility companies through the Final Design and Construction Plan preparation and approval process. Includes two (2) in person meeting with the Client and Client's architect and attendance at two (2) comment resolution meeting with City staff (typically after the 1st review).

Final Design and Construction Plan Subtotal: $31,900.00

Construction Staking:

Item No.	Description	Not Part of this contract	Fee
8.	**Construction Survey (Estimated):** Provide construction survey and layout for all new site improvements, utilities, grading and drainage, parking lots, and building construction.		**$13,500.00**

Construction Staking Services Subtotal: $13,500.00

Client's Initials _____

Construction Phase Service:
Items 9-12 below are tasks that will be completed by SWI during construction, after construction plan approval.

Item No.	Description	Fee
9.	**Rough Grading Certification:** Provide up to 2 inspections as necessary to complete the latest *Rough Grading Inspections Certificate* to be submitted to the City of Flagstaff's Stormwater Management Section. The construction surveyor shall provide as-built information for the proposed drainage structures. This will aid in confirming the construction of the drainage structures compared to the design. The Contractor is to route the Rough Grading Inspection Certificate form to be signed by the Registered Civil Engineer, Land Surveyor, Geotechnical Engineer and Grading Contractor. It is assumed that a separate rough grading certificate will be required for the new courthouse site and the new parking lot on the existing courthouse site.	**$1,900.00**
10.	**Final Grading Certification:** Provide up to 2 inspections and the Final Grading Certification to the City of Flagstaff's Stormwater Management Section. The Contractor is to route the latest City of Flagstaff *Final Grading Inspection and Certificate* form to be signed by the Registered Civil Engineer and Geotechnical Engineer. The construction surveyor is to provide an as-built survey for any additional drainage structures note surveyed under the Rough Grading Certification. The as-built survey is not included in this item. It is assumed that a separate final grading certificate will be required for the new courthouse site and the new parking lot on the existing courthouse site.	**$1,900.00**
11.	**Record Drawing Engineered Grading Plan:** Services include compiling as-built plans for submittal to the City of Flagstaff. Based on as-builts provided by the construction surveyor, inspector reports and redlines, contractor redlines, and field visits. SWI will provide a Record drawing.	**$3,300.00**

Client's Initials _____

12. **Construction Observation Services:** **$4,400.00**
Includes review and approvals for civil related shop drawing submittals. Provide construction observations for civil related work (40 hours for a 6 month construction period), including construction coordination, support and correspondence with Client, Client's contractor, sub-contractors, City staff and utility companies. Includes up to 2 Request for Information (RFI) related to revisions due to the discovery of unanticipated conditions in the field or revisions instigated by others. Services above and beyond the site visits and RFIs *will be billed on a time and material basis* only upon written authorization. Not part of this contract

Construction Phase Services Subtotal: **$11,500.00**

FEE SUMMARY

Survey Services	$13,300
Concept Plan	$8,200
Site Plan	$14,200
Final Design and Construction Plan	$31,900
~~Construction Staking~~	~~$13,500~~
~~Construction Phase Services~~	~~$11,500~~
~~Total~~	~~$92,600~~

4.0 SCHEDULE

A schedule will be developed with the Client upon a signed copy of this agreement.

5.0 ASSUMPTIONS

a. The Court Site and Parking Site will go through Community Development as one submittal.
b. Client will provide checks for submittal fees.
c. A Resource Protection Plan will not be required.
d. Sufficient survey boundary control lying within at least one adjoining tract is existing and verifiable.
e. Narrative and Site Analysis will be prepared by others.
f. Court Site parcels will be combined. Parking Site parcels will not be combined.
g. Stormwater detention will not be required.
h. Traffic impacts will not be evaluated.
i. ADEQ submittal will not be required.
j. Demolition plans will be prepared by others.
k. Finished Floor will be a minimum 1' above Base Flood Elevation.
l. No overnight vehicles will be parked in areas with greater than 1' of flood depth.
m. Structural design is excluded with this proposal.
n. The design of dry utilities will be prepared by the Utility Owner. Any dry utility information provided to SWI in AutoCAD format will be included on the plans for reference only.

Client's Initials _____

o. A bid schedule or construction contract documents are not included.
p. No offsite water or sewer mains need to be upsized or extended more than 100' to reach the subject parcel.
q. Offsite sewers adjacent to project are at sufficient depth to accept gravity sewers from the project.
r. Offsite water lines adjacent to the project are of sufficient size and capacity to adequately service the project utilizing only a system of internal looped pipe connections, and no offsite water main extensions are required.
s. Offsite stormwater lines adjacent to the project are of sufficient size and capacity to adequately serve the project and no off-site analysis is required.
t. Mechanical Electric Plumbing (MEP) engineer will provide the size and location of water and sewer services. MEP will also provide size of water meters.
u. Fee assumes single phase construction and therefore only one construction plan set is assumed.
v. Geotechnical investigation results and pavement structural section recommendations will be performed by others, will be received by SWI *prior to initiating site work*, and are not part of this Agreement.
w. The Client or Client's contractor is responsible for obtaining all applicable construction permits for this job.

6.0 MANNER OF PAYMENT

Billing for work in progress will be made on a monthly basis. Payment is due upon receipt of monthly billings. Late fees at the rate of 2% interest on balance owed will be assessed to client for delays in payments in excess of 30 days from the date of invoice. Services will be halted due to delays in payment. Final revisions to calculations and drawings will be released upon receipt of final payment.

7.0 FEES

The cost of Civil Engineering and Surveying services items 1 thru 12 is a lump sum fee of $92,600 plus reimbursable expenses. Reimbursable expenses includes FedEx charges, mileage, plan reproduction costs, and will be billed at cost plus 10% markup and are estimated at $3,000. Work which may be indicated by the discovery of unanticipated conditions in the field or revisions to the site plans instigated by others will be performed, only upon your authorization in writing in advance, in accordance with our current standard fee schedule. Current standard hourly rates are subject to change as current year expires. The estimated fee noted above is valid for 90 (ninety) calendar days after which time a review by SWI will be required.

8.0 STANDARD SWI TERMS AND CONDITIONS

Attached hereto and incorporated by the reference are the **SWI Standard Terms and Conditions**, which shall govern this agreement.

9.0 SERVICES NOT INCLUDED

Client's Initials _____

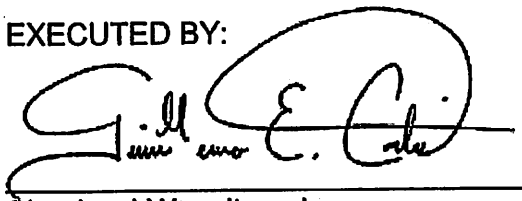
Traffic Impact Analysis (TIA), natural resource projection plan, cultural resource study, geotechnical investigations, environmental studies, archeological studies, architectural services, or any other work outside of the scope of the concept plan and not specifically identified in Section 3.0, Scope of Services.

This Proposal/Agreement, and the attached **Terms and Conditions,** contains the entire agreement between the parties, and supersedes all other agreements, either oral or written. No representations or warranties shall be valid or binding unless contained herein.

The signature below constitutes Shephard - Wesnitzer Inc.'s intention to be bound under the terms of this Proposal/Agreement, including the attached **Terms and Conditions**. The Client may accept by signing and returning to Shephard - Wesnitzer, Inc.

Any change to the **Terms and Conditions** of this Proposal/Agreement, or the tender of any contract documents in place of this Proposal/Agreement shall not be valid unless made in writing, dated and signed by all the parties.

EXECUTED BY:



Shephard-Wesnitzer, Inc. — June 1, 2018 Date

The foregoing AGREEMENT with its attached **Terms and Conditions** has been proposed by Shephard - Wesnitzer, Inc. and has been read, is understood, and is hereby accepted.

EXECUTED BY:

_____ Clients Authorized Representative

_____, 2018 Date

_____ Typed or Printed Name

_____ Title

Client's Initials _____

TERMS AND CONDITIONS

The captions of the sections herein are intended for convenience of reference only and shall not be used to interpret the content of each section.

1. **PROJECT INFORMATION**

1.1 In preparation of its Proposal, SWI has relied on certain information and documentation supplied by CLIENT or CLIENT's agents as being accurate, and CLIENT agrees that SWI has a right to rely on the said information or documentation.

1.2 CLIENT affirms that CLIENT has provided all documents, maps and other information in CLIENT's possession, relating to past, present and proposed future use of THE SITE and its surrounding area, to SWI before execution of this Agreement by SWI.

1.3 CLIENT confirms that the content of all documents, maps and other information which CLIENT has provided to SWI before SWI's execution of this Agreement is correctly addressed in the Scope of Services part of this Agreement.

1.4 CLIENT will designate in writing those persons, organizations or agencies to be contacted in the event conditions are revealed during the execution of SWI's services that would require possible alteration of the services hereunder.

2. **WARRANTY**

SWI warrants their services are performed, within the limits prescribed by this Agreement, with the usual thoroughness and competence of the professions practicing these services in the same or similar locality of THE SITE at the time of this Agreement. No other warranty or representation, either expressed or implied, is included or intended under this Agreement.

3. **SAFETY**

SWI will perform work under safe conditions. CLIENT may be charged additionally for safety or security measures required by dangerous job conditions, encountered during SWI's performance of the required services that could not be anticipated by review of the information available at the time the Agreement was executed.

4. **INSURANCE**

4.1 SWI will maintain the following insurance and amounts: Workman's Compensation, statutory limits; General Liability, $1,000,000; Professional Liability, $1,000,000.

4.2 No insurance, of whatever kind or type which may be carried by SWI, is to be considered in any way limiting the responsibility of others for damages resulting from their operations or for furnishing work and materials ON THE SITE.

5. **LIMITS OF LIABILITY**

For any damage, cost, expenses, or other liability, direct or indirect, resulting from any error, omission, or professional negligence in the performance of SWI's services, the liability of SWI, its employees, agents, officers, and consultants to all claimants with respect to THE PROJECT will be limited to an aggregate sum not to exceed $50,000 or SWI's total fee for the services rendered on THE PROJECT, whichever is greater.

6. **NOTIFICATION OF DEFECTS IN SERVICE**

CLIENT, CLIENT's personnel, and CLIENT's contractors and subcontractors shall promptly report in writing to SWI any defects or suspected defects in SWI's work or services, in order that SWI may take prompt, effective measures which in SWI's opinion will minimize the consequences of a defect in service.

7. **INDEPENDENT CONTRACTOR STATUS**

CLIENT confirms that SWI is employed as an independent contractor to perform the services required under this Agreement. SWI shall be free to exercise its discretion and independent judgment as to the methods and means of performance of these services, consistent with all other requirements of this Agreement.

8. **OWNERSHIP AND DISPOSITION OF DOCUMENTS**

8.1 CLIENTI agrees that all documents, calculations, studies, plans, maps, models, photographs, drawings, computer printouts, field notes, samples, logs, specimens, laboratory test data, and other products generated in the performance of services rendered under this agreement constitute work for hire and are and shall remain the property of the SWI.

8.2 SWI agrees that, during the performance of this Agreement, and thereafter it will <u>not</u> disclose to any persons, other than the CLIENT, CLIENT's authorized representatives, and those persons, organizations or agencies specifically designated in writing by CLIENT, any information pertaining to this Agreement or services rendered by SWI pursuant to this agreement except as follows:

8.3 In response to a valid subpoena or requirement under the law; however, SWI shall notify CLIENT upon receipt of the subpoena or other mandate in order to give CLIENT time to protect the confidentiality of the materials sought; and

8.2.2 Under circumstances where, in SWI's professional judgment, the performance of the duties under this agreement discloses a serious threat to the public health, safety of welfare, and the CLIENT after being notified of the threat refuses to, or does not take appropriate action within a reasonable time, then SWI has a professional obligation to notify the appropriate Regulatory Agency of the specific nature of the public threat.

9. **DELIVERY OF ELECTRONIC FILES**

In accepting and utilizing any drawings, reports and data on any form of electronic media generated and furnished by the Consultant, the Client agrees that all such electronic files are instruments of service of the Consultant, who shall be deemed the author, and shall retain all common law, statutory law and other rights, without limitation, including copyrights.

The Client agrees not to reuse these electronic files, in whole or in part, for any purpose other than for the Project. The Client agrees not to transfer these electronic files to others without the prior written consent of the Consultant. The Client further agrees to waive all claims against the Consultant resulting in any way from any unauthorized changes to or reuse of the electronic files for any other project by anyone other than the Consultant.

The Client and the Consultant agree that any electronic files furnished by either party shall conform to the specifications listed in Exhibit A. Any changes to the electronic specifications by either the Client or the Consultant are subject to review and acceptance by the other party. If the Consultant is required to expend additional effort to incorporate changes to the electronic file specifications made by the Client, these efforts shall be compensated for as Additional Services.

Electronic files furnished by either party shall be subject to an acceptance period of seven (7) days during which the receiving party agrees to perform appropriate acceptance tests. The party furnishing the electronic files shall correct any discrepancies or errors detected and reported within the acceptance period. After the acceptance period, the electronic files shall be deemed to be

Client's Initials _____

accepted and neither party shall have any obligation to correct errors or maintain electronic files.

The Client is aware that differences may exist between the electronic files delivered and the printed hard-copy construction documents. In the event of a conflict between the signed construction documents prepared by the Consultant and electronic files, the signed or sealed hard-copy construction documents shall govern.

In addition, the Client agrees, to the fullest extent permitted by law, to indemnify and hold harmless the Consultant, its officers, directors, employees and sub-consultants (collectively, Consultant) against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any changes made by anyone other than the Consultant or from any reuse of the electronic files without the prior written consent of the Consultant.

Under no circumstances shall delivery of electronic files for use by the Client be deemed a sale by the Consultant, and the Consultant makes no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall the Consultant be liable for indirect or consequential damages as a result of the Client's use or reuse of the electronic files.

10. **ACTS OR OMISSIONS OF OTHERS**
SWI shall not be responsible for acts or omissions of any other party or parties involved in planning or designing of any project(s) for construction on THE SITE or the failure of any contractor or subcontractor to construct any item on THE SITE in accordance with recommendations contained in any issued by SWI. SWI, by the performance of services hereunder, does not in any way assume, abridge or abrogate any of those duties, responsibilities or authorities with regard to any project(s) on THE SITE customarily vested in project architects, design engineers, or any other design agencies or authorities.

11. **RELIANCE ON PUBLIC RECORDS OR OTHER NON-SWI REPORTS AND DATA**
Unless otherwise described in "SCOPE OF SERVICES" , SWI accepts no responsibility for the correctness or accuracy of data or conclusions contained in public records, reports or other documents which were not published by SWI, but which are discovered by SWI in performance of the services required by this Agreement. CLIENT waives any claim against SWI, and agrees to defend, indemnify and hold SWI harmless from any claim or liability for injury or loss allegedly arising from errors, omissions or inaccuracies in such public records or in such other reports or documents.

12. **SITE ENTRY**
LIENT will furnish right of entry onto THE SITE for SWI to make the necessary field studies.

13. **MEDIATION**
In an effort to resolve any conflicts that arise during the design and construction of the Project or following the completion of the Project, the Client and the Consultant agree that all disputes between them arising out of or relating to this Agreement or the Project shall be submitted to nonbinding mediation unless the parties mutually agree otherwise.

The Client and the Consultant further agree to include a similar mediation provision in all agreements with independent contractors and consultants retained for the Project and to require all independent contractors and consultants also to include a similar mediation provision in all agreements with their subcontractors, sub-consultants, suppliers and fabricators, thereby providing for mediation as the primary method for dispute resolution between the parties to all those agreements.

14. **LITIGATION BETWEEN AGREEMENT PARTIES**
In the event of litigation or arbitration between the parties to this Agreement, all reasonable costs and attorney's fees to enforce this Agreement incurred by the prevailing party shall be reimbursed by the non-prevailing party.

SWI and its subcontractors shall comply with all existing applicable laws and regulations under this Agreement; however, laws or ordinances enacted after the signing of this Agreement may increase SWI's cost of performing services included in this Agreement by requiring modifications of or additions to SWI's work, facilities or equipment. CLIENT shall reimburse SWI for such increased cost.

15. **SUBPOENAS**
CLIENT is responsible, after notification, for payment of time and expenses resulting from SWI's required response to subpoenas issued in conjunction with SWI's work. Compensation will be based on schedules in effect at the time the subpoena is served.

16. **COMPLIANCE WITH LAWS**
SWI and its subcontractors shall comply with all existing applicable laws and regulations under this Agreement; however, laws or ordinances enacted after the signing of this Agreement might increase SWI's cost of performing services included in this Agreement by requiring modifications of or additions to SWI's work, facilities or equipment. CLIENT shall reimburse SWI for such increased cost in proportion to the amount of the cost attributable to SWI's performance of services on THE PROJECT.

17. **INDEMNITY**
CLIENT and SWI do hereby indemnify and hold each other harmless from damage to property of whatsoever kind and nature, and injury to persons, including death, occasioned by the negligent or willful acts, errors or omissions of the indemnifying party, arising out of, or in any way connected to this Agreement.

18. **NOTIFICATION OF HAZARDOUS SUBSTANCES**
CLIENT hereby warrants that, if it knows or has any reason to assume or suspect that hazardous substances may exist at THE SITE, CLIENT has so informed SWI.

19. **DISCOVERY OF UNANTICIPATED HAZARDOUS SUBSTANCES**
SWI and CLIENT agree that the discovery of unanticipated hazardous substances constitutes a changed condition mandating a renegotiation of the scope of work or termination of services. SWI agrees to notify CLIENT as soon as practically possible should unanticipated hazardous substances or suspected hazardous substances be encountered. SWI is hereby authorized to take such emergency measures, if any, that are necessary in SWI's professional opinion to immediately protect the health, safety and welfare of the public and SWI's personnel, and/or the environment and CLIENT agrees to compensate SWI for such emergency work. Thereafter, CLIENT and SWI will negotiate to change the scope of services hereunder to include said emergency work. In addition, CLIENT waives any claim against SWI, and agrees to indemnify, defend and hold SWI harmless from any claim or liability for injury or loss arising from SWI's encountering unanticipated hazardous substances or suspected hazardous substances. CLIENT also agrees to compensate SWI for any time spent and expenses incurred by SWI in defense of any such claim, with such compensation to be based upon SWI's prevailing fee schedule and expense reimbursement policy.

20. **PAYMENT**
CLIENT shall pay SWI in full for all services under the Agreement and executed written Change Orders, irrespective of any claim by CLIENT to third parties for compensation for additional work conducted by SWI. Any such claim shall in no respect delay payment of fees for services performed by SWI. Standard hourly rates are subject to change as current year expires.

Client's Initials _____

21. TERMINATION

21.1 This Agreement may be terminated by either party giving not less than ten (10) days written notice to the other party specifying a substantial failure to perform in accordance with the terms of the Agreement through no fault of the terminating party, provided that the terminating party is in full compliance with the Agreement at the time of the notice of termination.

21.2 Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice.

21.3 In the event of termination for any reason prior to completion of all reports contemplated by the Agreement, SWI reserves the right to complete such analyses and records as are necessary to place their files in order and, where considered necessary by them to protect their professional reputation, to complete a report on the services performed to date.

22. TERMINATION CHARGES

22.1 If this Agreement is terminated and the termination is due to substantial failure of CLIENT to perform in accordance with the Agreement through no fault of SWI, CLIENT shall pay SWI for services performed to the termination date plus termination charges.

22.2 Termination charges shall include personnel and equipment rescheduling and/or reassignment adjustments and all other related costs that are directly attributable to termination. At the option of SWI an additional termination charge, not to exceed thirty percent (30%) of all charges incurred up to the date of termination may be made to cover the cost of completing analyses, records and reports in accordance with 21.3 of these Terms and Conditions.

23. SUSPENSION OF SERVICES

23.1 CLIENT may, upon ten (10) days written notice, suspend further performance by SWI at any time.

23.2 If CLIENT's payment of statements is delinquent, SWI may, upon ten (10) days written notice, suspend further performance until such payment is restored to a current basis.

23.3 At the option of SWI, suspension for any reason exceeding thirty (30) days shall make this Agreement subject to termination or renegotiation.

23.4 All suspensions shall extend this Agreement's completion date commensurately.

23.5 In the event of suspension of services for any reason prior to completion of all reports contemplated by the Agreement, SWI reserves the right to complete such analyses and records as are necessary to place their files in order and, where considered necessary by them to protect their professional reputation, to complete a report on the services performed to date.

24. SUSPENSION CHARGES

24.1 If SWI's performance is suspended for any reason, CLIENT shall pay SWI for services performed to the suspension notice date plus suspension charges.

24.2 Suspension charges shall include personnel and equipment rescheduling and/or reassignment adjustments, all other related costs indirectly attributable to suspension, and charges for completing analyses, records and reports in accordance with 21.5 of these Terms and Conditions.

25. DELAYS

25.1 Delays resulting from acts of God or from factors beyond the reasonable control of the parties, or from the action or inaction of CLIENT shall extend this Agreement completion date commensurately.

25.2 CLIENT shall pay SWI for services performed to the delay commencement date plus delay charges. Delay charges shall include personnel and equipment rescheduling and/or reassignment adjustments and all other related costs indirectly attributable to such delays.

26. ASSIGNS

Neither CLIENT nor SWI may delegate, assign or transfer his duties or interest in this Agreement without the written consent of the other party.

27. BETTERMENT

If, due to SWI's error, any required item or component of the PROJECT is omitted from SWI's construction documents, SWI shall not be responsible for paying the cost to add such item or component to the extent that such item or component would have been otherwise necessary to the PROJECT or otherwise adds value or betterment to the PROJECT. In no event shall SWI be responsible for any cost or expense that provides betterment, upgrade or enhancement of the PROJECT.

28. CONSTRUCTION OBSERVATION

28.1 SWII shall visit the site at intervals appropriate to the stage of construction, or as otherwise agreed to in writing by the Client and SWI, in order to observe the progress and quality of the Work completed by the Contractor. Such visits and observation are not intended to be an exhaustive check or a detailed inspection of the Contractor's work but rather are to allow SWI, as an experienced professional, to become generally familiar with the Work in progress and to determine, in general, if the Work is proceeding in accordance with the Contract Documents.

Based on this general observation, SWI shall keep the Client informed about the progress of the Work and shall endeavor to guard the Client against deficiencies in the Work.

If the Client desires more extensive project observation or full-time project representation, the Client shall request that such services be provided by SWI as Additional Services in accordance with the terms of this Agreement.

SWI shall not supervise, direct or have control over the Contractor's work nor have any responsibility for the construction means, methods, techniques, sequences or procedures selected neither by the Contractor nor for the Contractor's safety precautions or programs in connection with the Work. These rights and responsibilities are solely those of the Contractor in accordance with the Contract Documents.

SWI shall not be responsible for any acts or omissions of the Contractor, subcontractor, any entity performing any portions of the Work, or any agents or employees of any of them. SWI does not guarantee the performance of the Contractor and shall not be responsible for the Contractor's failure to perform its Work in accordance with the Contract Documents or any applicable laws, codes, rules or regulations.

28.2 SWI shall not be responsible for as-built certifications requested by the CLIENT, regulatory agencies or other third parties unless SWI has conducted the as-built field surveys and has conducted adequate construction observation services to certify to the accuracy and quality of the construction.

Client's Initials _____

SHEPHARD-WESNITZER, INC. - 2017 HOURLY RATES

STANDARD RATE SCHEDULE

E-5	ENGINEER 5	$175/HOUR
E-4	ENGINEER 4	$160/HOUR
E-3	ENGINEER 3	$140/HOUR
E-2	ENGINEER 2	$125/HOUR
E-1	ENGINEER 1	$110/HOUR
EIT-4	ENGINEER IN TRAINING	$110/HOUR
EIT-3	ENGINEER IN TRAINING	$100/HOUR
EIT-2	ENGINEER IN TRAINING	$95/HOUR
EIT-1	ENGINEER IN TRAINING	$90/HOUR
CADD-4	CADD DESIGNER	$105/HOUR
CADD-3	CADD DESIGNER	$95/HOUR
CADD-2	CADD DESIGNER	$80/HOUR
CADD-1	CADD DESIGNER	$60/HOUR
CAD-4	CAD DRAFTER	$80/HOUR
CAD-3	CAD DRAFTER	$70/HOUR
CAD-2	CAD DRAFTER	$60/HOUR
CAD-1	CAD DRAFTER	$50/HOUR
A-1	CLERICAL	$65/HOUR
RLS	REGISTERED LAND SURVEYOR, PROJECT MANAGER	$135/HOUR
RLSPC	REGISTERED LAND SURVEYOR, PARTY CHIEF	$115/HOUR
LSIT	LAND SURVEYOR IN TRAINING, PARTY CHIEF	$85/HOUR
NRL	NON-REGISTERED LAND SURVEYOR, PARTY CHIEF	$95/HOUR
T-4	CONSTRUCTION INSPECTION TECHNICIAN	$105/HOUR
T-3	PROJECTCOORDINATOR	$90/HOUR
INT -1	INTERN	$50/HOUR
	MARKETING DIRECTOR	$64/HOUR
	GIS COORDINATOR	$95/HOUR
	INSTRUMENT PERSON	$60/HOUR
	GPS RECEIVER	$30/HOUR PER RECEIVER
	ROBOTIC TOTAL STATION	$25/HOUR
	ARCHIVE FILE RESEARCH	$60/HOUR, 1 HOUR MINIMUM

Outside Services.....COST + 10%

PRINTS

BOND	$2.75EACH
VELLUMS	$5.00EACH
MYLAR	$6.00EACH

PLOTS

BOND	$5.00EACH
VELLUM	$10.00EACH
MYLAR	$10.00EACH
COLOR PLOTS/BOND	$15.00EACH
XEROX	$.09EACH
CD'S	$5.00EACH

MILEAGE $0.65 PER MILE

For any and all services related to litigation or other legal proceedings two times our Standard rates

WORK OUTSIDE NORMAL BUSINESS HOURS WILL BE CHARGED AT 1½ TIMES HOURLY RATE. PAYMENT IS DUE UPON RECEIPT OF MONTHLY BILLINGS AND INVOICES ARE DELINQUENT THIRTY (30) DAYS AFTER DATE OF INVOICE. WORK IN PROGRESS WILL BE BILLED MONTHLY FOR PORTIONS COMPLETED AND UPON JOB COMPLETION FOR FINAL BALANCE. IF PAYMENTS ARE NOT MADE IN FULL PRIOR TO DELINQUENCY, THE CLIENT AGREES TO PAY INTEREST ON THE UNPAID AMOUNT AT THE RATE OF 2% PER MONTH FROM DELINQUENCY DATE. ALL PAYMENTS RECEIVED

Client's Initials _____

EXHIBIT A
SHEPHARD-WESNITZER, INC.
ELECTRONIC FILE SPECIFICATIONS

FILE TYPE	FILE FORMAT
Text Document	Microsoft Office Word 2010
Spreadsheet	Microsoft Office Excel 2010
Database	Microsoft Office Access 2010
Project Scheduling	Microsoft Office Project 2003
Meeting Notification	Microsoft Office Outlook 2010
Presentations	Microsoft Office PowerPoint 2010
Drawing Files	AutoCad 2012 or Microstation V8i
Geographic Information Systems	ESRI ArcInfo or AutoCad Map 2012
Storm Drain Analysis	Bentley StormCAD
Water System Analysis	Bentley WaterCAD
Sewer System Analysis	Bentley SewerCAD
Culvert Analysis	Bentley CulvertMaster
Open Channel Analysis	Bentley FlowMaster
Pond Routing Analysis	Bentley PondPack

Client's Initials _____

June 6, 2018

CLIENT INFORMATION:
CLIENT PROJECT NO.
PROJECT MANAGER
OTHER

Mr. Enrique Maciá
CGL COMPANIES
5200 Blue Lagoon Drive, Suite 430
Miami, FL
T: 786.409.7004
E: emacia@cglcompanies.com

RE: Flagstaff Courthouse New Building
101 W. Cherry Ave.
Flagstaff, AZ
CTS Job No.:

CARUSO TURLEY SCOTT
structural engineers

STRUCTURAL ENGINEERING EXPERTS

PARTNERS
Richard Turley, SE
Paul Scott, SE, PE
Sandra Herd, SE, PE, LEED AP
Chris Atkinson, SE, PE, LEED AP
Thomas Morris, SE, PE, LEED AP
Richard Dahlmann, SE, PE
Troy Turley, SE, PE, LEED AP
Brady Notbohm, SE, PE

PROFESSIONAL REGISTRATION

50 States
Washington D.C.
U.S. Virgin Islands
Puerto Rico
Guam

Dear Mr. Maciá:

This will confirm our fee to provide structural engineering and drafting services as required for the design of this new 40,000 SF courthouse with structural scope as follows:

- 40,000 SF, 2 to 3 story, with no basement
- Programming includes courtrooms (jury and non-jury), hearing rooms, judicial chambers, jury assembly, administrative and staff offices, security screening, conference and training rooms, court enforcement unit interview rooms, prison holding and staging areas, supply spaces.
- Anticipated steel or concrete construction
- 6 to 7 month design phase duration through CD's and 9 month construction schedule
- One submittal package including shell and TI
- Design Build delivery with Kinney Construction
- $15 M budget including land
- 3 design meetings in Flagstaff are included, remainder to be held via conference call
- 3 site visits during construction are included
- LEED Silver certification or Green Globes
- Construction Administration includes preparation of electronic as-builts
- Drawings will be prepared in REVIT.
- If basement is added within the 40,000 SF, or as additional square footage, additional fees will be requested
- Reimbursables for mileage and deliveries is included in the fee. No submittal printing is included, as electronic submittals are anticipated.

Doesn't include parking below grade

Our **Basic Services** will be billed at a Fixed Fee as follows:

Phase:	Fee:
Schematic Design (includes one Flagstaff meeting):	$8,400.00
Design Development (includes one Flagstaff meeting):	$20,900.00
Construction Documents (includes one Flagstaff meeting):	$36,000.00
Permitting:	$1,600.00
In House Construction Administration:	~~$13,100.00~~
On-Site Construction Administration (3 visits):	~~$3,600.00~~
Total:	**$83,600.00**
Additional site visits or meetings in Flagstaff:	$1,200 per meeting or visit including reimbursables

CA not included

Basic Services will include structural calculations, preparation of REVIT structural plans and details per the noted scope, and construction administration. Construction administration services include shop drawing review and responding to RFI type clarifications. Redesign and field repair engineering would be considered outside the scope of basic services. If the project entails multiple bid packages, phasing, or nonstandard foundations, the above budget shall be adjusted accordingly.

Reimbursable Expenses for mileage and deliveries are included in this fee.

1215 W. Rio Salado Pkwy.
Suite 200
Tempe, AZ 85281
T: (480) 774-1700
F: (480) 774-1701
www.ctsaz.com

In rendering professional services Caruso Turley Scott (CTS) shall apply the skill and care ordinarily exercised by structural engineers at the time and place the services are rendered. Schedules and timely available information from the architect, owner and other design consultants contribute to the completeness of the structural drawings. As such, all projects should carry a contingency for potential coordination and value added items. It is recommended that final bids not be taken until city review comments and coordination comments have been incorporated. If documents are bid prior to city and coordination comments, the owner assumes the risk for associated additional costs. Client agrees that the liability of CTS, its agents and employees, in connection with services hereunder to the Client and to all persons having contractual relationships with them, resulting from any negligent acts, errors, and/or omissions of CTS, its agents, and/or employees is limited to the total fees actually paid by the Client to CTS for services rendered by CTS hereunder. As a consultant we shall neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, since these are solely the Contractor's rights and responsibilities.

At the commencement of engineering services, a "Preliminary Notification" may be forwarded to the property owner and/or tenant. The "Preliminary Notification" is not a lien, but state law requires the distribution of a "Preliminary Notification" issued at the commencement of engineering services to maintain the option of filing a lien for nonpayment of engineering services at a future date. This "preliminary notification" is customary and routine in the construction industry and informs the recipient of their legal rights and obligations. Payments for Services as described above shall be made upon the presentation of the Engineer's invoice based on time expended. Interest at 1.5% per month, compounded monthly, will be paid on all invoices after 30 days from billing date. In the event any portion of an account remains unpaid 90 days after billing, the Client shall pay cost of collection, including reasonable attorney fees. In the event that any portion of the account remains unpaid 30 days after billing, this office may, without waiving any claim or right, and without liability whatsoever to the Client, suspend or terminate the performance of all services. **If this contract meets with your approval, please sign, date and e-mail (bkelly@ctsaz.com) back to our office for authorization to proceed.**

Respectfully Submitted By:
CARUSO TURLEY SCOTT INC.

Sandra J. Herd, SE, PE, LEED AP
Partner | Project Manager

Accepted By:
CGL COMPANIES

Name: _____
Title: _____
Date: _____

June 6, 2018

Rick Maciá
CGL Companies
5200 Blue Lagoon Drive, Suite 430
Miami, Florida 33126
P: 786.409.7004 C: 305.322.1423

Re: City Court Facility - City of Flagstaff, Arizona
(ESD P18-189R1)

Dear Rick:

Thank you for this opportunity to offer our mechanical, plumbing, and electrical engineering services for a new City Court Building through the design-build delivery method with Kinney Construction Services/CGL Companies. We understand ESD is to work directly for CGL Companies. The project description and scope of services is in accordance with the Project Definition and Scope of Services within the RFQ (RSOQ # 2018-63, Project No. 03-18007) prepared by the City of Flagstaff in March of 2018 and our phone conversation on May 31.

A. PROJECT DEFINITION:

1. Building Description:

   a. The project consists of a new 30,000 to 40,000 square foot City Court Building for the City of Flagstaff and associated site improvements and parking. The building will contain the following elements:
      (1) Courtrooms (jury and non-jury),
      (2) Hearing rooms,
      (3) Judicial chambers,
      (4) Jury assembly and deliberation space,
      (5) Court administration offices,
      (6) Supporting staff offices,
      (7) Security screening,
      (8) Customer service transaction area,
      (9) Lobby,
      (10) Conference room,
      (11) Training room,
      (12) Court enforcement unit with interview rooms,
      (13) Prisoner holding and staging areas,
      (14) Supporting spaces such as
         - Mail/copy room,
         - Janitorial closet,
         - IT/telephone closet,
         - Mechanical room,
         - Public and staff toilets.
      (15) Well-defined office space for the prosecution division of the City Attorney's Office.

2. On-grade parking. Stall amount to be determined.

3. The City of Flagstaff's total capital budget estimate for this project is currently $16 M, of which approximately $15M is available for construction.

4. This project is to be a LEED® Silver Certified minimum. or Green Globes

B. BASIS FOR PROPOSAL

1. The project will use a design-build delivery system. ESD will contract with CGL Companies who will in-turn contract with Kinney Construction Services, Inc. (KCS).
2. Building sanitary and rainwater drain piping, and natural gas and domestic water piping shall extend to a point approximately 5'-0" outside the building. Continuation of that piping, on the site, is not the responsibility of ESD.
3. All existing utilities serving the site are presumed adequate for the new building(s) (e.g. no booster pumps are required, etc.)
4. ESD has no obligation to prepare estimates of probable construction costs.
5. The design and installation of security, data, telephone and audio-visual systems is the responsibility of others. ESD is responsible only for designs related to accommodations for these systems (no wiring) – i.e. empty conduits, outlet boxes, power, based on device locations and related input being furnished to ESD. Low voltage design by CGL
6. There will be no food preparation, so no kitchen hoods are included in the design.
7. The design phase and construction documents completion dates are TBD.
8. The Architect will furnish to ESD surveys of existing utilities at the site.
9. ESD has not included any work related to relocation of existing on-site facilities, nor the demolition of existing installations on the site.
10. The Architect will furnish to ESD all special lighting design input, including related controls and specifications.
11. ESD will provide preliminary coordination with APS for early design parameters and service. KCS has the responsibility for final coordination with the electric power, telephone and natural gas utility companies, and will provide required design input to ESD.
12. The Architect will furnish all necessary electronic drawing (CADD) files as required for ESD to complete its design and preparation of mechanical, electrical and plumbing drawings and specifications. Typically, drawing files required by ESD include but are not limited to floor plans, elevations, reflected ceiling plans, and building sections. All electronic drawing files provided to ESD shall be in a format that is readily usable by ESD without extensive modifications. ESD will furnish information regarding its CADD standards, layering conventions, etc.
13. Design documents for critical locations shall be prepared in REVIT format (Version 200) which shall be issued for coordination on "major" items of equipment and installations. Construction Documents will be prepared in AutoCAD format.
14. There is no requirement to prepare demolition drawings.

C. SYSTEMS DESCRIPTIONS

1. Mechanical
   a. Building Systems
      (1) VRF Split System

- Variable Refrigerant Flow Air-cooled DX heat-pump systems with multiple indoor fan-coil units and remote condensing units, interconnecting refrigerant piping, and complete air distribution; with energy recovery units for outside air introduction.

b. Computer Room Environmental Units if required for data IDF rooms.

c. Heating boiler for outside air system.

d. Exhaust ventilation systems for toilet rooms as required.

e. Mechanical equipment room refrigerant leak detection and ventilation system where required.

f. Metering for Measurement and Verification per LEED® requirements.

g. Controls

- Energy management and control system, with communication between all system components, and with Operator Work Station, standard and project specific software, programming, graphics, and all required controllers, etc. Specific features to be confirmed in discussions with the Owner/system operator.

2. Plumbing

a. Sanitary waste and vent piping system(s).

b. Roof rainwater drainage piping system.

c. Domestic water distribution piping system.

d. Domestic water heating equipment consisting of electric water heaters for restrooms coffee bars and other tenant needs.

e. Metering for Measurement and Verification per LEED® requirements including water, gas and solar hot water.

f. Plumbing fixtures and water coolers.

3. Fire Protection

a. Performance specification for automatic fire sprinkler system(s) throughout the building which will include design criteria requirements for design by contractor, and submittal requirements. ESD drawings will indicate locations for sprinkler riser, standpipes, and other specific system design features.

4. Electrical

a. Service entrance and metering, and electrical power distribution throughout the site originating at the secondary terminals of the transformer(s) which are provided by the utility company.

b. Metering for Measurement and Verification per LEED® requirements including in gear metering, panels, plug loads, lighting loads and mechanical loads.

c. Complete building lighting and power systems for general purpose outlets, and accommodations for equipment.

d. Complete building lighting systems, including emergency lighting and control, with non-building standard lighting design input provided by your office.

e. Site lighting including parking lot walkways/hardscape, on-building and signage.

f. Site security lighting with photometric evaluations for selected fixtures.

g. Power accommodations for IDF room and any Owner-furnished equipment.

h. Power quality (i.e. non-linear loading K-rated transformers, TVSS) features as defined by the City of Flagstaff.

i. Power for fire alarm control panel. All fire alarm design is by others.

j. Empty conduit and provisions (power, junction boxes, panels, etc.) for telephone, security, data, MCTV, paging, and audio-visual systems. System equipment and cabling is the responsibility of other than ESD. by CGL

k. Accommodations only for data and telephone system installations, consisting of conduits into the main telephone room from a point 5'-0" outside of the building, to local distribution rooms, and from distribution rooms into ceiling space (no cabling). Owner will provide site conduit bank definitions for inclusion in ESD site plan.

l. Special grounding as required for the telecommunications systems.

m. SES and main conduit pathway for turnkey design and installation of photovoltaic solar at roof and parking canopies.

D. SCOPE OF SERVICES

1. General
   a. Compliance with current interpretation of applicable codes during the project design phase.
   b. Coordinate with you and other design team members.
2. Programming & Concept Plan Refinements
   a. Participate in development of Preliminary LEED® Score Card.
   b. Participate in Design Builder Estimate Support And VE Participation.
3. Schematic Design
   a. Provide MP&E (System Narratives, Major Equipment Locations on Plan, ID APS Power Needs).
   b. Assist with Dry Utilities - Site Power and Telecom Diverse Feed Concepts.
   c. Provide MP&E Basis of Design Narrative.
   d. Provide VRF and 100% OA Unit Evaluations.
   e. One team meeting is included.

4. Design Development
   a. Develop Specifications
   b. Develop Special Systems design to Schematic Level.
   c. Refine MP&E Basis of Design Narrative.
   d. Participate in LEED® Score Card Update.
   e. Preliminary Energy Model.
   f. One team meeting is included.
5. Construction Documents
   a. Specifications – Push Balance of Specs to 100%, Owner Participates In Edits of Controls sequences.
   b. Finalize Energy Model.
   c. Participate in LEED® Score Card Update.
   d. Prepare MPE sections of Design Phase LEED® Submittal.
   e. Final coordination with other design team members.
   f. Prepare 95% Construction Document package for coordination and Owner's review.
   g. Complete construction documents consisting of drawings and specifications for submission to the Building Department and for bidding, including compliance documentation for energy codes, etc. Documents shall have professional engineers' seals.
6. Construction Phase ← CA not included
   a. Make scheduled periodic visits to the site of the construction to observe the progress of the work, and its compliance with the Contract Documents. The result of all site visits shall be documented in observation reports. We have allowed for 4 man-visits by mechanical/plumbing, 4 man-visits by electrical engineer including a final punchlist walk. This totals to 8 man-visits. These visits will be scheduled as appropriate to the phase of the work and as pre-agreed upon by the Design Builder and Owner with field observation reports.
   b. RFIs, submittals, LEED® documentation support alongside Design Builder's Project Engineer.
   c. No O&M review.
   d. MPE punch list development & management (Bluebeam encouraged).
   e. Review requested submittals and shop drawings, including fire protection system design drawings, for general conformance to the Contract Documents.
   f. In-office activities related to communication with contractors, responding to proposal requests, requests for information, etc.
   g. Incorporate contractor markups ("Record Drawings") of the completed work into Contract Document drawings, and issue record drawings.

      Note: ESD has no responsibility relative to the accuracy or thoroughness of the contractor mark-ups. ESD can perform activities to confirm the accuracy of the record drawing contractor markups for an additional services fee.

E. BASIC SERVICES FEES

1.	Schematic Design Phase	$ 50,000
2.	Design Development Phase	$ 85,000
3.	Construction Document Phase	$ 85,000
4.	Construction Phase	~~$ 30,000~~
	TOTAL	~~**$ 250,000**~~

or Green Globes

F. LEED® SERVICES

1.	Energy Modeling/Analysis	$ 15,000
2.	Templating/Required Submittal Information	$ 5,000
	TOTAL	**$ 20,000**

3. Additional site visits during construction with field reports are to be billed at $1,800 per visit plus $150 trip charge for a total of $1,950 per visit.

4. Expenses
   a. The following expenses are included in the above fees: In-house coordination reproduction, and reproduction to facilitate design coordination with out-of-house members of the design team (i.e. architect, structural and civil engineers).
   b. All other costs are reimbursable at the rates outlined in the Additional Services section below.

G. ADDITIONAL SERVICES

1. ESD will submit a written description of all work with an estimated fee, which is not specifically defined as a part of Scope of Services, including requested revisions to work which has previously been completed. These additional services will be performed only after ESD has received written authorization from you to proceed with this work as defined.
2. The following items are considered as additional services:
   a. Survey of existing conditions (as-measured investigation).
   b. Analysis and/or design of alternate systems, after initial evaluation has been completed, and designs of selected systems have been commenced.
   c. Application and presentation of variances to the Building Department.
   d. Review of prior approvals during the Bidding Phase, to determine if alternate equipment is equal to specified items.
   e. Estimates of probable construction costs.
   f. Work related to demolition or modification of existing installations at the site.
   g. Revisions and/or redesign to work which has already been completed (in the Construction Document phase).
   h. Revisions in scope of work, as previously defined.
   i. "Value Engineering", involving the evaluation of alternative materials and methods of construction.
   j. Studies.
   k. Evaluation and response to design review by another owner's consultant.

l. Additional meetings, beyond which is previously stated.

m. Exterior on-site plumbing and fire protection utility systems (from a point approximately 5'-0" outside the building) including the following:

(1) Storm water drainage and provisions for on-site retention.

(2) Sanitary sewer.

(3) Domestic water.

(4) Landscape irrigation.

(5) Fire protection water and fire hydrants.

(6) Natural gas.

n. On-site storm water retention pumping system, and related electrical power (even if within the building).

o. Any other systems, features and services not specifically defined in the preceding "Systems Descriptions" and "Scope of Services" sections.

p. Additional site visits and involvement during the construction phase, due to extension of duration of construction, beyond which is previously stated.

q. Redesign to reduce construction costs, unless otherwise agreed to in writing.

r. Instruction of owner and operating personnel after or during the construction phase.

s. Preparation of operating and maintenance manuals.

t. Preparation of record drawings with associated CAD costs.

CA services will be part of GMP

u. Systems commissioning – performance verification.

v. "Fast Track" multiple construction document package approach.

w. Street Lighting.

x. If extensive modifications by ESD are required to reconfigure required electronic drawing files into a format that is usable by ESD, such work will be considered additional services and billed on an hourly basis. *(Note: extensive drawing file modifications may result in delay of project schedule.)*

3. Where the fee arrangement is based upon an hourly basis, or extra work is required due to a change in project scope, the hourly rates shall be those that prevail at the time services are rendered. Current calendar year rates for this agreement are as follows:

HOURLY RATES

Sr. Principal Engineer	$ 260.00/hour
Principal Engineer	$ 200.00/hour
Sr. Project Engineer	$ 180.00/hour
Project Engineer	$ 160.00/hour
Designer III	$ 140.00/hour
Designer II	$ 105.00/hour
Designer I	$ 90.00/hour
Testing/Balancing Technician	$ 85.00/hour
Administrative	$ 85.00/hour

Printing, deliveries, subcontractor fees, and other reimbursable expense will be billed at cost plus 15%

Plotting Charges	$ 1.00 per sf
Mileage	$ .50 per mile
Edited CAD Disks	$25.00 per sheet

H. CONDITIONS OF AGREEMENT

Note: *A purchase order (only) is not acceptable. The Owner/Client must sign an agreement for professional services with ESD, with specifically defined scope of services, and terms of payment, etc.*

1. General
   a. ESD does not, either by entering into this Agreement or otherwise, make any warranty, either express or implied, as to any findings, recommendations, evaluations, assessments, observations, plans, specifications, pre-qualification efforts, performance verifications, or advice of ESD or to inspections, if any, performed by ESD. As to ESD, there are no warranties, express or implied, including, but not limited to, any warranties of merchantability or fitness for a particular purpose or system integration, except as may be separately agreed by ESD in writing, for any services provided pursuant to this Agreement. The Owner/Client shall be solely responsible for the use, efficiency, and suitability of such services, as ESD shall have no liability therefore. Owner/Client further acknowledges that Owner/Client has worked collaboratively with ESD concerning ESD's provision of services pursuant to this agreement and has been active in all decisions concerning such services.
   b. For projects involving multiple design phases, it is mandatory that the Owner/Client provide a formal written approval of each phase and the authorization to proceed to the next phase, before ESD will proceed. This written approval signifies that the represented design approaches are appropriate, and that the related construction costs are within their budget.
   c. The Owner/Client shall provide a construction budget, and an explanation of the construction cost control process shall be provided to ESD at the beginning of the project's design phase so as to avoid any necessity for redesign.
   d. It is mandatory that all Owner/Client and design team members be responsible for their respective obligation relative to furnishing required input to ESD in a timely manner, so as to enable ESD to comply with project milestone completion dates. A project activity schedule with milestone dates shall be developed with input and agreement from ESD and all other team members at the beginning of the design phase(s) to establish responsibilities of all participants.
   e. ESD will endeavor to meet the defined design phase milestone dates, however because factors beyond ESD's control may affect ESD's work process, ESD makes no warranty hat the design phase services will be completed on the defined milestone dates nor that the construction work will commence as originally scheduled.
   f. You will furnish a copy of any "prime" agreements/contracts (i.e. Owner/ Architect, Owner/Contractor).
   g. ESD's services will represent the care and skill ordinarily used by members of ESD's profession, when practicing under similar conditions, at that time, and in the same geographic locality, which is stated as the "Standard of Care".

h. ESD's responsibilities are only as specifically hereinbefore defined and stated, and are not undefined "expectations" of the Owner and/or Architect.

i. When the plans and specifications of this project are delivered to the Owner upon completion of work, the Owner agrees to hold harmless, indemnify and defend the design professional against all damages, claims and losses, including defense costs arising out of the reuse of the plans and specifications, without the written authorization of ESD. ESD agrees to be responsible for our own or our employee's negligent acts, errors or omissions.

j. ESD agrees that its use of electronic drawings files, furnished by the Architect, shall be limited to design and preparation of mechanical, electrical, and plumbing drawings for this project and that the files will not be used for any other purposes.

k. All drawings, specifications, and other work produced for this project are instruments of services for this project only, and shall remain the property of Energy Systems Design, Inc.

l. ESD shall be furnished with one complete set of documents for each project phase, within 5 days after they have been submitted to you.

m. Sealed original reproducible drawings are the contract documents, and instruments of services for this project.

n. ESD's Electronic files shall not be edited by other than ESD. You agree to indemnify and hold harmless ESD for any subsequent use and/or modification of electronic files, for other than the original intent, as indicated on the sealed original reproducible drawings.

o. Other General Terms:

Attorneys' Fees. In the event suit is brought (or arbitration instituted) or an attorney is retained by any party to this Agreement to enforce the terms of this Agreement or to collect any money due hereunder, or to collect money damages for breach hereof, the prevailing party shall be entitled to recover, in addition to any other remedy, reimbursement for reasonable attorneys' fees, court costs, costs of investigation and other related expenses incurred in connection therewith.

Notices. Any notice to any party under this Agreement shall be in writing and shall be effective on the earlier of (i) the date when received by such party, or (ii) the date which is three (3) days after mailing (postage prepaid) by certified or registered mail, return receipt requested, to the address of such party set forth herein, or to such other address as shall have previously been specified in writing by such party to all parties hereto.

Governing Law. This Agreement shall be deemed to be made under and shall be construed in accordance with and shall be governed by the laws of the State of Arizona and (subject to any provision in this Agreement providing for mandatory arbitration) to enforce any provision of this Agreement or to obtain any remedy with respect hereto may be brought in Superior Court, Maricopa County, Arizona, and for this purpose each party hereby expressly and irrevocably consents to the jurisdiction of said court.

Construction of Agreement. The language in all parts of this Agreement shall in all cases be construed as a whole according to its fair meaning and not strictly for nor against any party. The neuter gender includes the masculine and feminine. It is mutually agreed that in the event any term, covenant or condition herein contained is held to be invalid or void by any court of competent jurisdiction, the invalidity of any

such term, covenant or condition shall in no way affect any other term, covenant or condition herein contained.

Captions. Captions and paragraph headings used herein are for convenience only and are not a part of this Agreement and shall not be deemed to limit or alter any provisions hereof and shall not be deemed relevant in construing this Agreement.

Severability. If any provision of this Agreement is declared void or unenforceable, such provision shall be deemed severed from this Agreement; and the remaining portions of the Agreement shall remain in full force and effect.

Additional Acts and Documents. Each party hereto agrees to do all such things and take all such actions and to make, execute and deliver such other documents and instruments as shall be reasonably requested to carry out the provisions, intent and purpose of this Agreement.

Authority. Each of the parties hereto represents and warrants to each other party hereto that this Agreement has been duly authorized by all necessary action and that this Agreement constitutes and will constitute a binding obligation of each such party.

Integration Clause; Oral Modification. This Agreement represents the entire agreement of the parties with respect to the subject matter hereof, and all agreements entered into prior hereto are revoked and superseded by this Agreement, and no representations, warranties, inducements or oral agreements have been made by any of the parties except as expressly set forth herein, or in other contemporaneous written agreements. This Agreement may not be changed, modified or rescinded except in writing signed by all parties hereto, and any attempt at oral modifications of this Agreement shall be void and of no effect.

Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors in interest and assigns, but in no event shall any party be relieved of its obligations hereunder without the express written consent of each other party.

I. INSURANCE AND RISK ALLOCATION

1. General Risk Insurance: ESD agrees to maintain insurance as will protect CGL Companies from claims under the Worker's Compensation Laws and from General Liability claims for bodily injury, or death, or property damage which may arise from the negligent performance by its employees in the functions and services required under this Agreement.
2. Standard of Care: ESD will provide in connection with the services contemplated herein the standards of care, skill and diligence normally provided by a professional engineer in the performance of the same or similar services. In the event ESD fails to provide such standards of care, skill and diligence, ESD will correct any such deficient services. In no event shall ESD have any liability for other damages including those as outlined below. ESD shall not be responsible for the methods, acts or omissions of CGL Companies personnel, nor for construction means, methods or safety precautions in connection with the work.
3. Professional Liability Insurance: ESD agrees to maintain Professional Liability Insurance to protect CGL Companies from ESD's negligent acts, errors or omissions of a professional nature.
4. The Client and ESD mutually agree, to the fullest extent permitted by law, to indemnify and hold each other (and each other's employees, agents, consultants, and anyone whose acts may be attributable to them) harmless against any and all damages, liabilities, injuries, claims, or costs, including reasonable attorneys' fees and defense costs, arising from their

own negligent acts in the performance of their services under this Agreement, but only to the extent that each party is found responsible for such damages, liabilities and costs on a comparative basis of fault by a court or arbitrator of competent jurisdiction.

5. In recognition of the relative risks, rewards and benefits of the project to both the Client and ESD, the risks have been allocated such that the Client agrees that, to the fullest extent permitted by law, ESD's total liability to the Client for any and all injuries, claims, losses, expenses, damages or claim expenses, including any attorneys' fees, costs, expert witness fees and costs, and other costs of defense arising out of this Agreement from any cause or causes, shall not exceed ESD's fee or $1,000,000, whichever is greater. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law.

I. PAYMENT TERMS AND CONDITIONS

1. Invoices will be submitted to you monthly so that you may readily relate our charges to the work performed. If you have any questions regarding an invoice or services rendered, please contact our office. If you do not comment within 10 days of invoice date, we will assume that you have received the invoice and found it acceptable.
2. Accounts past due will incur a finance charge of 1.5% per month (18% APR). All payments received will be applied first to interest with the balance applied to the outstanding invoice amount. Any costs incurred for collection including reasonable attorneys' fees, shall be borne by you.
3. Payment shall be received by ESD within 30 days after the invoice date.

J. TERMINATION OF AGREEMENT

1. If the project is abandoned by the Architect because of the Owner's abandonment of the project for more than 90 consecutive days, ESD may terminate this Agreement by giving written notice.
2. This Agreement may be terminated by either party upon not less than seven (7) days written notice, should the other part fail substantially to perform in accordance with the terms of this Agreement.

Please sign below, indicating your agreement to the statements and conditions of this proposal, and return a copy to ESD.

Sincerely,

Energy Systems Design, Inc.

Mo Ardebili, PE, LEED® AP

CEO | Founder

ACCEPTED:

For:_____

By:_____

Title:_____

Date:_____

EXHIBIT C – PERFORMANCE STANDARDS REQUIREMENTS

Not Applicable to this contract.

EXHIBIT D – MONTHLY ANTICIPATED ADVERSE WEATHER DAYS

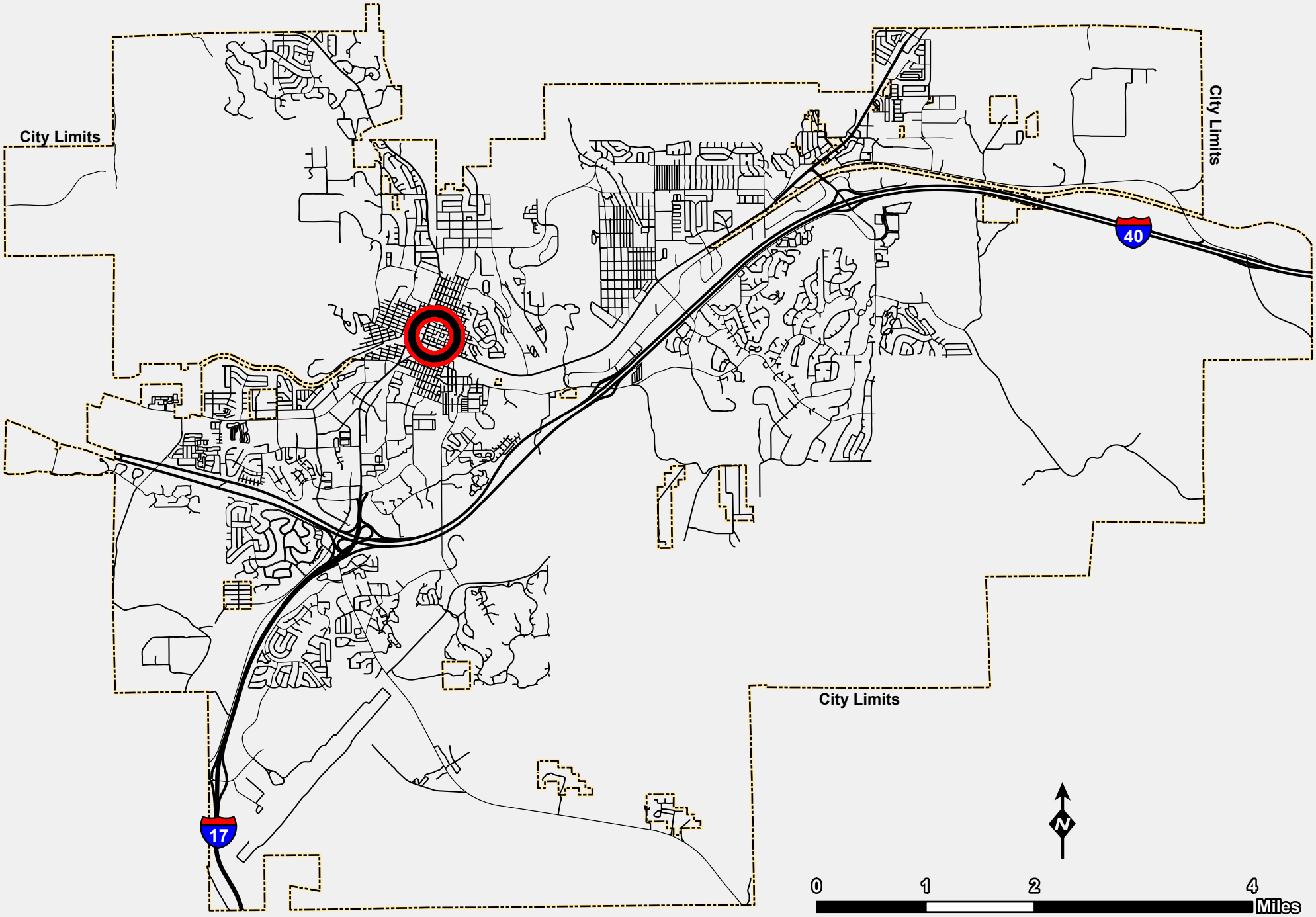
The Contractor will be entitled to a Contract Time extension if the actual adverse weather Days experienced during the Work exceed the anticipated adverse weather Days shown in Table 108.7. Table 108.7 as follows is the monthly schedule of adverse weather Days that shall be anticipated by the Contractor in scheduling the Work:

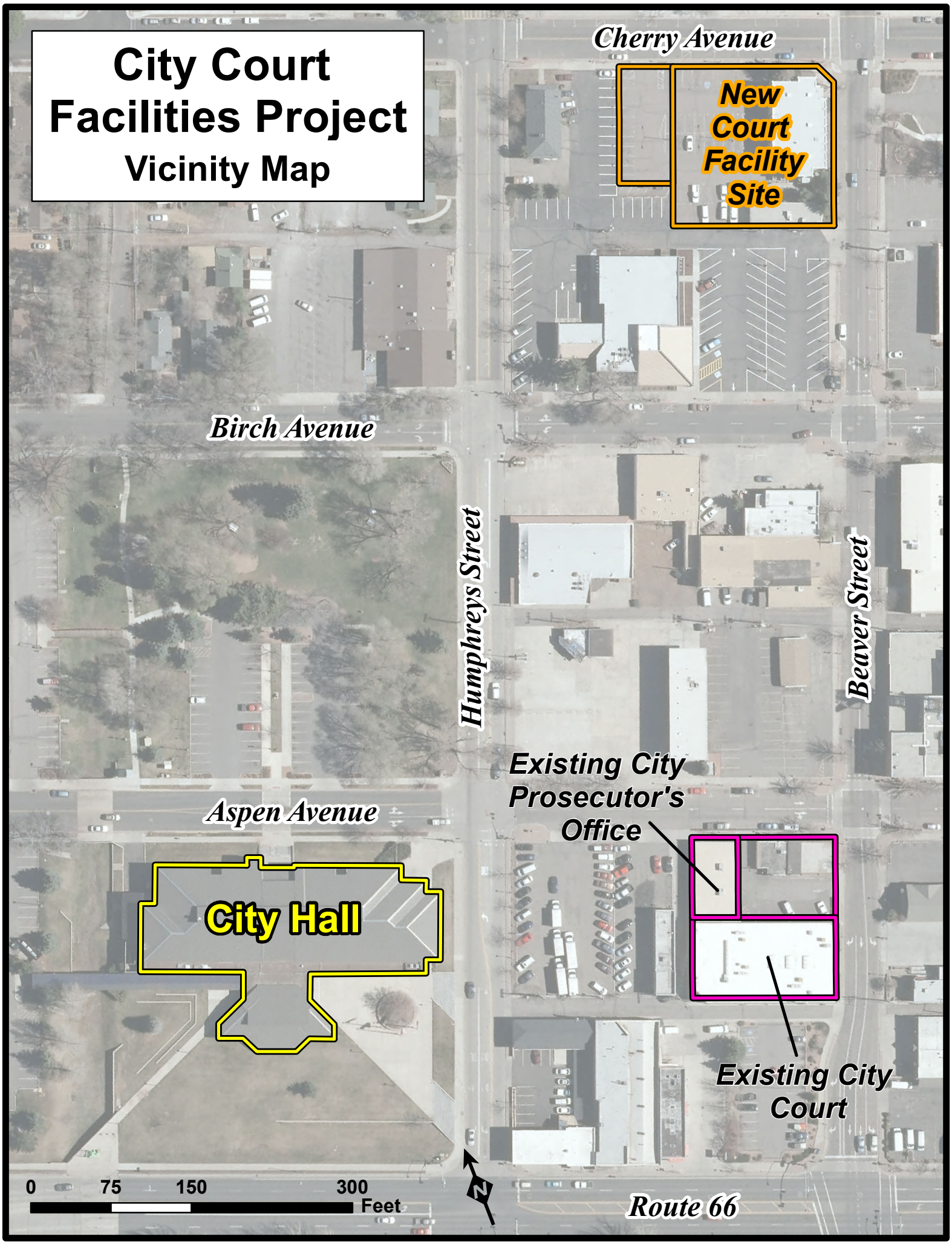
TABLE 108.7 – MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS	**7 days**	**7 days**	**8 days**	**6 days**	**4 days**	**3 days**
AVERAGE MONTHLY PRECIPITATION	1.98"	1.96"	2.05"	1.84"	0.68"	0.51"
MONTHLY DAILY HIGH TEMPERATURE ≤32° F	5 days	3 days	2 days	0 days	0 days	0 days
MONTH	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS	**12 day**	**11 days**	**7 days**	**5 days**	**5 days**	**6 days**
AVERAGE MONTHLY PRECIPITATION	2.78"	2.68"	1.82"	1.52"	1.49"	1.90"
MONTHLY DAILY HIGH TEMPERATURE ≤ 32° F	0 days	0 days	0 days	0 days	1 day	5 days

The above schedule of anticipated adverse weather days establishes the base line for the project's monthly weather impacts, based on historical records, as recorded by the National Weather Service at Pulliam Airport, for precipitation in excess of 0.01 inch and daily high temperatures below 32° Fahrenheit.

City Court Facilities Project




City Court Facilities Project
Vicinity Map
Cherry Avenue
New Court Facility Site
Birch Avenue
Humphreys Street
Beaver Street
Existing City Prosecutor's Office
Aspen Avenue
City Hall
Existing City Court
0
75
150
300
Feet
N
Route 66

Flagstaff City Council

City Court Facility Project

Design-Build Amendment GMP #1

March 5, 2019

TEAM FLAGSTAFF

WE MAKE THE CITY BETTER

Overview-Tonight's Discussion Points

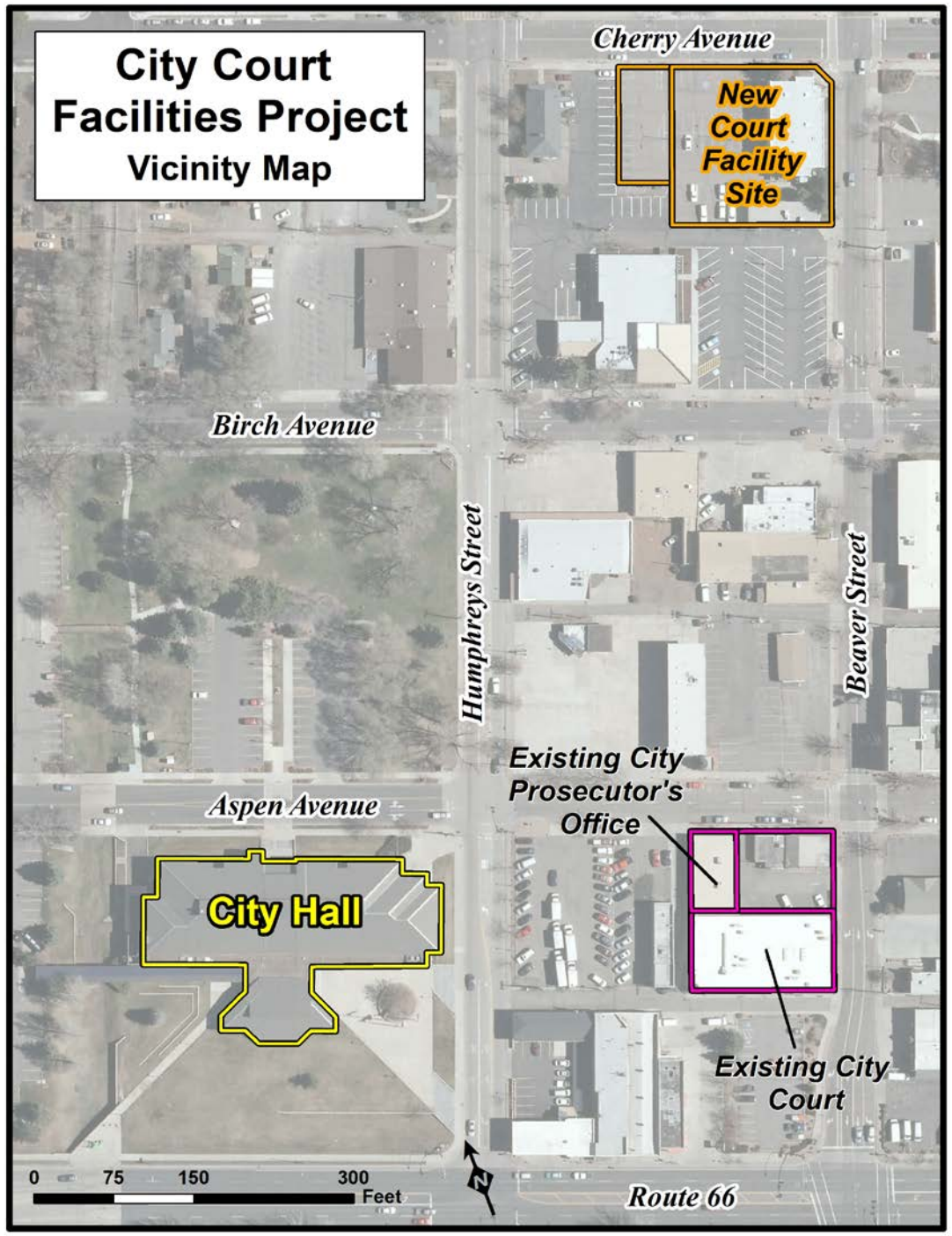
AGENDA

- General Project Information
- Public Meeting Summary
- Design-Build Contract Amendment, Guaranteed Maximum Price (GMP) #1

Project Location

101 West Cherry Avenue

TEAM FLAGSTAFF
WE MAKE THE CITY BETTER



Project Elevation Drawing

N-E Perspective (Looking south towards SW corner Beaver/Cherry)



Project Information

- Facility is approximately 40,000 SF and three stories tall
- Houses the City Municipal Courts and the City Prosecutor's office
- Courts facilities include 4 court rooms, 1 hearing room, 1 jury assembly room, and customer processing center for the City Courts
- Total Project Budget – $19.5M
- Schedule – GMP #2 award May 2019, construction completion July 2020.

Current Plan Review Status

- Facility Programming Complete
- Concept Site Plan Approved
- Final Site Plan Approved
- Design Documents 80% Complete

Public Meeting Summary

- The Project Team conducted a Public Meeting on February 20, 2019
- Approximately 15 citizens attended
- General feedback and comment summary:
  - Looks great and long overdue
  - Very nice design with stone work that appears from the area
  - Parking is a concern

Amendment #1, GMP #1

- GMP #1 includes work for hazardous materials abatement, demolition, and site work for the existing City buildings at 101 E. Cherry and 15 N. Beaver Street.

- Demolition at the new Courts site (101 E. Cherry) will occur in April 2019 to facilitate building construction. When staff is moved into the new building, the existing Courts site will be demolished in spring of 2020 to provide temporary surface parking.

- The GMPs will be phased to expedite clearing the site for the new facility while final approvals of the construction documents are being approved by the City. The presentation of GMP #2 for construction completion is anticipated for May 2019.

Amendment #1, GMP #1, cont.

General GMP information –

- Contractor is responsible for designing and building within City's budget
- Costs are open book between agencies
- Owner's Contingency is included for additional requested work and Contractor's Contingency is included for unforeseen issues
- Contingencies must fit within total budget

Questions

11. B.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Justin Emerick, Project Manager, Water Services

Co-Submitter: Ryan Roberts

Date: 02/27/2019

Meeting Date: 03/05/2019

TITLE:

Consideration and Approval of Contract: Approve the construction contract with PCL Construction, Inc. in the amount of $1,067,535.00 for the Wildcat Hill Water Reclamation Plant Digester Gas Conveyance System Improvements Project.

STAFF RECOMMENDED ACTION:

1. Approval of contract with PCL Construction, Inc.("Contractor") in the amount of $1,067,535.00, which includes a contract allowance of $50,835.00 and a contract time of 365 calendar days.
2. Authorize the City Manager to execute the necessary documents.

Executive Summary:

This is the first phase of a two-phase project. This initial phase is to replace the existing digester gas compressor and piping system. The second phase of this project will be to replace the Co-Generation engine in FY 2021. This project will provide piping materials and construction services to replace components and install new components that will result in significant upgrades to the digester gas piping conveyance system, including components that will treat the methane gas to remove numerous contaminants from the matrix resulting in a much cleaner gas for efficient combustion in the electrical co-generation engine for the generation of electrical power for use within the wastewater plant.

This project is in support of the City Council Climate and Adaptation Plan by reducing greenhouse gas emissions, reducing energy purchased from Arizona Public Service (APS), and expand renewable energy generation energy.

Financial Impact:

This system is capable of generating approximately 290 kilowatts of electrical energy for sustained periods of time (not factoring downtime for regular maintenance and repairs). At 11 cents per kilowatt hour, this system could potentially generate $765.00 per day of electricity that would have otherwise been purchased from APS the electrical utility provider. Based on the system being operational 100% of the time, these improvements could generate approximately $279,000 electrical savings per year.

The City will not realize any energy savings until both phases of this project are completed in FY2021.

Water Services has this project budgeted in the capital improvement plan for FY 2019, $920,000, and FY

2020, $150,000, under account number 203-08-375-3366-0-4466.

Policy Impact:

This project is in support of the City Council Climate and Adaptation Plan by reducing greenhouse gas emissions, reducing energy purchased from Arizona Public Service (APS), and expand renewable energy generation energy.

Connection to Council Goal, Regional Plan and/or Team Flagstaff Strategic Plan:

Council Goals:
Goal E&C.2. - Reduce Greenhouse Gas Emissions
- This project will reduce greenhouse gas emissions by taking advantage of generating electricity for use within the plant which will reduce the amount of electricity purchased from APS

Goal E.2. – Expand production and use of renewable energy
- This project will take advantage of a by-product of the wastewater treatment process (methane gas) by combusting it in an electrical generator engine. This gas would otherwise be flared off for safe disposal.

Goal E.1. – Increase energy efficiency
- This project capitalizes on a by-product of the wastewater treatment process and takes advantage of the BTU value found in combustible gases by generating electricity.

Has There Been Previous Council Decision on This:

No.

Options and Alternatives:

1. Approve contract with PCL to perform this work which will result in necessary repairs and upgrades to the Digester Gas Conveyance System. After the Co-Generation engine is replaced in FY2021 the plant will be able to utilize digester gas for on-site electrical demand.

2. Reject all bids and continue to flare digester gas. By accepting this option, the City may not be in compliance with City's goal of reducing Greenhouse Gas Emissions, will not lower future electrical energy costs .

Background/History:

The existing digester gas recovery and delivery system suffers from numerous problems that have limited the ability to generate electricity from this by-product of the wastewater treatment process. This project will address and remedy all of the problems with this system resulting in a clean methane gas under adequate pressure for the generation of approximately 290 kilowatts of electrical generation for use within the plant. The major components of this project include:

- A new Biogas dehumidification system to clean, dry the Biogas and filter out Siloxane, H2S gas
- Install a new 5 psig gas compressor to deliver the gas under pressure to its point of combustion and electrical generation approximately 300 meters away from the source
- A hydrogen sulfide removal vessel with replaceable media
- A water vapor removal system capable of removing the water vapor suspended in the gas matrix significantly increasing the BTU value of the gas
- A siloxane removal system for the removal of compounds capable of destroying the internal components of the internal combustion engine

- Gas flow meters to accurately measure the volume of gas treated and delivered to the engine

The Purchasing section posted the Invitation for Bids (IFB) solicitation for construction on November 2, 2018, on the Purchasing electronic bidding website, and advertised it in the AZ Daily Sun on November 4 and 11, 2018. There were five bids received on the opening date of December 3, 2018, and staff determined that PCL Construction, Inc. is the lowest responsive responsible bidder

Bids Received

PCL Construction, Inc.	$1,067,535.00
Summa Mechanical	$1,307,831.70
Hunter Contracting	$1,582,035.00
Kinney Construction	$1,586,091.15
Kear Civil Corp.	$1,673,805.00

Key Considerations:

This project will repair and upgrade only the gas conveyance and delivery system. The co-generation engine also requires repair or replacement which is not part of this project and will be addressed at a future time.

To realize the energy savings both phases of this project must be completed. Phase II is expected to be complete in FY21.

Expanded Financial Considerations:

This system is capable of generating approximately 290 kilowatts of electrical energy for sustained periods of time (not factoring downtime for regular maintenance and repairs). At 11 cents per kilowatt hour, this system could potentially generate $765.00 per day of electricity that would have otherwise been purchased from the utility provider (APS).

Community Benefits and Considerations:

The energy savings developed by this system have a direct impact on lowering the cost of the wastewater treatment process and reducing the plant's electrical usage which benefits the wastewater customers and the Community.

Community Involvement:

N/A

Attachments: Construction Contract
Contract Exhibit A
Contract Exhibit B
Presentation

CONSTRUCTION CONTRACT #2019-24

City of Flagstaff, Arizona
and
PCL Construction, Inc.

This Construction Contract ("Contract") is made and entered into this _____ day of _____ 2019, by and between the City of Flagstaff, an Arizona municipal corporation with offices at 211 West Aspen Avenue, Flagstaff, Arizona ("Owner") and PCL Construction, Inc., and Arizona corporation ("Contractor") with offices at 1711 W. Greetree Drive #201, Tempe, Arizona. Contractor and the Owner may be referred to each individually as a "Party" and collectively as the "Parties."

RECITALS

A. Owner desires to obtain construction services; and

B. Contractor has available and offers to provide personnel and materials necessary to accomplish the work and complete the Project as described in the Scope of Work within the required time in accordance with the calendar days included in this Contract.

NOW, THEREFORE, the Owner and Contractor agree as follows:

1. Scope of Work. The Contractor shall furnish any and all labor, materials, equipment, transportation, utilities, services and facilities for the **Wildcat Hill Wastewater Treatment Plant Digester Gas System Improvement Project** (the "Project"). The Project scope is specific to the attached Special Provisions (Exhibit B). Contractor shall construct the Project for the Owner in a good, workmanlike and substantial manner and to the satisfaction of the Owner through its engineers and under the direction and supervision of the City Engineer, or his properly authorized agents including but not limited to project managers and project engineers. Contractor's work shall be strictly pursuant to and in conformity with the Contract.

1.1 A Pre-Construction Conference will be held with the successful Contractor after the Notice of Award is issued. The date and time of the Conference will be agreed upon between the Contractor and the Engineer. The meeting will be held at City Hall, 211 West Aspen Avenue, Flagstaff, AZ 86001. The purpose of the meeting is to outline specific construction items and procedures that the Owner feels require special attention on the part of the Contractor. The Contractor may also present any variations in procedures to improve the workability of the Project, reduce the cost, or reduce inconvenience to the public. The Contractor shall submit a written proposal at this conference outlining intended plans for pavement replacement, maintaining continuous access to residences and businesses along the construction site, and traffic control.

2. Contract; Ownership of Work. Contractor shall furnish and deliver all of the materials and perform all of the work in accordance with this Contract; Construction Plans; Special Provisions; the City of Flagstaff Engineering Design and Construction Standards and Specifications;

the latest version of the Maricopa Association of Governments ("MAG") Specifications for Public Works Construction and City revisions to the MAG Specifications for Public Works Construction ("Exhibit A"); and any Arizona Department of Transportation (A.D.O.T.) Standards that may be referenced on the Plans or in the specifications, incorporated in this Contract by reference, plans and associated documents. All provisions of the Invitation for Construction Bids, Performance Bond, Payment Bond, Certificates of Insurance, Addenda, Change Orders and Field Orders, if any, are hereby incorporated into this Contract. All materials, work, specifications and plans shall be the property of the Owner.

The following exhibits are incorporated by reference and are expressly made a part of this Contract:

2.1.1 Revisions of MAG Standard Specifications for Public Works Construction ("Flagstaff Addendum to MAG")	Exhibit A
2.1.2 Special Provisions	Exhibit B

3. Payments. In consideration of the faithful performance of the work described in this Contract, the Owner shall pay an amount not to exceed **$1,067,535.00** to the Contractor for work and materials provided in accordance with the bid schedule, which amount includes all federal, state, and local taxes, as applicable. This amount shall be payable through monthly progress payments, subject to the following conditions:

3.1 Contractor shall promptly submit to the Owner all proper invoices necessary for the determination of the prices of labor and materials;

3.2 Progress payments shall be made in the amount of ninety percent (90%) of the value of labor and materials incorporated in the work, based on the sum of the Contract prices of labor and material, and of materials stored at the worksite, on the basis of substantiating paid invoices, as estimated by the Owner, less the aggregate of all previous payments, until the work performed under this Contract is fifty percent (50%) complete. When and after such work is fifty (50%) complete, the ten percent (10%) of value previously retained may be reduced to five percent (5%) of value completed if Contractor is making satisfactory progress as determined by the Owner, and providing that there is no specific cause or claim requiring a greater amount to be retained. If at any time the Owner determines that satisfactory progress is not being made, the ten percent (10%) retention shall be reinstated for all subsequent progress payments made under this Contract;

3.3 The City Engineer shall have the right to finally determine the amount due to Contractor;

3.4 Monthly progress payments shall be made by the Owner, on or before fourteen (14) calendar days after the receipt by the Owner of an approved estimate of the work completed;

3.5 Contractor agrees that title to materials incorporated in the work, and stored at the site, shall vest with the Owner upon receipt of the corresponding progress payment;

3.6 The remainder of the Contract price, after deducting all such monthly payments and any retention, shall be paid within sixty (60) days after final acceptance of completed work by the Owner. The release of retention or alternate surety shall be made following the Owner's receipt and acceptance of: Contractor's Affidavit Regarding Settlement of Claims, Affidavit of Payment, Consent of Surety for Final Payment, and Unconditional Full and Final lien waivers from all subcontractors and suppliers who have filed an Arizona Preliminary 20 Day Lien Notice in accordance with A.R.S. §§ 33-992.01 and 33-992.02.

4. Time of Completion. Contractor agrees to complete all work as described in this Contract within **three hundred sixty-five (365) calendar days** from the date of the Owner's Notice to Proceed free of all liens, claims and demands of any kind for materials, equipment, supplies, services, labor, taxes and damages to property or persons, in the manner and under the conditions specified within the time or times specified in this Contract.

5. Performance of Work. All work covered by this Contract shall be done in accordance with the latest and best accepted practices of the trades involved. The Contractor shall use only skilled craftsmen experienced in their respective trades to prepare the materials and to perform the work.

6. Acceptance of Work; Non Waiver. No failure of the Owner during the progress of the work to discover or reject materials or work not in accordance with this Contract shall be deemed an acceptance of, or a waiver of, defects in work or materials. No payment shall be construed to be an acceptance of work or materials which are not strictly in accordance with the Contract.

7. Delay of Work. Any delay in the performance of this Contract due to strikes, lockouts, fires, or other unavoidable casualties beyond the control of the Contractor and not caused by any wrongful act or negligence of the Contractor shall entitle the Contractor to an extension of time equal to the delay so caused. The Contractor shall notify the Owner in writing specifying such cause within twenty-four (24) hours after its occurrence. In the event such delay is caused by strikes, lockouts, or inability to obtain workmen for any other cause, the Owner shall have the right but shall not be obligated to complete the work on the same basis as is provided for in Section 13 below (Contract Violations).

8. Failure to Complete Project in Timely Manner. If Contractor fails or refuses to execute this Contract within the time specified in Section 4 above, or such additional time as may be allowed, the proceeds of Contractor's performance guaranty shall become subject to deposit into the Treasury of the municipality as monies available to compensate the Owner for damages as provided by A.R.S. § 34-201 for the delay in the performance of work under this Contract, and the necessity of accepting a higher or less desirable bid from such failure or refusal to perform this Contract as required. If Contractor has submitted a certified check or cashier's check as a performance guaranty, the check shall be returned after the completion of this Contract.

9. Labor Demonstration. It is understood that the work covered by this Contract is for the Owner's business purposes and that any unfavorable publicity or demonstrations in connection with the work will have a negative effect upon the Owner. If Contractor's actions in performance of the Contract result in any public demonstration on behalf of the laborers or organized labor in the vicinity of the Owner's premises, whether such demonstration is in the form of picketing, posting of

placards or signs, violence, threats of violence or in any other form, which in the Owner's judgment, might convey to the public the impression that the Owner or the Contractor or any subcontractor is unfair to laborers or to organized labor, the Owner shall have the right to terminate this Contract immediately, unless the Contractor shall have caused such demonstration to be discontinued within two (2) days after request of the Owner to do so. In the event any such demonstration is attended by violence, the Owner may fix lesser time within which a discontinuance shall be accomplished. In the event of Contract termination, the Contractor agrees to remove from the Premises within twenty-four (24) hours of termination, all machinery, tools, and equipment belonging to it or to its subcontractors. All obligations or liabilities of the Owner to the Contractor shall be discharged by such termination, except the obligation to pay to the Contractor a portion of the Contract price representing the value based upon the Contract prices of labor and materials incorporated in the work as established by the Owner, less the aggregate of all previous payments, but subject to all of the conditions pertaining to payments generally.

10. Material Storage. During the progress of the work, the Contractor shall arrange for office facilities and for the orderly storage of materials and equipment. Contractor shall erect any temporary structures required for the work at his or her own expense. The Contractor shall at all times keep the premises reasonably free from debris and in a condition which will not increase fire hazards. Upon completion of the work, the Contractor shall remove all temporary buildings and facilities and all equipment, surplus materials and supplies belonging to the Contractor. Contractor shall leave the Premises in good order, clean, and ready to use by the Owner. The establishment of any temporary construction yard, material storage area or staging area to be located within City of Flagstaff limits and outside the public right-of-way or Project limits generally requires a Temporary Use Permit. (See Exhibit A, Section 107.2.1.)

11. Maintenance During Winter Suspension of Work. A "Winter Shutdown" is the period of time typically including December through March during which no Work will be performed by any person or entity (including but not limited to the Contractor) on the Project and Contractor shall shutdown, properly insulate and shelter the Project in a safe and workmanlike manner pursuant to local, state and federal laws. Although December through March is typically the time frame, the City reserves the right to initiate and terminate a Winter Shutdown at the City's sole discretion in the event of adverse weather conditions. A Winter Shutdown may be declared by the City despite delays, *for any reason,* on the Project. City retains the right to declare a Winter Shutdown. If work has been suspended due to winter weather, the Contractor shall be responsible for maintenance and protection of the improvements and of partially completed portions of the work until final acceptance of the project. Winter Shutdown shall be by field order, change order or original contract. If repairs and/or maintenance are needed during the Winter Shutdown, the Contractor is required to perform the repairs and/or maintenance within twenty-four (24) hours of notification from the City. If the needed repairs and/or maintenance are not addressed within the timeframe, the City will accomplish the work and deduct the cost from monies due or become due to the Contractor.

The City shall provide snow removal operations on active traffic lanes only during the Winter Shutdown. All other snow removal and maintenance operations shall be the responsibility of the Contractor during the Winter Shutdown. All cost associated with snow removal and proper disposal

shall be considered incidental to the work including repair of temporary surface improvements due to normal wear and snow removal operations during the Winter Shutdown.

12. Assignment. Contractor shall not assign this Contract, in whole or in part, without the prior written consent of the Owner. No right or interest in this Agreement shall be assigned, in whole or in part, by Contractor without prior written permission of the City and no delegation of any duty of Contractor shall be made without prior written permission of the Owner. The Owner shall not unreasonably withhold consent to such assignment. Contractor agrees that any assignment agreement between Contractor and the Assignee shall include and subject to the assignee to all obligations, terms and conditions of this Contract and that Contractor shall also remain liable under all obligations, terms and conditions of this Contract.

13. Notices. Many notices or demands required to be given, pursuant to the terms of this Contract, may be given to the other Party in writing, delivered in person, sent by facsimile transmission, emailed, deposited in the United States mail, postage prepaid, or deposited with any commercial air courier or express service at the addresses set forth below, or to such other address as the Parties may substitute by written notice, given in the manner prescribed in this paragraph. However, notices of termination, notices of default and any notice regarding warranties shall be sent via registered or certified mail, return receipt requested at the address set forth below ***and*** to legal counsel for the party to whom the notice is being given.

If to Owner:	**If to Contractor:**
Patrick Brown, C.P.M. CPPB	Richard Hewitt
Purchasing Manager	Operations Manager
211 West Aspen Avenue	1711 W. Greentree Drive, Suite #201
Flagstaff, AZ 86001	Tempe, AZ 85284

14. Contract Violations. In the event of any of the provisions of this Contract are violated by the Contractor or by any of Contractor's subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate such Contract (the "Notice to Terminate"). The Contract shall terminate within five (5) days of the date Contractor receives the Notice to Terminate, unless the violation ceases and Contractor makes arrangements for correction satisfactory to the Owner. In the event of any such termination, the Owner shall immediately serve notice of the termination upon the Surety by registered mail, return receipt requested. The Surety shall have the right to take over and perform the Contract. If the Surety does not commence performance within ten (10) days from the date of receipt of the Owner's notice of termination, the Owner may complete the work at the expense of the Contractor, and the Contractor and his or her Surety shall be liable to the Owner for any excess cost incurred by the Owner to complete the work. If the Owner completes the work, the Owner may take possession of and utilize such materials, appliances and plants as may be on the worksite site and necessary for completion of the work.

15. Termination for Convenience. The Owner may terminate this contract at any time for any reason by giving at least **thirty (30) days** written notice to the Contractor. If termination occurs under this Section 15, the Contractor shall be paid fair market value for work completed by Contractor as of the date of termination. The parties agree that fair market value shall be determined

based on the Contractor's original bid price, less any work not yet completed by the Contractor as of the date the written notice of termination is given to the Contractor.

16. Contractor's Liability and Indemnification. To the fullest extent permitted by law, Provider shall indemnify, save and hold harmless the City of Flagstaff and its officers, officials, agents, and employees (hereinafter referred to as "Indemnitee") from and against liabilities, damages, losses and costs, including reasonable attorney fees, but only to the extent caused by the, recklessness or intentional wrongful conduct of the contractor, subcontractor or design professional or other persons employed or used by the contractor, subcontractor or design professional in the performance of the contract. The amount and type of insurance coverage requirements set forth in the Contract (Section 103.6 of Exhibit A) will in no way be construed as limiting the scope of the indemnity in this paragraph.

17. Non Appropriation. In the event that no funds or insufficient funds are appropriated and budgeted in any fiscal period of the Owner to meet the Owner's obligations under this Contract, the Owner will notify Contractor in writing of such occurrence, and this Contract will terminate on the earlier of the last day of the fiscal period for which sufficient appropriation was made or whenever the funds appropriated for payment under this Contract are exhausted. No payments shall be made or due to the other party under this Contract beyond these amounts appropriated and budgeted by the Owner to fund the Owner's obligations under this Contract.

18. Amendment of Contract. This Contract may not be modified or altered except in writing and signed by duly authorized representatives of the parties.

19. Subcontracts. Contractor shall not enter into any subcontract, or issue any purchase order for the completed work, or any substantial part of the work, unless in each instance, prior written approval shall have been given by the Owner. Contractor shall be fully responsible to the Owner for acts and omissions of Contractor's subcontractors and all persons either directly or indirectly employed by them.

20. Cancellation for Conflict of Interest. This Contract is subject to the cancellation provisions of A.R.S. § 38-511.

21. Compliance with All Laws. Contractor shall comply with all applicable laws, statutes, ordinances, regulations and governmental requirements in the performance of this Contract.

22. Employment of Aliens. Contractor shall comply with A.R.S. § 34-301, which provides that a person who is not a citizen or ward of the United States shall not be employed upon or in connection with any state, county or municipal public works project.

23. Compliance with Federal Immigration Laws and Regulations. Contractor warrants that it complies with all Federal Immigration laws and regulations that relate to its employees and complies with A.R.S. 23-214.A. Contractor acknowledges that pursuant to A.R.S. 41-4401 a breach of this warranty is a material breach of this contract subject to penalties up to and including termination of this contract, and that the City retains the legal right to inspect the papers of any employee who works on the contract to ensure compliance with this warranty.

24. Contractor's Warranty. Contractor warrants that it complies with all Federal Immigration laws and regulations that relate to its employees and complies with A.R.S. § 23-214.A, Verification of Employment Eligibility. Contractor shall not employ aliens in accordance with A.R.S. § 34-301, Employment of Aliens on Public Works Prohibited. Contractor acknowledges that pursuant to A.R.S. § 41-4401, Government Procurement; E-Verify Requirement; Definitions, a breach of this warranty is a material breach of this contract subject to penalties up to and including termination of this Contract, and that the Owner retains the legal right to inspect the papers of any employee who works on the Contract to ensure compliance with this warranty.

25. Jurisdiction and Venue. This Contract shall be administered and interpreted under the laws of the State of Arizona. The Contractor hereby submits itself to the original jurisdiction of those courts located within Coconino County, Arizona.

26. Attorney's Fees. If suit or action is initiated in connection with any controversy arising out of this Contract, the prevailing party shall be entitled to recover in addition to costs such sum as the court may adjudge reasonable as attorney fees, or in event of appeal as allowed by the appellate court.

27. Time is of the Essence. Contractor acknowledges that the completion of the Contract by the dates specified final completion is critical to the Owner, time being of the essence of this Contract.

28. No Third Party Beneficiaries. The Parties acknowledge and agree that the terms, provisions, conditions, and obligations of this Contract are for the sole benefit of, and may be enforceable solely by, the Parties to this Contract, and none of the terms, provisions, conditions, and obligations of this Contract are for the benefit of, or may be enforced by, any person or entity not a party to this Contract.

29. Headings. The article and section headings contained herein are for convenience in reference and are not intended to define or limit the scope of any provision of this Contract.

30. Severability. If any part of this Contract is determined by a court to be in conflict with any statute or constitution or to be unlawful for any reason, the parties intend that the remaining provisions of this Contract shall remain in full force and effect unless the stricken provision leaves the remaining Contract unenforceable.

31. No Boycott of Israel. Pursuant to A.R.S. §§ 35-393 and 35-393.01, the Parties certify that they are not currently engaged in and agree, for the duration of the agreement, not to engage in a boycott of Israel.

IN WITNESS WHEREOF, the Owner and Contractor, by their duly authorized representatives, have executed this Contract as of the date written above.

(Please sign in blue ink. Submit original signatures – photocopies not accepted)

Owner, City of Flagstaff	**PCL Construction, Inc.**
Barbara Goodrich, City Manager	Signature
Attest:	Printed Name
City Clerk	Title
Approved as to form:	
City Attorney	

CITY OF FLAGSTAFF
AMENDMENTS
to
MAG STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION
(General Provisions)

The
MAG UNIFORM STANDARD SPECIFICATIONS
for
PUBLIC WORKS CONSTRUCTION
is hereby amended to include the following:

PART 100 - GENERAL CONDITIONS

SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS

102.1 ELIGIBILITY AND PREFERENCE:

(revise to include the following)

If requested by the City, a Bidder shall furnish satisfactory evidence of the Bidder's competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of statements covering the Bidder's experience on similar work, a list of equipment that would be available for the work and a list of key personnel that would be available.

In addition, if requested, a Bidder shall furnish the City of Flagstaff with satisfactory evidence of the Bidder's financial responsibility. Such evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the Bidder's financial resources and liabilities as of the last calendar year or the contractor's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the Bidder shall further certify whether the Bidder's financial responsibility is approximately the same as stated or reported by the public accountant. If the Bidder's financial responsibility has changed, the Bidder shall qualify the public accountant's statement or report to reflect the Bidder's true financial condition at the time such qualified statement or report is submitted to the City of Flagstaff.

The Bidder shall submit such "evidence of competency" and "evidence of financial responsibility" to the City of Flagstaff no later than five (5) working days after receipt of a written request by the City of Flagstaff.

Each bidder, contractor and subcontractor shall possess and maintain the appropriate contractor's license for the work included in this contract. The appropriate license shall be as required by the Arizona State Registrar of Contractors and as required by Arizona Revised Statutes Chapter 10, Title 32.

102.2 CONTENTS OF PROPOSAL PAMPHLET:

(revise to include the following)

The Plans, Specifications and other Documents designated in the Contract Documents shall be considered a part of the Contract whether attached or not.

The City of Flagstaff reserves the right to refuse to issue a proposal form or accept a proposal form from a prospective Bidder if they are in default for any of the following reasons:

(A) Failure to comply with any prequalification regulations of the City of Flagstaff, if such regulations are cited or otherwise included in the Proposal as a requirement for bidding;

(B) Failure to pay or satisfactorily settle all bills due for labor and materials on former contracts in force (with the City of Flagstaff) at the time the City of Flagstaff issues the Proposal to a prospective Bidder;

(C) Contractor, as a company owner, has defaulted under previous contract(s) with the City of Flagstaff in the prior five calendar years;

(D) Record of unsatisfactory work on previous contract(s) with the City of Flagstaff in the prior five calendar years.

102.2 CONTENTS OF PROPOSAL PAMPHLET:
(third paragraph, revise last sentence to read as follows)

In the case of conflict, the following order of precedence shall govern:

1. Construction Plans and Addenda
2. Special Provisions
3. General Provisions and MAG Revisions
4. City of Flagstaff Standards and Specifications
5. MAG Standards and Specifications
6. ADOT Standards and Specifications
7. FHWA Manual of Uniform Traffic Control Devices

102.4 EXAMINATION OF PLANS, SPECIAL PROVISIONS AND SITE OF WORK:
(revise to include the following)

Before submitting a bid, each bidder shall examine the site and obtain information that pertains to the physical conditions of the site that may affect the cost, progress or performance of the work. Any restrictions or difficulties relating to the completion of the work shall be considered in accordance with the terms and conditions of the contract documents.

102.7 IRREGULAR PROPOSALS:
(revise to include the following)

The City of Flagstaff reserves the right to reject any irregular Proposal and the right to waive technicalities for acceptance of Proposals, if such waiver is in the best interest of the City of Flagstaff and conforms to local laws and ordinances pertaining to the letting of construction contracts.

Proposals shall be considered irregular for the following additional reasons:

(A) If the Proposal contains unit prices that are obviously unbalanced.

(B) If the Proposal is not accompanied by the proposal guaranty specified by the City.

102.12 DISQUALIFICATION OF BIDDERS:
(revise to include the following)

A Bidder shall also be considered disqualified if the Bidder is considered in default for any reason specified in Subsection 102.2 as amended by this MAG Amendment.

102.13 SUCCESSFUL BIDDERS:
(revise paragraph to read as follows)

The City of Flagstaff shall provide six (6) sets of plans and Contract Documents at no cost. A direct expense fee shall be charged for any additional copies.

SECTION 103 - AWARD AND EXECUTION OF CONTRACT

103.6 CONTRACTOR'S INSURANCE:

103.6.1 GENERAL:
(revise subsection to read as follows)

The Contractor and its Subcontractors, at Contractor's and Subcontractors' own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly licensed, possessing a current A.M. Best, Inc. Rating of A-, 7, or approved by the City. The insurance company shall be licensed in the State of Arizona. Policies and forms shall be satisfactory to the City.

All insurance required herein shall be maintained in full force and effect until all work and/or services required to be performed, under the terms of the Contract, are satisfactorily completed and formally accepted. At the sole discretion of the City, failure to do so may constitute a material breach of this Contract.

The Contractor's insurance shall be primary insurance as respects the City. Any insurance or self-insurance maintained by the City shall not contribute to it.
Contractor shall not fail to comply with the claim reporting provisions of the insurance policies or cause a breach of any insurance policy warranty that would affect coverage afforded under insurance policies to protect the City.
The insurance policies (except Worker's Compensation) shall contain a waiver of transfer of rights of recovery (subrogation) against the City, its agents, representatives, directors, officers, and employees for any claims arising out of the Contractor's acts, errors, mistakes, omissions, work or service.

The insurance policies may provide coverage, which contains deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to the City under such policies. The Contractor shall be solely responsible for the deductible and/or self-insured retentions, and the City, at its option, may require the Contractor to secure payment of such deductibles or self-insured retentions by a Surety Bond or an irrevocable and unconditional letter of credit.

The City reserves the right to request and to receive, within 10 working days, certified copies of any or all of the herein required insurance policies and/or endorsements. The City shall not be obligated, however, to review same or to advise Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve Contractor from, or be deemed a waiver of the City's right to insist on, strict fulfillment of Contractor's obligations under this Contract.

Except for Worker's Compensation, the insurance policies, required by this Contract shall name the City, its agents, representatives, officers, directors, officials and employees as additional insureds.

Required Coverage

A. Commercial General Liability

The Contractor shall maintain Commercial General Liability insurance with a limit of not less than $1,000,000 for each occurrence with a $2,000,000 Products/Completed Operations Aggregate and a $2,000,000 General Aggregate Limit. The Policy shall include coverage for bodily injury, broad form property damage, personal injury, products and completed operations and blanket contractual coverage. Coverage will be at least as broad as Insurance Service Office, Inc. Policy Form CG 00011093 or any replacements thereof. The coverage shall not exclude X, C, U.

Such policy shall contain a severability of interest provision and shall not contain a sunset provision or commutation clause, nor any provision, which would serve to limit third party action over claims. The Commercial General Liability additional insured endorsement shall be at least as broad as the Insurance Service Office, Inc. Additional Insured, Form B, CG 20101185, and shall include coverage for Contractor's operations and products and completed operations.

B. Owners and Contractor's Protective Liability

The Contractor shall purchase and maintain, at all times during prosecution of the work, services or operations under this Contract, an Owner's and Contractor's Protective Liability insurance policy for bodily injury and property damage, including death, which may arise in the prosecution of the Work or Contractor's operations under this Contract. Coverage shall be on an occurrence basis with a limit not less than $1,000,000 per occurrence, and the policy shall be issued by the same insurance company that issues the Contractor's Commercial General Liability insurance.

C. Automobile Liability

Contractor shall maintain Commercial/Business Automobile Liability insurance with a combined single limit for bodily injury and property damage of not less than $1,000,000 each occurrence with respect to the Contractor's any auto, all owned autos, scheduled autos, hired autos, non-owned autos assigned to or used in performance of the Contractor's work. Coverage will be at least as broad as coverage code 1, "any auto", (Insurance Service Office, Inc. Policy CA 00011293, or any replacements thereof). Such insurance shall include coverage for loading and off-loading hazards. If hazardous substances, materials or wastes are to be transported, MCS 90 endorsement shall be included and $5,000,000 per accident limits for bodily injury and property damage shall apply.

D. Worker's Compensation

The Contractor shall carry Worker's Compensation insurance to cover obligations imposed by federal and state statues having jurisdiction of Consultant's employees engaged in the performance of the work or services; and Employer's Liability insurance of not less than $100,000 for each accident, $100,000 disease for each employee, and $500,000 disease policy limit.

In case any work is subcontracted, the Contractor will require the Subcontractor to provide Worker's Compensation and Employer's Liability to at least the same extent as required of the Contractor.

E. Builder's Risk (Property) Insurance (As Required)

When the project includes construction of a new building, an addition to an existing building, modifications to an existing building, or as otherwise may be required by the contracting agency, the Contractor shall purchase and maintain, on a replacement cost basis, Builder's Risk insurance in the amount of the initial Contract Amount as well as subsequent modifications thereto for the entire work at the site. At a minimum, the policy limits of such insurance shall be equal in face amount to the full Contract Amount. Such Builder's Risk insurance shall be maintained until final payment has been made or until no person or entity other than the City has an insurable interest in the property required to be covered, whichever is earlier. This insurance shall include interests of the City, the Contractor, and all Subcontractors and Sub-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 the City. For new construction projects, the Contractor agrees to assume full responsibility for loss or damage to the work being performed and to the buildings under construction. For renovation construction projects, the 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.

Builder's Risk insurance shall be on an all-risk policy form and shall cover false work and temporary buildings. Builder's Risk insurance 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 Architect's service

and expenses required as a result of such insured loss and other "soft costs" as required by the Contract.

Builder's Risk insurance must provide coverage from the time any covered property becomes Contractor's control and/or responsibility, and continue without interruption during construction or renovation or installation, including any time during which the covered property is being transported to the construction 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. Builder's Risk insurance shall be primary and not contributory.
If the Contract requires testing of equipment or other similar operations, at the option of the City, the Contractor will be responsible for providing property insurance for these exposures under a Boiler Machinery insurance policy.

Required coverage may be modified by an amendment to the Contract Documents.

Certificates of Insurance

Prior to commencing work or services under this Contract, Contractor shall furnish the City with Certificates of Insurance, or formal endorsements as required by the Contract, issued by Contractor's insurer(s), as evidence that policies providing the required coverage, conditions and limits required by this Contract are in full force and effect.

In the event any insurance policy (ies) required by this contract is (are) written on a "claims made" basis, coverage shall extend for two years past completion and acceptance of the Contractor's work or services and as evidenced by annual Certificates of Insurance.

If a policy does expire during the life of the Contract, a renewal certificate must be sent to the City fifteen (15) days prior to the expiration date.

All Certificates of Insurance shall be identified with bid/project number and project name. A $25.00 administrative fee will be assessed for all certificates received without the appropriate bid serial number and title.

Cancellation and Expiration Notice

Insurance required herein shall not expire, be canceled, or materially changed without thirty (30) days written notice to the City.

SECTION 104 - SCOPE OF WORK

104.1.3 WATER SUPPLY:
(revise to include the following)

The Contractor is advised that the use of fire hydrants as a source of construction water is not guaranteed and is subject to the restrictions, terms and conditions of the City of Flagstaff Utilities Department. Prior to submitting a bid, the Contractor shall determine such restrictions, terms and conditions and shall incorporate the costs thereof into his or her proposal.

If hydrants are not available as a source of construction water, reclaimed water is available at the Wildcat Hill Wastewater Treatment plant on East Highway 66 and at the south end of Babbitt Drive at the Rio De Flag Water Reclamation Plant. Additional reclaimed water bulk loading sites are located in other areas of the city. The contractor should obtain current locations from the Utilities Department. **Current rates for the reclaimed water shall apply**.

Prior to loading, hauling and applying reclaim water, the Contractor shall be required to obtain the necessary no fee permit at the Wildcat Hill Wastewater Treatment Plant or from the Rio De Flag plant and shall be responsible for complying with all permit and ADEQ requirements regarding the use of reclaim water.

104.2 ALTERATION OF THE WORK:

104.2.3 DUE TO EXTRA WORK:
(revise to include the following)

When Allowance and/or Contingency items are provided for in the contract, the funds are encumbered for use at the discretion of the Project Manager. The funds are to cover unanticipated costs to complete items of work not included in the Contract Documents or may be applied to any work deemed necessary by the Owner. Work would include, but not limited to, unanticipated conditions, scope changes, addressing errors or omissions, and/or construction changes that are warranted for project completion consistent with the purpose of the work. The amount of the allowance item is determined by the City and is not subject to individual bid pricing. All bidders shall incorporate the amount pre-entered in the bid proposal and shall reflect the same in the total amount bid for the project.

The allowance item provides an estimated funding to cover unforeseen changes that may be encountered and corresponding extra work needed to complete the contract. Any work which is to be paid out of this allowance shall be authorized in writing and approved by Field Order prior to proceeding with the work. Extra work shall be paid for in the following order of precedence: 1.) by extension of unit bid prices, 2.) by negotiated price or 3.) by a time and materials basis in accordance with MAG Section 109.5.

It shall be understood that the amount for this item in the proposal is an estimate only and no guarantee is given that the full amount or any portion thereof will actually be utilized. It shall not be utilized without first obtaining an approved Field Order signed by the Contractor and the Project Manager.

105.2.1 RECORD DRAWING (As-Built Plans)
(revise to include new subsection as follows)

The Contractor shall retain an Arizona licensed civil engineer to record information that is modified from the originally approved sealed plans.

Prior to the City's final approval and acceptance of public improvements (sanitary sewer, water, storm sewer, streets) as-built plans must be submitted to the City for review and acceptance per Engineering Standard Specifications.

Submittal shall be two sets of blue or black line paper sets, copied from the original mylar set. One set will be reviewed by the City and returned with applicable comments. Comments are to be addressed and two paper sets resubmitted for City's final approval. A reference checklist is available from the office of the City Engineer.

Upon City and ADEQ (when applicable) review and approval of the submittal, one set of mylars shall be submitted to the City as a permanent record. All record drawing plan sets shall contain a statement by a licensed professional engineer, currently registered to practice in Arizona, certifying that the drawings are per the as-built condition. The record set requires the seal and signature of the registrant.

Payment shall be lump sum for all work required to develop the necessary documents, including but not limited to coordination, field inspection, survey, drafting, printing and engineer's seal. The fee shall include as-built information for all record changes within the project area.

SECTION 105 - CONTROL OF WORK

105.8 CONSTRUCTION STAKES, LINES AND GRADES:
(revise entire subsection to read as follows)

The Contractor shall be responsible for all required construction staking, including preconstruction staking for relocation of existing utilities. All construction staking is to be done under the direct supervision of a Registered Land Surveyor or Civil Engineer. All costs associated with this work are to be included in the amount bid for the items of work to which it is incidental or appurtenant. No separate payment will be made for construction staking.

105.10 INSPECTION OF THE WORK
(revise to include the following)

The Contractor is responsible for Quality Control of the work. The City will perform Quality Assurance; frequency of testing will be determined by the City. The Contractor shall be responsible for coordinating and scheduling all inspections of the work and shall confirm that the required inspections and material testing are completed and accepted prior to proceeding with additional work. The Contractor is required to perform the work to a confidence level that the City's Quality Assurance will validate that the work meets specification(s).

105.11 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK:
(revise to include the following)

Any work and/or materials condemned by the Project Manager as inferior or not in compliance with the Contract, Specifications and Plans shall be immediately removed by the Contractor. Materials and/or work so condemned shall be removed and promptly replaced and executed in accordance with the Contract, Specifications and Plans without any expense to the Owner. The Contractor shall bear the expense of making good on all work of other contractors destroyed or damaged by such removal and replacement.

105.12 MAINTENANCE DURING CONSTRUCTION:
(revise to include the following)

The Contractor is responsible to provide adequate drainage for the construction area at all times. Damage to any portion of the work caused by the Contractor's failure to provide adequate drainage of the construction area shall be repaired at the Contractor's expense. A contract time extension will not be granted for any additional time required to make such repairs.

The Contractor shall control open excavations and stockpiling in a manner to prevent water from running into excavations. Obstructions of surface drainage shall be avoided and means shall be provided whereby storm water and wastewater can flow uninterrupted in existing or established pipes, flow courses, other surface drains, temporary drains or channels.

Material for backfill or for protection of excavations within public roads or easements shall be placed and shaped to cause the least possible interference to public travel. In no event shall any flows be allowed to enter private property.

105.16 MAINTENANCE DURING WINTER SUSPENSION OF WORK
(revise to include new subsection as follows)

If work has been suspended due to winter weather, the Contractor shall be responsible for maintenance and protection of the improvements and of partially completed portions of the work until final acceptance of the project. Winter suspension shall be by field order, change order or original contract. City retains the right to declare a winter shutdown. If repairs and/or maintenance are needed during the suspension, the Contractor is required to perform the repairs and/or maintenance within twenty-four (24) hours of notification from the City. If the needed repairs and/or maintenance are not addressed within the timeframe, the City will accomplish the work and deduct the cost from monies due or become due to the Contractor.

The City shall provide snow removal operations on active traffic lanes only. All other snow removal and maintenance operations shall be the responsibility of the Contractor. All cost associated with snow removal and proper disposal shall be considered incidental to the work including the repair of temporary surface improvements due to normal wear and snow removal operations.

SECTION 107 - LEGAL REGULATIONS AND RESPONSIBILITY TO THE PUBLIC

107.1 LAWS TO BE OBSERVED:
(revise to include the following)

(G) TAX EXEMPTION: Certain material, machinery and equipment to be installed in this project is exempt from sales tax or use tax as allowed in Arizona Revised Statutes Section 42-5061, 42-5009 and Section 42-5159 and by the Administrative Rules and Regulations of the Arizona Department of Revenue; ACC R15-5-608, R15-5-120 and R15-5-2314.

The City wishes to rely upon the expertise of the contractor in the purchase of items that qualify for the tax exemption. With respect to purchase of the qualifying items, the Contractor is authorized to act as an agent for the City. This agency agreement is strictly limited to the purchase of the qualifying items to be used in the construction of the project and will not otherwise affect or alter the respective rights, responsibilities and remedies of the parties as specified under this contract. The contractor shall furnish the City a list of suppliers and the material, machinery and equipment to be furnished by each. The City will then issue the materials and equipment exemption certificate to each supplier pursuant to A.R.S. §42-5009 (A) (2). The contractor's applicable unit bid prices for items qualifying for this tax exemption should not include sales or use tax. The materials, machinery and equipment that are a part of this project and to which the exemption applies are listed below:

1. Pipes, valves and appurtenances four (4) inches in diameter or larger used to transport potable water,
2. Any additional material, machinery or equipment identified in the Special Provisions.

107.2 PERMITS:
(revise to include the following)

The City of Flagstaff shall issue a no fee permit for work in City right-of-way for this Contract. The City shall work with the Contractor to obtain a permit for work in State of Arizona right-of-way from the Arizona Department of Transportation. The Contractor may not commence work until these permits are issued.

107.2.1 TEMPORARY USE PERMITS:
(revise to include new subsection as follows)

A Temporary Use Permit (and Above Ground Fuel Storage Permit if applicable) is required prior to the establishment of any temporary construction yard, material storage area or staging area located within City limits and outside the public right-of-way or project limits. The Contractor is responsible for obtaining the necessary Temporary Use Permit from the agency with jurisdictional authority.

The time required to process the Temporary Use Permit is approximately twelve (12) calendar days. The Contractor shall submit the necessary permit application no later than ten (10) calendar days following the Notice of Award. Any delays experienced by the Contractor in acquiring the Temporary Use Permit shall not necessarily be grounds for delaying the project Notice to Proceed.

107.2.2 DISPOSAL OF WASTE AND SURPLUS MATERIAL:
(revise to include the following)

All disposal costs, regardless of disposal site, shall be included in the bid unit price for the related item of work and no direct payment will be made for disposal of waste or surplus materials. This right of disposal does not apply to any substance or items that are regarded as toxic and/or hazardous by the City, the State of Arizona or the United States Government.

Alternate disposal sites may be proposed by the Contractor but are subject to all applicable local ordinances and codes. In addition to the property owner's written authorization, all disposal sites within the city limits are subject to review and approval by the Temporary Use Permit process. The disposal of material at alternate disposal sites will not be allowed without written authorization of the owner, approval of the appropriate jurisdictional authority, and the issuance of all necessary permits.

107.2.3 ABOVE GROUND FUEL STORAGE PERMIT:
(revise to include new subsection as follows)

If required, Above Ground Fuel Storage Permits may be obtained from the City of Flagstaff Fire Department, located at 211 West Aspen Avenue, Flagstaff, AZ. The Contractor is responsible for obtaining the permit.

107.5 SAFETY, HEALTH, AND SANITATION PROVISIONS:

107.5.4 HANDLING, REMOVAL AND DISPOSAL OF SURPLUS MATERIAL AND ASBESTOS CONTAINING MATERIALS (ACM)
(revise to include new subsection as follows)

The Contractor is responsible for handling, removal and disposal of all soil material generated by the project as described in the General Provisions.

The City requires compliance with Environmental Protection Agency (EPA), Arizona Department of Environmental Quality (ADEQ) and Occupational Safety and Health Administration (OSHA) asbestos regulations for all City projects.

Utility pipes constructed of materials other than metal or polyvinyl chloride (PVC) require testing prior to any disturbance of the pipes to determine if regulated levels of asbestos are present in the pipe material. Suspect pipe materials requiring testing typically include vitrified clay and cement pipe (transite). Asbestos testing is not required for metal pipes.
City Public Works/Sustainability & Environmental Management staff are available to collect samples and submit the samples for analyses. **The City of Flagstaff will provide testing free of charge.** If the pipe does not contain regulated levels of asbestos, the contractor may disturb and remove the piping. If utility piping contains regulated levels of asbestos, an asbestos abatement contractor must perform any disturbance/removal of the pipe materials. This is required to ensure workers are not exposed to any asbestos fibers.

Work may require the proper handling, removal and disposal of regulated asbestos piping and materials generated by cutting or breaking the pipe to remove it from the ground. If asbestos containing materials (ACM) removal is necessary on the project, the City of Flagstaff requirements for handling, removal and disposal are as follows:

- If an infrastructure or building material that is not either wood, glass or metal is encountered during the project and has not yet been either assumed or positively identified to be ACM then the material(s) must be sampled in accordance with regulations generated by the EPA Asbestos Hazard and Emergency Response Act (AHERA) 40 CFR 763 as well as OSHA 29 CFR 1910.1101, by a certified AHERA Building Inspector and sent to a National Voluntary Laboratory Accreditation Program (NVLAP) certified laboratory for analysis.

- Once materials of concern are assumed or properly identified to be ACM then material removal is required according to OSHA 29 CFR 1910-1926.1101 by a certified asbestos abatement worker, and NOT a general contractor (GC). However, if the GC holds the appropriate asbestos certifications (AHERA Asbestos Operations and Maintenance), which the City would need to verify is current, then the GC could perform the asbestos abatement.

The City requires the General Contractor arrange for abatement of assumed and/or identified ACM by a certified asbestos abatement contractor and to arrange area and/or clearance air monitoring by a third party certified asbestos consultant. If applicable to the project, copies of abatement activities and air monitoring shall be provided to City of Flagstaff Environmental Management staff.

In the event of large disturbances to ACM, compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61, Subpart M shall be followed. Notification would be required the Arizona Department of Environmental Quality http://www.azdeq.gov/environ/air/asbestos/ 10 working days in advance of the start of a large project. This notification is not typically required for utility pipe work, but could be required for a very large project involving numerous saw cuts of utility pipes.

If ACM removal is necessary on the project, the City of Flagstaff requirements for ACM disposal at the City's Cinder Lake Landfill are as follows:

Only non-friable asbestos waste is accepted for disposal at Cinder Lake Landfill. PRIOR to disposal of non-friable ACM, obtain the necessary forms, which are:

- Non-Friable Asbestos Waste Acceptance Application and accompanying instructions
- Non-Friable Asbestos Waste Shipment Record (WSR)

The Asbestos Waste Acceptance Application is available at the City of Flagstaff's website or by contacting the City of Flagstaff Environmental Management staff. A Waste Shipment Record is required to accompany each load of non-friable asbestos waste taken to the Cinder Lake Landfill.

Assure the non-friable ACM is properly handled and wrapped. Non-friable ACM must be thoroughly wetted using amended water PRIOR to being wrapped in 6-millimeter poly and be tightly sealed with duct tape. If the material is heavy (such as transite pipe), has sharp edges, or may easily puncture the poly wrap, a double layer of poly will be necessary. The Cinder Lake Landfill scale house attendant will inspect the load to ensure it is properly wrapped. Containers holding non-friable ACM shall be carefully unloaded and placed in a designated location. Dumping using a hydraulically lifted bed of a truck is not permitted (dump truck), as the poly wrap may be torn open.

If using a large bin for disposal, attach a copy of the Waste Shipment Record to the disposal bin. If not using a City of Flagstaff disposal bin, make sure the delivery driver takes a copy of the SIGNED Non-Friable Asbestos Waste Acceptance Application and the Waste Shipment Record to the Cinder Lakes Landfill with the waste delivery.

If using a City of Flagstaff disposal bin call City Environmental Services at (928) 774-0668 to schedule a pick-up for the disposal bin. Please be sure to provide the driver with the SIGNED Non-Friable Asbestos Waste Acceptance Application and the Waste Shipment Record and be sure to clarify if you would like the disposal bin emptied and removed, or emptied and returned to the work site. When disposal is completed, the Landfill Manager will sign the Waste Shipment Record and landfill staff will provide or mail a copy of the Waste Shipment Record.

Cutting of utility pipes generates Regulated Asbestos Containing Material (dust from cutting) and breaking pipes may generate RACM. RACM requires disposal at the Joseph City Landfill or at other landfills located in southern Arizona.

All work relating to the removal and disposal of unknown and/or unanticipated hazardous materials as described above shall be paid per MAG 109.4.3.

107.8 107USE OF EXPLOSIVES:

(first paragraph, revise second sentence to read as follows)

The Contractor shall submit a blasting plan for approval and obtain a Blasting Permit from the City of Flagstaff Fire Department, located at 211 W. Aspen Avenue, Flagstaff, Arizona.

(revise to include the following)

The Contractor shall submit a copy of the approved blasting plan to the Project Manager. The plan shall include as a minimum; safety layout, drilling pattern, size and depth of bore, weight and type of charge, delay sequence, contractor's anticipated peak particle velocity at the right-of-way line or nearest structure, and the proposed seismograph locations.
A record of each blast shall be kept and all records including seismograph reports shall be available for inspection. Each record shall provide as a minimum; location, date and time of blast, name of person in charge, number of holes burdened, spacing, diameter and depth of holes, boring logs to determine top of rock, type and total amount of explosives used, direction and distance to nearest building, type of detonators and delay periods used, and exact locations of seismographs.

When blasting operations are to be conducted within 200 feet of a water line, sewer line or other underground utility, the Contractor shall take additional precautionary measures. The Contractor shall notify the owner of the facility a minimum of two weeks in advance that such blasting operations are intended. At their discretion, the Owner may perform pre-blast, post-blast pressure tests or other inspection of the facility. If any damage occurs because of blasting operations, the Contractor shall be responsible for the restoration of the facility to pre-blast conditions.

107.9 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE:
(revise to include the following)

The Contractor is responsible for replacing and/or restoring the site, landscaping and owner's improvements associated with the project to the pre-existing condition using in-kind materials. All cost shall be included in the bid as incidental to the work, unless otherwise specified in the bid schedule or plans.

Within easements, the Contractor is responsible for removing existing improvements and salvaging items (not identified for removal) for relocation after the public improvements are completed. Close coordination between the Contractor and property owners and/or residents is required.

107.11 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES:
(revise to include the following)

All power poles, pedestals, guy wires and underground facilities shall be removed and/or relocated by the respective owners of the facilities. The contractor is responsible for the notification and coordination with the utility companies to ensure that this work is accomplished in a manner consistent with the construction schedule. Payment for Franchise Utility coordination and location is incidental to the cost of the work.

The Contractor shall perform utility potholes and identify potential conflicts prior to trenching. The utility pothole information and identification of potential conflicts shall be provided to the Project Manager at least two weeks prior to performing trenching or pipeline construction.

SECTION 108 - COMMENCEMENT, PROSECUTION AND PROGRESS

108.1 NOTICE TO PROCEED:
(revise to include the following)

Time is of the essence in submitting the initial and revised construction schedule and traffic control plan. Each is a requirement that precedes the Contractor's right and the City's obligation to proceed with the agreement.

The Notice to Proceed shall be issued for a start date no later than twenty-seven (27) calendar days following receipt of the Notice of Award. The Contractor shall be required to submit a construction schedule and traffic control plan in accordance with the Contract Documents and the following:

The Contractor shall within seven (7) calendar days of receiving the Notice of Award, submit a construction schedule and traffic control plan to the Project Manager. The Project Manager shall promptly review the construction schedule and traffic control plan and either approve them, or provide a written list of the items that will require revision. The Contractor shall submit the revised construction schedule and traffic control plan within five (5) calendar days of receiving the Project Manager's list of required revisions. The corrected construction schedule and traffic control plan submittal shall address all comments from the Project Manager's list of required revisions.

If the Project Manager approves the second submission of the construction schedule and traffic control plan, a notice will be issued specifying the date on which the Contractor may proceed with the work. If it is determined that the construction schedule and/or traffic control plan are not adequate to manage the contract, the Contractor shall be notified in writing. Within three (3) full business days following receipt of the notice, the Contractor shall elect to:

1. Submit a revised final construction schedule and traffic control plan together with a cashier's check or bank draft in the amount of two and one half (2 1/2) percent of the contract price as liquidated damages for the delay time lost to that date; or
2. Do nothing, in which case this contract shall be deemed terminated at the Contractor's election. The Contractor shall then have no right or duty to continue performance and the City shall be released from all liability to the Contractor under this agreement.

In the event the Contractor elects the first alternative, the Project Manager shall approve the final construction schedule and traffic control plan if acceptable, in which case the City shall be entitled to the liquidated damages or shall reject the construction schedule and traffic control plan and return the check or draft. In the latter event, the contract shall be deemed terminated, the liquidated damages provision shall not apply, and the City shall be entitled to recover its actual damages incurred for the Contractor's breach of agreement.

108.3 CORRESPONDENCE TO THE CONTRACTOR:
(revise to include the following)

In addition to written communication to the Project Manager, the Contractor shall provide and maintain a contact located within ten miles of the job site at all times throughout the duration of the Contract. The designated contact shall be accessible by telephone at all times to respond to agency requirements and emergencies. The local location and phone number(s) shall be provided to the Project Manager prior to issuance of the Notice to Proceed. Any changes of the location or phone number(s) shall be reported immediately to the Project Manager.

If a response is needed, the Contractor is required to respond and perform the repairs and/or maintenance within two (2) hours of notification from the City. If the needed repairs and/or maintenance are not addressed within the timeframe, the City will accomplish the work and deduct the cost from monies due or become due to the Contractor.

108.4 CONTRACTOR'S CONSTRUCTION SCHEDULE:
(revise to include the following)

The Contractor's schedule shall include, as a minimum, the following:

- Identification of project tasks with assigned dates and durations, which reflect anticipated sequencing of construction activities on scheduled working days;
- All anticipated subcontractors that will be used during the course of the work;
- The anticipated number of crews to expedite the progress and ensure prompt completion of the work;

  Definition of a crew;
  - personnel *(e.g. operator, laborer)*
  - equipment *(e.g. Cat 325 Excavator, 950 Loader)*
  - workdays anticipated or scheduled per week (*e.g. Monday through Friday)*
  - work hours anticipated or scheduled per day *(e.g. 7:00 am to 3:30 pm)*
- Anticipated adverse weather days for weather dependent activities, weekends and holidays.
- Specific long lead times for delivery of equipment and materials;
- Critical path project schedules may be required as provided for by the Special Provisions or Project Addenda.

108.5 LIMITATION OF OPERATIONS:
(third paragraph, revise to read as follows)

Except in emergencies endangering life or property, written permission shall be obtained from the City prior to performing any work on weekends, legal holidays or after regular work hours (hereinafter defined as 7:00 a.m. to 5:00 p.m. - Monday through Friday). Inspection and testing will not be provided on Sundays or City legal holidays without prior approval from the Project Manager (72-hour advance notice) and total compensation by the Contractor for any necessary personnel, equipment and services.

Overtime compensation for City personnel shall be as follows:

Construction Supervisor @ $ 43.00/hour
Inspector II @ $ 35.00/hour
Inspector I @ $30.00/hour
Lab Tech I @ $ 25.00/hour
Vehicle @ $1.80/hour

108.7 DETERMINATION AND EXTENSION OF CONTRACT TIME:
(revise to include the following)

The contract time, including final cleanup of the project site and storage areas, may be extended because of weather conditions that cannot be reasonably anticipated from established weather patterns. Adverse weather day patterns (identified below) were determined as being equal to or greater than twenty-five (25) percent of the historical monthly average as recorded by the National Weather Service at Pulliam Airport.

Month		January	February	March	April	May	June
Adverse Weather Days		7	7	8	6	4	3

Month		July	August	September	October	November	December
Adverse Weather Days		12	11	7	5	5	6

Contract time extensions due to adverse weather may be considered warranted when actual work critical to the timely completion of the project is delayed for fifty (50) percent or more of the Contractor's scheduled workday. Number of days may include time for which job progress has been affected by adverse weather during scheduled working days. The number of days that the scheduled work is actually impacted by adverse weather shall be recorded weekly during the construction period.

For delay of critical work from adverse weather experienced during the prior week's work, the Contractor is required to submit a written claim request for additional contract time no later than the next normally scheduled weekly project meeting,

The City may convert any delays meeting the above requirements to calendar days and extend the contract period as necessary. No additional compensation will be allowed for direct and indirect overhead expenses associates with any such contract time extensions.

108.8 GUARANTEE AND WARRANTY PROVISIONS:
(revise to include the following)

If requested by the City, the Contractor shall return to the project site eleven months after acceptance of the project and visually inspect, in the presence of the Owner's Representative, all accessible construction items and appurtenances. All defective materials and/or workmanship shall be satisfactorily repaired or replaced at the sole expense of the Contractor.

All costs for the 11-month inspection and repair shall be borne by the Contractor and in figuring his or her bid, the Contractor shall include an appropriate amount for such inspection and possible required repair, and no additional payment will be allowed.

108.10 FORFEITURE AND DEFAULT OF CONTRACT:
(revise to include new section)

<u>Due to Failure to Prosecute the Work</u>
If the Contractor fails to prosecute the work in accordance with the contract, including requirements of the progress schedule, the City may correct these deficiencies after three days after providing written notice to the Contractor. The cost of these remedies shall be charged against the Contractor. A change order may be issued to make the necessary changes in the contract and to make an appropriate reduction in the contract price. Such a change order shall not require the signature or approval of the Contractor. The remedy shall not prejudice the City's use of any other remedy, which the City may be entitled to use.

108.12 AUTHORIZED SIGNATURES:
(revise to include new section)

The Contractor shall provide a notarized list of all authorized signatures for project related documents. Only those individuals listed by the Contractor on the project Authorized Signature form shall be authorized to sign the contract, contract change orders, time extensions, bonds, securities, pay requests, certifications or other documents that affect the execution of the Contract.

108.13 SUBSTANTIAL COMPLETION:
(revise to include new section)

The project is substantially complete and liquidated damages will no longer be assessed when all of the following have occurred:

(A) All original bid items of work have been completed, accepted and pedestrian and vehicular traffic can move unimpeded through the project;

(B) The only work left for completion is incidental, causes no disruption to pedestrian and vehicular traffic, and does not affect the safety and convenience of the public;

The decision whether the project is substantially complete is within the sole discretion of the Project Manager.

Once substantial completion is granted, the Contractor shall actively work to achieve Final Acceptance of the construction phase of the Contract within 15-calendar days from the Substantial Completion date of that phase. Failure to prosecute the remaining work within this time-period will result in the resumption of time charges and the application of liquidated damages from the date scheduled for final acceptance.

The Contractor is responsible for maintenance and repairs of any project work until final acceptance, at which time the City will accept the improvements for operation and maintenance.

108.14 SUSPENSION and TERMINATION:
(revise to include new section)

City's Right to Stop Work

City may, at its discretion and without cause, order Contractor in writing to stop and suspend the Work. Such suspension shall not exceed one hundred and eighty (180) consecutive days.

Contractor may seek an adjustment of the Contract Price and/or Contract Time if its cost or time to perform the Work has been adversely impacted by any suspension or stoppage of Work by City.

Termination for Convenience

Upon receipt of written notice to Contractor, City may, at its discretion and without cause, elect to terminate this Agreement. In such event, City shall pay Contractor only the direct value of its completed Work and materials supplied as of the date of termination. Contractor shall be entitled to profit and overhead on completed Work only, but shall not be entitled to anticipated profit or anticipated overhead.

If the City suspends the Work for one hundred eighty-one (181) consecutive days or more, such suspension shall be deemed a termination for convenience.

Upon such termination, Contractor shall proceed with the following obligations.

1. Stop Work as specified in the notice.
2. Place no further subcontracts or orders.
3. Terminate all subcontracts to the extent they relate to the work terminated. Contractor shall ensure that all subcontracts contain this same termination for convenience provision.
4. At the City's sole discretion and if requested in writing by the City, assign to the City all right, title and interest of Contractor under the subcontracts subject to termination.
5. Take any action that may be necessary for the protection and preservation of the property related to this Agreement that is in the possession of Contractor and in which the City has or may acquire an interest.
6. Contractor shall submit complete termination inventory schedules no later than one hundred twenty (120) days from the date of the notice of termination.

The City shall pay Contractor the following:

1. The direct value of its completed Work and materials supplied as of the date of termination.
2. The reasonable and direct, actual costs and expenses attributable to such termination. Reasonable costs and expenses shall not include, among other things, anticipated profit, anticipated overhead, or costs arising from Contractor's failure to perform as required under this Agreement.
3. Contractor shall be entitled to profit and overhead on completed Work only, but shall not be entitled to anticipated profit or anticipated overhead. If it is determined that Contractor would have sustained a loss on the entire Work had they been completed, Contractor shall not be allowed profit and the City shall reduce the settlement to reflect the indicated rate of loss.

Contractor shall maintain all records and documents for three (3) years after final settlement. These records shall be maintained and subject to auditing as prescribed in Section 7.7.

The City's Right to Perform and Terminate for Cause

If the City provides Contractor with a written order to provide adequate maintenance of traffic, adequate cleanup, adequate dust control or to correct deficiencies or damage resulting from abnormal weather conditions and Contractor fails to comply in a time frame specified, the City may have work accomplished by other sources at Contractor's sole expense.

If Contractor persistently fails to

1. provide a sufficient number of skilled workers,
2. supply the materials required by the Contract Documents,
3. comply with applicable Legal Requirements,
4. timely pay, without cause, sub-consultants and/or subcontractors,
5. prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time, as such times may be adjusted, or
6. perform material obligations under the Contract Documents, then the City, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth below.

Upon the occurrence of an event set forth above, City may provide written notice to Contractor that it intends to terminate this Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Contractor's receipt of such notice.

If Contractor fails to cure, or reasonably commence to cure, such problem, then City may give a second written notice to Contractor of its intent to terminate within an additional seven (7) day period.

If Contractor, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then City may declare this Agreement terminated for default by providing written notice to Contractor of such declaration.

Upon declaring this Agreement terminated and for the purpose of completing the Work, City may enter upon the premises and take possession of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work. Contractor hereby transfers, assigns and conveys all items, which have been purchased or provided for the performance of the Work to the City for such purpose and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items.

In the event of such termination, Contractor shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, Contractor shall be entitled to be paid only for Work performed and accepted by the City prior to its default.

If City's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Contractor shall be obligated to pay the difference to City. Such costs and expenses shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by City in connection with the re-procurement and defense of claims arising from Contractor's default.

If City improperly terminates the Agreement for cause, the termination for cause shall be converted to a termination for convenience in accordance with the provisions of 108.14

SECTION 109 - MEASUREMENTS AND PAYMENTS

109.1 MEASUREMENT OF QUANTITIES:
(revise to include the following)

It is the responsibility of the Contractor to conform to the Contract Documents, including plans, typical sections and specifications including but not be limited to dimensions, materials, application rates and densities. The Contractor shall take all actions necessary to ensure that the work conforms to the contract documents. The Contractor shall cooperate fully with the Project Manager or Project Manager's representative to correct any known nonconformity to the contract documents.

109.1 MEASUREMENT OF QUANTITIES:
(delete the second paragraph)

Unless otherwise specified, longitudinal and surface (plane) measurements will be made in a horizontal plane.

PART 200 - EARTHWORK

SECTION 201 - CLEARING AND GRUBBING

201.3 CONSTRUCTION METHODS:
(revise to include the following)

The Contractor shall make every effort possible to avoid damaging existing trees. In the event that any trees suffer limb damage, the Contractor shall cut branches to the nearest branch crotch or to the branch collar at the trunk.

No separate payment will be made for trimming trees. The cost shall be considered incidental to the work.

SECTION 205 - ROADWAY EXCAVATION

SECTION 205 – ROADWAY EXCAVATION

205.1 DESCRIPTION
(revise to include the following)

The bid schedule unit cost for excavation, backfill and embankment work shall include the cost of rock excavation, handling rock or disposing of rock and no separate measurement or payment shall be made. Rock shall be defined as any highly cemented or hard material that may require additional efforts for removal, handling or disposal.

205.2 UNSUITABLE MATERIAL:
(third paragraph, revise to read as follows)

Should unsuitable material be encountered at subgrade elevation in cut areas or at existing grade in fill areas, the unsuitable material shall be removed and replaced with suitable fill material in accordance with MAG Section 210 and MAG Section 211.

Determination of unsuitable material and the limits and depths of required removal and replacement shall be at the sole discretion of the Project Manager. In no case shall any unsuitable material be removed without prior written consent of the Project Manager.

Measurement and payment for removal and replacement of unsuitable material will be by the cubic yard as shown in the proposal. Payment shall be compensation in full for the work complete and in-place including any borrow, permits, pit royalties, all excavation, hauling, placing, compacting, conditioning, watering and proper disposal, together with all appurtenant costs.

205.3 MEASUREMENT
(revise to include the following)
Earthwork is incidental to the roadway construction and no additional payment will be made for roadway excavation. The Contractor shall be responsible for estimating and accounting for earthwork import and haul off. It is recommended that the Contractor review the report on geotechnical investigation and sampling results.

PART 300 -- STREETS AND RELATED WORK

SECTION 301 - SUB-GRADE PREPARATION

301.1 DESCRIPTION:
(revise to include the following)
The untreated base or prepared subgrade shall be test rolled in the presence of the Project Manager prior to the placement of asphalt paving materials. The equipment used to perform the test roll shall be approved by the Project Manager. The Contractor shall be responsible for scheduling this test roll with the Inspector during regularly scheduled work. All costs associated with the test roll shall be considered incidental to and included in the cost of sub-grade preparation.

SECTION 336 - PAVEMENT MATCHING AND SURFACING REPLACEMENT

336.1 DESCRIPTION:
(first paragraph, revise to include the following)

The exact points of pavement matching shall be determined in the field by the Project Manager.

336.2 MATERIALS AND CONSTRUCTION METHODS:

336.2.1 PAVEMENT WIDENING OR EXTENSIONS:
(first paragraph, revise second sentence to read as follows)

The minimum depth of cut shall be four (4) inches or Depth/4, whichever is greater.

PART 400 -- RIGHT-OF-WAY AND TRAFFIC CONTROL

SECTION 401 - TRAFFIC CONTROL

401.5 GENERAL TRAFFIC REGULATIONS:
(revise to include the following)

Within seven (7) calendar days following receipt of the Notice of Award and in accordance with Section 108.1 of these General Provisions, the Contractor shall submit to the Project Manager a traffic control plan that shows the control of traffic in accordance with Part VI of the FHWA Manual on Uniform Traffic Control Devices for all phases of the work. The plan should include nights, weekends, shut down periods and an approximate schedule of street closures and detours.

The Traffic Control Plan is to detail the Contractor's proposal for routing traffic and pedestrians around the areas of construction. The Plan shall be coordinated with the proposed construction schedule and show how the locations of the various traffic and pedestrian control devices will change as construction progresses. The Plan shall allow for complete detours around the work areas.

Private and commercial driveways shall not be closed for any period exceeding eight hours during any twenty-four-hour period. The affected resident and the City shall be notified 48 hours in advance of any closure. Convenient access to driveways, houses and buildings along the line of work shall be maintained and temporary crossings or alternate access shall be provided and maintained in good condition, except during that period mentioned above. **Business access shall be maintained at all times by at least one driveway.**

(eleventh paragraph, revise to read as follows)

The Contractor will reinstall all permanent traffic control devices as required by the approved construction plans and specifications.

(twelfth paragraph, delete the last sentence)

Delete - The Traffic Engineering Department will reinstall all traffic signs.

401.7 PAYMENT:
(revise paragraph to read as follows)

Payment for all work and materials required to prepare a traffic control plan and provide traffic control during construction shall be made at the lump sum price shown on the Bid Schedule. Full compensation for any required traffic control devices, flaggers, uniformed off-duty law enforcement officers, pilot cars and drivers shall be included in the lump sum contract price and no additional payment shall be allowed. Progress payments shall be made based on the Contractor's estimate for percent complete as approved by the Owner.

SECTION 425 TOPSOIL

425.2 MATERIALS:
(revise to read as follows)

Overburden topsoil shall be salvaged and reused when possible. All topsoil, whether overburden or imported, shall be free of roots, heavy clay, clods, noxious weed seeds, coarse sand, large rocks, sticks, brush, litter and other deleterious material and meet the requirements of MAG Section 795. The Project Manager's approval of the proposed topsoil shall be obtained before delivery to the project.

425.4 MEASUREMENT:
(revise paragraph to read as follows)

Topsoil shall be measured lump sum, complete and in place unless indicated otherwise by the bid schedule.

425.5 PAYMENT:
(revise to read as follows)

Topsoil will be paid for in accordance with the contracted price for furnishing and placing topsoil, as described and specified. Progress payment shall be made based on the Contractor's estimate for percent complete as approved by the Owner.

SECTION 431 – EROSION CONTROL

(revise to include new section as follows)

431.1 DESCRIPTION

Erosion control applies to improvements within the city and as part of the erosion control section of a Storm Water Pollution Prevention Plan (SWPPP). Materials, means and methods for erosion control and stabilization, Best Management Practices (BMPs), Erosion Control Plans (ECPs) and SWPPPs are described in the City of Flagstaff Stormwater Design Manual.

The Contractor shall stabilize all disturbed areas within the project site and as shown on the plans. Work shall be performed according to the provisions of this Section and shall include but not be limited to the furnishing, hauling, placement and application of erosion control materials.

The Contractor is responsible for complying with the requirements of the National Pollutant Discharge Elimination System (NPDES) permit program. This generally includes submittal of a Notice of Intent to the Arizona Department of Environmental Quality (ADEQ) and Notice of Termination to ADEQ for the project. Preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for the site is required per ADEQ and City of Flagstaff standards.

The cost for complying with the NPDES permit and the SWPPP, including the erosion control devices, shall be included in the NPDES & SWPPP Requirements portion of the Contractor's bid. It is recommended that contractors see the ADEQ Smart NOI (Notice of Intent) program website (http://az.gov/webapp/noi/main.do) for information and processes.
Progress payment shall be made based on the Contractor's estimate for percent complete as approved by the Owner.

432.1 NATIVE SEEDING

All areas to be seeded that are accessible to machinery shall be tilled to a minimum depth of four (4) inches. Areas inaccessible to machinery shall be hand tilled and prepared to a minimum depth of two (2) inches. Cut slopes of 2:1 or steeper do not require tilling. Cultivation on sloping terrain shall run perpendicular to the direction to the slope. If weeds or herbaceous plant material interferes with proper seedbed preparation, the contractor shall remove them from the seedbed.

Contractor shall remove and dispose of all debris and other objectionable material that may interfere with seeding operations.

The area to be seeded shall be relatively smooth and all surface irregularities (e.g. rills, tire marks) shall be filled and firmed to conform to the desired cross sections. The seedbed shall be rolled both before and after the seeding operation with a minimum of one pass of a cultipacker or drag harrow.

Seed shall be sown when conditions will promote germination and growth. Normal non-irrigated permanent native seed application dates are between April 1 and June 15, between August 15 and September 20 and after the first frost (recurring overnight temperature of 28 degrees F) until snowfall. Seeding work shall be performed only after planting and other work affecting ground surface is complete.

To assist in establishment of the permanent seed mix, a nurse crop shall be used for this work. Preapproved nurse crop seed shall be one of the following, incorporated with the specified permanent seed mix;

Annual ryegrass	*(Lolium multiflorum)*	30 lbs/acre
Oats	(*Avena sativa)*	60 lbs/acre
Regreen©	(*Triticum aestivum x Elytrigia elongata)*	30 lbs/acre

Alternative species may be acceptable but are subject to prior approval from the City Project Manager or duly authorized representative.

When cut or fill slopes are greater than six (6) feet in height and steeper than 3H:1V, the seeded area shall be covered with American Excelsior Company straw/coconut blanket or an approved equal. Installation shall be per the manufacturer's written directions.

440.10. (D) SEQUENCING
(add the following section)

The irrigation system shall be installed, inspected, approved and operable prior to the installation of plant materials, landscape fabric and ground plane treatments (*decomposed granite, landscape rock, mulch, etc.)*

PART 600 - WATER AND SEWER

SECTION 601 - TRENCH EXCAVATION, BACKFILLING AND COMPACTION

601.2 EXCAVATION:

601.2.1 GENERAL:
(revise to include the following)

All excavation, including trench excavation, shall be performed in any substance and material encountered. The cost is considered incidental to and is to be included in the price for the bid item to be constructed or installed. No special payment shall be made for trench excavation other than rock excavation as specified under Trench Rock Excavation.

Trench Rock Excavation
Trench rock is defined as consolidated igneous, metamorphic and/or sedimentary material in the original bed and/or in well-defined ledges that cannot be removed by a mechanical method and therefore requires pneumatic hammering, drilling or blasting for removal. Example of mechanical methods include hand tools, trenching machine, backhoe, $\geq$195 horsepower hydraulic excavator with ripping teeth or equivalent.

Boulders and pieces of rock having a volume of more than 27 cubic feet (1 cubic yard) shall be considered rock.

For projects where trench rock excavation is anticipated, the estimated contingent quantity is shown in the proposal under the applicable bid item. The contingency quantity is an estimate only and no guaranty is given that any portion will be utilized. Trench rock excavation will be paid for separately at the unit price bid per cubic yard for Trench Rock Excavation.

Measurement of Trench Rock Excavation shall be per cubic yard in place. This volume of rock will be measured by the City representative, using the maximum trench width allowed in accordance with MAG Table 601-1, the lineal footage of actual rock excavation required and the actual depth of rock as determined by inspection of the trench after rock excavation and before backfilling.

PART 700 - MATERIALS

SECTION 710 - ASPHALT CONCRETE

710.1 GENERAL:
(revise to include the following)

The asphaltic concrete designation shall be 3/4 inch, except as required by the project plans or Special Provisions.

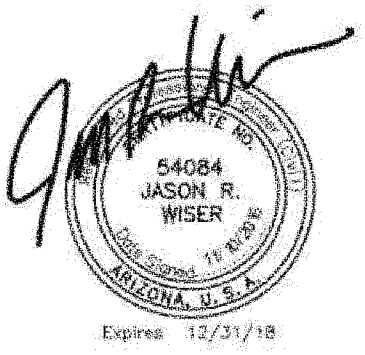
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City of Flagstaff

Wildcat Hill Wastewater Treatment Plant
Digester Gas System Improvements

Technical Specifications

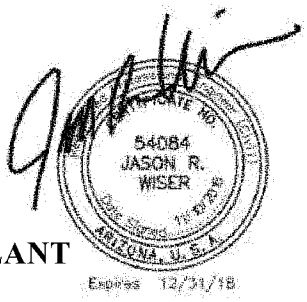
August 2018



Prepared by

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Phoenix, Arizona 85004



CITY OF FLAGSTAFF
WILDCAT HILL WASTEWATER TREATMENT PLANT
DIGESTER GAS SYSTEM IMPROVEMENTS
100 PERCENT TECHNICAL SPECIFICATIONS

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SECTION 01010

SUMMARY OF WORK

PART 1--GENERAL

The work covered under this contract will be performed at the site of the City of Flagstaff Wildcat Hill Wastewater Treatment Plant located at 2800 North El Paso Road, Flagstaff, Arizona 86001.

1.01 CONTRACTS

The Contract Documents associated with this project consist of two parts:

- Part A – Technical Specifications
-
- Part B – Drawings

1.02 WORK OF THIS CONTRACT

The work to be performed under this contract includes all labor, materials, and services required for providing the plant improvements defined by these Contract Documents.

The work shall be provided with all demolition and relocation of existing facilities, all temporary structures, piping, pumping, power, and control facilities required to maintain continuous plant operation; all concrete, support piping and equipment, electrical power, control, and lighting; instrumentation; architectural items; painting; and dewatering, demucking, excavation, backfill, grading, paving, fencing, and landscaping as shown and specified and shall include all specified delivery acceptance tests, inspections, operational testing, training, and commissioning.

The following major elements are a part of this contract. The work of this contract shall not be limited to the summary below. The work also includes restoration of those portions of the site that were damaged during construction to pre-construction conditions.

The major elements of the work include the following:

- Replacing portions of the existing underground digester piping with overhead stainless steel piping.

- Adding a hydrogen sulfide removal system to treat the raw digester gas. Installation of the hydrogen sulfide will require the partial excavation of a hill-side and the subsequent construction of a retaining wall.

- Adding a new booster blower to convey digester gas to the existing digester gas conditioning system located at the cogeneration facility.

- Adding a new air-cooled water chiller and heat exchanger for cooling and dehydrating the digester gas upstream of the existing conditioning system.
- Adding condensate collection and removal equipment and other necessary digester gas management appurtenances.

END OF SECTION

SECTION 01011

CONTRACT TIME

1.0 COMPLETION DATE SCHEDULE

Contract time for final completion from Notice to Proceed (days): 180

2.0 SPECIFIC DATE SCHEDULE

Specific dates are dependent on various construction activities and will be determined during the construction phase. Acceptable dates will be determined by the Owner and the Contractor.

END OF SECTION

SECTION 01014

WORK SEQUENCE

1.0 CONTINUITY OF PLANT OPERATIONS

A. GENERAL:

The existing wastewater treatment plant is currently and continuously receiving and treating sewage, and those functions shall not be interrupted except as specified herein. The Contractor shall coordinate the work to avoid any interference with normal operation of plant equipment and processes.

B. BYPASSING:

Bypassing of untreated or partially treated sewage to surface waters or drainage courses is prohibited during construction. In the event accidental bypassing is caused by the Contractor's operations, the Owner shall immediately be entitled to employ others to stop the bypassing without giving written notice to the Contractor.

Penalties imposed on the Owner as a result of any bypass caused by the actions of the Contractor, his employees, or subcontractors, shall be borne in full by the Contractor, including legal fees and other expenses to the Owner resulting directly or indirectly from the bypass.

C. SUBMITTAL:

In accordance with Section 01300, the Contractor shall submit a detailed outage plan and time schedule for operations which will make it necessary to remove a tank, pipeline, channel, electrical circuit, equipment, or structure from service. The schedule shall be coordinated with the construction schedule and shall meet the restrictions and conditions specified in this section. The detailed plan shall describe the Contractor's method for preventing bypassing of other treatment units, the length of time required to complete said operation, the necessary plan, and equipment which the Contractor shall provide in order to prevent bypassing of associated treatment units.

The Contractor shall observe the following restrictions:

- ∞ Systems or individual equipment items shall be isolated, dewatered, decommissioned, de-energized, or depressurized in accordance with the detailed outage plan and schedule. The Construction Manager shall be notified in writing at least one week in advance of the planned operation.

2.0 SEQUENCE AND SCHEDULE OF CONSTRUCTION

To permit continuous treatment of wastewater and compliance with effluent quality requirements, the construction schedule required in paragraph 01011 2.0 shall provide for the following specific conditions:

1. In accordance with the contract drawings, excavate the requisite portion of the berm on the North side of Digester 2, cut and remove the north section of the existing retaining wall, and construct new retaining wall.

2. Prepare the area north of Digester 2 and construct a new equipment pad for the eventual installation of the new hydrogen sulfide removal system.

3. Grind, patch, level, and otherwise prepare the existing equipment pads located in the Digester Control Building and on the roof of the Digester Control Building for the eventual installation of a new digester gas booster blower and a new air-cooled water chiller, respectively.

4. Carefully and safely demolish and remove from the site all existing equipment and piping as indicated on the contract drawings.

5. Install all equipment, piping, and instrumentation in accordance with the contract drawings and specifications.

6. Fill the hydrogen sulfide removal vessel with the granular iron oxide media in accordance with the manufacturer's written instructions.

7. Pressure-test and clean the CWS/CWR piping.

8. Fill the chiller and glycol circulation system, including expansion tank and/or buffer tank, with 40 percent ethylene glycol solution and remove all air from the piping in accordance with the manufacturer's written instructions. Note: system shall be filled with glycol solution and pressurized prior to the installation of insulation on the glycol solution piping in order to detect possible leaks in the system.

9. Excavate and expose the existing, buried 8-inch HDPE digester gas piping at the designated location north of Digester 2 where the digester gas piping branches to the waste gas burner and cogeneration facilities.

10. Close and tag isolation valves on existing 4-inch digester gas laterals located in the Digester Control Building to temporarily stop the flow of digester gas to the common 8-inch digester gas manifold. Waste gas burner shall continue to operate until it automatically shuts off due to low gas pressure. Isolation valves shall remain closed during modifications to existing 8-inch digester gas piping and installation of new digester gas piping and equipment. Contractor shall perform all subsequent construction activities in such a manner as to limit the amount of time that the isolation valves are

closed in order to limit, to the maximum extent practical, the amount of digester gas vented to atmosphere. Contractor shall notify the Owner 1 week in advance of closing the isolation valves.

11. With the isolation valves closed and prior to cutting the existing digester gas piping and prior to connecting the existing piping with the new piping, carefully and safely purge digester gas from the piping with an inert gas such as nitrogen, carbon dioxide, or argon.

12. At the conclusion of the digester gas purge activity, remove the now exposed T-fitting located to the north of Digester 2 (described above) that directs digester gas from the Digester Control Building to the waste gas burner and the cogeneration facilities.

13. Connect the existing buried HDPE digester gas piping from the Digester Control Building to the existing buried HDPE digester gas piping that runs to the waste gas burner. Connect the new 4-inch HDPE piping for MSG service to the existing buried HDPE digester gas piping that extends to the cogeneration facilities. Make all necessary digester gas piping connections to the existing piping in the Digester Control Building. Install segment of MSG piping at the existing digester gas treatment skid to bypass the demolished blower and heat exchanger such that bypass piping connects the discharge of the inlet filter to the inlet of the siloxane removal vessels.

14. Carefully pressure-test the entire digester gas system. Pressure test shall be performed with air and in accordance with the contract documents. Provide the Owner with a certified test report.

15. In accordance with the contract documents, carefully and safely purge air from the complete digester gas system with natural gas.

16. At the conclusion of the purge activity, and with the digester gas system and piping intact, open the isolation valves on the 4-inch digester gas laterals in the Digester Control Building.

17. Start, test, and commission the digester gas treatment equipment, including the digester gas booster blower, digester gas cooling heat exchanger, and the hydrogen sulfide removal system per the manufacturers' written instructions.

18. Start, test, and commission the air-cooled water chiller and glycol circulation pump per the manufacturer's written instructions. Note: all glycol solution piping shall be insulated completely vapor-tight prior to chiller startup in order to prevent water vapor from condensing on the piping surface.

19. Tune and adjust equipment to ensure that the digester gas conveyance, pressurization, and treatment system operates in accordance with the contract specifications.

20. Safely and properly remove all construction equipment and debris from the site and return the site to its original condition as found prior to the start of construction activities.

21. Provide Owner's staff with training, as required in the contract specifications.

END OF SECTION

SECTION 01015

CONTRACTOR'S USE OF PREMISES

The Owner's operating personnel will be responsible for operating the existing treatment plant throughout the execution of this contract. Equipment presently installed in the treatment plant must be available to plant personnel at all times for use, maintenance, and repair. If it is necessary in the course of operating the plant, for the Contractor to move his equipment, materials, or any material included in the work, he shall do so promptly and place that equipment or material in an area which does not interfere with the plant operation. The Contractor shall not adjust or operate serviceable or functioning equipment or systems except as specifically required by this contract.

The existing treatment plant will remain in operation throughout the execution of this contract. The Contractor shall schedule and conduct his work to minimize necessary shutdowns and interference with normal plant operations and maintenance.

The Contractor shall notify the Owner, in accordance with Section 01014, 1 week in advance of the time it is necessary to take out of service any existing tank, pipeline, channel, electrical circuit, equipment or structure. The Contractor shall be responsible for providing whatever temporary piping, pumping, power, and control facilities as are required to maintain continuous plant operation and complete treatment except as otherwise specified. The integrity of existing plant utilities shall be maintained by the Contractor at all times.

END OF SECTION

SECTION 01040

COORDINATION WITH OPERATION OF EXISTING FACILITIES

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE OF WORK:

The existing wastewater treatment plant will be in continuous operation throughout the execution of this Contract. The Contractor, therefore, shall schedule and conduct his work so as to minimize interference with plant operation and maintenance. It is the intent of this Contract that the construction activity, insofar as possible, shall not interfere with the operation of the plant. The Contractor shall be responsible for coordinating and scheduling the Work in such a sequence that the existing and proposed plant will function properly with no disruption of treatment, bypassing or short-circuiting as specified in Section 01014, Work Sequence.

B. OPERATIONS WORK PLAN:

Contractor shall submit a written Work Plan for each area in specification Section 01014, Work Sequence, two weeks in advance of the time when construction operations will require connection to, or modification of, in-service portions of the existing facility. The plan shall describe the Contractor's method for preventing bypassing of other treatment units, the length of time required to complete Work for the said operations, activities requiring plant staff, and the necessary plant and other equipment which the Contractor shall provide in order to prevent bypassing of associated treatment units. The Work Plan shall address each of the following coordination, planning, and scheduling activities:

1. Emergency procedures to stop accidental bypassing.
2. Planned operational disruptions.
3. Planned utility interruptions including electrical power, natural gas, potable water, and telephone services.
4. Temporary facilities.
5. Process units to be taken out of service.
6. Demolition Plan.

7. Connection of new and existing facilities.

8. Impact on Work sequence and construction schedule.

C. COORDINATION WITH OWNER:

Delays in the construction schedule due to failure of the Contractor to adequately coordinate the Work with the Owner sufficiently in advance of the Work shall not be considered as cause for extension of the Contract Time. It shall be the Contractor's responsibility to continuously keep the Owner informed of the construction schedule as the Work progresses. Submittal of the construction schedule required in Section 01310 shall not relieve the Contractor of the responsibility to coordinate the Work with the Owner nor give advance notifications as specified.

1.02 PERFORMANCE REQUIREMENTS

A. GENERAL:

When modifications, additions, or connections to existing facilities are required, the Contractor shall schedule such activities with the Owner and Construction Manager. No system, structure, tankage, circuit, or individual process unit shall be modified, dewatered, drained, de-energized, or removed from existing facilities unless authorized, in writing, by the Construction Manager. Insofar as possible, no interconnections between existing systems and new systems shall be made until all the Work of the new system has been completed, and tested up to the point of interconnection to the existing system in accordance with specification Section 01660, Installation, Testing, and Commissioning.

B. OPERATIONAL DISRUPTIONS:

In addition to the normal schedule requirements as specified herein, the Contractor shall provide the Owner two weeks before event with a detailed breakdown and plan of Work activities to be conducted during a disruption period. The Owner will then review the plan and advise the Contractor as to its suitability. Submission of a plan and request for disruption does not require or constitute approval by the Owner. The Owner will evaluate operational impacts of the disruption against operational requirements and respond accordingly. Constraints regarding known disruptions are addressed under specification Section 01014, Work Sequence.

The Contractor is expected to take maximum advantage of any component or system disruption. When planning Work for a disruption, all possible Work that can be accommodated by the disruption should be accomplished if practicable. All necessary preparatory Work is to be completed prior to the planned disruption, and all equipment, materials, and personnel needed to satisfy the Work requirements scheduled for the disruption period are to be available prior to initiation of the event. All planned operational disruptions shall be scheduled between the hours of 12:00 a.m. and 8:00 a.m. Disruptions of longer duration or at other times shall require written approval of the Owner one month in advance of the event.

The Contractor shall connect new electrical equipment with a minimum of interruption to plant services. The Contractor shall inform the Owner in writing two weeks in advance of event, whenever the power supply must be interrupted to make required connections and shall inform him of the estimated duration of the interruption. In no case shall the Contractor cause an intentional power interruption without written authority from the Owner.

No extra payment will be made for any labor, materials, tools, equipment, or temporary facilities required during any disruption periods. All associated costs shall be included in the Contractor's GMP. The Contractor is responsible for damages suffered by the Owner as a result of the Contractor's failure to complete the required work within allotted disruption periods.

C. TEMPORARY FACILITIES:

Whenever disruption of routine plant operation is required to accomplish the Work, the Contractor shall provide temporary facilities to ensure that all plant flows are accommodated and that treatment requirements are satisfied to the same quality as existing prior to the start of construction. Adequacy of temporary facilities shall be determined by the Construction Manager.

The Contractor shall submit to the Construction Manager for approval all detailed drawings showing equipment, piping, power, controls, and weather protection for all proposed temporary systems whether described in this section or anticipated by the Contractor. The submittals shall indicate equipment capacities.

D. NOT USED

E. SUBMITTALS:

In accordance with specification Section 01300 and in addition to the requirements of that section, the following submittals shall be provided:

1. Area operations Work Plan.
2. Drawings of proposed temporary facilities.

1.03 GENERAL EXECUTION

A. OPERATION:

Unless otherwise specified, normal daily operation and maintenance of the existing wastewater treatment facilities will be performed by plant personnel. Whenever operational functions on existing facilities or new facilities which affect operating systems are required to permit construction operations, these functions will also be performed by plant personnel. The Owner shall be notified at least 72 hours in advance of the need to operate valves, gates, equipment, or other actions that could affect plant operations.

B. TEMPORARY FACILITIES:

The Contractor shall not use proposed new equipment in any temporary facility. Temporary facilities shall not be removed from service until the new proposed system has been satisfactorily tested and commissioned as specified in individual technical specification sections and Sections 01660, Installation, Testing, and Commissioning. All temporary facilities shall be removed from the site by the Contractor and shall remain the property of the Contractor when no longer required.

The Owner shall operate all temporary process facilities while they are needed. All maintenance shall be provided by the Contractor. During the time of use of the temporary facility, the Owner shall pay for all power and chemicals necessary to operate the systems.

C. NOT USED

D. MODIFICATION OF EXISTING STRUCTURES:

The Contractor shall alter or rework existing concrete structures as shown and specified. Generally, when items of equipment and piping are removed, the areas and surfaces from which items were removed shall be left with a neat appearance and finish compatible with surrounding areas, colors, and surfaces. Holes and pipe and conduit penetrations in walls and slabs shall be plugged smooth with grout. The Contractor shall do all painting, sanding, grouting, sacking, resurfacing, and other work as necessary to comply with the above requirements. Prior to structural modifications, all surfaces shall be subject to inspection by the Construction Manager. Colors shall match existing colors as closely as possible.

When removing materials or portions of existing structures and when making openings in walls and partitions, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new work, nor to damage the structures or contents by falling or flying debris.

All work of altering existing structures shall be done at such time and in such manner as will comply with the approved time schedule. So far as possible before any part of the work is started, all tools, equipment, and materials shall be assembled and made ready so that the work can be completed without delay.

Where holes in existing masonry are required to be sealed, unless otherwise herein specified, they shall be sealed with cement mortar or concrete. The sides of the openings shall be provided with keyed joints and shall be suitably roughened to furnish a good bond and make a watertight joint. All loose or unsound material adjacent to the opening shall be removed and, if necessary, replaced with new material. The method of placing the mortar seal shall provide a suitable means of releasing entrapped air.

Surfaces of seals visible in the completed work shall be made to match as nearly as possible the adjacent surfaces.

Non-shrink grout shall be used for setting wall castings, sleeves, leveling pump bases, doweling anchors into existing concrete and elsewhere as shown.

E. BURIED PIPELINES:

Buried pipelines 2 inches in diameter and larger to be abandoned during the course of the work shall be plugged at both ends with expanding grout as detailed on the drawings.

F. PERMITS AND EASEMENTS:

The Contractor will obtain the permits and the permanent easements required for the construction of the project. In addition, the Contractor shall obtain all temporary easements outside of the Owner's property required for the Contractor's operations. The Contractor shall notify the Owner immediately if it becomes apparent a permit or easement cannot readily be obtained.

G. DISPOSAL/HANDLING OF HAZARDOUS MATERIALS:

The Contractor is solely responsible for storage, use and disposal of materials, including subcontractor materials classified as hazardous substances in accordance with HSWA 1984 and RCRA regulations. The Owner reserves the right to designate the storage location of the hazardous materials and conduct periodic inspections on the site. The Contractor, after completion of construction shall remove and dispose of all construction related materials with hazardous waste classifications in accordance with local, state, and federal regulations.

H. SECURITY:

The Contractor shall at all times be responsible for the security of his facilities and equipment. The Owner will not take any responsibility for the Contractor's missing or damaged equipment, tools, or personal belongings.

END OF SECTION

SECTION 01050

SURVEY INFORMATION

The Owner will establish reference benchmarks and baselines as specified. From the information provided, the Contractor shall develop and make such additional surveys as are needed for construction, such as control lines, slope stakes, batter boards, stakes for pipe locations and other working points, lines, and elevations. Survey work shall be performed under the supervision of a licensed land surveyor or registered civil engineer. Contractor shall reestablish reference benchmarks and survey control monuments destroyed by his operations at no cost to the Owner.

END OF SECTION

SECTION 01060

SAFETY AND HEALTH

PART 1--GENERAL

1.01 GENERAL

Portions of the existing plant are exposed to wastewaters of varying degrees of treatment. The Contractor shall put in place the necessary safety plans, in accordance with applicable Federal, State, and local laws and regulations to safely perform the Work. As such, the Contractor acknowledges that he is experienced and qualified to anticipate and meet the safety and health requirements of this project.

Workmen involved in the removal, renovation, or installation of equipment within the treatment plant may be exposed to disease-producing organisms in wastewater. The Contractor shall require his personnel to observe proper hygienic precautions.

Solvents, gasoline, and other hazardous materials enter the plant with incoming sewage, and, therefore, certain areas are hazardous to open flame, sparks, or unventilated occupancy. The Contractor shall take measures to assure his personnel observe proper safety precautions when working in these areas.

1.02 SAFETY AND HEALTH REGULATIONS

The Contractor shall comply with Safety and Health Regulations for Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29, C.F.R. Copies of these regulations may be obtained from Labor Building, 14th and Constitution Avenue N.W., Washington, DC 20013.

The Contractor shall also comply with the provisions of the Federal Occupational Safety and Health Act, as amended.

END OF SECTION

SECTION 01071

STANDARD REFERENCES

Wherever used in the project manual, the following abbreviations will have the meanings listed:

AA	Aluminum Association Incorporated P.O. Box 753 Waldorf, MD 20604
AABC	Associated Air Balance Council 1518 K Street N.W. Washington, DC 20005
AAMA	American Architectural Manufacturers Association 1540 East Dundee Road, Suite 310 Palatine, IL 60067
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W., Suite 249 Washington, DC 20001
ABMA	American Bearing Manufacturers Association 1200 19th Street N.W., Suite 300 Washington, DC 20036
ACI	American Concrete Institute 22400 West Seven Mile Road P.O. Box 19150, Redford Station Detroit, MI 48219
AEIC	Association of Edison Illuminating Companies 600 North 18th Street P.O. Box 2641 Birmingham, AL 35291
AGA	American Gas Association ATTN: Records 1515 Wilson Boulevard Arlington, VA 22209
AGMA	American Gear Manufacturer's Association, Inc. 1500 King Street, Suite 201 Alexandria, VA 22314
AHA	American Hardboard Association 1210 West Northwest Highway Palatine, IL 60067
AISC	American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, IL 60601

AISI	American Iron and Steel Institute 1101 Seventeenth Street, NW, Suite 1300 Washington, DC 20036
AITC	American Institute of Timber Construction 7012 South Revere Parkway, Suite 140 Englewood, CO 80112
ALSC	American Lumber Standard Committee P.O. Box 210 Germantown, MD 20875
AMCA	Air Movement and Control Association, Inc. 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute 11 West 42nd Street, 13th Floor New York, NY 10036
APA	American Plywood Association 7011 South 19th Street Tacoma, WA 98466
API	American Petroleum Institute 1220 L Street N.W. Washington, DC 20005
ARI	Air-Conditioning and Refrigeration Institute 4301 North Fairfax Drive, Suite 425 Arlington, VA 22203
ASCE	American Society of Civil Engineers United Engineering Center 345 East 47th Street New York, NY 10017
ASCII	American Standard Code for Information Interchange United States of America Standards Institute 10 East 40th Street New York, NY 10016
ASE Code	American Standard Safety Code for Elevators, Dumbwaiter and Escalators American National Standards Institute 1430 Broadway New York, NY 10018
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc. 1791 Tullie Circle, NE Atlanta, GA 30329
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, PA 19428

AWPA	American Wood-Preservers' Association 9549 Old Fredrick Road Ellicott City, MD 21042 or P.O. Box 286 Woodstock, MD 21163-0286
AWS	American Welding Society 550 NW LeJeune Road P.O. Box 351040 Miami, FL 33135
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
BOCA	Building Officials and Code Administrators, International, Inc. 4051 West Flossmoor Road Country Club Hills, IL 60478
CALTEST	Materials Manual, State of California, Business and Transportation Agency Department of Public Works State of California, Department of Transportation 6002 Folsom Boulevard Sacramento, CA 95819
CALTRANS	Standard Specifications, State of California, Department of Transportation State of California, Business and Transportation Agency P.O. Box 1499 Sacramento, CA 95807
CBM	Certified Ballast Manufacturers 2120 Keith Building Cleveland, OH 44115
CMAA	Crane Manufacturers Association of America, Inc. (Formerly called: Overhead Electrical Crane Institute) (OECI) 8720 Red Oak Boulevard, Suite 201 Charlotte, NC 28217
CRSI	Concrete Reinforcing Steel Institute 933 N Plum Grove Road Schaumburg, IL 60173
CSA	Canadian Standards Association 178 Rexdale Boulevard Rexdale, Ontario, M9W IR3, Canada
DEMA	Diesel Engine Manufacturer's Association 30200 Detroit Road Cleveland, OH 44145
DHI	Door and Hardware Institute 14170 Newbrook Drive Chantilly, VA 22021

DIS	Division of Industrial Safety California Department of Industrial Relations 2422 Arden Way Sacramento, CA 95825
EEI	Edison Electric Institute 90 Park Avenue New York, NY 10016
EIA	Electronic Industries Association Order from: Global Engineering Documents 18201 McDurmott West Irvine, CA 92714
EJMA	Expansion Joint Manufacturers Association 25 North Broadway Tarrytown, NY 10591
ESO	Electrical Safety Orders California Administrative Code, Title 8, Chap. 4, Subarticle 5 Office of Procurement, Publications Section P.O. Box 20191 8141 Elder Creek Road Sacramento, CA 95820
FEDSPEC	Federal Specifications General Services Administration Specification and Consumer Information Distribution Branch Washington Navy Yard, Bldg. 197 Washington, DC 20407
FEDSTDS	Federal Standards (see FEDSPECS)
FM	Factory Mutual Engineering and Research Corporation 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062
HEI	Heat Exchange Institute 1300 Sumner Avenue Cleveland, OH 44115
HI	Hydraulic Institute 9 Sylvan Way, Suite 180 Parsippany, NJ 07054
HPVA	Hardwood Plywood & Veneer Association 1825 Michael Faraday Drive P.O. Box 2789 Reston, VA 22090-2789
IAPMO	International Association of Plumbing and Mechanical Officials 20001 Walnut Drive S Walnut, CA 91789

ICBO	International Conference of Building Officials 5360 Workman Mill Road Whittier, CA 90601
ICEA	Insulated Cable Engineers Association P.O. Box 440 South Yarmouth, MA 02664
IEEE	Institute of Electrical and Electronics Engineers 445 Hoes Lane P.O. Box 1331 Piscataway, NJ 08855
IES	Illuminating Engineering Society of North America 120 Wall Street New York, NY 10017
ISA	Instrument Society of America 67 Alexander Drive P.O. Box 12277 Research Triangle Park, NC 27709
JIC	Joint Industrial Council 7901 West Park Drive McLean, VA 22101
MFMA	Metal Framing Manufacturers Association 401 N. Michigan Avenue Chicago, IL 60611
MILSPEC	Military Specifications Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
MSS	Manufacturers Standardization Society of the Valve & Fittings Industry, Inc. 127 Park Street, N.E. Vienna, VA 22180
NAAMM	National Association of Architectural Metal Manufacturers 11 South La Salle Street, Suite 1400 Chicago, IL 60603
NACE	National Association of Corrosion Engineers 1440 South Creek Drive Houston, TX 77084
NBC	National Building Code Published by BOCA
NEC	National Electric Code National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269
NELMA	Northeastern Lumber Manufacturers Association, Inc. P.O. Box 87A Cumberland Center, ME 04021

NEMA	National Electrical Manufacturer's Association 2101 L Street, NW, Suite 300 Washington, DC 20037
NESC	National Electric Safety Code American National Standards Institute 1430 Broadway New York, NY 10018
NFOR	National Forest Products Association (Formerly National Lumber Manufacturer's Association) 1111 19 Street NW, Suite 700 Washington, DC 20036
NFPA	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269
NHLA	National Hardwood Lumber Association 6830 Raleigh LaGrange P.O. Box 34518 Memphis, TN 38184-0518
NSF	National Sanitation Foundation 3475 Plymouth Road P.O. Box 130140 Ann Arbor, MI 48113
OSHA	Occupational Safety and Health Act U.S. Department of Labor Occupational and Health Administration San Francisco Regional Office 450 Golden Gate Avenue, Box 36017 San Francisco, CA 94102
PCI	Precast/Prestressed Concrete Institute 175 West Jackson Blvd., Suite 1859 Chicago, IL 60604
PPIC	The Plumbing & Piping Industry Council, Inc. 510 Shatto Place, Suite 402 Los Angeles, CA 90020
RIS	Redwood Inspection Service California Redwood Association 405 Enfrente Dr., Suite 200 Novato, CA 94949
RMA	Rubber Manufacturers Association 1400 K Street NW, Suite 900 Washington, DC 20005
SAE	Society of Automotive Engineers, Inc. 400 Commonwealth Drive Warrendale, PA 15096

SAMA	Scientific Apparatus Makers Association One Thomas Circle Washington, DC 20005
SBC	Standard Building Code Published by SBCCI
SBCCI	Southern Building Code Congress International Inc. 900 Montclair Road Birmingham, AL 35213
SCMA	Southern Cypress Manufacturers Association 400 Penn Center Boulevard, Suite 530 Pittsburg, PA 15235
SDI	Steel Door Institute 30200 Detroit Road Cleveland, OH 44145
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc. P.O. Box 221230 Chantilly, VA 22021
SPI	Society of the Plastics Industry, Inc. 1275 K Street NW, Suite 400 Washington, DC 20005
SPIB	Southern Pine Inspection Bureau 4709 Scenic Highway Pensacola, FL 32504
SSPC	Society for Protective Coatings 40 24th Street, 6th Floor Pittsburgh, PA 15222
SSPWC	Standard Specifications for Public Works Construction Building News, Inc. 3055 Overland Avenue Los Angeles, CA 90034
TEMA	Tubular Exchanger Manufacturer's Association 25 North Broadway Tarrytown, NY 10591
TPI	Truss Plate Institute 583 D'Onofrio Drive, Suite 200 Madison, WI 53719
UBC	Uniform Building Code Published by ICBO
UL	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062
UMC	Uniform Mechanical Code Published by ICBO
UPC	Uniform Plumbing Code Published by IAPMO

USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225
WCLIB	West Coast Lumber Inspection Bureau 6980 SW Varns Street P.O. Box 23145 Portland, OR 97223
WWPA	Western Wood Products Association (Formerly called: West Coast Lumbermen's Association (WCLA)) Yeon Building 522 SW 5th Avenue Portland, OR 97204

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1--GENERAL

Submittals covered by these requirements include manufacturers' information, shop drawings, test procedures, test results, samples, requests for substitutions, and miscellaneous work-related submittals. Submittals shall also include, but not be limited to, all mechanical, electrical and electronic equipment and systems, materials, reinforcing steel, fabricated items, and piping and conduit details. The Contractor shall furnish all drawings, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's installation and other instructions as specifically required in the contract documents to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the contract documents.

1.01 CONTRACTOR'S RESPONSIBILITIES

A. GENERAL:

The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that all features of all products conform to the specified requirements. Submittal documents shall be clearly edited to indicate only those items, models, or series of equipment, which are being submitted for review. All extraneous materials shall be crossed out or otherwise obliterated. The Contractor shall ensure that there is no conflict with other submittals and notify the Owner in each case where his submittal may affect the work of another contractor or the Owner. The Contractor shall coordinate submittals among his subcontractors and suppliers including those submittals complying with unit responsibility requirements specified in applicable technical sections.

The Contractor shall coordinate submittals with the work so that work will not be delayed. He shall coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals. The Contractor shall not proceed with work related to a submittal until the submittal process is complete. This requires that submittals for review and comment shall be returned to the Contractor stamped "No Exceptions Taken" or "Make Corrections Noted."

The Contractor shall certify on each submittal document that he has reviewed the submittal, verified field conditions, and complied with the contract documents.

The Contractor may authorize in writing a material or equipment supplier to deal directly with the Owner with regard to a submittal. These dealings shall be limited to contract interpretations to clarify and expedite the work.

B. REQUEST FOR SUBSTITUTION – SPECIAL EQUIPMENT:

Requests for substitution for equipment specified by manufacturer or manufacturer's model number shall be in writing and shall be accompanied with sufficient information to permit the Owner to identify the nature and scope of the request. Information to be provided along with the request for substitution shall include:

1. All submittal information required for the specified equipment, including all deviations from the specified requirements necessitated by the proposed substitution.

2. Materials of construction, including material specifications and references.

3. Performance data, including performance curves and guaranteed power consumption, over the range of specified operating conditions.

4. Dimensional drawings, showing required access and clearances, including any changes to the work required to accommodate the proposed substitution.

5. Where controls are a part of the proposed substitution, piping, process and instrumentation drawings (P&IDs), produced in the project format and with project-specific symbols, along with control descriptions.

6. Where controls specified in the project manual require modification to accommodate the proposed substitution, piping, process and instrumentation drawings (P&IDs), produced in project format and with project-specific symbols, with all required modifications clearly highlighted.

7. Information and performance characteristics for all system components and ancillary devices to be furnished as a part of the proposed substitution.

8. Reproducible contract drawings, marked up to illustrate the alterations to all structural, architectural, mechanical, electrical and HVAC systems required to accommodate the proposed substitution.

9. A list of installations of the proposed substitution indicating application, location, owner and date of first use.

Upon receipt of written application for substitution from the Contractor, including the information specified above, the Owner will estimate the cost of evaluating the request and present the estimate to the Contractor. The Contractor is advised that the estimate is based upon the best information available to the Owner at the time; however, the actual cost, based on time and expense, will be documented and applied in the final analysis of the substitution request. If the Contractor wishes to proceed with the request, he shall advise the Owner in writing and submit sufficient additional information as may be requested by the Owner. No evaluation will take place until such

time as the Contractor has agreed to the estimate in writing and has authorized the Owner to deduct the cost of the evaluation from monthly progress payments due the Contractor.

Cost for evaluating a requested substitution for any equipment item named below shall be borne by the Contractor as specified.

1.02 CATEGORIES OF SUBMITTALS

A. GENERAL:

Submittals fall into two general categories; submittals for review and comment, and submittals which are primarily for information only. Submittals which are for information only are generally specified as PRODUCT DATA in Part 2 of applicable specification sections.

At the beginning of work, the Owner will furnish the Contractor lists of those submittals specified in the project manual. Two separate lists will be provided: submittals for review and comment and product data (submittals) for information only.

B. SUBMITTALS FOR REVIEW AND COMMENT:

All submittals except where specified to be submitted as product data for information only shall be submitted by the Contractor to the Owner for review and comment.

C. SUBMITTALS (PRODUCT DATA) FOR INFORMATION ONLY:

Where specified, the Contractor shall furnish submittals (product data) to the Owner for Information only. Submittal requirements for operation and maintenance manuals, which are included in this category, are specified in Section 01730.

1.03 TRANSMITTAL PROCEDURE

A. GENERAL:

Unless otherwise specified, submittals regarding material and equipment shall be accompanied by Transmittal Form 01300-A specified in Section 01999. Submittals for operation and maintenance manuals, information and data shall be accompanied by Transmittal Form 01730-A specified in Section 01999. A separate form shall be used for each specific item, class of material, equipment, and items specified in separate, discrete sections, for which the submittal is required. Submittal documents common to more than one piece of equipment shall be identified with all the appropriate equipment numbers. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.

A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "XXX"; where "XXX" is the sequential number assigned by the Contractor. Resubmittals shall have the following format: "XXX-Y"; where "XXX" is the originally assigned submittal number and "Y" is a sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd, and 3rd resubmittals, respectively. Submittal 25B, for example, is the second resubmittal of submittal 25.

B. DEVIATION FROM CONTRACT:

If the Contractor proposes to provide material, equipment, or method of work which deviates from the project manual, he shall indicate so under "deviations" on the transmittal form accompanying the submittal copies.

C. SUBMITTAL COMPLETENESS:

Submittals which do not have all the information required to be submitted, including deviations, are not acceptable and will be returned without review.

1.04 REVIEW PROCEDURE

A. GENERAL:

Submittals are specified for those features and characteristics of materials, equipment, and methods of operation which can be selected based on the Contractor's judgment of their conformance to the specified requirements. Other features and characteristics are specified in a manner which enables the Contractor to determine acceptable options without submittals. The review procedure is based on the Contractor's guarantee that all features and characteristics not requiring submittals conform as specified. Review shall not extend to means, methods, techniques, sequences or procedures of construction, or to verifying quantities, dimensions, weights or gages, or fabrication processes (except where specifically indicated or required by the project manual) or to safety precautions or programs incident thereto. Review of a separate item, as such, will not indicate approval of the assembly in which the item functions.

When the contract documents require a submittal, the Contractor shall submit the specified information as follows:

1. Three copies (paper) and one electronic version (on CD or DVD) of all submitted information shall be transmitted with submittals for review and comment.

2. Unless otherwise specified, three copies (paper) and one electronic version (on CD or DVD) of all submitted information shall be transmitted with submittals (Product Data) for information only.

B. SUBMITTALS FOR REVIEW AND COMMENT:

Unless otherwise specified, within 35 calendar days after receipt of a submittal for review and comment, the Owner shall review the submittal and return 2 copies of the marked-up reproducible original noted in 1 above. The reproducible original will be retained by the Owner. The returned submittal shall indicate one of the following actions:

1. If the review indicates that the material, equipment or work method complies with the project manual, submittal copies will be marked "NO EXCEPTIONS TAKEN." In this event, the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.

2. If the review indicates limited corrections are required, copies will be marked "MAKE CORRECTIONS NOTED." The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in O&M data, a corrected copy shall be provided.

3. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "AMEND AND RESUBMIT." Except at his own risk, the Contractor shall not undertake work covered by this submittal until it has been revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

4. If the review indicates that the material, equipment, or work method does not comply with the project manual, copies of the submittal will be marked "REJECTED - SEE REMARKS." Submittals with deviations which have not been identified clearly may be rejected. Except at his own risk, the Contractor shall not undertake the work covered by such submittals until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

C. SUBMITTALS (PRODUCT DATA) FOR INFORMATION ONLY:

Such information is not subject to submittal review procedures and shall be provided as part of the work under this contract and its acceptability determined under normal inspection procedures.

1.05 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS

Review of contract drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of his responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Owner or the Owner, or by any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, of the method of work, material, or equipment

so reviewed. A mark of "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED" shall mean that the Owner has no objection to the Contractor, upon his own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

END OF SECTION

SECTION 01310

CONSTRUCTION SCHEDULE

PART 1--GENERAL

1.01 SCOPE

This section specifies the procedures for preparing and revising the cost-loaded construction schedule used for planning and managing construction activities. The schedule provides a basis for determining the progress status of the project relative to the completion time, specific dates, and for determining the acceptability of the Contractor's progress payment estimates. This Section is intended as supplemental to the Construction Services Agreement which shall govern.

1.02 DESCRIPTION

The Contractor shall prepare a time scale network schedule using a critical path method. A general guide for preparing such a schedule is contained in "The Use of CPM in Construction, a Manual for Contractors," published by the Associated General Contractors of America.

The schedule shall depict all significant construction activities and all items of work listed in the breakdown of contract prices submitted by the Contractor in accordance with Part A, Construction Services Agreement. Assigned values for each part of the work shall be indicated. The dependencies between activities shall be indicated so that it may be established what effect the progress of any one activity has on the schedule.

Completion time and all specific dates given in Section 01011, and sequencing requirements described in Section 01014, shall be shown on the schedule. Activities making up the critical path shall be identified.

No activity on the schedule shall have a duration longer than 21 days or assigned value greater than $100,000, except activities comprising only fabrication and delivery may extend for more than 21 days. Activities which exceed these limits shall be divided into more detailed components. The scheduled duration of each activity shall be based on the work being performed during the normal 40-hour work week with allowances made for legal holidays and normal weather conditions.

1.03 SUBMITTAL PROCEDURES

Within 20 days after the date of the Notice to Proceed, the Contractor shall complete a construction schedule conforming to paragraph 01310.1.02 and representing in detail all planned procurement and on-site construction activities. The schedule shall be prepared on reproducible paper and may be in draft form with legible freehand lines and lettering. Upon completion of the schedule, the Contractor shall submit the original and two copies to the Owner in accordance with Section 01300.

Within 7 days after receipt of the submittal, the Owner shall review the submitted schedule and return one copy of the marked up original to the Contractor. If the Owner finds that the submitted schedule does not comply with specified requirements, the corrective revisions will be noted on the submittal copy returned to the Contractor for corrections and resubmittal as specified in Section 01300. Upon receipt of a schedule and breakdown of contract prices conforming to the contract, the Owner will computerize the Contractor's scheduling and cost data. Within 14 days, the Owner will deliver three computer reports to the Contractor. The reports shall contain the following:

1. Tabular listing of activities showing early and late start and finish dates.
2. Bar chart schedule of all activities.
3. Report on cost and payment status for each activity.

These reports will serve as the basis for the Contractor's progress payment requests. Computerization of the Contractor's schedule and furnishing reports to the Contractor by the Owner shall not relieve the Contractor of responsibility for the adequacy of the schedule and for managing all construction activities including those of subcontractors and suppliers.

1.04 SCHEDULE REVISIONS

Revisions to the accepted cost-loaded construction schedule may be made only with written approval of the Contractor and Owner. Changes in timing for activities which are not on the critical path may be modified with written agreement of the Contractor and Owner. A change affecting the contract value of any activity, the timing of any activity on the critical path, the completion time and specific dates (Section 01011) and work sequencing (Section 01014) may be made only in accordance with applicable provisions of the General Conditions to the contract agreement.

1.05 PROJECT STATUS UPDATE

Within 7 days of acceptance by the Owner of the Contractor's written progress report, the Owner will process the update data by computer and generate the reports outlined in paragraph 01310.1.03. These reports will reflect the current status of the work and will be provided to and used by the Contractor as the basis of his progress payment request.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1--GENERAL

1.01 SUMMARY

A. Specific quality control requirements for the Work are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the Work beyond furnishing of manufactured products. The Contractor shall provide a "Quality Control" program for their work. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

1.02 SUBMITTALS

A. Submit inspection, sampling and testing reports as required by individual technical specification sections in accordance with Section 01300 Submittal Procedures.

B. Submit notification of inspection, sampling and testing needs as specified in this Section.

1.03 NOT USED

1.04 NOT USED

1.05 PROJECT/SITE CONDITIONS

A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the Owner at the place of manufacture.

B. The presence of the Owner at the place of manufacturer, however, shall not relieve the Contractor of the responsibility for furnishing products, materials, and equipment which comply with all requirements of the Contract Documents. Compliance is a duty of the Contractor, and said duty shall not be avoided by any act or omission on the part of the Owner.

C. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, as applicable to the class and nature of the article or materials considered; however, the Owner reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the Owner will assure the Owner that the quality of the workmanship is in full accord with the Contract Documents.

D. Any waiver by the Owner of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial

performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial Work, shall not be construed as a waiver of any requirements of the Contract Documents.

Notwithstanding the existence of such waiver, the Owner reserves the right to make independent investigations and tests, and failure of any portion of the Work to meet any of the requirements of the Contract Documents, shall be reasonable cause for the Owner to require the removal or correction and reconstruction of any such Work in accordance with the General Conditions.

E. Inspection and testing laboratory service shall comply with the following:

1. The Owner will appoint, employ and pay for services of an independent firm to perform testing and inspection of the Contractor's work. This does not relieve the Contractor from providing inspection and laboratory services to meet quality control requirements.

2. The Contractor shall utilize the services of the independent firm, Owner employed, to perform sampling and testing of their work to verify that quality of the workmanship is in full accord with the Contract Documents as part of their Quality Control.

3. The Contractor shall provide the Owner copies of all inspection, sampling and testing reports that the Contractor receives from the independent firm.

4. The Contractor shall cooperate with the Owner or independent firm and furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.

5. The Contractor shall notify the Owner and independent firm a minimum of 24 hours prior to the expected time for operations requiring sampling and laboratory testing services.

6. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Owner. The Contractor shall bear all costs from such retesting at no additional cost to the Owner.

7. For samples and tests required for Contractor's use, the Contractor shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the Contractor's use shall be included in the Contract Price.

F. Inspection, sampling and testing shall be as specified in the individual Sections.

PART 2--PRODUCTS (NOT USED)

PART 3--EXECUTION

3.01 INSTALLATION

A. INSPECTION:

The Contractor shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.

B. MEASUREMENTS:

The Contractor shall verify measurements and dimensions of the Work, as an integral step of starting each installation.

C. MANUFACTURER'S INSTRUCTIONS:

Where installations include manufactured products, the Contractor shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

END OF SECTION

SECTION 01500

CONTRACTOR'S UTILITIES

1.0 OFFICE

The Contractor shall maintain a suitable office at the site of the work.

2.0 POWER

The Contractor shall provide power for construction at the plant site. He shall make arrangements with the electrical utility and with the Owner for power takeoff points, voltage and phasing requirements, transformers and metering and shall pay the costs and fees arising therefrom. The Contractor shall provide the special connections required for his work.

3.0 TELEPHONE

The Contractor shall provide telephone service at his construction site office. Radio-telephone service is not acceptable as a substitute for telephone service.

4.0 SANITARY FACILITIES

The Contractor shall provide toilet and washup facilities for his work force at the site of work. The facilities shall comply with applicable laws, ordinances, and regulations pertaining to the public health and sanitation of dwellings and camps.

END OF SECTION

SECTION 01560

ENVIRONMENTAL CONTROLS

1.0 SITE MAINTENANCE

The Contractor shall keep the work site clean and free from rubbish and debris. Materials and equipment shall be removed from the site when they are no longer necessary. Upon completion of the work and before final acceptance, the work site shall be cleared of equipment, unused materials, and rubbish to present a clean and neat appearance.

2.0 TEMPORARY DAMS

Except in time of emergency, earth dams are not acceptable at catch basin openings, local depressions, or elsewhere. Temporary dams of sand bags, asphaltic concrete, or other acceptable material will be permitted when necessary to protect the work, provided their use does not create a hazard or nuisance to the public. Such dams shall be removed from the site as soon as they are no longer necessary.

3.0 AIR POLLUTION CONTROL

The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the regulations of any legally constituted authority. He shall also abate dust nuisance by cleaning, sweeping, and sprinkling with water, or other means as necessary. The use of water, in amounts which result in mud on public streets, is not acceptable as a substitute for sweeping or other methods.

4.0 NOISE CONTROL

Between 7:30 p.m. and 7:00 a.m., or times as agreed upon by the Owner, noise from Contractor's operations shall not exceed limits established by applicable ordinances, laws or regulations and in no event shall exceed 86 dBA at a distance of 50 feet from the noise source.

END OF SECTION

SECTION 01605

SHIPMENT, PROTECTION AND STORAGE

1.0 GENERAL

Equipment, products and materials shall be shipped, handled, stored, and installed in ways which will prevent damage to the items. Damaged items will not be permitted as part of the work except in cases of minor damage that have been satisfactorily repaired and are acceptable to the Owner.

2.0 PIPE

Pipe and appurtenances shall be handled, stored, and installed as recommended by the manufacturer. Pipes with paint, tape coatings, linings or the like shall be stored to protect the coating or lining from physical damage or other deterioration. Pipes shipped with interior bracing shall have the bracing removed only when recommended by the pipe manufacturer.

3.0 EQUIPMENT

A. PACKAGE AND MARKING:

All equipment shall be protected against damage from moisture, dust, handling, or other cause during transport from manufacturer's premises to site. Each item or package shall be marked with the number unique to the specification reference covering the item.

Stiffeners shall be used where necessary to maintain shapes and to give rigidity. Parts of equipment shall be delivered in assembled or subassembled units where possible.

B. IDENTIFICATION:

Each item of equipment and valve shall have permanently affixed to it a label or tag with its equipment or valve number designated in this contract. Marker shall be of stainless steel. Location of label will be easily visible.

C. SHIPPING:

Bearing housings, vents and other types of openings shall be wrapped or otherwise sealed to prevent contamination by grit and dirt.

Damage shall be corrected to conform to the requirements of the contract before the assembly is incorporated into the work. The Contractor shall bear the costs arising out of dismantling, inspection, repair and reassembly.

D. FACTORY APPLIED COATINGS:

Unless otherwise specified, each item of equipment shall be shipped to the site of the work with the manufacturer's shop applied epoxy prime coating as specified in Section 09900. The prime coating shall be applied over clean dry surfaces in accordance with the coating manufacturer's recommendations. The prime coating will serve as a base for field-applied finish coats. Electrical equipment and materials shall be painted by manufacturer as specified in paragraph 09900-3.03 H.

E. STORAGE:

During the interval between the delivery of equipment to the site and installation, all equipment, unless otherwise specified, shall be stored in an enclosed space affording protection from weather, dust and mechanical damage and providing favorable temperature, humidity and ventilation conditions to ensure against equipment deterioration. Manufacturer's recommendations shall be adhered to in addition to these requirements.

Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground. Temporary power shall be provided to energize space heaters or other heat sources for control of moisture condensation. Space heaters or other heat sources shall be energized without disturbing the sealed enclosure.

F. PROTECTION OF EQUIPMENT AFTER INSTALLATION:

After installation, all equipment shall be protected from damage from, including but not limited to, dust, abrasive particles, debris and dirt generated by the placement, chipping, sandblasting, cutting, finishing and grinding of new or existing concrete, terrazzo and metal; and from the fumes, particulate matter, and splatter from welding, brazing and painting of new or existing piping and equipment. As a minimum, vacuum cleaning, blowers with filters, protective shieldings, and other dust suppression methods will be required at all times to adequately protect all equipment. During concreting, including finishing, all equipment that may be affected by cement dust must be completely covered. During painting operations, all grease fittings and similar openings shall be covered to prevent the entry of paint. Electrical switchgear, unit substation, and motor load centers shall not be installed until after all concrete work and sandblasting in those areas have been completed and accepted and the ventilation systems installed.

END OF SECTION

SECTION 01660

EQUIPMENT AND SYSTEM PERFORMANCE AND OPERATIONAL TESTING

PART 1--GENERAL

1.01 DESCRIPTION

This section contains requirements for the Contractor's performance in documenting testing work required under this contract. In addition, this section contains requirements the for the Contractor's performance during installed performance testing of all mechanical, electrical, instrumentation, and HVAC equipment and systems, including structures for watertight construction, provided under this contract and all equipment furnished by the Owner. This section supplements but does not supersede specific testing requirements found elsewhere in this project manual.

1.02 QUALITY ASSURANCE

A. CONTRACTOR'S QUALITY ASSURANCE MANAGER:

The Contractor shall appoint an operations engineer or equally qualified operations specialist as Quality Assurance Manager to manage, coordinate, and supervise the Contractor's quality assurance program. The Quality Assurance Manager shall have at least 5 years of total experience, or experience on at least five separate projects, in managing the startup commissioning of mechanical, electrical, instrumentation, HVAC, and piping systems. Operations engineers shall be graduates from a minimum 4-year course in mechanical or civil engineering. Operations specialists shall have equivalent experience in plant operation and maintenance. The quality assurance program shall include:

1. A testing plan setting forth the sequence in which all testing work required under this project manual will be implemented.

2. A documentation program to record the results of all equipment and system tests.

3. An installed performance testing program for all mechanical, electrical, instrumentation, and HVAC equipment and systems installed under this contract.

4. A calibration program for all instruments, meters, monitors, gages, and thermometers installed under this contract.

5. A calibration program for all instruments, gages, meters, and thermometers used for determining the performance of equipment and systems installed under this contract.

6. A testing schedule conforming to the requirements specified in paragraph 01660-2.02 C.

For the purposes of this section, a system shall include all items of equipment, devices and appurtenances connected in such a fashion as their operation or function complements, protects or controls the operation or function of the others. The Quality Assurance Manager shall coordinate the activities of all subcontractors and suppliers to implement the requirements of this section.

B. CALIBRATION:

All test equipment (gages, meters, thermometers, analysis instruments, and other equipment) used for calibrating or verifying the performance of equipment installed under this contract shall be calibrated to within plus or minus 2 percent of actual value at full scale. Test equipment employed for individual test runs shall be selected so that expected values as indicated by the detailed performance specifications will fall between 60 and 85 percent of full scale. Pressure gages shall be calibrated in accordance with ANSI/ASME B40.1. Thermometers shall be calibrated in accordance with ASTM E77 and shall be furnished with a certified calibration curve.

Liquid flow meters, including all open channel flow meters and all meters installed in pipelines with diameters greater than 2 inches shall be calibrated in situ using either the total count or dye dilution methods. Gas flow meters installed in piping systems with diameters greater than 6 inches shall be calibrated in situ using the pitot tube velocity averaging method. Flow meter calibration work shall be performed by individuals skilled in the techniques to be employed. Calibration tests for flow metering systems shall be performed over a range of not less than 10 percent to at least 75 percent of system full scale. At least five confirmed valid data points shall be obtained within this range. Confirmed data points shall be validated by not less than three test runs with results which agree within plus or minus 2 percent.

C. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the

following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/ASME B40.1	Gauges Pressure Indicating Dial Type – Elastic Element
ASTM E77	Method for Verification and Calibration of Liquid-in-Glass Thermometers
ASHRAE 41.8	Standard Methods of Measurement of Flow of Gas
Dye Dilution Calibration Method	Flow Measurements in Sanitary Sewers by Dye Dilution, Turner Designs Mountain View, California
	Flow Measurement in Sewer Lines by the Dye Dilution Method, Journal of the Water Pollution Control Federation, Vol. 55, Number 5, May, 1983, pg. 531
	Flow Measurement in Open Channels and Closed Conduits, Vol 1, U.S. Department of Commerce, National Bureau of Standards, pg. 361
	Techniques of Water-Resources Investigations of the United States Geological Survey, Chapter 16, Measurement of Discharge Using Tracers

1.03 SUBMITTALS

Submittal material, to be submitted in accordance with Section 01300, shall consist of the following:

1. A complete description of the Contractor's plan for documenting the results from the test program in conformance with the requirements of paragraph 01660-2.02 A, including:

   a. Proposed plan for documenting the calibration of all test instruments.

   b. Proposed plan for calibration of all instrument systems, including flow meters and all temperature, pressure, weight, and analysis systems.

   c. Sample forms for documenting the results of field pressure and performance tests.

2. The credentials and certification of the testing laboratory proposed by the Contractor for calibration of all test equipment.

3. Preoperational check-out procedures, reviewed and approved by the respective equipment manufacturers.

4. Detailed testing plans, setting forth step-by-step descriptions of the procedures proposed by the Contractor for the systematic testing of all equipment and systems installed under this contract. Testing plans shall identify the specific methods and forms to be used for documenting test results for each equipment and system.

5. A schedule and subsequent updates, presenting the Contractor's plan for testing the equipment and systems installed under this contract.

6. A schedule establishing the expected time period (calendar dates) when the Contractor plans to commence operational testing of the completed systems, along with a description of the temporary systems and installations planned to allow operational testing to take place.

7. A summary of the Quality Assurance Manager's qualifications, showing conformance to paragraph 01660-1.02 A requirements.

PART 2--PRODUCTS

2.01 GENERAL

The Contractor shall prepare test plans and documentation plans as specified in the following paragraphs. The Owner will not witness any test work for the purpose of acceptance until all test documentation and calibration plans and the specified system or equipment test plans have been submitted and accepted.

2.02 DOCUMENTATION

A. DOCUMENTATION PLANS:

The Contractor shall develop a records keeping system to document compliance with the requirements of this Section. Calibration documentation shall include identification (by make, manufacturer, model, and serial number) of all test equipment, date of original calibration, subsequent calibrations, calibration method, and test laboratory.

Equipment and system documentation shall include date of test, equipment number or system name, nature of test, test objectives, test results, test instruments employed for the test, and signature spaces for the Owner's witness and the Contractor's quality assurance manager. A separate file shall be established for each system and item of equipment. These files shall include the following information as a minimum:

1. Metallurgical tests
2. Factory performance tests
3. Accelerometer recordings made during shipment
4. Field calibration tests[1]
5. Field pressure tests[1]
6. Field performance tests[1]
7. Field operational tests[1]

Section 01999 contains samples showing the format and level of detail required for the documentation forms. The Contractor is advised that these are samples only and are not specific to this project nor to any item of equipment or system to be installed under this contract. The Contractor shall develop test documentation forms specific to each item of equipment and system installed under this contract. Acceptable documentation forms for all systems and items of equipment shall be produced for review by the Owner as a condition precedent to the Contractor's receipt of progress payments in excess of 50 percent of the contract amount. Once the Owner has reviewed and taken no exception to the forms proposed by the Contractor, the Contractor shall produce sufficient forms, at his expense, to provide documentation of all testing work to be conducted as a part of this contract.

B. TEST PLANS:

The Contractor shall develop test plans detailing the coordinated, sequential testing of each item of equipment and system installed under this contract. Each test plan shall be specific to the item of equipment or system to be tested. Test plans shall identify by specific equipment or tag number each device or control station to be manipulated or observed during the test procedure and the specific results to be observed or obtained. Test plans shall also be specific as to support systems required to complete the test work, temporary systems required during the test work, subcontractors' and manufacturers' representatives to be present and expected test duration. As a minimum, the test plans shall include the following features:

1. Step-by-step proving procedure for all control and electrical circuits by imposing low voltage currents and using appropriate indicators to affirm that the circuit is properly identified and connected to the proper device.

2. Calibration of all analysis instruments and control sensors.

3. Performance testing of each individual item of mechanical, electrical, and instrumentation equipment. Performance tests shall be selected to duplicate the operating conditions described in the project manual.

[1]Each of these tests is required even though not specifically noted in detailed specification section.

4. System tests designed to duplicate, as closely as possible, operating conditions described in the project manual.

5. Specific methods and forms to be used for documenting test results for each equipment and system.

Test plans shall contain a complete description of the procedures to be employed to achieve the desired test environment.

As a condition precedent to receiving progress payments in excess of 75 percent of the contract amount, or in any event, progress payments due to the Contractor eight weeks in advance of the date the Contractor wishes to begin any testing work (whichever occurs earliest in the project schedule), the Contractor shall have submitted all test plans required for the systematic field performance and operational tests for all equipment and systems installed under this contract. Once the Owner has reviewed and taken no exception to the Contractor's test plans, the Contractor shall reproduce the plans in sufficient number for the Contractor's purposes and an additional ten copies for delivery to the Owner. No test work shall begin until the Contractor has delivered the specified number of final test plans to the Owner.

C. TESTING SCHEDULE:

The Contractor shall produce a testing schedule setting forth the sequence contemplated for performing the test work. The schedule shall be in bar chart form, plotted against calendar time, shall detail the equipment and systems to be tested, and shall be coordinated with the Contractor's construction schedule specified in Section 01310. The schedule shall show the contemplated start date, duration of the test and completion of each test. The test schedule shall be submitted no later than 4 weeks in advance of the date testing is to begin. The Owner will not witness any testing work for the purpose of acceptance until the Contractor has submitted a schedule to which the Owner takes no exception. The test schedule shall be updated weekly, showing actual dates of test work, indicating systems and equipment testing completed satisfactorily and meeting the requirements of this project manual.

2.03 SYSTEM AND EQUIPMENT PERFORMANCE TESTS

Each item of mechanical, electrical, instrumentation and HVAC equipment installed under this contract shall be tested to demonstrate compliance with the performance requirements of this project manual. Each electrical, instrumentation, mechanical, piping, and HVAC system installed or modified under this contract shall be tested in accordance with the requirements of this project manual.

2.04 OPERATIONAL TESTS

Once all equipment and systems have been tested individually, the Contractor shall fill all systems except wastewater, scum sludge and other wastewater derived systems with the intended process fluids. Wastewater-derived process systems shall be filled with water. After filling operations have been completed, the Contractor shall operate all systems for a continuous period of

not less than 7 days, simulating actual operating conditions to the greatest extent possible. The Contractor shall install temporary connections, bulkheads and make other provisions to recirculate process fluids or otherwise simulate anticipated operating conditions. During the operational testing period, the Contractor's Quality Assurance Manager and testing team shall monitor the characteristics of each machine and system and report any unusual conditions to the Owner.

2.05 PRODUCT DATA

Product data, to be provided in accordance with Section 01300, shall be the original and three copies of all records produced during the testing program.

PART 3--EXECUTION

3.01 GENERAL

The Contractor's quality control manager shall organize teams made up of qualified representatives of equipment suppliers, subcontractors, the Contractor's independent testing laboratory, and others, as appropriate, to efficiently and expeditiously calibrate and test the equipment and systems installed and constructed under this contract. The objective of the testing program shall be to demonstrate, to the Owner's complete satisfaction, that the structures, systems, and equipment constructed and installed under this contract meet all performance requirements and the facility is ready for the commissioning process to commence. In addition, the testing program shall produce baseline operating conditions for the Owner to use in a preventive maintenance program.

3.02 CALIBRATION OF FIXED INSTRUMENTS

Calibration of analysis instruments, sensors, gages, and meters installed under this contract shall proceed on a system-by-system basis. No equipment or system performance acceptance tests shall be performed until instruments, gages, and meters to be installed in that particular system have been calibrated and the calibration work has been witnessed by the Owner.

All analysis instruments, sensors, gages, and meters used for performance testing shall be subject to recalibration to confirm accuracy after completion, but prior to acceptance of each performance test. All analysis instruments, sensors, gages, and meters installed under this contract shall be subject to recalibration as a condition precedent to commissioning under the provisions of Section 01662.

3.03 PERFORMANCE TESTS

A. GENERAL:

Performance tests shall consist of the following:

1. Pressure and/or leakage tests.

2. Electrical testing as specified in Division 16.

3. Wiring and piping, individual component, loop, loop commissioning and tuning testing as described in Division 17.

4. Preoperational checkout for all mechanical and HVAC equipment. Preoperational check-out procedures shall be reviewed and approved by the respective equipment manufacturers.

5. Initial operation tests of all mechanical, electrical, HVAC, and instrumentation equipment and systems to demonstrate compliance with the performance requirements of this project manual.

In general, performance tests for any individual system shall be performed in the order listed above. The order may be altered only on the specific written authorization of the Owner after receipt of a written request, complete with justification of the need for the change in sequence.

B. PRESSURE AND LEAKAGE TESTS:

Pressure and leakage tests shall be conducted in accordance with applicable portions of Divisions 3 and 15. All acceptance tests shall be witnessed by the Owner. Evidence of successful completion of the pressure and leakage tests shall be the Owner's signature on the test forms prepared by the Contractor.

C. FUNCTIONAL CHECKOUT:

Prior to energization (in the case of electrical systems and equipment), all circuits shall be rung out and tested for continuity and shielding in accordance with the procedures required in Division 16.

D. COMPONENT CALIBRATION AND LOOP TESTING:

Prior to energization (in the case of instrumentation system and equipment), all loops and associated instruments shall be calibrated and tested in accordance with the procedures required in Division 17.

E. ELECTRICAL RESISTANCE:

Electrical resistance testing shall be in accordance with Division 16.

F. PREOPERATIONAL TESTS:

Preoperational tests shall include the following:

1. Alignment of equipment using reverse dial indicator method.

2. Preoperation lubrication.

3. Tests per the manufacturers' recommendations for prestart preparation and preoperational check-out procedures.

G. FUNCTIONAL TESTS:

1. GENERAL: Once all affected equipment has been subjected to the required preoperational check-out procedures and the Owner has witnessed and has not found deficiencies in that portion of the work, individual items of equipment and systems may be started and operated under simulated operating conditions to determine as nearly as possible whether the equipment and systems meet the requirements of these specifications. If available, plant effluent may be employed for the testing of all liquid systems except gaseous, oil, or chemical systems. If not available, potable water shall be employed as the test medium. Test media for these systems shall either be the intended fluid or a compatible substitute. The equipment shall be operated a sufficient period of time to determine machine operating characteristics, including noise, temperatures and vibration; to observe performance characteristics; and to permit initial adjustment of operating controls. When testing requires the availability of auxiliary systems such as looped piping, electrical power, compressed air, control air, or instrumentation which have not yet been placed in service, the Contractor shall provide acceptable substitute sources, capable of meeting the requirements of the machine, device, or system at no additional cost to the Owner. Disposal methods for test media shall be subject to review by the Owner. During the functional test period, the Contractor shall obtain baseline operating data on all equipment with motors greater than 1 horsepower to include amperage, bearing temperatures, and vibration. The baseline data shall be collected for the Owner to enter in a preventive maintenance system.

Test results shall be within the tolerances set forth in the detailed specification sections of this project manual. If no tolerances have been specified, test results shall conform to tolerances established by recognized industry practice. Where, in the case of an otherwise satisfactory functional test, any doubt, dispute, or difference should arise between the Owner and the Contractor regarding the test results or the methods or equipment used in the performance of such test, then the Owner may order the test to be repeated. If the repeat test, using such modified methods or equipment as the Owner may require, confirms the previous test, then all costs in connection with the repeat test will be paid by the Owner. Otherwise, the costs shall be borne by the Contractor. Where the results of any functional test fail to comply with the contract requirements for such test, then such repeat tests as may be necessary to achieve the contract requirements shall be made by the Contractor at his expense.

The Contractor shall provide, at no expense to the Owner, all power, fuel, compressed air supplies, water, and chemicals, all labor, temporary piping, heating, ventilating, and air conditioning for any areas where permanent facilities are not complete and operable at the time of functional tests, and all other items and work required to complete the functional tests. Temporary facilities shall be maintained until permanent systems are in service.

2. RETESTING: If under test, any portion of the work should fail to fulfill the contract requirements and is adjusted, altered, renewed, or replaced, tests on that portion when so adjusted, altered, removed, or replaced, together with all other portions of the work as are affected thereby, shall, unless otherwise directed by the Owner, be repeated within reasonable time and in accordance with the specified conditions. The Contractor shall pay to the Owner all reasonable expenses incurred by the Owner, including the costs of the Owner, as a result of repeating such tests.

3. POSTTEST INSPECTION: Once functional testing has been completed, all machines shall be rechecked for proper alignment and realigned, as required. All equipment shall be checked for loose connections, unusual movement, or other indications of improper operating characteristics. Any deficiencies shall be corrected to the satisfaction of the Owner. All machines or devices which exhibit unusual or unacceptable operating characteristics shall be disassembled and inspected. Any defects found during the course of the inspection shall be repaired or the specific part or entire equipment item shall be replaced to the complete satisfaction of the Owner at no cost to the Owner.

3.04 OPERATIONAL TESTS

The Contractor shall provide system operation testing. The operational testing shall reflect the staged construction, testing and commissioning requirements of this project. After completion of all performance testing and certification by the Owner that all equipment complies with the requirements of the specifications, the Contractor shall fill all process units and process systems, except those employing domestic water, oil, air, or chemicals, with plant effluent water. All domestic water, oil, air, and chemical systems shall be filled with the specified fluid.

Upon completion of the filling operations, the Contractor shall circulate water through the completed facility for a period of not less than 48 hours, during which all parts of the system shall be operated as a complete facility at various loading conditions, as directed by the Owner. The operational testing period shall commence after this initial period of variable operation. The operational testing shall be for a continuous period of not less than 7 days, simulating actual operating conditions to the greatest extent possible. Should the operational testing period be halted for any reason related to the facilities constructed or the equipment furnished under this contract, or the Contractor's temporary testing systems, the operational testing program shall be repeated until the specified continuous period has been accomplished without interruption. All process units shall be brought to full operating conditions, including temperature, pressure, and flow.

As-built documents specified in Section 01720 of facilities involved shall be accepted and ready for turnover to the Owner at the time of operational testing.

END OF SECTION

SECTION 01662

COMMISSIONING

PART 1--GENERAL

1.01 DESCRIPTION

This section contains requirements for the Contractor's performance during the commissioning of the structures, equipment and systems constructed and installed during the course of this contract. All commissioning work, as described in this section, shall be performed by the Contractor. Commissioning may be performed in phases of systems that are complete and in full operation.

1.02 QUALITY ASSURANCE

A. CLEANUP:

Following completion of the operational testing period, the Contractor shall dewater and clean all sumps; and dewater all process units for final inspection as a condition precedent to commissioning.

B. COMMISSIONING TEAM:

The Contractor shall assemble a commissioning team under the direction of an individual duly authorized to commit the Contractor's personnel and resources to respond to requests for assistance on the part of the Owner. The commissioning team shall consist of representatives of the Contractor's mechanical, electrical, and instrumentation subcontractors, and others as appropriate. The commissioning team shall be available at the site of the work during normal working hours (8 hours a day, 5 days a week, Saturdays, Sundays, and legal holidays excepted) and shall be available within 2 hours' notice at all other times upon notice by telephone. The commissioning team shall at all times be equipped and ready to provide for emergency repairs, adjustments, and corrections to the equipment and systems installed and modified as a part of this contract.

1.03 SUBMITTALS

The following information shall be submitted to the Owner in accordance with the provisions of Section 01300:

1. Detailed plans for commissioning each process unit and each system constructed or modified as a part of the work performed under this contract.

2. The Contractor's plan for providing a commissioning team conforming to the requirements of paragraph 01662-1.02 B during the commissioning period. The plan shall be complete with a daytime staffing plan and names,

qualifications, and telephone numbers of those assigned to off-hour standby duty.

PART 2--PRODUCTS

Working with representatives of the Owner, the Contractor shall develop and produce a detailed, written plan for the startup and initial operation, under actual operating conditions, of the equipment and systems installed and constructed under this contract. The document, after acceptance by the Owner, shall serve as the guidance manual for the commissioning process.

PART 3--EXECUTION

After completion of the equipment and system performance and operational testing, where required, and agreement on the part of the Owner that the systems did meet all test requirements, commissioning will begin. The commissioning period for each modified or new unit process system shall be 4 weeks. The Contractor shall remove all temporary piping, bulkheads, controls and other alterations to the permanent systems that may have been needed during the performance and operational testing and shall perform the tasks necessary to make the improvements constructed under this contract fully operational. The Owner shall confirm in writing the date(s) that the system is ready for commissioning and on which actual commissioning activities commence. Activities conducted prior to such written confirmation shall not constitute commissioning.

The Owner's operation and maintenance personnel will be responsible for operation of the systems to be commissioned. The portion of the work to be commissioned shall be fully operational, performing all functions for which it was designed.

The Contractor shall be available at all times during commissioning periods to provide immediate assistance in case of failure of any portion of the system being constructed. At the end of the commissioning period and when all corrections required by the Owner to assure a reliable and completely operational facility are complete, the Owner shall issue a completion certificate. Each system shall have been issued a completion certificate as a condition precedent to the final acceptance of the work of this contract.

During the commissioning period, the Owner shall be responsible for all normal operational costs and the Contractor shall bear the costs of all necessary repairs or replacements, including labor and materials, required to keep the portion of the plant being commissioned, operational.

END OF SECTION

SECTION 01664

TRAINING

PART 1--GENERAL

1.01 DESCRIPTION

This section contains requirements for training the Owner's personnel, by persons retained by the Contractor specifically for the purpose, in the proper operation and maintenance of the equipment and systems installed under this contract.

1.02 QUALITY ASSURANCE

Where required by the detailed specifications, the Contractor shall provide on-the-job training of the Owner's personnel. The training sessions shall be conducted by qualified, experienced, factory-trained representatives of the various equipment manufacturers. Training shall include instruction in both operation and maintenance of the subject equipment.

1.03 SUBMITTALS

The following information shall be submitted to the Owner in accordance with the provisions of Section 01300. The material shall be reviewed and accepted by the Owner as a condition precedent to receiving progress payments in excess of 75 percent of the contract amount and not less than 3 weeks prior to the provision of training.

1. Lessons plans for each training session to be conducted by the manufacturer's representatives. In addition, training manuals, handouts, visual aids, and other reference materials shall be included.

2. Subject of each training session, identity and qualifications of individuals to be conducting the training, and tentative date and time of each training session.

PART 2--PRODUCTS

2.01 GENERAL

Where specified, the Contractor shall conduct training sessions for the Owner's personnel to instruct the staff on the proper operation, care, and maintenance of the equipment and systems installed under this contract. Training shall take place at the site of the work and under the conditions specified in the following paragraphs. Approved operation and maintenance manuals shall be available at least 30 days prior to the date scheduled for the individual training session.

2.02 LOCATION

Training sessions shall take place at the site of the work in the treatment plant's administrative building conference room.

2.03 LESSON PLANS

Formal written lesson plans shall be prepared for each training session. Lesson plans shall contain an outline of the material to be presented along with a description of visual aids to be utilized during the session. Each plan shall contain a time allocation for each subject.

One complete set of originals of the lesson plans, training manuals, handouts, visual aids, and reference material shall be the property of the Owner and shall be suitably bound for proper organization and easy reproduction. The Contractor shall furnish ten copies of necessary training manuals, handouts, visual aids and reference materials at least 1 week prior to each training session.

2.04 FORMAT AND CONTENT

Each training session shall be comprised of time spent both in the classroom and at the specific location of the subject equipment or system. As a minimum, training session shall cover the following subjects for each item of equipment or system:

1. Familiarization

    a. Review catalog, parts lists, drawings, etc., which have been previously provided for the plant files and operation and maintenance manuals.

    b. Check out the installation of the specific equipment items.

    c. Demonstrate the unit and indicate how all parts of the specifications are met.

    d. Answer questions.

2. Safety

    a. Using material previously provided, review safety references.
    b. Discuss proper precautions around equipment.

3. Operation

    a. Using material previously provided, review reference literature.
    b. Explain all modes of operation (including emergency).
    c. Check out Owner's personnel on proper use of the equipment.

4. Preventive Maintenance

   a. Using material previously provided, review preventive maintenance (PM) lists including:

      1) Reference material.

      2) Daily, weekly, monthly, quarterly, semiannual, and annual jobs.

   b. Show how to perform PM jobs.

   c. Show Owner's personnel what to look for as indicators of equipment problems.

5. Corrective Maintenance

   a. List possible problems.
   b. Discuss repairs--point out special problems.
   c. Open up equipment and demonstrate procedures, where practical.

6. Parts

   a. Show how to use previously provided parts list and order parts.

   b. Check over spare parts on hand. Make recommendations regarding additional parts that should be available.

7. Local Representatives

   a. Where to order parts: name, address, telephone.
   b. Service problems:

      1) Who to call.
      2) How to get emergency help.

8. Operation and Maintenance Manuals

   a. Review any other material submitted.
   b. Update material, as required.

2.05 VIDEO RECORDING:

The Owner may, at the sole discretion of the owner, retain the services of a commercial video recording service to record each training session. After recording, the material will be edited and supplemented with professionally produced graphics to provide a permanent record. The Contractor shall advise all manufacturers providing training sessions that the material will be videotaped. The Contractor shall make available to the Owner's video recording contractor such utility services and accommodations required to facilitate the recording of the video tape record.

PART 3--EXECUTION

Training shall be conducted in conjunction with the operational testing and commissioning periods. Classes shall be scheduled such that classroom sessions are interspersed with field instruction in logical sequence. The Contractor shall arrange to have the training conducted on consecutive days, with no more than 6 hours of classes scheduled for any one day. Concurrent classes shall not be allowed. Training shall be certified on Form 11000-B specified in Section 01999.

Acceptable operation and maintenance manuals for the specific equipment shall be provided to the Owner prior to the start of any training. Video recording shall take place concurrently with all training sessions.

The following services shall be provided for each item of equipment or system as required in individual specification sections. Additional services shall be provided, where specifically required in individual specification sections.

1. As a minimum, classroom equipment training for operations personnel will include:

    a. Using slides and drawings, discuss the equipment's specific location in the plant and an operational overview.

    b. Purpose and plant function of the equipment.

    c. A working knowledge of the operating theory of the equipment.

    d. Start-up, shutdown, normal operation, and emergency operating procedures, including a discussion on system integration and electrical interlocks, if any.

    e. Identify and discuss safety items and procedures.

    f. Routine preventative maintenance, including specific details on lubrication and maintenance of corrosion protection of the equipment and ancillary components.

g. Operator detection, without test instruments, of specific equipment trouble symptoms.

h. Required equipment exercise procedures and intervals.

i. Routine disassembly and assembly of equipment if applicable (as judged by the Owner on a case-by-case basis) for purposes such as operator inspection of equipment.

2. As a minimum, hands-on equipment training for operations personnel will include:

a. Identify location of equipment and review the purpose.

b. Identifying piping and flow options.

c. Identifying valves and their purpose.

d. Identifying instrumentation:

1) Location of primary element.

2) Location of instrument readout.

3) Discuss purpose, basic operation, and information interpretation.

e. Discuss, demonstrate, and perform standard operating procedures and round checks.

f. Discuss and perform the preventative maintenance activities.

g. Discuss and perform start-up and shutdown procedures.

h. Perform the required equipment exercise procedures.

i. Perform routine disassembly and assembly of equipment if applicable.

j. Identify and review safety items and perform safety procedures, if feasible.

3. Classroom equipment training for the maintenance and repair personnel will include:

   a. Theory of operation.

   b. Description and function of equipment.

   c. Start-up and shutdown procedures.

   d. Normal and major repair procedures.

   e. Equipment inspection and troubleshooting procedures including the use of applicable test instruments and the "pass" and "no pass" test instrument readings.

   f. Routine and long-term calibration procedures.

   g. Safety procedures.

   h. Preventative maintenance such as lubrication; normal maintenance such as belt, seal, and bearing replacement; and up to major repairs such as replacement of major equipment part(s) with the use of special tools, bridge cranes, welding jigs, etc.

4. Hands-on equipment training for maintenance and repair personnel shall include:

   a. Locate and identify equipment components.

   b. Review the equipment function and theory of operation.

   c. Review normal repair procedures.

   d. Perform start-up and shutdown procedures.

   e. Review and perform the safety procedures.

   f. Perform Owner approved practice maintenance and repair job(s), including mechanical and electrical adjustments and calibration and troubleshooting equipment problems.

END OF SECTION

SECTION 01700

RESTORATION OF IMPROVEMENTS

1.0 STRUCTURES

The Contractor shall take all precautions necessary to protect the integrity and usefulness of all existing plant facilities. If necessary, the Contractor may, with the approval of the Owner, remove such existing structures, including curbs, gutters, concrete slabs on grade, pipelines, irrigation systems and utility poles as may be necessary for the performance of the work, and shall rebuild the structures thus removed in as good a condition as found with the requirements specified. The Contractor shall also repair existing structures which may be damaged as a result of the work under this contract.

2.0 ROADS AND STREETS

Unless otherwise specified, roads and streets in which the surface is removed, broken, or damaged, or in which the ground has caved or settled during the work under this contract, shall be resurfaced and brought to the original grade and section. Roadways used by the Contractor shall be cleaned and repaired. Before resurfacing material is placed, edges of pavements shall be trimmed back far enough to provide clean, solid, vertical faces, and shall be free of loose material. All paved surfaces shall be cut with a pavement saw. Rough cuts are not allowed. Repair work shall conform to the paving and grading specifications in the Contract Documents.

3.0 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS

Cultivated or planted areas and other surface improvements which are damaged by actions of the Contractor shall be restored as nearly as possible to their original condition. Restoration shall take place within 1 week or sooner as directed by the Owner.

Existing guard posts, barricades, and fences shall be protected and replaced if damaged.

4.0 PROTECTION OF EXISTING INSTALLATIONS

The Contractor shall protect all existing operating facilities and structures from damages. However, if damage occurs, the Contractor shall immediately correct or replace existing equipment, controls, systems, structures, or facilities which are damaged in any way as a result of his operations.

END OF SECTION

SECTION 01720

RECORD DRAWINGS

Record drawings refer to those documents maintained and annotated by the Contractor during construction and are defined as (1) a neatly and legibly marked set of contract drawings showing the final location of piping, equipment, electrical conduits, outlet boxes and cables; (2) additional documents such as schedules, lists, drawings, and electrical and instrumentation diagrams included in the specifications; and (3) Contractor layout and installation drawings.

Unless otherwise specified, record drawings shall be full size and maintained in a clean, dry, and legible condition. Record documents shall not be used for construction purposes and shall be available for review by the Owner during normal working hours at the Contractor's field office. At the completion of the work, prior to final payment, all record drawings shall be submitted to the Owner.

Marking of the drawings shall be kept current and shall be done at the time the material and equipment are installed. Annotations to the record documents shall be made with an erasable colored pencil conforming to the following color code:

Additions - Red
Deletions - Green
Comments - Blue
Dimensions - Graphite*

*Legibly mark to record actual depths, horizontal and vertical location of underground raceways, cables, and appurtenances referenced to permanent surface improvements.

END OF SECTION

SECTION 01730

OPERATING AND MAINTENANCE INFORMATION

1.0 SCOPE

Operation and maintenance (O&M) instructions shall be provided in accordance with this section and as required in the technical sections of this project manual. O&M information shall be provided for each maintainable piece of equipment, equipment assembly or subassembly, and material provided or modified under this contract.

O&M instructions must be submitted and accepted before on-site training may start.

2.0 TYPES OF INFORMATION REQUIRED

A. GENERAL:

O&M information shall contain the names, addresses, and telephone numbers of the manufacturer, the nearest representative of the manufacturer, and the nearest supplier of the manufacturer's equipment and parts. In addition, one or more of the following items of information shall be provided as applicable.

B. OPERATING INSTRUCTIONS:

Specific instructions, procedures, and illustrations shall be provided for the following phases of operations:

1. SAFETY PRECAUTIONS: List personnel hazards for equipment and list safety precautions for all operating conditions.

2. OPERATOR PRESTART: Provide requirements to set up and prepare each system for use.

3. START-UP, SHUTDOWN, AND POSTSHUTDOWN PROCEDURES: Provide a control sequence for each of these operations.

4. NORMAL OPERATIONS: Provide control diagrams with data to explain operation and control of systems and specific equipment.

5. EMERGENCY OPERATIONS: Provide emergency procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include emergency shutdown instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance on emergency

operations of all utility systems including valve locations and portions of systems controlled.

6. OPERATOR SERVICE REQUIREMENTS: Provide instructions for services to be performed by the operator such as lubrication, adjustments, and inspection.

7. ENVIRONMENTAL CONDITIONS: Provide a list of environmental conditions (temperature, humidity, and other relevant data) which are best suited for each product or piece of equipment and describe conditions under which equipment should not be allowed to run.

C. PREVENTIVE MAINTENANCE:

The following information shall be provided for preventive and scheduled maintenance to minimize corrective maintenance and repair:

1. LUBRICATION DATA: Provide lubrication data, other than instructions for lubrication in accordance with paragraph 2.0-B6.

   a. A table showing recommended lubricants for specific temperature ranges and applications;

   b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities; and

   c. A lubrication schedule showing service interval frequency.

2. PREVENTIVE MAINTENANCE PLAN AND SCHEDULE: Provide manufacturer's schedule for routine preventive maintenance, inspections, tests, and adjustments required to ensure proper and economical operation and to minimize corrective maintenance and repair. Provide manufacturer's projection of preventive maintenance man-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft.

D. CORRECTIVE MAINTENANCE:

Manufacturer's recommendations shall be provided on procedures and instructions for correcting problems and making repairs.

1. TROUBLESHOOTING GUIDES AND DIAGNOSTIC TECHNIQUES: Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment

required to determine whether parts and equipment may be reused or require replacement.

2. WIRING DIAGRAMS AND CONTROL DIAGRAMS: Wiring diagrams and control diagrams shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job-specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type identically to actual installation numbering.

3. MAINTENANCE AND REPAIR PROCEDURES: Provide instructions and list tools required to restore product or equipment to proper condition or operating standards.

4. REMOVAL AND REPLACEMENT INSTRUCTIONS: Provide step-by-step procedures and list required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings, and adjustments required. Instructions shall include a combination of test and illustrations.

5. SPARE PARTS AND SUPPLY LISTS: Provide lists of spare parts and supplies required for maintenance and repair to ensure continued service or operation without unreasonably delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead time to obtain.

6. CORRECTIVE MAINTENANCE MANHOURS: Provide manufacturer's projection of corrective maintenance man-hours including craft requirements by type of craft. Corrective maintenance that requires participation of the equipment manufacturer shall be identified and tabulated separately.

E. APPENDICES:

The following information shall be provided; include information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment.

1. PARTS IDENTIFICATION: Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number which will cross-

reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies.

2. WARRANTY INFORMATION: List and explain the various warranties and include the servicing and technical precautions prescribed by the manufacturers or contract documents to keep warranties in force.

3. PERSONNEL TRAINING REQUIREMENTS: Provide information available from the manufacturers to use in training designated personnel to operate and maintain the equipment and systems properly.

4. TESTING EQUIPMENT AND SPECIAL TOOL INFORMATION: Provide information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.

3.0 TRANSMITTAL PROCEDURE

Unless otherwise specified, O&M manuals, information, and data shall be transmitted in accordance with Section 01300 accompanied by Transmittal Form 01730-A and Equipment Record Forms 01730-B and/or 01730-C, as appropriate, all as specified in Section 01999. The transmittal form shall be used as a checklist to ensure the manual is complete. Only complete sets of O&M instructions will be reviewed for acceptance.

Submittals for review shall include two copies (paper) and one electronic version (on CD or DVD) of the specified O&M information. After the O&M information has been reviewed and approved by the Owner, three copies (paper) and two electronic versions (on CD or DVD) of the specified O&M information shall be provided. For ease of identification, each manufacturer's brochure, manual and CD/DVD shall be appropriately labeled with the equipment name and equipment number as it appears in the project manual. The information shall be organized in the binders in numerical order by the equipment numbers assigned in the project manual. The binders shall be provided with a table of contents and tab sheets to permit easy location of desired information. Binders shall be heavy-duty, 3-ring or 3-post style suitable for bookshelf storage.

If manufacturers' standard brochures and manuals are used to describe O&M procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated.

4.0 PAYMENT

Acceptable O&M information for the project must be delivered to the Owner prior to the project being 65 percent complete. Progress payments for work in excess of 65 percent completion will not be made until the specified acceptable O&M information has been delivered to the Owner.

5.0 FIELD CHANGES

Following the acceptable installation and operation of an equipment item, the item's instructions and procedures shall be modified and supplemented by the Contractor to reflect any field changes or information requiring field data.

END OF SECTION

SECTION 01800

ENVIRONMENTAL CONDITIONS

This section describes the environmental conditions which have been observed at the site of the work and which may reasonably be anticipated throughout the life of the project.

The site of the work in Flagstaff, AZ is at an elevation of approximately 6,750 feet above mean sea level. Climate conditions are described as follows:

Description	Range of Conditions
Annual Average Precipitation, inches	20 to 25
Air Temperature, degrees F	
Outdoors – annual averages	17 to 82
Outdoors – extremes (for period of record)	-30 to 97
Indoors	50 to 70
Winter	Cold/Stormy with Frequent Snowfall
Summer	Mild
Relative Humidity, percent	
Indoors	10 to 70
Average Outdoors	15 to 87

Additional conditions which may be applicable are specified in other sections.

END OF SECTION

SECTION 01900

STRUCTURAL DESIGN AND ANCHORAGE REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS AND NON-BUILDING STRUCTURES

PART 1 GENERAL

1.01 SUMMARY

A. SCOPE

This section specifies the minimum structural requirements for the design, anchorage and bracing of mechanical/ electrical components, equipment, and systems, and nonbuilding structures. Design of supports, attachments and bracing for all parts or elements of the mechanical, and electrical systems shall be provided in accordance with this section. The requirements of this section shall apply to the design of the structural elements and features of equipment and to platforms/walkways that are provided with equipment or nonbuilding structures.

This section applies to nonstructural components that are permanently attached to structures, and nonbuilding structures as defined below in paragraph 1.01-B and ASCE 7-10. Note that equipment is defined as a non-structural component and tanks are defined as a nonbuilding structure.

Design shall be in accordance with the criteria listed within this section and shall conform to the provisions of the design codes listed within this section. Engineering design is not required for attachments, anchorage, or bracing detailed on the drawings or where the size of attachments, anchorage, or bracing is defined in the technical specification sections.

The following nonstructural components are exempt from the seismic design loading requirements of this section.

1. Mechanical and electrical components in Seismic Design Category B.

B. DEFINITIONS:

1. STRUCTURES: The structural elements of a building that resist gravity, seismic, wind, and other types of loads. Structural components include columns, posts, beams, girders, joists, bracing, floor or roof sheathing, slabs or decking, load-bearing walls, and foundations.

2. NONSTRUCTURAL COMPONENTS: The nonstructural portions of a building include every part of the building and all its contents, except the structural portions, that carry gravity loads and that may also be required to resist the effects of wind, snow, impact, temperature and seismic loads.

Nonstructural components include, but are not limited to, ceilings, partitions, windows, equipment, piping, ductwork, furnishings, lights, etc.

3. NONBUILDING STRUCTURES: All self-supporting structures that carry gravity loads and that may also be required to resist the effects of wind, snow, impact, temperature and seismic loads. Nonbuilding structures include, but are not limited to, pipe racks, storage racks, stacks, tanks, vessels and structural towers that support tanks and vessels.

1.02 QUALITY ASSURANCE

A. QUALITY CONTROL BY OWNER:

Special Inspection of nonstructural components and nonbuilding structures, and their anchorages shall be performed by the Special Inspector under contract with the Owner and in conformance with IBC Chapter 17. Special Inspector(s) and laboratory shall be acceptable to the Owner in their sole discretion. Special Inspection is in addition to, but not replacing, other inspections and quality control requirements herein. Where sampling and testing required herein conforms to Special Inspection standards, such sampling and testing need not be duplicated.

B. REFERENCES:

Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization, or if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued, or replaced. When conflicting requirements occur, the most stringent requirements will govern the design.

Reference	Title
ACI 318	Building Code Requirements for Structural Concrete
ACI 350	Code Requirements for Environmental Engineering Concrete Structures
AISC 341	Seismic Provisions for Structural Steel Buildings
ACI 360	Specification for Structural Steel Buildings
ASCE 7	Minimum Design Loads for Buildings and Other Structures
AWS D1.1	Structural Welding Code – Steel

Reference	Title
AWS D1.2	Structural Welding Code - Aluminum
AWS D1.2	Structural Welding Code – Stainless Steel
IBC	International Building Code with local amendments
OSHA	U.S. Dept. of Labor, Occupational Safety and Health Administration
SMACNA	Seismic Restraint Manual Guidelines for Mechanical Systems

1.03 SUBMITTALS

For structural elements of nonstructural components and nonbuilding structures required to be designed per this specification section, drawings and design calculations shall be stamped by an Arizona licensed professional engineer qualified to perform structural engineering.

Submit drawings and calculations no less than four weeks in advance of the installation of any component to be anchored to the structure or installation of any structural member to which the component will be attached.

A. The following submittals shall be provided in accordance with Section 01300:

1. List of all nonstructural components and nonbuilding structures requiring wind and seismic design and anchorage.

2. Shop drawings showing details of complete wind and seismic bracing and anchorage attachment assemblies including connection hardware, and embedment into concrete.

3. Shop drawings showing plans, elevations, sections and details of equipment support structures and nonbuilding structures, including anchor bolts, structural members, platforms, stairs, ladders, and related attachments.

4. Identify all interface points with supporting structures or foundations, as well as the size, location, and grip of all required attachments and anchor bolts. Clearly indicate who will be providing each type of attachment/anchor bolt. Equipment vendor shall design anchor bolts, including embedment into concrete, and submit stamped calculations.

5. Calculations for all supports, bracing, and attachments shall clearly indicate the design criteria applied in the design calculations. Concrete embedment calculations shall be coordinated with thickness and strength of concrete members. Submit a tabulation of the magnitude of unfactored (service level) equipment loads at each support point, broken down by type of loading (dead, live, wind, seismic, etc.). Indicate impact factors applied to these loads in the design calculations.

6. Product Data: Manufacturer's certificates of compliance with the seismic force requirements of this section.

1.04 DESIGN CODES

The following standard codes have application at this site for:

Buildings/Structures:	International Building Code 2012 and ASCE 7-10
Reinforced concrete:	ACI 350-06 for Concrete Liquid Containing Tanks, ACI 318-08 for all other reinforced concrete
Structural steel:	AISC 360-10 and AISC 341-10
Welding:	AWS Welding Codes, Latest Edition
Occupational health and safety requirements:	U.S. Dept. of Labor, Occupational Safety and Health Administration (OSHA)

When conflicting requirements occur, the most stringent requirements will govern the design.

1.05 DESIGN LOADS

All nonstructural components and nonbuilding structures shall be designed for the following loads. Wind and snow loads shall not be applied to nonstructural components and nonbuilding structures that are located inside buildings.

A. SNOW LOADS:

Code:	IBC 2012 & ASCE 7-10
Ground Snow Load (p_g)	50 psf
Exposure:	C
Importance Factor (I):	1.1

B. WIND LOADS:

Code:	IBC 2012 & ASCE 7-10
Ultimate Wind Speed (3-second gust):	120 mph
Exposure:	C
Topographic Factor (K_{zt})	1.0
Risk Category	III

All exterior nonstrutural components and nonbuilding structures, unless located in a pit or basin, shall be designed to withstand the design wind loads without consideration of shielding effects by other structures.

C. SEISMIC LOADS:

Code:	IBC 2012 & ASCE 7-10
0.2 Sec. Mapped Spectral Response, S_S:	0.36 g
1.0 Sec. Mapped Spectral Response, S_1:	0.10 g
Site Class:	C
0.2 Sec. Design Spectral Response, S_{DS}:	0.29 g
1.0 Sec. Design Spectral Response, S_{D1}:	0.12 g
Importance Factor (I):	1.25 (Wastewater Treatment facilities are Occupancy Category III)
Component Importance Factor (I_p):	1.0, except I_p=1.5 for fire protection sprinkler systems or components containing hazardous materials
Seismic Design Category	B

Seismic loads shall be calculated on the basis of the governing building code. The structure dead load shall include equipment operating loads.

Individual members shall be checked for seismic and full member live load acting simultaneously, except that flooded equipment loads (infrequent occurrence) need not be combined with seismic loads. Equipment operating loads shall be combined with seismic loads.

D. TEMPERATURE:

The effects of temperature shall be included in design where nonstructural components and nonbuilding structures are exposed to differential climatic conditions. See Section 1.07 for temperature extremes.

1.06 LOAD COMBINATIONS

All nonstructural components and nonbuilding structures shall be designed to withstand the load combinations as specified in the governing building code. Where the exclusion of live load or impact load would cause a more severe load condition for the member under investigation, then the load shall be ignored when evaluating that member.

1.07 DESIGN CONSIDERATIONS

All nonstructural components and nonbuilding structures shall be designed for the following conditions:

A. CLIMATIC CONDITIONS:

Maximum design temperature:	100	degrees Fahrenheit
Minimum design temperature:	-25	degrees Fahrenheit

B. FOUNDATIONS:

Foundations supporting nonstructural components and nonbuilding structures shall extend below the frost line, or be supported on non-frost susceptible structural fill down to the frost line.

Frost line for foundations:	30 inches

Consult project geotechnical report for allowable soil bearing recommendations at location of structure.

1.08 COLUMN BASE FIXITY

Column bases shall be designed as pinned connections. No moments shall be assumed to be transferred to the foundations.

Where significant shear loads (greater than 5,000 lb. per anchor bolt) are transferred at column base plates, the equipment vendor shall provide a shear key.

1.09 DEFLECTIONS

Maximum beam deflections as a fraction of span for walkways and platforms shall be L/240 for total load and L/360 for live load. Maximum total load deflection for equipment supports shall be L/450.

PART 2--PRODUCTS

2.01 GENERAL

Materials shall be in conformance with information shown on the drawings and in other technical specification sections. See individual component and equipment specifications for additional requirements.

PART 3 EXECUTION

3.01 GENERAL

A. Attachments and braces shall be made in such a manner that the component force is transferred to the lateral force-resisting system of the structure. Attachment requirements and size and number of braces shall be based on the calculations submitted by the Contractor.

B. All anchorage of equipment is specified to be made by cast-in anchor bolts in concrete elements unless specifically noted otherwise on the drawings or other specification Sections. Contractor shall be responsible for any remedial work or strengthening of concrete elements because of superimposed seismic loading if anchor bolts are improperly installed or omitted due to lack of submittal review or improper placement for any reason, at no additional cost to the Owner.

C. Anchor bolts shall be provided and installed by the Contractor. Size of anchor bolts and embedment of anchor bolts shall be based on the calculations submitted by the Contractor.

D. Details of and calculations for all anchorages shall be submitted and accepted in accordance with paragraph 1.03 prior to placement of concrete or erection of other structural supporting members. Submittals received after structural supports are in place will be rejected if proposed anchorage method would create an overstressed condition of the supporting member. The Contractor shall be responsible for revisions to the anchorages and/or strengthening of the structural support so that there is no overstressed condition at no additional cost to the Owner.

END OF SECTION

SECTION 01999

REFERENCE FORMS

The forms listed below and included in this section are referenced from other sections of the project manual:

Form No.	Title
01300-A	Submittal Transmittal Form
01660-A	Equipment Test Report Form
01730-A	Operation and Maintenance Transmittal Form
01730-B	Equipment Record Form
01730-C	Equipment Record Form
09900-A	Coating System Inspection Checklist
11000-A	Manufacturer's Installation Certification Form
11000-B	Manufacturer's Instruction Certification Form
11000-C	Unit Responsibility Certification Form
11002-A	Rigid Equipment Mount Installation Inspection Checklist
11060-A	Motor Data Form
16000-A	Wire and Cable Resistance Test Data Form
16000-B	Installed Motor Test Data Form
16000-C	Dry Transformer Test Data Form
16000-D	Motor Control Center Test Form
16000-E	Medium Voltage Motor Starter Test Form
16000-F	Medium Voltage Switchgear Test Form
16000-G	Protective Relay Test Form
16000-H	Low Voltage Switchgear Test Form
16000-I	Medium Voltage Load Interrupter Switch Test Form
16000-J	Liquid-Filled Transformer Test Form
16000-K	Automatic Transfer Switch Test Form
16000-L	Neutral Grounding Resistor Test
17000-A	Loop Wiring and Insulation Resistance Test Data Form
17000-B	Control Circuit Piping Leak Test Form
17000-C	Controller Calibration Test Data Form
17000-D	Panel Indicator Calibration Test Data Form
17000-E	Recorder Calibration Test Data Form
17000-F	Signal Trip Calibration Test Data Form
17000-G	Field Switch Calibration Test Data Form
17000-H	Transmitter Calibration Test Data Form
17000-I	Miscellaneous Instrument Calibration Test Data Form
17000-J	Individual Loop Test Data Form
17000-K	Loop Commissioning Test Data Form

01300-A. SUBMITTAL TRANSMITTAL FORM

SUBMITTAL TRANSMITTAL

Submittal Description: _____ Submittal No:[1] _____

Spec Section: _____

	Routing	Sent	Received
OWNER:	Contractor/CM		
PROJECT:	CM/Engineer		
	Engineer/CM		
CONTRACTOR:	CM/Contractor		

We are sending you ☐ Attached ☐ Under separate cover via _____
☐ Submittals for review and comment ☐ Product data for information only

Remarks: _____

Item	Copies	Date	Section No.	Description	Review action[a]	Reviewer initials	Review comments attached

[a]**Note: NET = No exceptions taken; MCN = Make corrections noted; A&R = Amend and resubmit; R = Rejected** Attach additional sheets if necessary.

Contractor

Certify either A or B:

☐ A. We have verified that the material or equipment contained in this submittal meets all the requirements, including coordination with all related work, specified (no exceptions).

☐ B. We have verified that the material or equipment contained in this submittal meets all the requirements specified except for the attached deviations.

No.	Deviation

Certified by: _____
Contractor's Signature

[1]See paragraph 01300-4.0 A, Transmittal Procedure.

01660-A. EQUIPMENT TEST REPORT FORM

NOTE: This example equipment test report is provided for the benefit of the Contractor and is not specific to any piece of equipment to be installed as a part of this project. The example is furnished as a means of illustrating the level of detail required for the preparation of equipment test report forms for this project.

CITY OF SAMPLE

EXAMPLE WATER TREATMENT PLANT
STAGE IV EXPANSION PROJECT

ABC Construction Company, Inc., General Contractor
XYZ Engineering, Inc., Construction Manager

EQUIPMENT TEST REPORT

Equipment Name: Sludge Pump 2
Equipment Number: P25202
Specification Ref: 11390
Location: East Sedimentation Basin Gallery

	Contractor		Construction Manager	
	Verified	Date	Verified	Date
PREOPERATIONAL CHECKLIST				
Mechanical				
Lubrication				
Alignment				
Anchor bolts				
Seal water system operational				
Equipment rotates freely				
Safety guards				
Valves operational				
Hopper purge systems operational				
Sedimentation tank/hopper clean				
O&M manual information complete				
Manufacturer's installation certificate complete				
Electrical (circuit ring-out and high-pot tests)				
Circuits:				
Power to MCC 5				
Control to HOA				

	Contractor		Construction Manager	
	Verified	Date	Verified	Date
Indicators at MCC:				
Red (running)				
Green (power)				
Amber (auto)				
Indicators at local control panel				
Wiring labels complete				
Nameplates:				
MCC				
Control station				
Control panel				
Equipment bumped for rotation				
Piping Systems				
Cleaned and flushed:				
Suction				
Discharge				
Pressure tests				
Temporary piping screens in place				
Instrumentation and Controls				
Flowmeter FE2502F calibration				
Calibration Report No.				
Flow recorder FR2502G calibrated against transmitter				
VFD speed indicator calibrated against independent reference				
Discharge overpressure shutdown switch calibration				
Simulate discharge overpressure Shutdown				
FUNCTIONAL TESTS				
Mechanical				
Motor operation temperature satisfactory				
Pump operating temperature satisfactory				
Unusual noise, etc?				
Pump operation: 75 gpm/50 psig				
Measurement:				
Flow:				
Pressure:		Test gage number:		
Alignment hot				
Dowelled in				
Remarks:				

	Contractor		Construction Manager	
	Verified	Date	Verified	Date
Electrical				
Local switch function:				
Runs in *HAND*				
No control power in *OFF*				
Timer control in *AUTO*				
Overpressure protection switch PS2502C functional in both *HAND* and *AUTO*				
Overpressure protection switch PS2502C set at 75 psig				
PLC 2500 set at 24-hour cycle, 25 min *ON*				
OPERATIONAL TEST				
48-hour continuous test. Pump cycles as specified, indicators functional, controls functional, pump maintains capacity, overpressure protection remains functional, hour meter functional				

RECOMMENDED FOR BENEFICIAL OCCUPANCY

_____ _____

Construction Manager _____ Date _____

ACCEPTED FOR BENEFICIAL OCCUPANCY

_____ _____

Owner's Representative_____ Date _____

01730-A. OPERATION AND MAINTENANCE TRANSMITTAL FORM

Date: _____ Submittal No:[2] _____

To: _____ Contract No: _____

_____ Spec. Section: _____

_____ Submittal Description: _____

_____ From: _____

Attention: _____ _____

Checklist	Contractor		Construction manager	
	Satisfactory	N/A	Accept	Deficient
1. Table of contents				
2. Equipment record forms				
3. Manufacturer information				
4. Vendor information				
5. Safety precautions				
6. Operator prestart				
7. Start-up, shutdown, and postshutdown procedures				
8. Normal operations				
9. Emergency operations				
10. Operator service requirements				
11. Environmental conditions				
12. Lubrication data				
13. Preventive maintenance plan and schedule				
14. Troubleshooting guides and diagnostic techniques				
15. Wiring diagrams and control diagrams				
16. Maintenance and repair procedures				
17. Removal and replacement instructions				
18. Spare parts and supply list				
19. Corrective maintenance man-hours				
20. Parts identification				
21. Warranty information				
22. Personnel training requirements				
23. Testing equipment and special tool information				

Remarks: _____

_____

Contractor's Signature

[2]See paragraph 01300-4.0 A, Transmittal Procedure.

01730-B. EQUIPMENT RECORD FORM

EQUIP DESCRIP		EQUIP LOC	
EQUIP NO.	SHOP DWG NO.	DATE INST	COST
MFGR		MFGR CONTACT	
MFGR ADDRESS			PHONE
VENDOR		VENDOR CONTACT	
VENDOR ADDRESS			PHONE

MAINTENANCE REQUIREMENTS	D	W	M	Q	S	A	Hours
LUBRICANTS: RECOMMENDED:							
ALTERNATIVE:							
MISC. NOTES:							

RECOMMENDED SPARE PARTS			
PART NO	QUAN	PART NAME	COST

ELECTRICAL NAMEPLATE DATA			
EQUIP			
MAKE			
SERIAL NO.		ID NO.	
MODEL NO.		FRAME NO.	
HP	V	AMP	HZ
PH	RPM	SF	DUTY
CODE	INSL. CL	DES	TYPE
NEMA DES	C AMB	TEMP RISE	RATING
MISC.			
MECHANICAL NAMEPLATE DATA			
EQUIP			
MAKE			
SERIAL NO.		ID NO.	
MODEL NO.		FRAME NO.	
HP	RPM	CAP	SIZE
TDH	IMP SZ	BELT NO.	CFM
PSI	ASSY NO.	CASE NO.	
MISC			

01730-C. EQUIPMENT RECORD FORM

EQUIP DESCRIP		EQUIP LOC	
EQUIP NO.	SHOP DWG NO.	DATE INST	COST
MFGR		MFGR CONTACT	
MFGR ADDRESS			PHONE
VENDOR		VENDOR CONTACT	
VENDOR ADDRESS			PHONE

MAINTENANCE REQUIREMENTS	D	W	M	Q	S	A	Hours

09900-A COATING SYSTEM INSPECTION CHECKLIST

09900-A Coating System Inspection Checklist			
Project Name			
Owner		Coating System Manufacturer (CSM)	
General Contractor (GC)		Coating System Applicator (CSA)	
Area or Structure		Location within Structure	
Coating System (eg E-1)		Coating Type (eg Epoxy, etc.)	

Step	Description		Name	Signature	Date
1	Completion of cleaning and substrate decontamination prior to abrasive blast cleaning.	GC QC			
		CSM QC			
		CSA QC			
2	Installation of protective enclosure of structure or area and protection of adjacent surfaces or structures that are not to be coated.	GC QC			
		CSM QC			
		CSA QC			
3	Completion of ambient condition control in structure or building area and acceptance of ventilation methods in structure or Area.	GC QC			
		CSM QC			
		CSA QC			
4	Completion of Surface Preparation for Substrates to Be Coated.	GC QC			
		CSM QC			
		CSA QC			
5	Completion of Primer Application.	GC QC			
		CSM QC			
		CSA QC			

Step	Description		Name	Signature	Date
6	Completion of Concrete Repairs If Required and Related Surface Preparation Rework Prior to Coating System Application.	GC QC			
		CSM QC			
		CSA QC			
7	Completion of Concrete Filler/ Surface Application to Concrete.	GC QC			
		CSM QC			
		CSA QC			
8	Completion of First Finish Coat Application and of Detail Treatment at Transitions or Terminations.	GC QC			
		CSM QC			
		CSA QC			
9	Completion of Second Finish Coat Application and of Detail Treatment at Transitions and Terminations.	GC QC			
		CSM QC			
		CSA QC			
10	Completion of Full and Proper Cure of Coating System.	GC QC			
		CSM QC			
		CSA QC			
11	Completion of Testing of Cured Coating System including Adhesion, Holiday (Continuity) Testing and Dry Film Thickness.	GC QC			
		CSM QC			
		CSA QC			
12	Completion of Localized Repairs to Coating System Following Testing.	GC QC			
		CSM QC			
		CSA QC			

Step	Description		Name	Signature	Date
13	Final Acceptance of Coating System Installation Including Final Clean-Up Complying with Specification Requirements and the CSM's Quality Requirements.	GC QC			
		CSM QC			
		CSA QC			

11000-A. MANUFACTURER'S INSTALLATION CERTIFICATION FORM

Contract No: _____ Specification section: _____

Equipment name: _____

Contractor: _____

Manufacturer of equipment item: _____

The undersigned manufacturer of the equipment item described above hereby certifies that he has checked the installation of the equipment and that the equipment, as specified in the project manual, has been provided in accordance with the manufacturer's recommendations, and that the trial operation of the equipment item has been satisfactory.

Comments: _____

_____

_____

_____

_____

_____ _____

Date Manufacturer

_____

Signature of Authorized Representative

_____ _____

Date Contractor

_____

Signature of Authorized Representative

11000-B. MANUFACTURER'S INSTRUCTION CERTIFICATION FORM

Contract No: _____ Specification section: _____

Equipment name: _____

Contractor: _____

Manufacturer of equipment item: _____

The undersigned manufacturer certifies that a service engineer has instructed the wastewater treatment plant operating personnel in the proper maintenance and operation of the equipment designated herein.

Operations Check List (check appropriate spaces)	
Start-up procedure reviewed	
Shutdown procedure reviewed	
Normal operation procedure reviewed	
Others:	
Maintenance Check List (check appropriate spaces)	
Described normal oil changes (frequency)	
Described special tools required	
Described normal items to be reviewed for wear	
Described preventive maintenance instructions	
Described greasing frequency	
Others:	

_____ _____

Date Manufacturer

_____

Signature of Authorized Representative

_____ _____

Date Signature of Owner's Representative

_____ _____

Date Signature of Contractor's Representative

11000-C. UNIT RESPONSIBILITY CERTIFICATION FORM

(Project Title)

CERTIFICATE OF UNIT RESPONSIBILITY
for Specification Section _____

_____
(Section title)

In accordance with paragraph 11000-1.02 C of the contract documents, the undersigned manufacturer of driven equipment ("manufacturer") accepts unit responsibility for all components of equipment furnished to the Project under specification Section_____ ,and for related equipment manufactured under Sections___ ____, _____, and _____ .

We have reviewed the requirements for Sections 11000 (and 11050 where applicable) and all sections referencing this (these) section(s), including but not limited to drivers, supports for driving and driven equipment and all other specified appurtenances to be furnished to the Project by manufacturer. And, we have further reviewed, and modified as necessary, the requirements for associated variable speed drives and motor control centers. We hereby certify that all specified components are compatible and comprise a functional unit suitable for the specified performance and design requirements whether or not the equipment was furnished by us. We will make no claim nor establish any condition that problems in operation for the product provided under this specification Section _____ are due to incompatibility of any components covered by this Certificate of Unit Responsibility. Nor will we condition or void any warranty for the performance of the product of this specification Section _____ due to incompatibility of any components covered under this Certificate of Unit Responsibility.

Our signature on this Certificate of Unit Responsibility does not obligate us to take responsibility for, nor to warrant the workmanship, quality, or performance of related equipment provided by others under specification Sections _____, _____, and _____. Our obligation to warranty all equipment provided by us shall remain unaffected.

_____
Notary Public

_____
Commission expiration date

Seal:

_____
Name of Corporation

_____
Address

By: _____
Duly Authorized Official

_____
Legal Title of Official

Date: _____

11002-A. RIGID EQUIPMENT MOUNT INSTALLATION CHECKLIST

(CLIENT, PROJECT NAME)

Equipment Tag No.: _____ Date: _____

Grout Product Name and Type: _____

Grouting System Manufacturer: _____

Grouting Application Contractor: _____

General Contractor: _____

Step 1: Verify Equipment Anchor Installation Conformance to Equipment Pad Details

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Name: _____
Construction Manager Millwright

Step 2: Completion of Cleaning and Concrete Substrate Preparation Prior to Grouting

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Name: _____
Construction Manager Grouting Contractor Rep.

Name: _____
Grout Manufacturer's Technical Rep.

Step 3: Equipment Leveling

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Name: _____
Construction Manager Millwright

Step 4: Installation of Protection of Adjacent Surfaces or Structures NOT TO BE GROUTED

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Name: _____
Construction Manager Grouting Contractor Rep.

Name: _____
Grout Manufacturer's Technical Rep.

Step 5: Preparation and Construction of Forms and Epoxy Grout Filling Standpipes

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Name: _____
Construction Manager Grouting Contractor Rep.

Name: _____
Grout Manufacturer's Technical Rep.

Step 6: Completion of Ambient Condition Control in Structure or Building Area and Acceptance of Ambient Conditions as They Apply to Application and Curing Requirements for the Grouting System

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Date___/___/___
Grouting Contractor Rep.

Name: _____ Date___/___/___
Grout Manufacturer's Technical Rep.

Name: _____ Date___/___/___
Construction Manager

Step 7: Epoxy Grout Installation

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Name: _____
Construction Manager Grouting Contractor Rep.

Name: _____
Grout Manufacturer's Technical Rep.

Step 8: Completion of Full and Proper Cure of Epoxy Grout

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Date___/___/___
Grouting Contractor Rep.

Name: _____ Date___/___/___
Grout Manufacturer's Technical Rep.

Name: _____ Date___/___/___
Construction Manager

Step 9: Completion of Localized Repair of Grout Voids

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Date___/___/___
Grouting Contractor Rep.

Name: _____ Date___/___/___
Grout Manufacturer's Technical Rep.

Name: _____ Date___/___/___
Construction Manager

Step 10: Final Acceptance of Grouting System Installation Including Final Clean-Up of the Work Site Complying with All Specification Requirements and the GSM's Quality Requirements

Name: _____ Date___/___/___
Contractor Rep.

Name: _____ Date___/___/___
Grouting Contractor Rep.

Name: _____ Date___/___/___
Grout Manufacturer's Technical Rep.

Name: _____ Date___/___/___
Construction Manager

11060-A. MOTOR DATA FORM

Equipment Name: _____ Equipment No(s): _____

Project Site Location: _____

Nameplate Markings

Mfr:		Mfr Model:		Frame:		Horsepower:	
Volts:		Phase:		RPM:		Service Factor:	
FLA:		LRA:		Frequency:		Amb Temp Rating:	°C
Time rating:				Design Letter:			
	(NEMA MG1-10.35)				(NEMA MG-1.16)		
KVA Code Letter:				Insulation Class:			

The following information is required for explosion-proof motors only:

A. Approved by UL for installation in Class _____, Div _____, Group _____

B. UL frame temperature code ____ (NEC Tables 500-8B)

The following information is required for all motors 1/2 horsepower and larger:

A. Guaranteed minimum efficiency _____
(Paragraph 11060-2.04 G)

B. Nameplate or nominal efficiency _____

Data Not Necessarily Marked on Nameplate

Type of Enclosure:			Enclosure Material:		
Temp Rise:	°C (NEMA MG1-12.41,42)				
Space Heater included?	☐ Yes	☐ No	If Yes:	Watts	Volts
Type of motor winding over-temperature protection, if specified:					

Provide information on other motor features specified:

_____

A. WIRE AND CABLE RESISTANCE TEST DATA FORM

Wire or Cable No.:_____ Temperature, °F: _____

Location of Test	Insulation resistance, megohms
1.	
2.	
3.	
4.	
5.	
6.	
7	

.

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

16000-B. INSTALLED MOTOR TEST FORM

Motor Equipment Number: _____ Date of test: _____

Equipment Driven: _____

MCC Location: _____

						Ambient temp	°F
Resistance:							
Insulation resistance phase-to-ground megohms:							
Phase A		Phase B		Phase C			
Current at Full Load:							
Phase		Current, amps					
Phase		Current, amps					
Phase		Current, amps					
Thermal Overload Device:	Manufacturer/catalog #		Amperes				
Circuit breaker (MCP) setting:							

Motor Nameplate Markings:

Mfr		Mfr Model		Frame		HP	
Volts		Phase		RPM		Service factor**	
Amps		Freq		Ambient temp rating		°C	
Time rating			Design letter**				
	(NEMA 1-10.35)			(NEMA MG-1.16)			
Code letter			Insulation class				

**Required for 3-phase squirrel cage induction motors only.

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

16000-C. DRY TRANSFORMER TEST DATA FORM

(Note: Use Data Form for dry type transformers with voltage rating of 600 Vac or less and sizes to 167 kVA single phase and 500 kVA three phase. Use NETA Test Forms and Test Procedures for higher voltages and larger transformers.)

Equipment Tag No.: _____ Temperature Rating: _____

Description/Location: _____ Feeder size/Source: _____

Primary Voltage: _____ Secondary Voltage: _____ Winding Connection: _____

A. VISUAL INSPECTION

Transformer Inspection	Pass	Fail	Note
1. Nameplate data as specified			
2. Mechanical condition			
a. Free of dents and scratches			
b. Anchored properly			
c. Shipping brackets removed			
d. Spacing from wall per nameplate			
3. Grounding *			
a. Equipment grounding			
b. System grounding			

B. INSULATION-RESISTANCE TESTS:

Perform tests with calibrated megohmeter. Apply 1000 Vdc test voltage for 60 seconds and record readings in megohms at 30-seconds and 60-seconds intervals.

Test Group	Resistance between		30-second reading	60-second reading	Absorption Ratio Index 60-sec. / 30-sec.
Primary Winding to ground	A	GRD			
	B	GRD			
	C	GRD			
Secondary Winding to ground with * N-G Bond removed	a	GRD			
	b	GRD			
	c	GRD			
Primary Winding to Secondary Winding	A	a			
	B	b			
	C	c			

Submit resistance readings to the Construction Manager immediately after the tests that are less than the manufacturer's recommended value or less than 10-megohms. Record the Absorption Ratio Index values for future reference. Ratio must be 1.0 or greater, with infinity (∞) equal to 1.0.

Contractor Representative Certified: _____ Date _____

Owner Representative Witnessed: _____ Date _____

16000-D. MOTOR CONTROL CENTER TEST FORM

Equipment No.: _____ Ambient room temperature: _____

Location: _____

A. MECHANICAL CHECK:

All bolted connections either bus to bus or cable to bus shall be torqued to the manufacturer's recommendations.

B. ELECTRICAL TESTS:

1. Measure insulation resistance of each bus section phase to phase and phase to ground for 1 minute using a megohmmeter at 1000 volts.

Test results (megohms)			
Phase		Phase	
A-GRD		A-B	
B-GRD		B-C	
C-GRD		C-A	

2. Set the circuit breaker in the starter unit to comply with the requirements of NEC, Article 430-52 and Table 430-152.

3. Motor overload heater elements shall be sized and installed based on the actual nameplate full load amperes of the motor connected to the starter.

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

16000-E. MEDIUM VOLTAGE MOTOR STARTER TEST FORM

Equipment No.: _____

Location: _____

Room Temperature: _____

The protective devices shall be set in accordance with the specification before the tests are performed.

1. Measure contact resistance (micro-ohms)

Phase:	A		B		C	

Contacts shall be replaced if resistance exceeds 50 micro-ohms.

2. Perform an insulation resistance test (1000 volts DC for 1 minute).

Phase	A		B		C		
Pole to ground							megohms
Across open pole							megohms
Pole to pole	AB		BC		CA		megohms

3. Perform minimum pickup voltage tests on trip and close coils.

4. Motor RTDs shall be tested by using a hot oil bath. The temperature at which the sensor trips shall be recorded for each RTD.

5. The Contactor shall be tripped by operation of each protective device.

16000-F. MEDIUM VOLTAGE SWITCHGEAR TEST FORM

Equipment No.: _____

Location: _____

Room Temperature: _____

The protective devices shall be set in accordance with the specification before the tests are performed.

1. Measure contact resistance (micro-ohms).

Phase:	A		B		C	

Contacts shall be replaced if resistance exceeds 50 micro-ohms.

2. Perform an insulation resistance test (1000 volts DC for 1 minute).

Phase	A		B		C		
Pole to ground							megohms
Across open pole							megohms
Pole to pole	AB		BC		CA		megohms

3. Perform minimum pickup voltage tests on trip and close coils.

4. Verify the instrument transformer ratios. Check the transformer's polarity electrically.

5. The Contactor shall be tripped by operation of each protective device.

16000-G. PROTECTIVE RELAY TEST FORM

Location: _____

Switchgear Breaker No.: _____

Protective Relay Description: _____

The protective relays shall be tested in the following manner:

1. Each protective relay circuit shall have its insulation resistance tested to ground.

2. Perform the following tests on the specified relay setting:

   a. Pickup parameters on each operating element.

   b Timing test shall be performed at three points on the time dial curve.

   c. Pickup target and seal-in units.

The results shall be recorded and signed. A copy shall be given to the Construction Manager in accordance with paragraph 16000-1.05 B.

16000-H. LOW VOLTAGE SWITCHGEAR TEST FORM

Equipment No.: _____

Location: _____

Room Temperature: _____

The protective devices shall be set in accordance with the specification before the tests are performed.

1. Measure contact resistance (micro-ohms).

Phase:	A		B		C	

Contacts shall be replaced if resistance exceeds 50 micro-ohms.

2. Perform an insulation resistance test (1000 volts DC for 1 minute).

Phase	A		B		C		
Pole to ground							megohms
Across open pole							megohms
Pole to pole	AB		BC		CA		megohms

3. Minimum pickup current shall be determined by primary current injection.

4. Long time delay shall be determined by primary injection at three hundred percent (300%) pickup current.

5. Short time pickup and time delay shall be determined by primary injection of current.

6. Instantaneous pickup current shall be determined by primary injection.

7. Trip unit reset characteristics shall be verified.

8. Auxiliary protective devices, such as ground fault or under voltage relays, shall be activated to ensure operation of shunt trip devices.

16000-I. MEDIUM VOLTAGE LOAD INTERRUPTER SWITCH TEST FORM

Equipment Number: _____

Location: _____

Date: _____

1. Measure switch blade resistance (micro-ohms).

Phase:	A		B		C	

Contacts shall be replaced if resistance exceeds 50 micro-ohms.

2. Perform an insulation resistance test (1000 volts DC for 1 minute).

Phase	A		B		C		
Pole to ground							megohms
Across open pole							megohms
Pole to pole	AB		BC		CA		megohms

The results shall be recorded and signed. A copy shall be given to the Construction Manager in accordance with paragraph 16000-2.06 B.

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

16000-J. LIQUID-FILLED TRANSFORMER TEST FORM

Equipment Number: _____

Location: _____

Date/Weather Conditions: _____

A. Perform the "Insulation-Resistance Test" and "Dielectric Absorption Test" using Form 16000-C, Dry Transformer Test Data Form.

B. Perform an applied voltage (low frequency dielectric) test in accordance with ANSI C57.12.90, paragraph 10.5, Applied Voltage Test. Applied voltage levels shall be 75 percent of recommended factory test levels or recommended test levels of ANSI C57.12.00, Table 5.

C. Insulating oil shall be sampled and shall be laboratory tested for the following:

1. Dielectric strength.

2. Acid neutralization.

3. Interfacial tension.

4. Color.

5. Power factor.

D. Perform a turns ratio test between the windings for all tap positions.

E. The temperature and pressure switches shall be tested using a hot oil bath and air pump.

F. The results shall be recorded and signed by the Contractor and Construction Manager. A copy shall be given to the Construction Manager in accordance with paragraph 16000-2.06 D. Any readings which are abnormal to ANSI industry standards shall be reported to the Construction Manager.

16000-K. AUTOMATIC TRANSFER SWITCH TEST FORM

Equipment Number: _____

Location: _____

Date: _____

1. Perform an insulation resistance test (1000 volts DC for 1 minute):

Phase	A		B		C		
Pole to ground							megohms
Pole to pole	AB		BC		CA		megohms

2. Perform the following operations and initial:

   a. Manual transfer _____

   b. Loss of normal power; _____sec delay

   c. Return to normal power; _____sec delay

The results shall be recorded and signed. A copy shall be given to the Construction Manager in accordance with paragraph 16000-2.06 B.

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

16000-L. NEUTRAL GROUNDING RESISTOR TEST

Equipment No.: _____

Location: _____

The pickup and time delay setting on the ground fault relay shall be set in accordance with Section 16431.

1. The transformer neutral insulation resistance shall be measured with and without the grounding resistor connected to insure no parallel ground paths exist.

2. The protective relay pickup current shall be determined by injecting test current into the current sensor. The pickup current should be within 10 percent of the dial setting. Record the dial setting and actual pickup tie.

3. The relay timing shall be tested by injecting 150 and 300 percent of pickup current into the current sensor. The relay timing shall be in accordance with the manufacturer's published time-current characteristic curves. Record the relay timing at 150 and 300 percent of pickup current.

4. The circuit interrupting device shall be operated by operating the relay.

The results shall be recorded and signed by the Contractor and Construction Manager. A copy shall be given to the Construction Manager in accordance with paragraph 16000-2.06 B.

17000-A. LOOP WIRING AND INSULATION RESISTANCE TEST DATA FORM

Loop No.: _____

List all wiring associated with a loop in table below. Make applicable measurements as indicated after disconnecting wiring.

Wire No.	Panel Tie	Field TB	Continuity Resistance[a]		Insulation Resistance[b]			
			Cond./ Cond.	Cond./ Shield	Shield/ Gnd.	Shield/ Cond.	Cond./ Gnd.	Shield/ Shield
A			--	(A/SH)				
B			(A/B)	--				
C			(A/C)	--				
D			(A/D)	--				
etc.								

NOTES:

a. Continuity Test. Connect ohmmeter leads between wires A and B and jumper opposite ends together. Record resistance in table. Repeat procedure between A and C, A and D, etc. Any deviation of ±2 ohms between any reading and the average of a particular run indicates a poor conductor, and corrective action shall be taken before continuing with the loop test.

b. Insulation Test. Connect one end of a 500 volt megger to the panel ground bus and the other sequentially to each completely disconnected wire and shield. Test the insulation resistance and record each reading.

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-B. CONTROL CIRCUIT PIPING LEAK TEST FORM

Loop No.:_____

List tubing associated with loop in table below. Make applicable measurements after isolating any air consuming pilots from circuit.

Tube No.	Tubing Equivalent Length of 1/4-Inch Copper[a]	Test Period (seconds)	Permitted Pressure Drop (psi)[b]	Measured Pressure Drop (psi)
A				
B				
C				
D				
etc.				

NOTES:

a. Convert actual tubing and air motor volume to equivalent 1/4-inch copper tubing.

b. Pressure drop shall not exceed 1 psi per hundred feet 1/4-inch tubing per 5 seconds.

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-C. CONTROLLER CALIBRATION TEST DATA FORM

Tag No. and Description: _____

Make & Model No.: _____ Serial No.: _____

Input: _____ Process Variable (PV) Scale: _____

Output: _____ Output Scale: _____

PV Scale Calibration

% of Range	Input	Expected Reading	Actual Reading	% Deviation
0				
50				
100				
			% Deviation Allowed:	

Connect output to PV for following tests:

Set Point (SP) Indicator Accuracy			Output Meter Accuracy			Controller Accuracy		
SP	PV Reading	Expected % Dev.	Actual Reading	Expected Reading	Actual % Dev.	Output	Output	% Dev.
(0%)								
(50%)								
(100%)								
% Deviation Allowed:			% Deviation Allowed:			% Deviation Allowed:		

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-D. PANEL INDICATOR CALIBRATION TEST DATA FORM

Tag No. and Description: _____

Make & Model No.:_____ Serial No.:_____

Input: _____

Scale: _____ Range: _____

PV Scale Calibration

% of Range	Input	Expected Reading	Actual Reading	% Deviation
0				
50				
100				
			% Deviation Allowed:	

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-E. RECORDER CALIBRATION TEST DATA FORM

Tag No. and Description: _____

Make & Model No.: _____ Serial No.: _____

Input: _____ Chart: _____

Scale: _____ Range: _____

% of Range	Input	Expected Reading	Actual Reading	% Deviation
0				
50				
100				
			% Deviation Allowed:	

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-F. SIGNAL TRIP CALIBRATION TEST DATA FORM

Tag No. and Description: _____

Make & Model No.: _____ Serial No.: _____

Input: _____

Scale: _____ Range: _____

Set Point(s): _____

After setting set point(s), run signal input through entire range and calculate deadband.

Set Point	Incr. Input Trip Point	Decr. Input Trip Point	Calc. Deadband	Required Deadband

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-G. FIELD SWITCH CALIBRATION TEST DATA FORM

Tag No. and Description: _____

Make & Model No.: _____ Serial No: _____

Input: _____

Range: _____

Set Point(s): _____

Simulate process variable (flow, pressure, temperature, etc.) and set desired set point(s). Run through entire range of switch and calculate deadband.

Set Point	Incr. Input Trip Point	Decr. Input Trip Point	Calc. Deadband	Required Deadband

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-H. TRANSMITTER CALIBRATION TEST DATA FORM

Tag No. and Description: _____

Make & Model No.: _____ Serial No.: _____

Input: _____

Output: _____

Range: _____ Scale: _____

Simulate process variable (flow, pressure, temperature, etc.) and measure output with appropriate meter.

% of Range	Input	Expected Reading	Actual Reading	% Deviation
0				
50				
100				
			% Deviation Allowed:	

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-I. MISCELLANEOUS INSTRUMENT CALIBRATION TEST DATA FORM

(For instruments not covered by any of the preceding test forms, the Contractor shall create a form containing all necessary information and calibration procedures.)

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-J. INDIVIDUAL LOOP TEST DATA FORM

Loop No.: _____

Description: (Give complete description of loop's function using tag numbers where appropriate.)

P&ID No.: (Attach copy of P&ID.)

a. Wiring tested:
(Attach test form 17000-A)

b. Instrumentation tubing/piping tested:
(Attach test form 17000-B)

c. Instruments calibrated:
(Attach test forms 17000-C through I)

d. List step-by-step procedures for testing loop parameters. Test loop with instruments, including transmitters and control valves, connected and functioning. If it is not possible to produce a real process variable, then a simulated signal may be used with the Construction Manager's approval.

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

17000-K. LOOP COMMISSIONING TEST DATA FORM

Loop No.: _____

a. Loop tested:
(Attach test form 17000-J)

b. Controlled or connected equipment tests confirmed:

c. Give complete description of loop's interface with process.

d. With associated equipment and process in operation, provide annotated chart trace of loop response to changes in set points for verification of performance. This chart should demonstrate 1/4-amplitude damping as output adjusts to set point change. Show set points, starting and finishing times on chart, as well as any other pertinent data.

Connect 2-pen recorder to process variable (PV) and to controller output. Use 1 inch/second chart speed.

Pen 1 - PV - Connections:

Pen 2 - Output - Connections:

CERTIFIED _____ Date _____
Contractor's Representative

WITNESSED _____ Date _____
Owner's Representative

SECTION 02100

SITE PREPARATION

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies site preparation which consists of clearing, grubbing and demolition.

B. EXISTING CONDITIONS:

The Contractor shall determine the actual condition of the site as it affects this portion of work.

C. PROTECTION:

Site preparation shall not damage structures, landscaping or vegetation adjacent to the site. The Contractor shall repair or replace any damaged property.

PART 2--PRODUCTS

No products are included in this section.

PART 3--EXECUTION

3.01 CLEARING AND GRUBBING

Unless otherwise specified, the Contractor shall remove obstructions such as brush, trees, logs, stumps, roots, heavy sod, vegetation, rock, stones larger than 6 inches in any dimension, broken or old concrete and pavement, debris, and structures where the completion of the work require their removal.

Material that is removed and is not to be incorporated in the work shall be disposed of off the site.

3.02 DEMOLITION AND REMOVAL

A. STRUCTURES:

Demolition and removal of structures consist of removal of abandoned superstructures, foundation walls, footings, slabs and any other structures. Excavations caused by existing foundations shall be cleared of waste, debris and loose soil, and refilled as specified.

B. PAVEMENT:

When portions of asphalt pavements and concrete pads are to be removed and later construction is to be connected, edges shall be saw-cut, on a neat line at right angles to the curb face.

C. SALVAGE:

The Owner has the right to salvage any items scheduled for removal. The Contractor shall notify the Owner 5 days prior to any salvage or demolition work to determine the disposition of items to be removed. The Owner will mark items to be salvaged. Such items shall be properly disconnected, removed from their foundations, cleaned, and stored at a location on the site as specified.

3.03 UTILITY INTERFERENCE

Where existing utilities interfere with the prosecution of the work, the Contractor shall relocate them at no additional cost to the Owner.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies earthwork which consists of excavation, filling, grading, and disposal of excess material.

B. DEFINITIONS:

1. COMPACTION: The degree of compaction is specified as percent compaction. Maximum or relative densities refer to dry soil densities obtainable at optimum moisture content.

2. EXCAVATION SLOPE: Excavation slope shall be defined as an inclined surface formed by removing material from below existing grade.

1.02 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, whether or not the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ASTM C136	Standard Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
MAG	Maricopa Association of Governments Uniform Specifications and Details for Public Works Construction, current edition and revisions.
ASTM D1556	Test Method for Density of Soil in Place by the Sand-Cone Method
ASTM D1557	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.5-kg) Rammer and 18-in. (457-mm) Drop
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3017	Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

B. TESTS:

The Owner will take samples and perform moisture content, gradation, compaction, and density tests during placement of backfill materials to check compliance with these specifications. The Contractor shall remove surface material at locations designated by the Owner and provide such assistance as necessary for sampling and testing. The Owner may direct the Contractor to construct inspection trenches in compacted or consolidated backfill to determine that the Contractor has complied with these specifications.

Tests will be made by the Owner in accordance with the following:

Test	Standard Procedure
Moisture content	ASTM D3017
Gradation	ASTM C136
Density in-place	ASTM D1556
Moisture-density relationships	ASTM D1557

1.03 SUBMITTALS

Samples of fill materials to be used shall be submitted 2 weeks in advance of use. Samples shall consist of 0.5 cubic feet of each type of material.

PART 2--MATERIALS

2.01 BEDDING AND BACKFILL

Bedding and backfill shall meet the requirements of MAG Section 601.4.

2.02 CRUSHED ROCK

Crushed rock shall meet the requirements of MAG Section 701.2.

2.03 AGGREGATE BASE

Aggregate base shall meet the requirements of MAG Section 702.2.

2.04 SITE FILL

Unless otherwise specified, site fill shall be unclassified material which is free from peat, wood, roots, bark, debris, garbage, rubbish, or other extraneous material. The maximum size of stone shall not exceed 6 inches. If the material excavated from the site meets these requirements, it may be classified as this type.

2.05 TYPE D:

Type D material shall be granular material commonly known as pea gravel and shall conform to the following gradation:

U.S. standard sieve size	Percent by weight passing
1/4 inch	100
No. 8	0-5

PART 3--EXECUTION

3.01 GENERAL

A. CONTROL OF WATER:

The Contractor shall keep excavations reasonably free from water during construction. The static water level shall be drawn down a minimum of 1 foot below the bottom of excavations to maintain the undisturbed state of natural soils and allow the placement of any fill to the specified density. Disposal of water shall not damage property or create a public nuisance. The Contractor shall have on hand pumping equipment and machinery in good working condition for emergencies and shall have workmen available for its operation. Dewatering systems shall operate continuously until backfill has been completed to 1 foot above the normal static groundwater level.

Groundwater shall be controlled to prevent softening of the bottom of excavations, or formation of "quick" conditions. Dewatering systems shall not remove natural soils. The Contractor shall control surface runoff to prevent entry or collection of water in excavations.

Release of groundwater to its static level shall be controlled to prevent disturbance of the natural foundation soils or compacted fill and to prevent flotation or movement of structures or pipelines.

B. OVEREXCAVATION:

Where the undisturbed condition of natural soils is inadequate for support of the planned construction, the Owner will direct the Contractor to overexcavate to adequate supporting soils. The excavated space shall be filled to the specified elevation with backfill. The overexcavated space under footings may be filled with concrete. The quantity and placement of such material will be paid for as extra work.

C. SURPLUS MATERIAL:

Unless otherwise specified, surplus excavated material shall be disposed of offsite in accordance with applicable ordinances and environmental requirements.

Material shall not be stockpiled to a depth greater than 5 feet above finished grade within 25 feet of any excavation or structure, except for those areas designated to be preconsolidated. For these areas, the depth of stockpiled material shall be as specified. The Contractor shall maintain stability of the soil adjacent to any excavation.

D. HAULING:

When hauling is done over highways or city streets, the loads shall be trimmed and the vehicle shelf areas shall be cleaned after each loading. The loads shall be watered after trimming to eliminate dust.

E. FINISH GRADING:

Finished surfaces shall be smooth, compacted and free from irregularities. The degree of finish shall be that normally obtainable with a blade-grader.

Finished grade shall be as specified by the contours plus or minus 0.10 foot except where a local change in elevation is required to match sidewalks, curbs, manholes and catch basins, or to ensure proper drainage. Allowance for topsoil and grass cover, and subbase and pavement thickness shall be made so that the specified thickness of topsoil can be applied to attain the finished grade.

When the work is an intermediate stage of completion, the lines and grades shall be as specified plus or minus 0.5 foot to provide adequate drainage.

If the soil is to be cultivated or straw is to be incorporated into the surface, rocks larger than 2-1/2 inches in maximum dimension, roots and other debris on the surface of the slope shall be removed and disposed of prior to cultivation or placement of straw.

F. CONTROL OF EROSION:

The Contractor shall maintain earthwork surfaces true and smooth and protected from erosion. Where erosion occurs, the Contractor shall provide fill or shall excavate as necessary to return earthwork surfaces to the grade and finish specified.

3.02 EARTHWORK FOR STRUCTURES

A. STRUCTURE EXCAVATION:

The bottom shall not be more than 0.15 foot above or below the lines and grades specified. If the elevation of structure excavation is not specified, the excavation shall be not more than 0.15 foot above or below the elevation specified for fill material below the structure. Slopes shall vary no more than 0.5 foot from specified grade, unless the excavation is in rock where the maximum variation shall be 2 feet.

Should the excavation be carried below the lines and grades specified on the drawings or should the bottom of the excavation be disturbed because of the Contractor's operations and require overexcavation and backfill, the Contractor shall refill such excavated space to the proper elevation in accordance with the procedure specified for backfill. The cost of such work shall be borne by the Contractor.

Unless otherwise specified, excavations shall extend a sufficient distance from walls and footings to allow for placing and removal of forms, installation of services, and for inspection, except where concrete is specified to be placed directly against excavated surfaces.

B. FOUNDATION TREATMENT

Whenever any structure excavation is substantially completed to grade, the Contractor shall notify the Owner who will make an inspection of the foundation. No concrete shall be placed until the foundation has been inspected by the Owner.

C. STRUCTURE BACKFILL:

Unless otherwise specified, structure backfill shall be per MAG Section 206.

After completion of construction below the elevation of the final grade, and prior to backfilling, forms shall be removed and the excavation shall be cleaned of debris.

Backfill material shall be placed in uniform layers and shall be brought up uniformly on all sides of the structure. Unless otherwise specified, backfill around and above pipelines within the excavation line of any structure shall be the same as that specified for structures.

3.03 EARTHWORK FOR PIPELINES AND CONDUITS

A. GENERAL:

Earthwork for pipelines and conduits is specified in MAG 601and in the following paragraphs.

B. PIPELINE EXCAVATION:

The bottom of the trench shall be carried to the specified lines and grades with proper allowance for pipe thickness and for bedding as specified in MAG 601.

C. PIPELINE BACKFILL:

1. BEDDING: The Contractor shall not proceed with backfill placement in excavated areas until the subgrade has been inspected by the Owner. All pipe shall have a minimum thickness of bedding material below the barrel of the pipe as specified in MAG Section 601. Bedding material shall be placed in the bottom of the trench, leveled and compacted. Bell holes shall be excavated at each pipe joint to permit proper inspection and uniform bearing of pipe on bedding material.

After the pipe has been laid to alignment and grade, unless otherwise specified, additional bedding material shall be placed in layers the full width of the trench and compacted up to the specified level. Bedding shall be placed simultaneously on both sides of the pipe, keeping the level of backfill the same on each side. The material shall be carefully placed and compacted around the pipe to ensure that the pipe barrel is completely supported and that no voids or uncompacted areas are left beneath the pipe. Contractor shall use particular care in placing material on the underside of the pipe to prevent lateral movement during backfilling.

2. INITIAL BACKFILL: After pipe has been properly bedded, Contractor shall place and compact initial backfill as specified. Initial backfill, where specified below the springline of the pipe, shall be placed and compacted in accordance with paragraph 02200-3.03 C.1 for additional bedding material.

3. SUBSEQUENT BACKFILL:

a. GENERAL: Backfill material, placement and compaction above the pipe zone shall be as specified. Backfill above the pipe zone shall not commence until pipe zone backfill has been inspected and accepted by the Owner.

b. IMPROVED AREAS: Unless otherwise specified, select granular backfill per MAG Section 702.2, Type A, shall be used under all paved and unpaved roadways and paved and unpaved roadway shoulders, roadway embankments, and in all public right-of-ways and easements. The trench shall be backfilled to an elevation which will permit the placement of the specified surface or paving. Other surfaces shall be restored, including compaction, to the condition existing prior to construction, including restoration of yard areas.

3.04 SITE FILL

Fill material shall be placed in horizontal layers and compacted with power-operated tampers, rollers, idlers or vibratory equipment. Maximum layer depth and relative compaction is specified in the following table:

Maximum uncompressed layer depth, inches	Minimum relative compaction, percent	Application
8	90	Site fill
8	95	Below equipment pads with fill depths < 5'-0"
8	100	Below equipment pads with fill depths > 5'-0"

If the existing slope in an area to be filled is greater than 5:1, the Contractor shall bench the area prior to filling.

3.05 SUBGRADE FOR PAVEMENT

The prepared subgrade shall be scarified to a depth of at least 12 inches and recompacted to at least 95 percent of the maximum density.

END OF SECTION

SECTION 11069

ADJUSTABLE FREQUENCY DRIVES

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies 480-Vac rated adjustable frequency drive motor controller systems using insulated gate bipolar transistors (IGBT) for pulse-width modulation technology (PWM).

The AFDs specified in this section shall be the product of a single vendor and mounted in the specified cabinet enclosure.

The terms AFD (adjustable frequency drive), ASD (adjustable speed drive), VFD (variable frequency drive), and VSD (variable speed drive) are interchangeable for the purposes of this specification.

Refer to the drawings for control and monitoring requirements including special interlocking requirements.

B. SYSTEM REQUIREMENTS:

The AFD system shall convert 460-volt, 60-Hertz nominal input to a suitable voltage and frequency to cause a premium-efficient, inverter-duty, squirrel-cage induction motor to run at a speed proportional to an external input analog 4- to 20-mAdc or digital input command as specified for the required AFD speed range.

The AFD system shall include rectifier units, inverter units, control circuitry, protective equipment, input line reactors and output load reactors and other filters and accessories as necessary to provide the specified functions to meet voltage and current harmonics at the specified point of common connection and to mitigate the motor reflected voltage wave.

The point of common connection for AFDs shall be the 480 distribution bus of the motor control center (MCC) immediately upstream of the AFD.

The AFD system torque requirement shall match the pump torque requirement. Verify the pump type and select variable torque (VT) as specified in the AFD Schedule.

C. AFD SCHEDULE:

Equipment Name & Tag Number	Drive Number	Drive Horse Power	Drive Speed Range[1]	Driven Equipment Specification	AFD Type	AFD Enclosure & Mounting	Distance (ft) from AFD to Driven Equipment Motor
Cogen Gas Blower	VFD-8770	15	1800-3600	11466	6-pulse, variable-torque	NEMA-1 gasketed, floor mount in electrical room	140

[1] Verify minimum speed range with Mechanical Engineer based on submittal information prior to VFD setup and testing.

D. ENVIRONMENTAL CONDITIONS:

Ambient conditions are specified in Section 01800.

E. SEISMIC:

Freestanding AFDs shall be braced per Section 01900.

1.02 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

References to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.

Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
IEEE 519	IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power System
NEMA 250	Enclosures for Electrical Equipment (1000 Volts Maximum)

NEMA ICS 2	Industrial Control and Systems: Controllers, Contactors, and Overload Relays Rated 600 Volts
NEMA ICS 6	Industrial Control and Systems: Enclosures
NEMA ICS 7	Industrial Control and Systems: Adjustable-Speed Drives
NEMA ICS 7.1	Safety Standards for Construction and Guide for Selection, Installation, and Operation of Adjustable-Speed Drive Systems
NFPA 70	National Electrical Code (NEC)
UL Standard 508	Industrial Control Equipment

B. INDUSTRY STANDARDS:

The AFD shall be UL 508 listed and shall conform to the requirements specified in NEMA ICS 2, 6, 7 and 7.1.

C. UNIT RESPONSIBILITY:

The Contractor shall assign unit responsibility for the AFDs in this section as specified in paragraph 11000-1.02 C.

The Contractor shall submit letters of certification with the shop drawings from the AFD manufacturer, the motor manufacturer, and the driven equipment manufacturer stating that they have reviewed each application and that the combination will satisfy the application duties required, for the actual motor sizes required, regardless of deviations from the scheduled "nominal horsepower."

1.03 PRODUCT HANDLING

AFD units shall be shipped in air-cushion vans to ensure against shipping damage and packed in suitable protective containers. The units shall be inspected upon receipt for damage.

1.04 SUBMITTALS

The following information shall be provided in accordance with Section 01300:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements.

   Check marks shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation.

The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.

Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. A copy of the Contract Document drawing E-013, and process and instrumentation diagram P-030A relating to the submitted equipment, with addendum updates that apply to the equipment in this section, marked to show specific changes necessary for the equipment proposed in the submittal.

   If no changes are required, the drawing or drawings shall be marked *"no changes required"*. Failure to include copies of the relevant drawings with the submittal shall be cause for rejection of the entire submittal with no further review.

3. Certificate of Unit Responsibility attesting that the Contractor has assigned, and that the manufacturer accepts, unit responsibility in accordance with the requirements of this section and paragraph 11000-1.02 C. No other submittal material will be reviewed until the certificate has been received and found to be in conformance with these requirements.

4. Catalog and technical data, including outline dimensions, shipping section dimensions, weight, and foundation requirements for all assemblies.

5. Schematic diagrams and wiring connection diagram showing functions and identification of terminals.

6. Voltage and current total harmonic distortion (THD) calculations with line reactors or filter design to mitigate harmonics to meet IEEE-519, if applicable.

PART 2--PRODUCTS

2.01 MANUFACTURERS

The Owner and Construction Manager believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this section.

This statement, however, shall not be construed as an endorsement of a particular manufacturer's products, nor shall it be construed that named manufacturers' standard equipment or products will comply with the requirements of this section.

AFDs shall be installed in the custom enclosures that are 90-inches high installed next to the MCC in the air-conditioned electrical enclosure as specified in Division 16 and as shown on the drawings.

The candidate manufacturers include:

1. SVX9000 6-pulse variable torque.

2.02 ENCLOSURES

Provide AFD in NEMA-1 gasketed or NEMA-12 enclosures with top or front discharge cooling fans.

A. GENERAL:

Provide enclosures with AFDs and custom control as required for the project and as indicated on the drawings. Each drive shall be designed for stand-alone operation and multiple drives shall not utilize shared components.

Review the project site location, elevation, temperature, humidity, plant atmosphere, and load current-torque requirements to size the AFD and its associated enclosure with requirements specified herein and the control and monitoring devices and interlocks as indicated.

Enclosures shall be designed for indoor service. Each AFD system shall be mounted in a NEMA 250 internally force-ventilated enclosure with UL-approved Class 1 filters on ventilation openings. Enclosures shall be fabricated from 12-gage minimum thickness sheet steel with an interior frame or formed to provide a rigid structure.

Provide enclosure size to allow entry of power source and motor load cables as indicated on the drawings. Submit drawing of the source and load power cable location within the enclosure and indicated barriers from control and instrument wiring.

Door width shall not exceed 30 inches and shall be hung on removable-pin hinges, with three-point latch hardware, and handle latch for 3/8-inch-shackle padlock.

C. FINISH AND COATINGS:

The AFD floor-mounted cabinet enclosure color shall match the MCC color and submit the color and finish systems selected.

2.03 AFD ASSEMBLIES

A. GENERAL:

AFDs shall include the following assemblies:

1. Lockable power disconnect using a thermal magnetic circuit breaker or motor protection device that is sized for the specific application by the manufacturer.

2. Line reactor and load reactor.

3. Control-circuitry interface with keypad type of Operator Interface Unit (OIU) mounted on the front of the AFD enclosure.

4. Output protection, including phase overload.

5. Enclosure Door Devices: Alarms, selector switch, speed potentiometer, as shown on the P&ID and electrical schematic.

B. AFD FEATURES:

Provided with the following features as shown on the drawings:

1. Fused control circuit transformer and microprocessor for system logic sequencing functions. Provide fuses with blown fuse indicator lamps.

2. Accept 4- to 20-mAdc speed reference signal.

3. A 4- to 20-mAdc output signal proportional to inverter output frequency for the speed range specified.

4. Adjustable minimum/maximum frequency limits:

   a. Minimum frequency shall be adjustable from 6 to 40 Hertz.
   b. Maximum frequency shall be adjustable from 48 to 90 Hertz.

5. Adjustable and independent-timed linear acceleration and deceleration functions, adjustable from 6 to 20 seconds.

6. Current limiting.

7. Automatic restart.

8. Control Wiring:

   a. 600-volt stranded copper.
   b. 90-degrees C, color-coded insulation.
   c. No. 16 AWG.

9. Wiring Identification and Termination: Crimp-type wire lugs with sleeve-type markers at each termination point and numbered terminal blocks for external connections.

10. Electrically isolated, discrete output contacts for ready, running, remote mode status and trouble alarm.

11. Control Power: Provide a 120-Vac, triple-fused, control power transformer for cooling fans and external control circuits when required. Control circuits shall be isolated from power circuits by distance and by insulated barriers.

12. Provide 120 -ac or 24-Vdc as required for OIU.

C. FUNCTIONAL REQUIREMENTS:

1. Supply Power: Operate continuously with supply power of 480 volts plus or minus 10 percent, 60 Hertz plus or minus 3 percent and remain on line and operate without damage to the AFD or connected load during a supply power under-voltage variation to the drive up to 85 percent of its nominal value for 30 milliseconds at full load.

   a. Flagstaff, Arizona outdoor ambient temperature: 0 to 100 degrees F.

2. Load: Capable of driving the specified maximum motor load continuously and under the following conditions:

   a. Deliver 110 percent of the specified load for up to 60 seconds in variable torque applications.

3. Efficiency: Not less than 95 percent at 60-Hertz output driving the specified maximum load at rated torque and speed at 40-degrees C ambient based on measured input power versus output power with all specified components in the system.

4. Frequency and Voltage Regulation: Output frequency regulated to within 0.6- Hertz of the signal/output frequency relationship. Output voltage regulated to within 1 percent to produce minimum motor heating at any operating frequency within the specified range.

5. Frequency Range: AFD shall be capable of continuous operation with the specified load at any frequency between 6 and 60 Hertz, unless noted otherwise.

6. Space and AFD Access:

   a. Enclosure size shall not exceed a height of 90 inches.

   b. Front accessible only and shall not require rear access.

   b. Mount against the wall without any clearance for ventilation or other purposes.

c. Submit AFD in the enclosure drawing with the detail of front door and the internal arrangement, including the feeder and motor cables, and the control cables, and the instrument cable location and terminations.

8. Ambient Noise: Free field noise generated shall not exceed 85-dBA at 3 feet out from any point on the AFD enclosure under any normal operating condition.

9. Motor Coordination:

   a. AFDs shall be configured for high motor winding temperature switch for shutdown and alarm, as shown.

D. PROTECTION AND ANNUNCIATION:

1. Overcurrent Protection: Electronic current limit at 150 percent of motor-nameplate current and provide motor-running overcurrent protection in compliance with NFPA 70.

2. Short Circuit Protection: Protected against load faults: bolted faults, phase-to-phase or phase-to-ground shall not damage the unit. Fault protection based on a power source short circuit capacity of 42,000 amperes RMS symmetrical at the AFD power input terminals, with impedance or current limiting device provided.

3. Line Voltage: Protected against high- and low-line voltage on one or more phases.

4. Internal Faults: Internal fault monitoring system to detect malfunctions to protect from transient and sustained faults and to limit damage that may be caused.

5. Motor Over Temperature: Interface to motor over-temperature device 2-ampere output contact to shut down and alarm if the motor becomes overheated.

6. Fault Alarm: Indicates the cause of any shutdown visible on the AFD keypad/display without opening the AFD enclosure. As a minimum, the following faults shall be alarmed:

   a. Motor over-temperature.

   b. Motor over-current.

   c. Incoming power line over/under/unbalanced-voltage.

   d. AFD over-temperature.

   e. AFD over-voltage.

f. AFD control failure.

6. Process Alarms: The AFD shall include the following additional shutdown alarms:

   a. Motor over-temperature.
   b. High gas temperature.

8. Safety Features: The AFD shall include:

   a. Padlock main disconnect handle in the "OFF" position.

   b. Mechanical interlock to prevent opening enclosure door with disconnect in the "ON" position while the unit door is open.

   c. Auxiliary contact on main disconnect to isolate 120-Vac control power when fed from external source.

   d. Barriers and warning signs on terminals that are energized with the power disconnect "OFF".

   e. Separation and insulated barriers between the power and control and instrument products.

   f. External emergency stop input

8. Reverse Direction Protection: Provide protection from inadvertent operation in reverse where reverse rotation can damage the driven equipment.

9. Critical Speed Bypass: Provide capability to program speed bypass for minimum two critical speed points.

9. Transient Voltage Protection: Provide solid-state, transient-voltage protection to meet or exceed ANSI C37.90.

2.04 CONTROL AND MONITORING DEVICES

A. OPERATOR INTERFACE UNIT:

1. Digital keypad/display for monitoring and controlling the drive and to input drive parameter settings with a backlit LCD or equally visible display with a minimum of 16 characters per line.

2. Digital keypad for numerical settings in English engineering units and a guide to parameter settings. Setup operations and adjustments stored in non-volatile EEPROM memory transferable to new and spare boards. Settings shall be

protected from unauthorized tampering, revision, or adjustment by a personal lockout code.

3. The digital keypad to provide programming of the drive and include:

   a. Up and Down arrow keys: Increase or decrease output frequency or data values.

   b. Monitor key: Selection of control mode.

   c. Run and Stop keys: Starting and stopping in the manual mode.

   d. Fault clear/Enter keys: Reset fault conditions and enter change

   e. Program key: Enter the program mode and adjust parameters.

   f. Remote/Local location keys: Operation location and local speed control.

   g. Auto/Manual mode keys: Program mode.

   h. Number keys: 0 through 9 keys to access specific parameters.

   i. Keypad digital illustrations: English and display the last 5 faults.

   j. Frequency/Motor Speed Indication: Calibrated in Hertz and RPM.

   k. Run Status Indication.

   l. Ready Status Indication.

   m. Fault Alarm Indication.

C. CONTROL AND MONITORING COMMUNICATION

1. Analog 4-20mA output proportional to motor speed.
2. Analog 4-20mA input proportional to motor speed set point.
3. Ethernet IP communications card.

2.05 KEYPAD FUNCTIONS AND OPERATION

A. Adjustment of the following parameters through the OIU digital keypad:

1. Current limit and torque boost.

2. Maximum voltage level.

3. Minimum/Maximum speed, Volts/Hertz, Upper and Lower limit.

4. Adjustable acceleration rate and deceleration rate.

5. Electronic thermal overload setting.

6. Coast, controlled ramp or DC injection selectable modes of stopping.

7. PID setpoint and time-function selection.

8. Critical frequency avoidance: Three setpoints selectable from 0 to maximum frequency with setpoints adjustable from 0-30 Hertz.

2.05 SPARE PARTS

The following spare parts shall be supplied with each type or frame size AFD:

A. Three sets of all replaceable fuses.
B. Copy of VFD setup parameters on USB flash drive.

2.06 PRODUCT DATA

The following information shall be provided in accordance with Section 01300:

A. Operation and maintenance information as specified in Section 01730, including:

1. Final reviewed submittal.
2. As-built drive configuration settings.

B. Installation certification Form 11000-A as specified in paragraph 11069-3.01.

C. Training certification Form 11000-B as specified in paragraph 11069-3.03.

PART 3--EXECUTION

3.01 FIELD INSTALLATION

Each adjustable-speed controller shall be installed and tested by the Contractor with the assistance of factory-trained pump manufacturer engineer/technician and AFD engineer/technician in accordance with the manufacturer's specifications and Section 11069, and witnessed by the Construction Manager.

Manufacturers' factory representatives shall provide field testing for devices, including the setup of the OIU and the setup of the data communication devices, where used. Upon satisfactory

completion of the testing, the Contractor shall submit two certified copies of the test report to the Construction Manager.

Component failure during testing will require repeating any test associated with the failure or modified components to demonstrate proper operation.

The installation shall be certified on Form 11000-A specified in Section 01999.

1. Adjust drive and perform "start-up" tests as recommended by manufacturer. Set parameters and carrier frequency for existing motors to avoid insulation damage.

2. Establish proper direction of rotation for the motor controlled by the drive. Verify that the AFD is precluded from operating in a direction that can damage the driven equipment. Change motor or AFD power lead connection and not the AFD direction, where rotation is incorrect.

3. Verify that the drive will operate properly both in the "manual speed control mode" and in the "remote or automatic mode" from a remote speed signal input.

4. Set the maximum "locked rotor" current drawn during start-up recommended by the manufacturer and approved by the Construction Manager.

5. Set the minimum and maximum speeds and the acceleration and deceleration "ramps" recommended by the Construction Manager. Configure minimum speed for both Local and Remote operations per Paragraph 1.01 C to prevent under-speed operation.

6. Verify the motor high-temperature switch contacts are wired into the AFD 120-Vac control circuit and will trip on high-winding temperature. Test or simulated the alarm and trip feature at the motor for high temperature and for high vibration, where used.

7. Operate the drive at 100 percent speed for one hour and monitor output current. The output current shall remain below the full load current listed on the motor nameplate.

8. Check for excessive heating of the drive and motor. Report any discrepancies to the Construction Manager.

3.02 HARMONIC TESTING

The Testing Firm specified in Section 16030 shall perform a harmonics acceptant test with all AFD motor controllers operating to verify compliance with IEEE-519 of less than 5 percent voltage THD and 12 percent current THD at the defined point of common connection when running from power utility power source with a BMI-Dranetz or equal harmonic test set that provides a hard-copy record of the test results.

The test shall also be run with power sourced from the standby generator where such a power source is being used at the project site. THD shall be limited to a maximum level of 8 percent voltage THD on standby generator operation.

Submit the test performance to the Construction Manager and Plant Manager per latest version NETA ATS Acceptance Testing Specifications. Refer to the electrical testing specification Section 16030.

3.03 TRAINING

A. Two hours of onsite AFD operation and maintenance training shall be provided for the Owner's Operation and Maintenance Staff.

B. Two hours of on-site advanced AFD operation-and-maintenance training shall be provided for the Owner's Operation and Maintenance Staff Administration /Managers.

C. Manufacturers' factory representative shall conduct the training, upon acceptance of a resume submitted by the trainer.

D. Training shall be certified on Form 11000-B specified in Section 01999.

END OF SECTION

SECTION 11466

DIGESTER GAS BOOSTER BLOWER

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies a digester gas booster blower, complete with an electric motor and all specified appurtenances. Blower and motor shall be installed indoors and mounted on a common baseplate.

B. TYPE:

The gas blower specified in this section may be met with either:

1. A hermetically sealed, centrifugal gas blower with low-flow bypass piping and control valve.

2. A hermetically sealed, regenerative turbine blower with magnetic drive and variable frequency drive (VFD) for capacity control. VFD specified in 11069.

C. EQUIPMENT LIST:

Equipment furnished under this section as follows

Item	Equipment Number
Digester Gas Booster Blower	BL-8770

D. DEFINITIONS:

1. Raw Digester Gas: A water-saturated mixture of several constituents including methane, carbon dioxide, nitrogen, sulfides, siloxanes, and water in vapor phase, produced by the anaerobic digestion of municipal wastewater sludge. The raw digester gas is expected to contain small amounts of fine particulate matter and approximately 7.7 percent water vapor, by volume. The dry digester gas, as determined by laboratory analysis, has the following properties:

Parameter, by volume	Units	Design Value	Range
Methane[1]	Percent	62.0	56 to 68
Carbon Dioxide[1]	Percent	35.5	35 to 44
Nitrogen[1]	Percent	2.0	0 to 2

Oxygen[1]	Percent	0.5	0 to 1
Sulfides[2]	ppm_v	1,750	1,500 to 2,000
Siloxanes[3]	ppm_v	8	6 to 10

[1] Methane, carbon dioxide, nitrogen, and oxygen values represent percent by volume as a dry gas.
[2] Sulfides are expected to comprise 90 percent or more hydrogen sulfide.
[3] Siloxanes: Volatile silicon based compounds including hexamethyldisiloxane (L2), octamethylcyclotetrasiloxane (D4), and decamethylcyclopentasiloxane (D5).

2. Treated Digester Gas: Raw digester gas will be treated upstream of the gas blower to reduce sulfides to approximately 50 ppm_v.

1.02 SYSTEM DESIGN AND PERFORMANCE

A. GENERAL:

Size and select the blower to accommodate the digester gas flows and inlet pressures specified.

B. OPERATING CONDITIONS:

Depending on ambient conditions, digester gas temperature at the blower inlet could vary from 40 to 100 degrees Fahrenheit. Operating requirements for the centrifugal blower to be installed at a site elevation of approximately 6,750 feet above mean sea level shall be as follows:

Item	Value
1. Inlet gas temperature, maximum, degrees Fahrenheit	90
2. Gas flow, maximum, scfm	90
3. Gas flow, minimum, scfm	50
4. Inlet gas pressure, design, psia	11.34
5. Discharge gas pressure, design, psia	15.34
6. Discharge temperature, maximum, degrees Fahrenheit	245
7. Motor horsepower, maximum, HP	15
8. Motor speed, maximum, rpm	3,600

C. ELECTRIC MOTORS:

The blower's electric motor shall be designed for hermetically-sealed duty. The motor shall be sized to be non-overloading with the blower operating over the specified conditions. The motor shall be de-rated for the environmental conditions as specified in Section 1.02B.

1.03 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In

case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether or not the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI H35.1	Alloy and Temper Designation Systems for Aluminum
ASTM A36	Carbon Structural Steel
ASTM A276	Stainless Steel Bars and Shapes
NFPA 70	National Electrical Code (NEC)

B. UNIT RESPONSIBILITY:

The Contractor shall assign unit responsibility to the manufacturer of the blower provided under this section. This manufacturer is the unit responsibility manufacturer and has unit responsibility for both the equipment assembly specified in this section, the control panel, the VFD (applicable for the regenerative turbine blower option), and all other equipment assembly components specified elsewhere but referenced in this section. A completed, signed, and notarized Certificate of Unit Responsibility shall be provided.

C. FACTORY TESTING:

Blower shall be factory-tested and certified to meet the design operating requirements.

1.04 SUBMITTALS

The following information shall be provided:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated and, therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in

the margin to the right of the identified paragraph. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. The submittal shall be accompanied by a detailed, written justification for each deviation. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. Manufacturer's type designation and catalog data confirming rated capacity, horsepower, efficiency, electrical requirements, dimensions, weight, construction, and installation details.

3. Predicted performance curves for the specified operating requirements showing pressure-capacity, power-capacity, and efficiency-capacity curves and surge points. Capacity shown in inlet cfm. All performance parameters are to reflect site conditions. Sample inlet/standard cfm conversion calculations shall also be provided.

4. Drawing and catalog information detailing all control devices in the control cabinets as well as overall panel layout interconnection diagrams and construction.

5. Any exceptions to these specifications along with justification for each exception.

6. Motor data.

7. Details and catalog data for all accessories.

8. Manufacturer's catalog information confirming interface requirements between programmable logic controller (PLC) and the plant computer system.

10. A copy of the Contract Document control diagrams and process and instrumentation diagrams relating to the submitted equipment, with addendum updates that apply to the equipment in this section, marked to show specific changes necessary for the equipment proposed in the submittal. If no changes are required, the drawing or drawings shall be marked *"no changes required"*. Failure to include copies of the relevant drawings with the submittal shall be cause for rejection of the entire submittal with no further review.

11. Complete control system schematic diagrams and wiring diagrams, list of instrumentation and control devices, and description of operations for the control system. Specific circuit details and descriptions of the interface circuits and devices between the blower controls and the separate blower starter and the Plant Control System shall be provided.

1.05 ENVIRONMENTAL CONDITIONS

All equipment specified in this section will be located indoors at a wastewater treatment plant at a site elevation of approximately 6,750 feet above mean sea level. The area within 5 feet of the gas blower is considered hazardous in accordance with NFPA 820 Class I, Division 1, Group D. The area beyond 5 feet and within 10 feet is considered hazardous in accordance with NFPA 820 Class I, Division 2, Group D.

1.06 WARRANTY

Provide a two year 100 percent parts and labor warranty against manufacturing defects or failure of the equipment specified in this section caused by normal wear and tear shall be provided. The warranty period shall start from the date of final acceptance of the cogeneration facility.

PART 2--PRODUCTS

2.01 MANUFACTURERS

The Owner and Engineer believe the following candidate manufacturers are capable of providing equipment and/or products that will satisfy the requirements of this section. This statement, however, shall not be construed as an endorsement of a particular manufacturer's product, nor shall it be construed that a named manufacturer's standard product will comply with the requirements of this section. Candidate centrifugal blower manufacturers include Spencer Turbine. Candidate regenerative turbine blower manufacturers include Airtech.

2.02 MATERIALS

Blower Option	Component	Material
Centrifugal type	Casing and heads	Stainless steel, type 304 or 304L
	Impeller	Cast aluminum, ANSI H35.l, Type 443
	Shaft	Carbon steel, integral with the motor
	Baseplate	Structural steel, ASTM A36, galvanized
Regenerative type	Casing and heads	Cast aluminum, ANSI H35.1, Type 443
	Impeller	Cast aluminum, ANSI H35.1, Type 443
	Shaft	Stainless steel, Type AISI 316
	Baseplate	Structural steel, ASTM A36, galvanized

Note: Unless otherwise specified, all aluminum, carbon steel or ductile iron blower components, including the base, shall be coated with Heresite P-403L, Chem-Tough, ceramic or equivalent heavy-duty coating for corrosion protection. Heresite or other heavy-duty coating shall be applied by a licensed representative of the coating manufacturer.

2.03 EQUIPMENT

A. CENTRIFUGAL BLOWER OPTION:

1. Type: The blower shall be of the direct-drive, hermetically-sealed, multistage centrifugal type, designed to deliver digester gas at any volume within the specified operating range of the blower, at the temperature specified, with a relatively constant pressure and without encountering any surge characteristics. The centrifugal blower shall be hermetically sealed for completely gas-tight operation with zero gas leakage.

2. Casing: Casing shall be cast aluminum. Sheet metal casings are not acceptable. Internal coating thickness shall be 3 to 6 mils. Process connections shall be ANSI flanged connections. The lowest part of the blower casing shall include a 1/2-inch NPT stainless steel drain connection with isolation valve.

3. Impeller: Aluminum impeller shall be keyed and locked to the shaft in a suitable manner. Ample clearance shall be provided between the impeller and all stationary blower parts. Impeller coating thickness shall be 3 to 6 mils.

4. Shaft and Bearings: The motor shall have an extended shaft supported by two oversized, grease-lubricated thrust and radial bearings designed for all loads imposed by the specified service and rated for Class M3 (50,000 hour) bearing life. The shaft shall be coated for corrosion resistance to the digester gas.

5. Common Steel Baseplate: Factory mount blower and motor, coupled together, on a common base, properly braced to form a rigid support for the entire unit. Steel base shall be hot-dip galvanized.

6. Motor: The electric motor shall be 460-Volt, 3-phase, 60-Hz and shall be designed for hermetically-sealed duty. The motor shall be sized to be non-overloading with the blower operating over the conditions specified. The motor shall be installed with a motor enclosure-high temperature switch that shall be provided with an enclosure suitable for installation in a Class I, Division 1, Group D area in accordance with NFPA 820.

B. REGENERATIVE TURBINE BLOWER OPTION:

1. Type: The blower shall be of the regenerative type with a magnetic electric motor designed to deliver oil-free digester gas at any volume within the capacity range of the blower, with a relatively constant pressure down to a minimum 20 percent flow. The blower shall be of non-sparking design. A VFD shall be provided to modulate digester gas flow, sized and selected for the intended service. The regenerative turbine blower shall be hermetically sealed for completely gas-tight operation with zero gas leakage.

2. Casing: Casing shall be cast aluminum. Sheet metal casings are not acceptable. Internal coating thickness shall be 3 to 6 mils. Process connections shall be ANSI flanged connections. The lowest part of the blower casing shall include a 1/2-inch NPT stainless steel drain connection with isolation valve.

3. Impeller: Aluminum impeller shall be keyed and locked to the shaft in a suitable manner. Ample clearance shall be provided between the impeller and all stationary blower parts. Impeller coating thickness shall be 3 to 6 mils.

4. Shaft and Bearings: Shaft shall have sufficient diameter to operate at no greater than 80 percent of its first critical speed and shall be made of ground and polished high-grade stainless steel. Shaft shall be machined to accurate dimensions and all corners at change of diameter shall have ample fillets. Bearings shall be grease-lubricated, anti-friction type sized for an L 10 bearing life of 100,000 hours. Bearings shall be replaceable without disconnecting any piping.

5. Common Steel Base: Factory mount blower and motor, coupled together, on a common base, properly braced to form a rigid support for the entire unit. Steel base shall be hot-dip galvanized.

6. Motor: The electric motor shall be 460-Volt, 3-phase, 60-Hz, inverter duty, with a VFD drive and shall be designed for hermetically-sealed duty. The motor shall be sized to be non-overloading with the blower operating over the conditions specified. The motor shall be installed with a motor enclosure high- temperature switch that shall be provided with an enclosure suitable for installation in a Class I, Division 1, Group D area in accordance with NFPA 820.

7. VFD: A VFD shall be provided with the blower to modulate the flow of digester gas based on an external low-pressure digester gas signal, as required to maintain constant discharge pressure from the system. The VFD shall be selected for the conditions and duty required here. The VFD shall be free-standing and located in the Digester Control/Thickening Building.

C. CONTROLS:

The logic and controllers shall interface with the plant computer system via hardwired dry contacts connected by others. The blower controls at the VFD or in the MCC, depending on the option chosen as listed in section 2.03A and 2.03B within, shall provide the following interface signals for communication with the SCADA Panel:

1. RUN ENABLE (dry contact output from SCADA).
2. RUNNING (dry contact input from blower control panel to SCADA).
3. BLOWER READY (dry contact output to SCADA).
4. BLOWER FAIL (dry contact output to SCADA).

5. HIGH MOTOR TEMPERATURE (dry contact output to SCADA).
6. HIGH GAS TEMPERATURE.

The blower controls shall be provided with a RESET pushbutton accessible from the front of the panel and required for clearing all shutdown functions. The blower controls shall provide the following front-of-panel indicating lights with shutdown functions where shown:

1. Control Power On.
2. System Fail.
3. High motor temperature (shutdown).
4. High gas temperature (shutdown).

A HAND/OFF/AUTO selector switch shall be provided. In the AUTO position, the equipment shall be controlled from a remote location. The equipment shall run in the HAND position. Under no condition shall the safety interlocks specified herein be bypassed.

2.04 ACCESSORIES

The blower shall be provided with the following:

1. Inlet and discharge piping and valves shall be as specified for sludge gas piping.

2. The lowest parts of the blower casing shall include stainless steel drain connections for the removal of gas condensate. Drain connections shall be piped together to allow condensate to flow to a single stainless steel, electrically actuated drip trap.

    a. Pressure Gauges: Two dial-type 4 1/2-inch stainless steel pressure gauges shall be provided with the blower unit. One pressure gauge shall be located on the blower inlet piping. One pressure gauge shall be located on the blower discharge piping. Pressure gauges shall have a scale of -15 inches WC vacuum to 15 inches WC pressure on the suction side, and 0 to 10 psig on the discharge side.

    b. Pressure Transmitter (PIT 8740): Provide a pressure transmitter and isolation valve on the lower pressure digester gas manifold.

    c. Temperature Transmitter or RTD (TE/TT 8770): Provide a temperature element and transmitter or RTD at the discharge of the blower.

    d. Temperature Gauges: A temperature gauge with a range of 20 to 250 degrees Fahrenheit shall be provided downstream of the blower in the digester gas piping to monitor the blower discharge temperature.

    e. Start-up/Recirculation Valve (Centrifugal Blower Option): A reduced-size bypass piping arrangement with ball valve shall be provided. The start-up piping shall be sized at 1-inch diameter and originate downstream of the digester gas heat exchanger and return to the blower suction. The start-up valve shall be a manually actuated

ball valve. Valve type and materials of construction shall be as indicated on the Contract Drawings.

f. Pressure Relief/Recirculation Valve (Regenerative Blower Option): A reduced-size bypass piping arrangement with pressure-relief valve shall be provided. The start-up piping shall be sized at 1-inch diameter and originate downstream of the digester gas heat exchanger. The pressure relief shall be piped to the blower suction.

g. Spare Parts: Supply the manufacturer's standard spare parts for the blower, including, but not limited to:

   i. Two sets, all bearings and packing.
   ii. One total shaft seal assembly.
   iii. Two sets of all gaskets.
   iv. Any special maintenance tools.

2.05 INSTRUMENTS AND CONTROL DEVICES

A. PROTECTIVE DEVICES:

A motor enclosure high-temperature sensor shall be provided suitable for installation in a Class I, Division 1, Group D area in accordance with NFPA 820.

B. WIRING:

Raceway wiring, instruments, and the terminal box shall comply with NFPA 820 requirements for a Class I, Division 1, Group D hazardous area.

2.06 PRODUCT DATA

The following product data shall be provided:

1. Certification of satisfactory testing.

2. Applicable operating and maintenance information.

3. Equipment control device product data.

4. Certification of proper installation.

5. Complete control system schematic diagrams and wiring diagrams, list of instrumentation and control devices, and description of operations for the control system. Provide specific circuit details and descriptions of the interface circuits and devices between the blower controls and the separate blower starter and the Plant Control System.

6. Certification of training.

7. Spare parts listing.

2.07 SPARE PARTS

Provide a total of one pig tail, one set of gaskets, and one motor.

PART 3--EXECUTION

3.01 INSTALLATION

All equipment shall be aligned, connected, and installed at the locations specified and in accordance with the manufacturer's recommendation. The installation and initial operation of all components shall be certified as specified. Field-insulate the blower housing and hot-discharge piping for personnel protection.

3.02 FIELD TESTING

After completion of installation, the blower shall be completely field-tested with digester gas to demonstrate compliance with the performance requirements as specified. Inspection, testing, and certification shall be provided, and testing procedures and forms shall be submitted and used.

Testing procedures shall duplicate as nearly as possible the conditions of operation and shall be selected to demonstrate that the equipment is operational and free from damage. Each control device, item or mechanical, electrical, and instrumentation equipment, and control circuits shall be considered in the testing procedures to demonstrate that the equipment has been properly serviced, aligned, connected, calibrated, and adjusted prior to operation.

3.03 TRAINING

During the commissioning period, a factory-trained representative of the manufacturer shall conduct training for the Owner's staff. A minimum of 4 hours of training shall be provided. Maintenance manuals shall be provided to the Owner a minimum of one week prior to staff training.

Training sessions shall be scheduled with the Owner to be at a time starting after successful commissioning and not to exceed 4 months after final acceptance of the equipment specified in this section.

END OF SECTION

SECTION 13578

HYDROGEN SULFIDE REMOVAL SYSTEM FOR DIGESTER GAS

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies a modular prefabricated vessel with granular iron oxide media to remove hydrogen sulfide and sulfide mercaptans from low-pressure municipal wastewater digester gas.

B. TYPE:

The granular media shall be impregnated with hydrated iron oxide and shall be non-binding. Iron sponge and clay-based media are not acceptable. The granular iron oxide media shall be specifically manufactured to chemically remove hydrogen sulfide and other vapor-phase malodorous compounds of the type typically found in anaerobic digester gas.

C. EQUIPMENT LIST:

Item	Equipment Number
Hydrogen Sulfide Removal Vessel	T - 8750

D. DEFINITIONS:

Raw Digester Gas: A water-saturated mixture of several constituents, including methane, carbon dioxide, nitrogen, sulfides, siloxanes, and water in vapor phase, produced by the anaerobic digestion of municipal wastewater sludge. The raw digester gas is expected to contain small amounts of fine particulate matter and 7.7 percent water vapor by volume. The dry digester gas, as determined by laboratory analysis, has the following properties:

Parameter	**Units**	**Value**	**Range**
Methane[1]	Percent	62.0	56 to 68
Carbon Dioxide[1]	Percent	35.5	35 to 44
Nitrogen[1]	Percent	2.0	0 to 2
Oxygen[1]	Percent	0.5	0 to 1
Sulfides[2]	ppm_v	1,750	1,500 to 2,000
Siloxanes[3]	ppm_v	8	6 to 10

[1] Methane, carbon dioxide, nitrogen, and oxygen values represent percent by volume as a dry gas.

[2] Sulfides are expected to comprise 90 percent or more hydrogen sulfide.

[3] Siloxanes: Volatile silicon based compounds including hexamethyldisiloxane (L2), octamethylcyclotetrasiloxane (D4), and decamethylcyclopentasiloxane (D5).

1.02 SYSTEM AND PERFORMANCE

A. GENERAL:

The hydrogen sulfide removal vessel shall be specifically designed and selected for continuous exposure to moist digester gas generated from the anaerobic digestion of municipal wastewater sludge. As produced, digester gas is water-saturated.

B. OPERATING/PERFORMANCE:

1.	Gas flow, cubic feet per minute, maximum	100
2.	Gas temperature, maximum, degrees F	100
3.	Gas temperature, minimum, degrees F	70
4.	Inlet hydrogen sulfide concentration, ppm, design	2,000
5.	Outlet hydrogen sulfide concentration, ppm, maximum	50
6.	Media bed life, days, minimum	275

C. DESIGN FEATURES:

1.	Inlet/outlet nominal gas pipe size, inches	8
2.	Pressure drop at rated flow, inches W.C., maximum	5
3.	Operating pressure, psia	11.6
4.	Number of vessels	1
5.	Vessel diameter, feet, maximum	8

The hydrogen sulfide removal system shall not require nor include an air blower for increasing the oxygen content of the raw digester gas.

1.03 QUALITY ASSURANCE

A. SUPPLIER QUALIFICATIONS:

The hydrogen sulfide removal system supplier shall have a minimum of 5 years of experience in supplying equipment designed specifically for the removal of hydrogen sulfide from biogas. The equipment supplier shall also provide a list of 5 references, with full contact information, of biogas purification installations using granular iron oxide media.

1.04 SUBMITTALS

The following information shall be provided:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a

whole. If deviations from the specifications are indicated, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph. The remaining portions of the paragraph not underlined will signify compliance with the specifications. The submittal shall be accompanied by a detailed, written justification for each deviation. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. Any exceptions to these specifications along with justification for each exception.

3. Drawings showing internal configurations of media bed and support system for bed.

4. Predicted performance curves showing pressure drop through bed at the flow rate specified.

5. Material safety data sheet (MSDS) for the iron oxide laden media.

6. Schedule of material used for all components.

7. Anchor bolt design calculations and details.

8. Manufacturer's type designation and catalog data and drawings confirming requirements for the regeneration air compressor.

9. Complete media replacement instructions, from vessel lid removal through safe media disposal.

10. Detailed description of the procedures for installation, commissioning, and handling of the hydrogen sulfide removal system.

11. Welded joint quality assurance (for stainless steel vessel option).

12. A copy of the contract document control diagrams and process and instrumentation diagrams that apply to the equipment in this section marked to show specific changes necessary for the supplied equipment. If no changes are required, the drawing shall be marked "No Changes Required."

13. Complete fiberglass grating materials, support details, and temperature rating.

14. Manufacturer's catalog and/or other data confirming conformance to specified design, material and equipment requirements.

15. Predicted performance data as applicable developed for the specific site conditions and design application, confirming conformance to specified design and operating requirements and characteristics.

16. Installation requirements, showing clearance required for maintenance purposes.

17. List of at least two alternative granular iron oxide suppliers and full contact information.

1.05 ENVIRONMENTAL CONDITIONS

Equipment will be located outdoors and exposed to direct sunlight and freezing at a wastewater treatment plant at an elevation of approximately 6,750 feet above sea level with a nominal barometric pressure of 11.3 psia. Equipment will be exposed to direct sunlight. Ambient air temperatures at the site range from minus 10 to 90 degrees Fahrenheit.

1.06 WARRANTY

Provide a complete written 1-year warranty for the complete hydrogen sulfide system, including vessel and all appurtenances.

PART 2--PRODUCTS

2.01 MANUFACTURERS

The Owner and Engineer believe the following candidate manufacturers are capable of providing equipment and/or products that will satisfy the requirements of this section. This statement, however, shall not be construed as an endorsement of a particular manufacturer's product, nor shall it be construed that a named manufacturer's standard product will comply with the requirements of this section. Candidate manufacturers include MV Technologies and Unison Solutions.

2.02 MATERIALS

Component	Material
Media	Granular iron oxide
Vessel	FRP or 316L stainless steel
Gasket material	Neoprene
Media support grating	FRP
Vessel base support (for elevated vessel)	304 Stainless steel
Anchor bolts, fasteners, misc. supports	304 Stainless steel

2.03 EQUIPMENT

A. VESSEL:

The hydrogen sulfide removal system shall consist of a pre-insulated FRP vessel or a 316L stainless steel vessel to be field insulated. Vessel shall be equipped with 36-inch top and 24-inch side manways. The vessel shall be equipped with a removable cover and quick access bolt-type closing ring with a neoprene gasket. Provisions shall be included to adequately ground the vessel.

If a stainless steel vessel is provided, it shall be insulated and clad with aluminum.

B. CONNECTIONS:

1. The vessel shall be provided with ANSI Class 150 flanged inlet and outlet fittings for connection to digester gas piping.

2. A drain connection shall be provided at the base of the vessel.

3. A valved water fill connection, with quick-connection type fitting, shall be provided at the base of the vessel.

4. The vessel shall have a gas sample ports with ball valve and internal tubing located for convenient access and use on the inlet and outlet gas piping.

C. VESSEL BASE SUPPORT:

If an FRP vessel is supplied, it shall be anchored directly to the concrete equipment pad.

If a stainless steel vessel is supplied, the manufacturer shall provide a structural support system for the vessel. The vessel base shall support the weight of the vessel when filled with media and water, and appurtenances, and shall restrain the vessel from horizontal motion.

2.04 ACCESSORIES

The following accessories shall be provided as part of the hydrogen sulfide removal system:

1. Pressure gauges for monitoring digester gas pressures upstream and downstream of the hydrogen sulfide removal vessel.

2. Lifting lugs on the vessel cover, if removable cover is provided.

4. All other necessary appurtenances included with the manufacturer's standard design (e.g., P-trap drain piping, etc.).

2.05 PRODUCT DATA

The following product data shall be provided:

1. Operations and maintenance manuals.

2. Detailed description of the procedures for installation, commissioning, and handling of the hydrogen sulfide removal system.

3. Media fill, removal, and disposal instructions.

4. Anchor bolt design calculations and details.

2.06 SPARE PARTS

A full extra charge of replacement media shall be provided in a sealed leak-proof container with appropriate storage guidelines and MSDS.

Provide two complete sets of all gaskets or seals.

PART 3--EXECUTION

3.01 INSTALLATION

Unit shall be installed in strict accordance with the manufacturer's recommendations. A manufacturer's trained representative shall be present at the job site for 2 working days for assistance in training, safety troubleshooting, and start-up of the hydrogen sulfide removal system.

The equipment manufacturer shall provide the initial charge of granular iron oxide media for the unit. Media shall be shipped in sealed water-proof and leak-proof Super Sack or similar type bags. Granular iron oxide media shall be distributed uniformly within the vessel as recommended by the media manufacturer.

3.02 FIELD TESTING

After completion of the installation, the unit shall be subjected to testing to demonstrate compliance with the specified performance requirements.

3.03 TRAINING

During the commissioning period, a factory-trained representative of the manufacturer shall conduct training for the Owner's staff. A minimum of 4 hours of training shall be provided. Maintenance manuals shall be provided to the Owner a minimum of one week prior to staff training.

Training sessions shall be scheduled by the Owner at a time starting after successful commissioning and not to exceed four months after final acceptance of the equipment specified in this section.

3.05 MEDIA REPLACEMENT

The equipment supplier shall return to the jobsite and perform the first media replacement once the media has become exhausted and can no longer meet the specified performance criteria. The equipment supplier shall provide instruction for plant personnel during the media replacement process.

END OF SECTION

SECTION 15096

PIPE HANGERS AND SUPPORTS

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies hangers and supports for all piping systems shown on the drawings. This section does not include pipe supports for fire sprinkler systems, pipe anchors, guides or seismic restraints.

B. OPERATING CONDITIONS:

The hangers and supports specified in this section are provided to resist pipe loads occurring primarily in the downward (gravity) direction. For the purpose of pipe hanger and support selection, this section establishes pipe support classifications based on the operating temperatures of the piping contents. Pipe support classifications are as follows:

1. Hot Systems

   A - 1. 120 degrees F to 450 degrees F
   A - 2. 451 degrees F to 750 degrees F
   A - 3. Over 750 degrees F

2. Ambient Systems

   B. 60 degrees F to 119 degrees F

3. Cold Systems

   C - 1. 33 degrees F to 59 degrees F
   C - 2. -20 degrees F to 32 degrees F

C. HANGER AND SUPPORT SELECTION:

The Contractor shall select pipe hangers and supports as specified in the contract documents. Selections shall be based upon the pipe support classifications specified in this section, the piping insulation thickness, and any special requirements which may be specified in the contract documents.

The Contractor shall review the piping layout in relation to the surrounding structure and adjacent piping and equipment before selecting the type of support to be used at each hanger point.

Hangers and supports shall withstand all static and specified dynamic conditions of loading to which the piping and associated equipment may be subjected. As a minimum, consideration shall be given to the following conditions:

1. Weights of pipe, valves, fittings, insulating materials, suspended hanger components, and normal fluid contents.

2. Weight of hydrostatic test fluid or cleaning fluid if normal operating fluid contents are lighter.

3. Reaction forces due to the operation of safety or relief valves.

4. Wind, snow or ice loadings on outdoor piping.

Hangers and supports shall be sized to fit the outside diameter of pipe, tubing, or, where specified, the outside diameter of insulation.

Where negligible movement occurs at hanger locations, rod hangers shall be used for suspended lines, wherever practical. For piping supported from below, bases, brackets or structural cross members shall be used.

Hangers for the suspension of size 2 1/2 inches and larger pipe and tubing shall be capable of vertical hanger component adjustment under load.

The supporting systems shall provide for and control the free or intended movement of the piping including its movement in relation to that of connected equipment.

Where there is horizontal movement at a suspended type hanger location, hanger components shall be selected to allow for swing. The vertical angle of the hanger rod shall not, at any time, exceed 4 degrees.

There shall be no contact between a pipe and hanger or support component of dissimilar metals. Prevent contact between dissimilar metals when supporting copper tubing by use of copper-plated, rubber, plastic or vinyl coated, or stainless steel hanger and support components.

Unless otherwise specified, existing pipes and supports shall not be used to support new piping.

Unless otherwise specified, pipe support components shall not be attached to pressure vessels.

Stock hanger and support components shall be used wherever practical.

1.02 REFERENCES

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
AISC Manual of Steel Construction	American Institute of Steel Construction, Manual of Steel Construction, Allowable Stress Design - 9th Ed.
FEDSPEC WW-H-171e-78	Hangers and Supports, Pipe
MFMA-2-91	Metal Framing Standards Publication
MSS SP-69-91	Pipe Hangers and Supports - Selection and Application
MSS SP-58-93	Pipe Hangers and Supports - Materials, Design and Manufacture

PART 2--PRODUCTS

2.01 ACCEPTABLE PRODUCTS

Standard pipe supports and components shall be manufactured by B-Line, Carpenter & Patterson, Kin-Line, Grinnell, Michigan, Pipe Shields Incorporated, Superstrut, Unistrut, or equal. Pipe support components shall conform to the requirements of MSS SP-69 and FEDSPEC WW-H-171e. Pipe support materials shall conform to the requirements of MSS SP-58. Metal framing system components shall conform to the metal framing manufacturers' Association Standard MFMA-2.

2.02 MATERIALS

A. GENERAL:

Unless otherwise specified, pipe hangers and supports, structural attachments, fittings and accessories shall be hot-dip or mechanically galvanized after fabrication. Nuts, bolts and washers

may be zinc-plated except for those subject to moisture or corrosive atmosphere, which shall be type 304 or 316 stainless steel. Pipe hangers and supports, structural attachments, fittings, bolt and accessories for in submerged conditions, subject to moisture or corrosive atmosphere or for stainless steel piping shall be type 304 or 316 stainless steel.

B. PIPE HANGERS AND SUPPORTS:

1. TYPE 1 - CLEVIS PIPE HANGER: Clevis hangers shall be carbon steel with configuration and components equivalent to MSS and FEDSPEC Type 1.

a. Steel pipe (insulated) - shall be B-Line B3100, Grinnell Fig. 260, or equal, with insulation shield.

b. Steel pipe (uninsulated) - shall be B-Line B3100, Grinnell Fig. 260, or equal.

c. Cast and ductile iron pipe - shall be B-Line B3102, Grinnell Fig. 590, or equal.

d. Copper pipe (uninsulated) - shall be B-Line B3104 CT, Grinnell Fig. CT-65, or equal.

e. Copper pipe (insulated) - shall be B-Line B3100, Grinnell Fig. 260, or equal, with insulation shield.

f. Plastic pipe - shall be B-Line B3100 C, Carpenter & Patterson Fig. 100PVC, or equal.

2. TYPE 2 - "J" PIPE HANGER: Hangers shall be carbon steel with configuration and components equivalent to MSS Type 5.

a. Steel pipe - shall be B-Line B3690, Grinnell Fig. 67, Michigan model 418, or equal.

b. Copper and plastic pipe - shall be Michigan model 419, Unistrut J 1205N series, or equal.

3. TYPE 3 - DOUBLE BOLT PIPE CLAMP: Pipe clamp shall be carbon steel, with configuration and components equivalent to MSS and FEDSPEC Type 3.

a. Steel pipe (insulated) - shall be B-Line B3144, Grinnell Fig. 295, or equal, with insulation shield. Insulation shield is optional for hot and ambient systems.

b. Steel pipe (uninsulated) - shall be B-Line B3144, Grinnell Fig. 295, or equal.

c. Copper pipe (insulated only) - shall be B-Line B3144, Grinnell Fig. 295, or equal, with insulation shield.

4. TYPE 4 - ADJUSTABLE ROLLER HANGER: Rollers shall be cast iron, yoke and cross bolt shall be carbon steel. Configuration and components shall be equivalent to MSS Type 43 and FEDSPEC Type 44.

a. Steel pipe (insulated) - shall be B-Line B3110, Grinnell Fig. 181, or equal, with insulation shield.

b. Steel pipe (uninsulated) - shall be B-Line B3110, Grinnell Fig. 181, or equal.

c. Copper pipe (insulated only) - shall be B-Line B3110, Grinnell Fig. 181, or equal, with insulation shield.

d. Plastic pipe - shall be B-Line B3110, Grinnell Fig. 181, or equal.

5. TYPE 5 - SINGLE PIPE ROLL: Rollers and sockets shall be cast iron, cross rod shall be steel. Configuration and components shall be equivalent to MSS Type 41 and FEDSPEC Type 42.

a. Steel pipe (insulated) - shall be B-Line B3114, Grinnell Fig. 171, or equal, with insulation shield.

b. Steel pipe (uninsulated) - shall be B-Line B3114, Grinnell Fig. 171, or equal.

c. Plastic pipe - shall be B-Line B3114, Grinnell Fig. 171, or equal.

6. TYPE 6 - FRAMING CHANNEL PIPE CLAMP: Pipe clamps shall be steel with galvanized finish and material thickness as listed below:

a. Steel pipe (uninsulated) - Pipe size 3/8 inch and 1/2 inch shall be 16 gage; 3/4 inch through 1 1/4 inches shall be 14 gage; 1 1/2 inches through 3 inches shall be 12 gage; 3 1/2 inches through 5 inches shall be 11 gage; 6 and 8 inches shall be 10 gage; Michigan model 431, Powerstrut PS 1100, Unistrut P 1109 series, or equal.

b. Steel pipe (insulated) - Pipe clamp shall be as described in paragraph 15096-2.02 B.6.a with insulation shield.

c. Copper (uninsulated) and plastic pipe - Pipe size 3/8 inch and 1 inch shall be 16 gage; 1-1/4 inches and 1-1/2 inches shall be 14 gage; 2 inches through 3 inches shall be 12 gage; 4 inches shall be 11 gage;

clamp shall be copper-plated, plastic coated or lined with dielectric material; Michigan model 432, Powerstrut PS 1200, Unistrut P 2024C and P 2024PC series, or equal.

d. Copper pipe (insulated) - Pipe clamp shall be as described in paragraph 15096-2.02 B.6.a with insulation shield.

7. TYPE 7 - U-BOLT: U-bolts shall be carbon steel with configuration equivalent to MSS and FEDSPEC Type 24.

a. Steel pipe (uninsulated) - shall be Grinnell Fig. 137, B-Line B3188, or equal.

b. Steel pipe (insulated) - shall be Grinnell Fig. 137, B-Line B3188, or equal, with insulation shield.

c. Cast and ductile iron pipe - shall be Grinnell Fig. 137, B-Line B3188, or equal.

d. Copper pipe (uninsulated) - shall be Carpenter & Patterson Fig. 222 CT, B-Line B3501 CT, Grinnell Fig. 137C, or equal.

e. Copper pipe (insulated) - shall be Grinnell Fig. 137, B-Line B3188, or equal, with insulation shield.

f. Plastic pipe - shall be Grinnell Fig. 137C, Michigan model 151, B-Line B3188 C, or equal.

8. TYPE 8 - ADJUSTABLE PIPE ROLL SUPPORT: Rollers and sockets shall be cast iron, cross rod and support rods shall be carbon steel.

a. Steel pipe (insulated) - shall be B-Line B3122, Grinnell Fig. 177, or equal, with insulation shield.

b. Steel pipe (uninsulated) - shall be B-Line B3122, Grinnell Fig. 177, or equal.

c. Copper pipe (insulated only) - shall be B-Line B3122, Grinnell Fig. 177, or equal, with insulation shield.

d. Plastic pipe - shall be B-Line B3122, Grinnell Fig. 177, or equal.

9. TYPE 9 - WELDED PIPE STANCHION: Minimum material thickness shall be standard schedule carbon steel pipe, cut to match contour of the pipe elbow. Use of this support shall be limited to ambient systems only.

10. TYPE 10 - PIPE STANCHION SADDLE: Saddles and yokes shall be carbon steel and comply with MSS Type 37 and FEDSPEC Type 38.

a. Steel pipe (insulated) - shall be Carpenter & Patterson Fig. 125, B-Line B3090, or equal, with insulation shield.

b. Steel pipe (uninsulated) - shall be Carpenter & Patterson Fig. 125, B-Line B3090, or equal.

c. Cast and ductile iron pipe - shall be Carpenter & Patterson Fig. 125, B-Line B3090 NS, or equal.

d. Copper pipe (uninsulated) - shall be Carpenter & Patterson Fig. 125, B-Line B3090, or equal, with insulation shield or lined with dielectric material.

e. Copper pipe (insulated) - shall be Carpenter & Patterson Fig. 125, B-Line B3090, or equal, with insulation shield.

f. Plastic pipe - shall be Carpenter & Patterson Fig. 125, B-Line B3090, or equal.

11. TYPE 11 - OFFSET PIPE CLAMP: Pipe clamp shall be carbon steel with configuration and components as specified and shall be of standard design manufactured by a pipe hanger component manufacturer.

a. Steel pipe (insulated) - shall be B-Line B3148, Grinnell Fig. 103, or equal, with insulation shield.

b. Steel pipe (uninsulated) - shall be B-Line B3148, Grinnell Fig. 103, or equal.

c. Cast and ductile iron pipe - shall be B-Line B3148 NS, Grinnell Fig. 103, or equal.

d. Copper pipe (insulated) - shall be B-Line B3148, Grinnell Fig. 103, or equal, with insulation shield.

e. Copper pipe (uninsulated) - shall be B-Line B3148, Grinnell Fig. 103, or equal, lined with dielectric material.

f. Plastic pipe - shall be B-Line B3148, Grinnell Fig. 103, or equal.

Vertical pipe support applications shall be as specified above except that insulation shields shall not be used for insulated pipe.

12. TYPE 12 - RISER CLAMP: Riser clamp shall be carbon steel with configuration and components equivalent to MSS and FEDSPEC Type 8.

a. Steel pipe (insulated) - shall be B-Line B3373, Grinnell Fig. 261, or equal.

b. Steel pipe (uninsulated) - shall be B-Line B3373, Grinnell Fig. 261, or equal.

c. Cast and ductile iron pipe - shall be B-Line B3373, Grinnell Fig. 261, or equal.

d. Copper pipe (insulated) - shall be B-Line B3373 CT, Grinnell Fig. CT-121, Michigan model 511, or equal.

e. Copper pipe (uninsulated) - shall be B-Line B3373 CT, Grinnell Fig. CT-121, Michigan model 511, or equal.

f. Plastic pipe - shall be B-Line B3373, Grinnell Fig. 261c, or equal.

13. TYPE 13 - FRAMING CHANNEL PIPE STRAP: Pipe strap shall be carbon steel, with configuration equivalent to MSS Type 26.

a. Steel pipe (uninsulated) - shall be Superstrut No. C-708-U, Powerstrut PS 3126, Kin-Line No. 477, or equal.

b. Steel pipe (insulated) - shall be Superstrut No. C-708-U, Powerstrut PS 3126, Kin-Line No. 477, or equal, with insulation shield.

c. Copper pipe (uninsulated) - shall be Superstrut No. C-708-U, Powerstrut PS 3126, Kin-Line No. 477, or equal, with insulation shield or lined with dielectric material.

d. Copper pipe (insulated) - shall be Superstrut No. C-708-U, Powerstrut PS 3126, Kin-Line No. 477, or equal, with insulation shield.

e. Plastic pipe - shall be Superstrut No. C-708-U, Powerstrut PS 3126, Kin-Line No. 477, or equal.

C. RACK AND TRAPEZE SUPPORTS:

1. GENERAL: Unless otherwise specified, trapeze and pipe rack components shall have a minimum steel thickness of 12 gage, with a maximum deflection 1/240 of the span.

2. TYPE 20 - TRAPEZE PIPE SUPPORT: Trapeze pipe support cross members shall be framing channel as specified in paragraph 15096-2.02 E.5. Flat plate fittings shall be 1 5/8-inch square carbon steel of standard design manufactured by framing channel manufacturer, Unistrut P2471, B-Line B202-2, or equal.

3. TYPE 21 - PIPE RACK SUPPORT: Post and cross members shall be framing channel as specified in paragraph 15096-2.02 E.5. Pipe rack fittings shall be carbon steel, of standard design manufactured by framing channel manufacturer. 90-degree fittings shall be gusseted Unistrut P2484, B-Line B844, or equal. Post base fittings shall be as specified in paragraph 15096-2.02 D.5.

D. STRUCTURAL ATTACHMENTS:

1. TYPE A - MALLEABLE IRON CONCRETE INSERT: Concrete inserts shall be malleable iron and comply with MSS and FEDSPEC Type 18. Grinnell Fig. 282, Carpenter & Patterson Fig. 108, or equal.

2. TYPE B - SIDE BEAM BRACKET: Bracket shall be malleable iron and comply with MSS Type 34 and FEDSPEC Type 35. Grinnell Fig. 202, B-Line B3062, or equal.

3. TYPE C - MALLEABLE BEAM CLAMP WITH EXTENSION PIECE: Clamp and extension piece shall be malleable iron, tie rod shall be steel. Beam clamp shall comply with MSS and FEDSPEC Type 30. Grinnell Fig. 218 with Fig. 157 extension piece, B-Line B3054, or equal.

4. TYPE D - STEEL BEAM CLAMP WITH EYE NUT: Beam clamp and eye nut shall be forged steel. Configuration and components shall comply with MSS and FEDSPEC Type 28. Grinnell Fig. 292, Carpenter & Patterson Fig. 297, or equal.

5. TYPE E - FRAMING CHANNEL POST BASE: Post bases shall be carbon steel, of standard design manufactured by framing channel manufacturer. Single channel: Unistrut P2072A, B-Line B280, or equal. Double channel: Unistrut P2073A, B-Line B281, or equal.

6. TYPE F - WELDED BEAM ATTACHMENT: Beam attachment shall be carbon steel and comply with MSS and FEDSPEC Type 22. B-Line B3083, Grinnell Fig. 66, or equal.

7. TYPE G - WELDED STEEL BRACKET: Bracket shall be carbon steel and comply with MSS Type 32 and FEDSPEC Type 33 for medium welded bracket. Heavy welded bracket shall comply with MSS Type 33 and FEDSPEC Type 34.

8. TYPE H - CAST IRON BRACKET: Bracket shall be cast iron, Carpenter & Patterson Fig. 340, or equal.

9. TYPE J - ADJUSTABLE BEAM ATTACHMENT: Beam attachment shall be carbon steel, Carpenter & Patterson Fig. 151, B-Line B3082, or equal.

10. TYPE K - DOUBLE CHANNEL BRACKET: Wall channel shall be single channel framing channel as specified in paragraph 15096-2.02 E.5. Cantilever bracket shall be a carbon steel double framing channel assembly, Unistrut P2542 through P2546, B-Line B297-12 through B297-36, or equal.

11. TYPE L - SINGLE CHANNEL BRACKET: Wall channel shall be single channel framing channel as specified in paragraph 15096-2.02 E.5. Cantilever bracket shall be a carbon steel single framing channel assembly, Unistrut P2231 through P2234, B-Line B198-6, B198-12, B196-18 and B196-24, or equal.

12. TYPE M - WALL MOUNTED CHANNEL: Wall channel shall be single channel framing channel as specified in paragraph 15096-2.02 E.5.

13. TYPE N - PIPE STANCHION FLOOR ATTACHMENT: Baseplate shall be carbon steel with 1/2 inch minimum thickness. Anchor bolt holes shall be 1/16 inch larger than the anchor bolt diameter. The space between the baseplate and the floor shall be filled with nonshrink grout.

E. ACCESSORIES:

1. HANGER RODS: Rods shall be carbon steel, threaded on both ends or continuous threaded and sized as specified.

2. WELDLESS EYE NUT: Eye nut shall be forged steel and shall comply with MSS and FEDSPEC Type 17. Eye nut shall be Grinnell Fig. 290, B-Line B3200, or equal.

3. WELDED EYE ROD: Eye rod shall be carbon steel with eye welded closed. Inside diameter of eye shall accommodate a bolt diameter 1/8 inch larger than the rod diameter. Eye rod shall be Grinnell Fig. 278, B-Line B3211, or equal.

4. TURNBUCKLE: Turnbuckle shall be forged steel and shall comply with MSS and FEDSPEC Type 13. Turnbuckle shall be Grinnell Fig. 230, B-Line B3202, or equal.

5. FRAMING CHANNEL: Framing channel shall be 1 5/8 inches square, roll formed, 12-gage carbon steel. Channel shall have a continuous slot along one side with in-turned clamping ridges. Single channel: Unistrut P1000, B-Line B22, or equal. Double channel: Unistrut P1001, B-Line B22A, or equal. Triple channel: Unistrut P1004A, B-Line B22X, or equal.

2.03 THERMAL PIPE HANGER SHIELD

Thermal shields shall be provided at hanger, support and guide locations on pipe requiring insulation. The shield shall consist of an insulation layer encircling the entire circumference of the pipe and a steel jacket encircling the insulation layer. The thermal shield shall be the same thickness as the piping system insulation. The standard shield shall be used for hot systems and the

vapor barrier shield shall be used for cold systems. Stainless steel band clamps shall be used where specified to ensure against slippage between the pipe wall and the thermal shield.

A. STANDARD SHIELD:

1. INSULATION:

a. Hydrous calcium silicate, high density, waterproof
b. Compressive strength: 100 psi average
c. Flexural strength: 75 psi average
d. K factor: 0.38 at 100 degrees F mean
e. Temperature range: 20 degrees F to 500 degrees F

2. STEEL JACKET: Galvanized steel. Gage shall be the manufacturer's standard supplied for the given pipe size.

3. CONNECTION: Shield shall have butt connection to pipe insulation. Steel jacket and insulation shall be flush with end.

B. VAPOR BARRIER SHIELD:

1. INSULATION:

a. Hydrous calcium silicate, high density, waterproof
b. Compressive strength: 100 psi average
c. Flexural strength: 75 psi average
d. K factor: 0.38 at 100 degrees F mean
e. Temperature range: 20 degrees F to 500 degrees F

2. STEEL JACKET: Galvanized steel. Gage shall be the manufacturer's standard supplied for the given pipe size.

3. CONNECTION: Shield shall have butt connection to pipe insulation. Insulation shall extend 1 inch each side of steel jacket for vaportight connection to pipe insulation vapor barrier.

2.04 PRODUCT DATA

Hanger and support locations and components shall be indicated on the piping layout drawings.

PART 3--EXECUTION

3.01 HANGER AND SUPPORT LOCATIONS

The Contractor shall locate hangers and supports as near as possible to concentrated loads such as valves, flanges, etc. Locate hangers, supports and accessories within the maximum span lengths specified in the contract documents to support continuous pipeline runs unaffected by concentrated loads.

At least one hanger or support shall be located within 2 feet from a pipe change in direction.

The Contractor shall locate hangers and supports to ensure that connections to equipment, tanks, etc., are substantially free from loads transmitted by the piping.

Where piping is connected to equipment, a valve, piping assembly, etc., that will require removal for maintenance, the piping shall be supported in such a manner that temporary supports shall not be necessary for this procedure.

Pipe shall not have pockets formed in the span due to sagging of the pipe between supports caused by the weight of the pipe, medium in the pipe, insulation, valves and fittings.

3.02 INSTALLATION

Welded and bolted attachments to the building structural steel shall be in accordance with the requirements of the AISC Manual of Steel Construction. Unless otherwise specified, there shall be no drilling or burning of holes in the building structural steel.

Hanger components shall not be used for purposes other than for which they were designed. They shall not be used for rigging and erection purposes.

The Contractor shall install items to be embedded before concrete is poured. Fasten embedded items securely to prevent movement when concrete is poured.

Embedded anchor bolts shall be used instead of concrete inserts for support installations in areas below water surface or normally subject to submerging.

The Contractor shall install thermal pipe hanger shields on insulated piping at required locations during hanger and support installation. Butt joint connections to pipe insulation shall be made at the time of insulation installation in accordance with the manufacturer's recommendations.

Hanger and support components in contact with plastic pipe shall be free of burrs and sharp edges.

Rollers shall roll freely without binding.

Finished floor beneath Type N structural attachments and framing channel post bases shall be roughed prior to grouting. Grout between base plate and floor shall be free of voids and foreign material.

Baseplates shall be cut and drilled to specified dimensions prior to welding stanchions or other attachments and prior to setting anchor bolts.

Plastic or rubber end caps shall be provided at the exposed ends of all framing channels that are located up to 7 feet above the floor.

3.03 ADJUSTMENTS

The Contractor shall adjust hangers and supports to obtain required pipe slope and elevation. Shims made of material that is compatible with the piping material may be used. Stanchions shall be adjusted prior to grouting their baseplates.

END OF SECTION

SECTION 15097

SEISMIC RESTRAINTS FOR PIPING

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies seismic restraints for bracing all piping systems shown on the drawings. This section does not include seismic restraints for fire sprinkler systems.

B. DEFINITIONS:

Longitudinal direction--direction parallel to the pipe axis.
Lateral direction--direction perpendicular to the pipe axis.

C. OPERATING CONDITIONS:

The seismic restraints specified in this section are provided to resist pipe movements and loads occurring as a result of an earthquake or other seismic event.

Unless otherwise specified, all piping shall have bracing to resist seismic loading caused by forces applied at the individual pipe's center of gravity. Seismic loading shall be per Section 01900.

D. RESTRAINT SELECTION:

Unless otherwise specified, the Contractor shall select, locate and provide seismic restraints for piping in accordance with the contract documents.

The Contractor shall review the piping layout in relation to the surrounding structure and adjacent piping and equipment before selecting the restraint to be used at each point.

Seismic restraints may be omitted from the following installations:

1. Gas piping less than 1-inch inside diameter.

2. Piping in boiler and mechanical rooms less than 1 1/4-inch inside diameter.

3. All other piping less than 2 1/2-inch inside diameter.

4. All piping suspended by individual hangers 12 inches or less in length from the top of the pipe to the bottom of the support for the hanger.

Piping systems shall not be braced to dissimilar parts of a building or to dissimilar building systems that may respond in a different mode during an earthquake. Examples: wall and a roof; solid concrete wall and a metal deck with lightweight concrete fill.

Restraints shall be sized to fit the outside diameter of the pipe, tubing, or, where specified, the outside diameter of insulation.

There shall be no contact between a pipe and restraint component of dissimilar metals. The contractor shall prevent contact between dissimilar metals when restraining copper tubing by the use of copper-plated, rubber, plastic or vinyl coated, or stainless steel restraint components.

Branch lines shall not be used to brace main lines.

Seismic bracing shall not limit the expansion and contraction of the piping system.

1.02 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI A58.1-82	Minimum Design Loads for Buildings and Other Structures
AISC Manual of Steel Construction	American Institute of Steel Construction, Manual of Steel Construction, Allowable Stress Design - 9th Edition
FEDSPEC WW-H-171e-78	Hangers and Supports, Pipe
MFMA-2-91	Metal Framing Standards Publication
MSS SP-58-93	Pipe Hangers and Supports - Materials, Design and

	Manufacture
MSS SP-69-91	Pipe Hangers and Supports - Selection and Application
SMACNA, PPIC	Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping Systems

B. APPROVAL:

Seismic restraint load calculations specified in paragraph 15097-3.01 shall be reviewed and signed by a structural engineer registered in the State of Utah.

PART 2--PRODUCTS

2.01 ACCEPTABLE PRODUCTS

Standard pipe restraints and components shall be manufactured by Carpenter & Patterson, B-Line, Kin-Line, ITT Grinnell, Michigan, Pipe Shields Incorporated, Superstrut, Unistrut, or equal. Pipe restraint materials shall conform to the requirements of MSS SP-58 and MFMA-1.

2.02 MATERIALS

A. GENERAL:

Unless otherwise specified, restraints, including braces, pipe and structural attachments, shall be hot-dip galvanized after fabrication. Nuts, bolts and washers, fittings and accessories, may be mechanically zinc-coated except for those subject to moisture or corrosive atmosphere, which shall be type 304 stainless steel. Restraints, including braces, pipe and structural attachments, shall be type 304 or 316 for submerged locations, locations subject to moisture or corrosive atmosphere or for stainless steel piping.

B. PIPE ATTACHMENTS:

1. TYPE 1s: CLEVIS RESTRAINT ATTACHMENT: Clevis attachment shall be Type 1, clevis pipe hanger, as specified in paragraph 15096-2.02 B.

2. TYPE 3s: DOUBLE BOLT RESTRAINT CLAMP: Restraint clamp shall be Type 3, double bolt pipe clamp, as specified in paragraph 15096-2.02 B.

3. TYPE 4s: ROLLER RESTRAINT ATTACHMENT: Roller attachment shall be Type 4, adjustable roller hanger, as specified in paragraph 15096-2.02 B. Hold down strap shall be carbon steel and sized as follows: pipe size 1 inch through 2 inch shall be 1 inch by 1/8 inch thick, pipe sizes 2 1/2-inch through 4 inch shall be 1 1/4-inch by 3/l6 inch thick, 6 inch pipe shall be 2 inch by 3/l6 inch thick, 8 inch pipe shall be 2 1/2-inch by 3/16 inch thick, 10-inch through 16-inch pipe shall be 2 1/2-inch by 1/4 inch thick, 20-inch pipe shall be 3 inch by 1/4 inch thick, and 24-inch pipe shall be 3 inch by 3/8 inch thick.

4. TYPE 7s: U-BOLT RESTRAINT: U-bolt restraint shall be Type 7, U-bolt, as specified in paragraph 15096-2.02 B.

5. TYPE 13s: FRAMING CHANNEL STRAP RESTRAINT: Strap restraint shall be Type 13, framing channel pipe strap, as specified in paragraph 15096-2.02 B.

6. TYPE 14s: PIPE CLAMP RESTRAINT: Pipe clamp shall be carbon steel, with configuration and components equivalent to MSS and FEDSPEC Type 4. Rod attachment and longitudinal brace connection stud shall be carbon steel, fabricated and welded by the manufacturer.

a. Steel pipe (insulated)--shall be Superstrut No. S-720, Kin-Line No. S475, or equal, with insulation shield.

b. Steel pipe (uninsulated)--shall be Superstrut No. S-720, Kin-Line No. S475, or equal.

c. Cast and ductile iron pipe--shall be Superstrut No. S-720, Kin-Line No. S475, or equal.

d. Copper pipe (insulated)--shall be Superstrut No. S-720, Kin-Line No. S475, or equal, with insulation shield.

e. Copper pipe (uninsulated)--shall be Superstrut No. S-720, Kin-Line No. S475, or equal, with insulation shield or dielectric lining.

f. Plastic pipe--shall be Superstrut No. S-720, Kin-Line No. S475, or equal.

C. TRAPEZE RESTRAINTS:

1. GENERAL: Unless otherwise specified, trapeze members shall have a minimum steel thickness of 12 gage, with a maximum deflection 1/240 of the span.

2. TYPE 20s: SINGLE CHANNEL LATERAL RESTRAINT: Trapeze restraint cross member shall be 1 5/8-inch square carbon steel framing channel, Unistrut P1000, B-Line B22, Superstrut A-1200, or equal. Pipe attachments shall be Type 13s or Type 7s specified in paragraph 15097-2.02 B. Rod stiffeners and lateral brace shall be as specified in paragraph 15097-2.02 D.

3. TYPE 21s: DOUBLE CHANNEL LATERAL RESTRAINT: Trapeze restraint cross member shall be a double channel manufactured assembly such as Unistrut P1001, B-Line B22A, Superstrut A-1202, or equal. Pipe attachments shall be Type 13s or Type 7s specified in paragraph 15097-2.02 B. Rod stiffeners and lateral brace shall be as specified in paragraph 15097-2.02 D.

4. TYPE 22s: DOUBLE CHANNEL LONGITUDINAL RESTRAINT: Trapeze restraint cross member shall be a double channel manufactured assembly such as Unistrut P1001, B-Line B22A, Superstrut A-1202, or equal. Pipe attachments shall be Type 13s or Type 7s specified in paragraph 15097-2.02 B. Rod stiffeners, longitudinal and lateral braces shall be as specified in paragraph 15097-2.02 D.

D. BRACES AND FITTINGS:

1. SEISMIC BRACE FITTING: Seismic brace fitting shall be manufactured for use with industry standard framing channel. The fitting shall be carbon steel, welded construction, two-piece linked fitting. A means to reduce noise and vibration transmission between the linked fitting parts shall be provided. Seismic brace fittings shall be Superstrut C-749N series seismic brace, Kin-Line No. 633 seismic connector fitting, or equal.

2. HANGER ROD STIFFENER ASSEMBLY: Rod stiffener channel shall be 1 5/8-inch square carbon steel framing channel, Unistrut P1000, B-Line B22, Superstrut A-1200, or equal. Rod stiffener clamps shall be complete with channel nut and shall be Superstrut ES-142, Kin-Line No. 635, or equal.

3. TYPE A1 SEISMIC BRACE: Seismic brace shall be 1 5/8-inch square carbon steel framing channel, Unistrut P1000, B-Line B22, Superstrut A-1200, Kin-Line No. 4112, or equal.

4. TYPE A2 SEISMIC BRACE: Seismic brace shall be 1 5/8-inch wide by 3 1/4-inch deep carbon steel framing channel, Unistrut P5000, B-Line B11, Superstrut H-1200, Kin-Line No. 8212, or equal.

E. STRUCTURAL ATTACHMENTS:

1. GENERAL: Unless otherwise specified, hanger rod structural attachments shall be as specified in Section 15096. Structural attachments for longitudinal and lateral seismic braces shall be as specified in paragraph 15097-2.02 E.

2. TYPE SA-1 ATTACHMENT: Brace fitting shall be as specified in paragraph 15097-2.02 D. Concrete anchors shall be installed with embedment and location dimensions as shown.

3. TYPE SA-2 ATTACHMENT: Brace fitting shall be as specified in paragraph 15097-2.02 D. Concrete anchors shall be installed with embedment and location dimensions as shown. Framing channel shall be as specified in paragraph 15097-2.02 F.

4. TYPE SA-3 ATTACHMENT: Brace fitting shall be as specified in paragraph 15097-2.02 D. Cap screw, lockwasher and hex nut materials and finish shall be compatible with structural steel material.

5. TYPE SA-4 ATTACHMENT: Brace fitting shall be as specified in paragraph 15097-2.02 D.

6. TYPE SA-5 ATTACHMENT: Brace fitting shall be as specified in paragraph 15097-2.02 D. Four-inch x 3-inch x 3/8-inch angle shall be carbon steel.

F. ACCESSORIES:

1. HANGER RODS: Rods shall be carbon steel, threaded on both ends or continuous threaded and sized as specified.

2. FRAMING CHANNEL: Framing channel shall conform to the Metal Framing Manufacturers Association standard MFMA-1. Framing channel shall be roll formed, 12-gage carbon steel. Channel shall have a continuous slot along one side with in-turned clamping ridges. Channel shall be Unistrut P1000 series, B-Line B22 series, Superstrut A-1200 series, or equal.

3. ROD COUPLING: Rod coupling shall be carbon steel, with sight hole in center of coupling body, Grinnell Fig. 135, Superstrut H-119, or equal.

2.03 THERMAL PIPE HANGER SHIELD

Thermal shields shall be provided at seismic restraint locations on pipe requiring insulation. Thermal pipe hanger shields shall be as specified in paragraph 15096-2.03. Stainless steel band clamps shall be provided on thermal shields at longitudinal pipe restraint locations.

2.04 PRODUCT DATA

The following information shall be provided as specified in Section 01300:

1. Seismic restraint locations and legend as specified in paragraph 15097-3.01.

2. Load calculations as specified in paragraph 15097-1.02 B.

PART 3--EXECUTION

3.01 PIPE RESTRAINT LOCATIONS

The first seismic restraint on a piping system shall be located not more than 10 feet from the main riser, entrance to a building or piece of equipment.

Cast iron pipe shall be braced on each side of a change in direction of 90 degrees or more. Joints in risers shall be braced or stabilized between floors.

No-hub and bell and spigot cast iron soil pipe shall be braced longitudinally every 20 feet and laterally every 10 feet.

Lateral bracing for one pipe section may also act as longitudinal bracing for the pipe section connected perpendicular to it, if the bracing is installed within 24 inches of the elbow or tee of the same size.

Seismic restraint locations and components shall be indicated on the piping layout drawings. The Contractor shall provide a legend giving load information and restraint component selection at each restraint location.

3.02 INSTALLATION

Rod stiffener assemblies shall be used at seismic restraints for hanger rods over 6 inches in length. A minimum of two rod stiffener clamps shall be used on any rod stiffener assembly.

Lateral and longitudinal bracing shall be installed between 45 degrees above and 45 degrees below horizontal, inclusive, relative to the horizontal centerline of the pipe.

Welded and bolted attachments to the building structural steel shall be in accordance with the requirements of the AISC Manual of Steel Construction. There shall be no drilling or burning of holes in the building structural steel without approval of the Construction Manager.

Embedded anchor bolts shall be used instead of concrete inserts for seismic brace installations in areas below water surface or normally subject to submerging.

The Contractor shall install thermal pipe hanger shields on insulated piping at required locations during restraint installation. Butt joint connections to pipe insulation shall be made at the time of insulation installation in accordance with the manufacturer's recommendations.

Restraint components in contact with plastic pipe shall be free of burrs and sharp edges.

Rollers shall roll freely without binding.

Plastic or rubber end caps shall be provided at the exposed ends of all framing channels that are located up to 7 feet above the floor.

END OF SECTION

SECTION 15697

AIR-COOLED WATER CHILLER

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies a packaged, outdoor, surface-mounted, air-cooled water chiller complete with condensers, circulation pump, expansion tank and/or buffer tank along with accessories, control panel, and control and monitoring devices for chilling a 50 percent ethylene glycol solution. Chiller shall be oversized for duty at an elevation of approximately 7,010 feet above mean sea level (MSL) and for cooling the ethylene glycol solution to 33 degrees Fahrenheit (°F).

B. TYPE:

Chiller shall be the heavy-duty, industrial type for continuous 24/7 year-round operation. Compressors shall be the screw, reciprocating or scroll-type. Chiller shall be suitable for continuous duty over a range of 20 to 100 percent full load. Chiller, circulation pump, and associated electrical equipment shall be designed for explosion service in a Class I Division 2 classified area per NFPA 820.

C. EQUIPMENT LIST:

Item	Equipment Number
Air-Cooled Water Chiller	CHR – 8790

1.02 SYSTEM DESIGN AND PERFORMANCE

A. GENERAL:

Chiller shall be designed and selected to constantly supply chilled glycol/water solution to a process heat exchanger for cooling digester gas at a wastewater treatment facility at ambient temperatures up to 90° F. Chiller shall be designed, tested and rated in accordance with ASME Unfired Pressure Vessel Code and shall meet AHRI 550/590 rated capacity. Components shall be UL-labeled where available.

B. OPERATING CONDITIONS:

Chillers shall be designed to comply with the following:

Nominal Capacity, tons	Actual Operating Output, tons	EWT[a], F	LWT[b], F	GPM[c]	Liquid PD[d], max, ft	OSA[e] temp, °F	Nominal Electrical input, kW	Volts/ϕ
5	1.8 to 3.3	40	33	15	45	90	7.5	480/3

[a]EWT = Entering chilled water temperature.
[b]LWT = Leaving chilled water temperature.
[c]GPM = Approximate fluid flow rate, (chilled 50% ethylene glycol solution), gallons per minute.
[d]PD = Evaporator water pressure drop.
[e]OSA = Outside air temperature ranges from minus 10 degrees F to 90 degrees F.

1.03 QUALITY ASSURANCE

A. FACTORY TESTING:

Chiller shall be factory-tested and certified to meet the design operating requirements.

1.04 SUBMITTALS

Submittals shall be provided and shall include the following information:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph. The remaining portions of the paragraph not underlined will signify compliance with the specifications. The submittal shall be accompanied by a detailed, written justification for each deviation. Failure to include a copy of the marked-up specification sections along with justification for any requested deviation to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. Predicted performance data, as applicable, developed for the specific application, confirming conformance to specified design and operating requirements and characteristics.

3. Manufacturer and manufacturer's type designation.

4. Manufacturer's catalog and/or other data confirming conformance to specified design, material and equipment requirements.

5. Control diagrams and process and instrumentation diagrams relating to the submitted equipment, with addendum updates that apply to the equipment in this section, marked to show specific changes necessary for the equipment proposed in the submittal. If no changes are required, the drawing or drawings shall be marked “No

Changes Required." Failure to include copies of the relevant drawings with the submittal shall be cause for rejection of the entire submittal with no further review.

6. Water flow switch wiring diagrams and installation requirements.

7. Installation requirements, showing clearance required for maintenance purposes.

8. Equipment cutsheets, motor data, and local control panel drawings.

9. Detailed summary of the site elevation, low temperature fluid, and 50 percent ethylene glycol solution deration factors to ensure adequate capacity.

10. Headloss (feet) through the evaporator.

1.05 ENVIRONMENTAL CONDITIONS

Equipment shall be designed for continuous outdoor duty in an extreme weather-exposed, environment at approximately 6,750 feet above MSL. Outside air temperature ranges from minus 10° to 90° F. De-rate the air-cooled condenser equipment for the site elevation and ambient conditions.

1.06 WARRANTY

A two-year 100 percent parts and labor warranty against manufacturing defects or failure of the equipment specified in this section caused by normal wear and tear shall be provided. The warranty period shall start following successful demonstration of performance testing.

PART 2--PRODUCTS

2.01 MANUFACTURERS

The following candidate manufacturers are believed to be capable of producing equipment and/or products that will satisfy the requirements of this section. This statement, however, shall not be construed as an endorsement of a particular manufacturer's products, nor shall it be construed that named manufacturer's standard equipment or products will comply with the requirements of this section. Candidate manufacturers include Johnson Thermal Systems, Filtrine, or equal with the features and modifications specified.

2.02 MATERIALS

Component	Material
Evaporator and condenser tubes	Aluminum or copper with Heresite coating
Evaporator and condenser fins	Aluminum or copper with Heresite coating
Header	Copper with Heresite coating

Component	Material
Shells	Steel
Frame	Steel
Tube sheets	Steel

Tubes and fins shall be of the same material.

2.03 EQUIPMENT

A. GENERAL:

Water chiller shall be of the air-cooled type using screw, reciprocating or scroll-type compressors as the motive force. Chiller and all electrical components shall be rated for Class I Division 2 explosion-proof service per NFPA 820.

Chiller shall be a completely package unit, with all components and controls factory-assembled and tested. Chiller shall have multiple motor compressors units, evaporator, refrigeration circuits, control panel and controls, full factory refrigerant (R-134a or R-410A) and oil charge for field installation, and accessories.

Provide stainless steel enclosure or epoxy-treated metals to protect the chiller equipment and the electrical equipment.

B. COMPRESSOR AND MOTOR:

Compressors shall be direct-drive, hermetically sealed type easily accessible for service. The lubrication system shall be force-fed. There shall be a crank-case heater, multistep capacity control, and oil-level sight glass.

The motor shall be suction gas cooled with overload protection, suitable for nameplate voltage ±10 percent, sized to match compressor torque and horsepower curves. Compressor motor power factor shall be 0.9 or greater. Provide vibration isolation between motor compressor unit and frame. Provide motor winding high-temperature switch wired to the starter for alarm and shutdown.

C. COMPRESSOR MOTOR STARTER:

The starter shall be the full-voltag,e non-reversing type with motor-circuit protector for each compressor motor.

D. EVAPORATOR:

The evaporator shall be shell-and-tube design with seamless copper tubes expanded into steel tube sheets. The heads shall be removable. The evaporator shall be ASME-rated at 225-psi on refrigerant side and 150 psi-on waterside. Provide a minimum of fully sealed and vapor-tight, 1-

inch closed-cell foam insulation, Armaflex II (k = 0.28), on shell, suction lines, and heads and on all other cold surfaces.

E. REFRIGERANT CIRCUIT:

The chiller shall have two independent refrigeration circuits, each with a separate single compressor for standby operation. Manifolded compressors are not acceptable. Each refrigerant circuit shall include moisture indicator and liquid line sight glass, filter dryer, liquid line shutoff valve, thermal expansion valve, charging valve, discharge and oil-line check valves, compressor suction and discharge service valves, insulated suction lines, and flex connections. Refrigerant shall be R-134a or R-410A.

F. AIR-COOLED CONDENSER:

The condenser shall be of the air-cooled type designed and selected to reject the heat from the chiller.

G. CASINGS:

The casing shall be 12-gage galvanized steel, finished with a factory-coating system for corrosion protection. The unit frame and fan guards shall be galvanized steel. Unit base shall be 1/4-inch galvanized steel. Provide removable access panels and coil guards.

H. CONDENSER FANS AND MOTORS:

The fan shall be vertical discharge, direct-driven type, statically and dynamically balanced, with steel fan blades and zinc-plated hubs. The motors shall have permanently lubricated ball bearings, with built-in current and thermal overload protection.

I. CONDENSER COIL:

The coil shall be constructed of aluminum fin secondary surface mechanically bonded to primary surface of 5/8-inch O.D. seamless copper tubing. Sub-cooling circuit shall have a liquid accumulator. The coil shall be factory tested at 450 psig.

J. CHILLER CIRCULATION PUMP:

A glycol circulation pump shall be provided as part of the chiller package specified in this section. The pump shall be designed to circulate the specified flow of glycol solution between the chiller and a new digester gas cooling heat exchanger that will be located in the Digester Control Room. The total pump head shall be the sum of the pressure losses through the chiller plus 10 feet of head for pressure losses through the heat exchanger and piping system.

K. CHILLED GLYCOL EXPANSION TANK:

An ASME expansion tank and means of filling the glycol circulation system shall be included with the chiller. The expansion tank shall be sized for the volume of glycol solution in the system, including:

1. 100 feet of 1-1/2-inch schedule 40 pipe.
2. The chilled glycol solution volume of the heat exchanger.
3. The held-up glycol solution volume of the chiller.
4. The volume of the glycol solution holding tank if required and provided by the chiller supplier.

L. BALANCING VALVE:

A manual incline hydronic balancing valve to adjust and lock in the desired flow rate shall be provided downstream of the glycol circulation pump. The valve shall be designed for this service and shall be supplied with installation data.

M. CONTROLS:

The condenser controls shall be factory-assembled and mounted in the chiller control panel and shall contain fan contactors, fan-cycling thermostats, compressor interlock and 120-Volt control thermostats, and compressor interlock.

Provide heavy-duty control panel electrical devices and products for the outdoor chiller location that shall resist weather and corrosion.

The pump shall be wired to operate concurrently with the chiller and shall have a manual test button for independent testing without chiller operation.

2.04 ACCESSORIES

A. LOAD LIMIT THERMOSTAT:

Load limit thermostat shall unload the compressor if condenser temperature is too high.

B. TIME DELAY:

Time delay shall prevent rapid starting of all chiller compressors by causing an adjustable time delay between chiller stages. Delay shall be as recommended by the manufacturer.

C. ANTI-RECYCLE TIMER:

Anti-recycle timer shall prevent rapid cycling of compressor and liquid slugging by time between shutdown and start-up. Provide timer with 30-minute range; delay shall be initially set as recommended by the manufacturer.

D. SOUND ATTENUATOR ENCLOSURE:

Provide 1-inch thick, 1-1/2-pound per cubic foot, density-lined, 16-gage steel compartment.

E. VIBRATION ISOLATORS:

Provide spring or rubber-in-shear vibration isolators for field installation to reduce vibration transmission through the unit base.

F. GAGES:

Include high-side and low-side refrigerant pressure gages per refrigerant circuit and oil-pressure gages per compressor. Include local temperature gages on suction and discharge of chiller. The gages shall be factory-mounted on service gage connections.

Temperature gages with a range of 20° to 80° F shall be provided as part of the chiller package to monitor the supply and return glycol solution temperature.

G. WATER FLOW SWITCHES:

Provide a water flow safety switch within the chiller system or on the chilled glycol piping to prevent cooler freeze-up under low- or no-flow conditions. Provide terminals in the unit control center for field hook-up of the water flow safety switch. Factory technician shall provide the flow-switch wiring and adjustments.

H. HIGH AMBIENT UNLOADER:

Provide a pressure stat to unload the compressor to control head pressure and prevent high-pressure trip-outs on days that exceed design high-ambient conditions.

I. AUTO LEAD-LAG FUNCTION:

Auto lead-lag function shall start compressors automatically and even out operation hours of compressors.

J. CONDENSER FAN SEQUENCING:

Condenser fan sequencing shall automatically cycle fan operation to optimize efficiency at high- and low-ambient conditions.

K. HOUR METER:

Hour meter shall indicate hours of chiller operation.

L. CHILLED GLYCOL BUFFER TANK:

If a glycol solution holding tank is required, provide the tank fully insulated and piped with all necessary features at no extra cost to the Owner.

2.05 COATING

Because of the continuous presence of hydrogen sulfide and moist air at the site, all copper pipe or exposed copper equipment components must have Heresite or equivalent coating.

A. CASINGS:

The unit frame, fan guards, and unit base shall be Heresite-coated or equivalent.

B. CONDENSER COIL:

Aluminum fins shall be Heresite-coated or equivalent.

2.06 ELECTRICAL AND CONTROLS

A. CONTROL PANEL:

Electric and refrigerant controls shall be mounted in a vendor-provided panel on chiller.

The NEMA-7 disconnect switch shall be properly sized for model, and the voltage rating shall be 480-Vac. At a minimum, the control system shall contain the following components:

1. Motor starter(s).
2. 480:120-volt control power transformer.
3. High- and low-pressure cut-out switches for the refrigerant circuit.
4. Manual reset low-water temperature cut-out switch.
5. Multistep chilled-water temperature controller.
6. Oil pressure safety switch for each compressor.
7. Compressor ON indicator light.
8. START-STOP button.
9. Control power circuit breaker.
10. Circuit breaker for each compressor.
11. Suction, discharge, and oil pressure gages.

12. Over/under voltage indicator.

At a minimum, the control system shall include hard-wired signals into the local control panel for:

1. HAND/OFF/REMOTE with IN-REMOTE switch position indication.
2. READY signal.
3. RUNNING/OFF status.
4. NORMAL/FAIL alarm.
5. START/STOP remote control.

The panel shall be UL-508 listed. The monitoring and control functionality shall be as shown on the P&IDs.

B. CAPACITY MODULATION AND TEMPERATURE CONTROL:

Capacity control shall be in variable-step modulation in response to cooling load and shall be provided by either slide valves or un-loader valves. Chiller shall be capable of operation down to 20 percent of peak load.

C. ALARM:

A general alarm shall be provided for chiller failure status and high outlet temperature.

2.07 PRODUCT DATA

Submit the following product data:

1. Spare parts list.
2. Warranty.
3. Anchor-bolt design calculations and details.
4. Manufacturer's recommended storage, installation, and start-up procedures.
5. Operation and maintenance manuals.
6. Refrigerant- and glycol-solution filling and replacement instructions.

PART 3--EXECUTION

3.01 INSTALLATION

The chiller and all associated equipment shall be installed and field-insulated according to manufacturer's printed instructions. All cold surfaces shall be fully insulated, completely vapor-tight, and all damaged factory-installed insulation shall be replaced or completely repaired and fully vapor-tight to be in like-new condition.

Provide and install Heresite-coated products as specified herein, if not factory applied.

A trained manufacturer's representative shall be provided for start-up and testing of the equipment.

3.02 FIELD TESTING

The chiller unit supplier shall provide the services of a factory-trained field technician for a minimum of 3 working days in two separate trips to supervise the water chiller installation, control wiring, start-up, and field testing, and training of the Owner's staff.

Final adjustments and inspections shall be made by the water-chiller supplier's factory-trained and authorized service representative.

3.03 TRAINING

During the commissioning period, a factory-trained representative of the manufacturer shall conduct training for the Owner's staff. A minimum of 4 hours of training shall be provided. Maintenance manuals shall be provided to the Owner a minimum of 1 week prior to staff training.

Training sessions shall be scheduled by the Owner at a time starting after successful commissioning and not to exceed 4 months after final acceptance of the equipment specified in this section.

END OF SECTION

SECTION 15753

SHELL AND TUBE HEAT EXCHANGER

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies an all stainless steel gas-to-water shell-and-tube heat exchanger for cooling a water-saturated digester gas.

B. TYPE:

Heat exchanger shall be the one-pass, counterflow, all stainless steel horizontal shell and straight-tube type with condensate drain connections, removable tube bundles, and mounting brackets.

C. EQUIPMENT LIST:

Item	Equipment Number
Digester Gas Cooling Heat Exchanger	HEX - 8780

D. DEFINITIONS:

1. Raw Digester Gas: A water-saturated mixture of several constituents, including methane, carbon dioxide, nitrogen, sulfides, siloxanes, and water-in-vapor phase, produced by the anaerobic digestion of municipal wastewater sludge. For this project, the raw digester gas is expected to contain small amounts of fine particulate matter and 7.7 percent water vapor by volume, as produced within the digesters at 98 degrees Fahrenheit (°F). The dry digester gas, as determined by laboratory analysis, has the following properties:

Parameter	**Units**	**Value**	**Range**
Methane[1]	Percent	62.0	56 to 68
Carbon Dioxide[1]	Percent	35.5	35 to 44
Nitrogen[1]	Percent	2.0	0 to 2
Oxygen[1]	Percent	0.5	0 to 1
Sulfides[2]	ppm	1,750	1,500 to 2,000
Siloxanes[3]	ppm	8	6 to 10

[1] Methane, carbon dioxide, nitrogen, and oxygen values represent percent by volume as a dry gas.
[2] Sulfides are expected to comprise 90 percent or more hydrogen sulfide.
[3] Siloxanes: Volatile silicon based compounds including hexamethyldisiloxane (L2), octamethylcyclotetrasiloxane (D4), and decamethylcyclopentasiloxane (D5).

2. Treated Digester Gas: Raw digester gas will be treated to reduce sulfides to approximately 50 ppmv. Following treatment, the digester gas will be pressurized to approximately 15.4 psia immediately upstream of the heat exchanger specified in this section.

3. Inlet Digester Gas: Treated digester gas will enter the heat exchanger at a pressure of 15.4 psia and a temperature of approximately 245° F. Prior to treatment and compression, the raw digester gas was initially water-saturated as produced within the digesters, and thus contained 7.7 percent water vapor at 98° F and 11.62 psia.

1.02 SYSTEM DESIGN AND PERFORMANCE

A. GENERAL:

The heat exchangers shall be constructed and designed per the following parameters:

1.	Construction code	ASME, Section VIII, Div. 1
2.	Mounting arrangement	Horizontal
3.	Mounting support type	U-bolt saddle
4.	Flow direction	Counterflow
5.	Tube shape	Straight
6.	Tube passes, maximum	One
7.	Overall length, maximum, feet	7
8.	Working pressure, psig	50
9.	Test pressure, psig	75
10.	Fouling factor	0.004
11.	Tube diameter, O.D., maximum, inches	3/8
12.	Gas connection, minimum, inches	4
13.	Glycol connection, maximum, inches	2
14.	Drain connection, both bonnets, minimum, inches	3/4
15.	Gas connection type	ANSI flanged
16.	Drain and vent connection type	Threaded, NPT

B. OPERATING AND PERFORMANCE REQUIREMENTS:

The heat exchanger shall be sized and selected for the following:

Tube-side Fluid

1.	Tube fluid name	Digester Gas
2.	Volumetric composition, wet gas, percent	
	a. Methane	57.2
	b. Carbon Dioxide	32.8
	c. Water Vapor	7.7
	d. Nitrogen	1.8
	e. Oxygen	0.5
	f. Hydrogen Sulfide	0.05

Tube-side Fluid

3.	Raw Gas Moisture Content Saturation, percent	
	a. Fluid saturation	100
	b. Expected moisture in gas (as produced)	7.7
4.	Fluid density, approximate, lb/ft^3	0.063
5.	Fluid specific heat, approximate, Btu/lb-F	0.35
6.	Fluid (compressed) entering temperature, degrees F	245
7.	Fluid leaving temperature, degrees F	40
8.	Fluid flow, maximum, scfm	90
9.	Fluid flow, average, scfm	60
10.	Fluid flow, minimum, scfm	50
11.	Fluid mass flow, maximum, lb/hr	338
12.	Fluid mass flow, average, lb/hr	225
13.	Fluid mass flow, minimum, lb/hr	188
14.	Water condensed, approximate, lb/hr	16
15.	Total heat load, approximate, Btuh	44,900
16.	Latent heat load, approximate, Btuh	16,900
17.	Sensible heat load, approximate, Btuh	28,000
18.	Atmospheric air pressure, psia	11.4
19.	Entering fluid pressure, psia	15.4
20.	Pressure drop allowed, maximum, inches, W.C.	3.0
21.	Pressure drop allowed, average flow, inches, W.C.	2.0

Shell-side Fluid

21.	Shell fluid name	Ethylene Glycol Solution
22.	Fluid composition, percent	50
23.	Fluid flow, approximate, gpm	15
24.	Fluid entering temperature, degrees F	33
25.	Fluid leaving temperature, approximate, degrees F	40
26.	Fluid pressure, psig, approximate	25
27.	Fluid pressure drop allowable, maximum, psig	3.0

1.03 QUALITY ASSURANCE

This section contains references to the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Reference	Title
ASME Pressure Vessel Code	ASME Boiler and Pressure Vessel and Code, Section VII, Pressure Vessels Division 1, with Addenda
ANSI B16.1	Cast Iron Pipe Flanges and Flanged Fitting
TEMA	Tubular Exchangers Manufacturing Association

1.04 SUBMITTALS

The following submittals shall be provided:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph. The remaining portions of the paragraph not underlined will signify compliance with the specifications. The submittal shall be accompanied by a detailed, written justification for each deviation. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. Catalog information for each item of equipment furnished.

3. Complete dimensional drawings for each item of equipment including all interconnection sizes.

4. Rated performance information sufficient to assess compliance with the specifications.

1.05 ENVIRONMENTAL CONDITIONS

Equipment shall be designed for continuous outdoor duty in an extreme weather-exposed, environment at approximately 6,750 feet above sea level. As produced within the digester head space at 98° Fahrenheit, the raw digester gas is fully water-saturated at an approximate pressure of 11.6 psia. Outside air temperature ranges from minus 10° to 90° Fahrenheit.

PART 2--PRODUCTS

2.01 MANUFACTURERS

The Owner and Engineer believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this section. This statement, however, shall not be construed as an endorsement of a particular manufacturer's product, nor shall it be construed that a named manufacturer's standard product will comply with the requirements of this section. Candidate manufacturers include API Heat Transfer, Bos-Hatten, Doyle & Roth, Enerquip, Xylem, or equal.

2.02 MATERIALS

Component	Gas-to-water HEX
Shell	Type 304 stainless steel
Tubes	Type 316 stainless steel
Tube Sheets	Type 316 stainless steel
Heads	Type 316 stainless steel
Mounting Saddle or Bracket	Type 304 stainless steel

2.03 EQUIPMENT

Heat exchangers shall be manufactured and tested in accordance with the ASME Pressure Vessel Code and TEMA. Each unit shall bear an ASME inspector's stamp, complete with design working pressure and date and place of manufacture.

All welding shall conform to the latest standards of the American Welding Society.

Tubes shall be seamless metal. Flanged connections shall be provided, oriented as shown for connection to external piping systems. Tube bundles shall be held in place by baffles for more efficient heat transfer, and bolted covers shall be provided for tube cleaning.

Inlet and discharge heads shall have minimum 3/4-inch diameter drains located to remove the condensed gas condensate.

2.04 ACCESSORIES

The heat exchanger shall have drain and vent connections and saddle-type support with U-clamp for rack/floor mounting as shown. Saddle-type supports shall accommodate the heat exchanger with insulation, and shall not compromise the vapor tightness of the insulation jacket.

2.05 PRODUCT DATA

The following product data shall be:

1. Manufacturer's recommended storage, installation and start-up procedures.

2. Applicable operation and maintenance information.

2.06 PROTECTIVE COATING

The heat exchanger shall be unpainted and free from grease-pen notations or hand-applied markings.

PART 3--EXECUTION

3.01 INSTALLATION

Installation shall be as shown and shall be in accordance with the manufacturer's printed instructions.

The Contractor shall route piping, provide takedown fittings, make piping connections and provide access room for removal of the tube bundle for the specific heat exchanger selected.

Heat exchanger shall be field-insulated. All cold fluid sections of the heat exchanger and the gas condensate piping shall be fully and carefully insulated and jacketed to be completely vapor-tight. Insulation thickness shall be as required for the hottest fluid and for the coldest fluid entering the heat exchanger.

3.02 FIELD TESTING

After completion of installation, each shell and tube heat exchanger shall be completely field tested to demonstrate compliance with the performance requirements as specified. Inspection, testing, and certification shall be provided, and testing procedures and forms shall be submitted and used.

Testing procedures shall duplicate as nearly as possible the conditions of operation and shall be selected to demonstrate that the equipment is operational and free from damage. Each control device, item or mechanical, electrical, and instrumentation equipment, and control circuit shall be considered in the testing procedures to demonstrate that the equipment has been properly serviced, aligned, connected, calibrated, and adjusted prior to operation.

3.03 TRAINING

During the commissioning period, a factory-trained representative of the manufacturer shall conduct training for the Owner's staff. A minimum of 4 hours of training shall be provided. Maintenance manuals shall be provided to the Owner a minimum of 1 week prior to staff training.

Training sessions shall be scheduled by the Owner at a time starting after successful commissioning and not to exceed 4 months after final acceptance of the equipment specified in this section.

END OF SECTION



Wildcat Hill WRP Digester Gas Conveyance Project

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Background

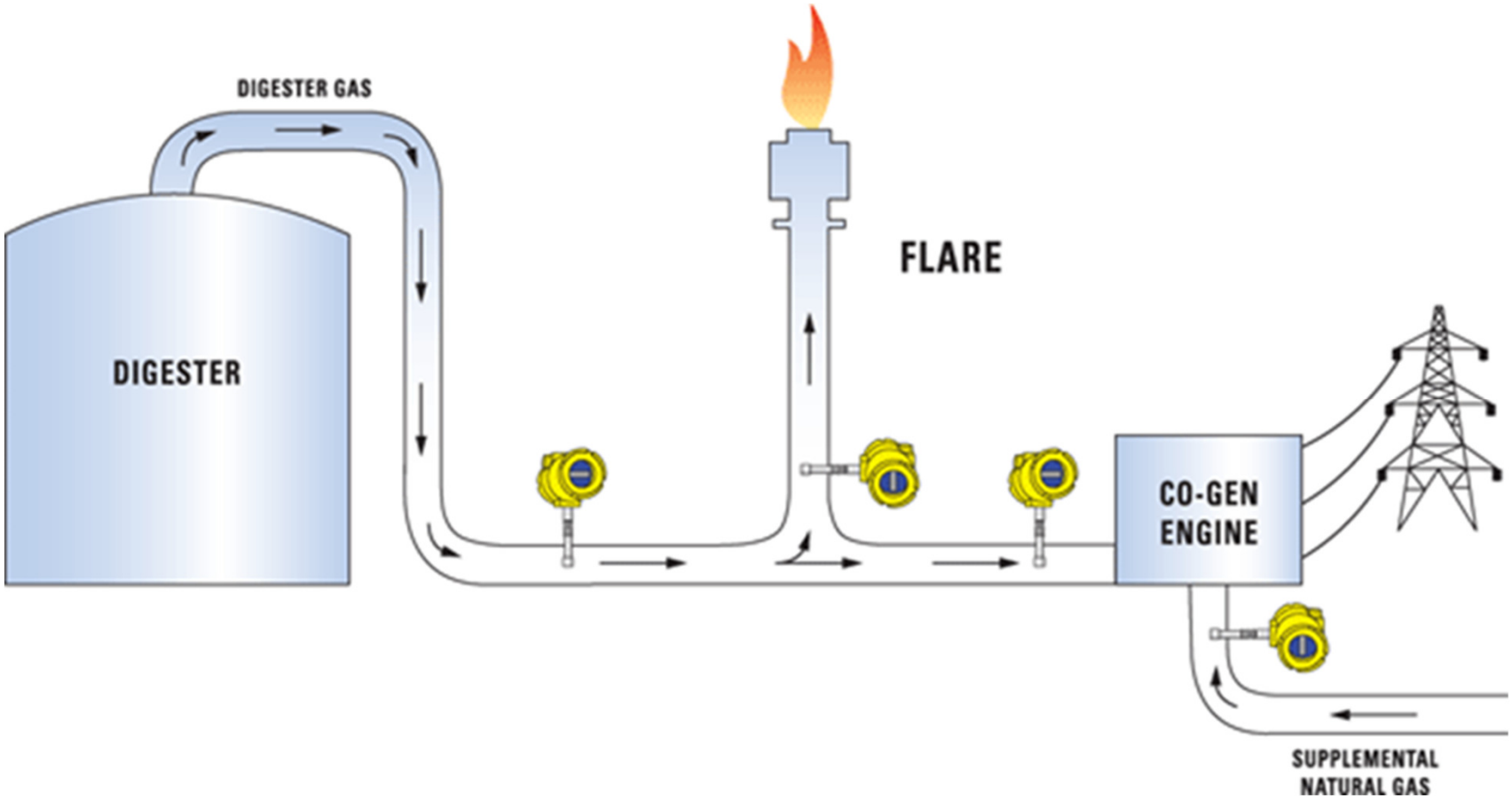
- Digester Gas System in disrepair
- Gas is either flared or sent to cogeneration Engine
- Currently flaring 100%
- Cogeneration engine – 290 kw generated
- Phase 1 of a two phase project







Digester Gas System



Design-Bid-Build

Bidding Results

- Five bids submitted
- PCL Construction lowest responsible bidder

Contractor	Total Cost
PCL	**$1,067,535**
Summa	$1,307,831
Hunter	$1,582,035
KCS	$1,586,091
Kear Civil	$1,673,805

Energy Efficiency Savings



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- Annual Electrical savings based on 100%runtime = $279,444/ year (~$765/day)*
- Supports Council Goals – Climate Action & Adaptation Plan – Energy Strategy #1-3

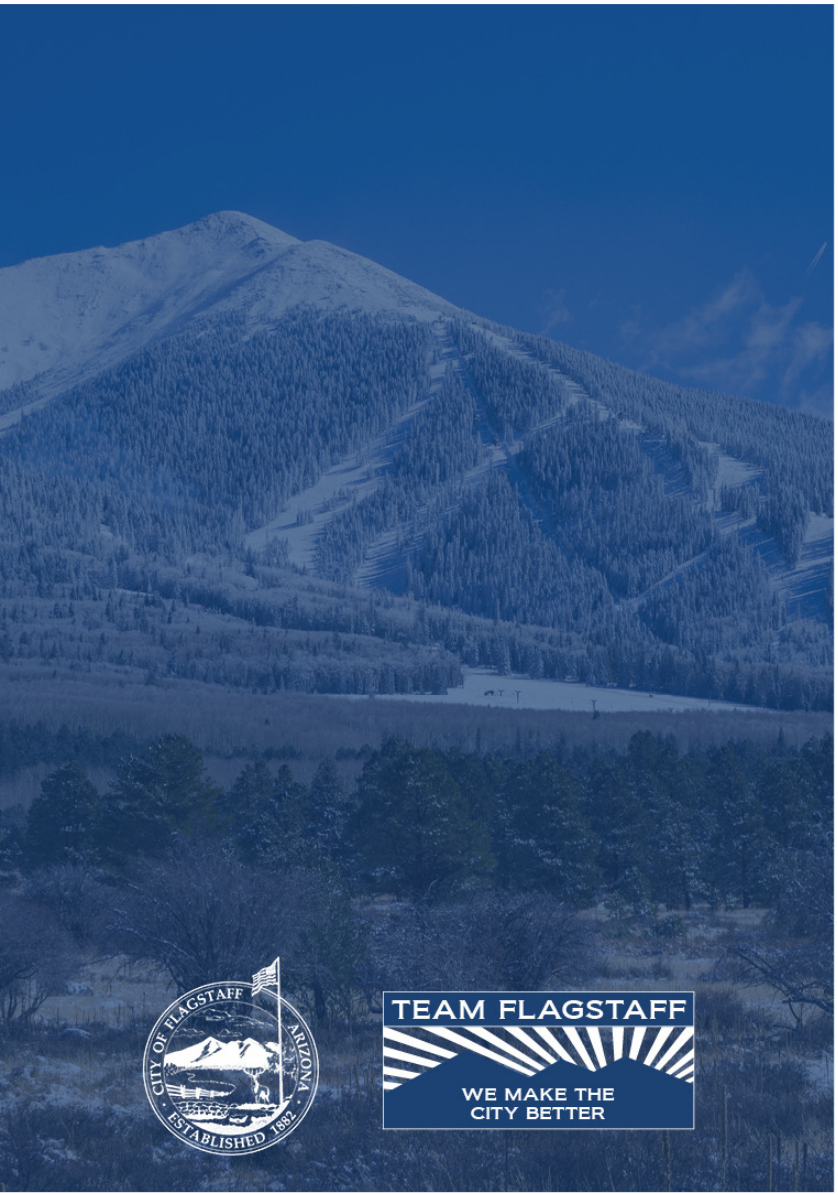
*After PH1 & PH2 Completed



Next Steps






CITY OF FLAGSTAFF
ARIZONA
ESTABLISHED 1882
TEAM FLAGSTAFF
WE MAKE THE
CITY BETTER

Questions?

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Martin Ince, Multi-Modal Planner
Date:	02/27/2019
Meeting Date:	03/05/2019

TITLE

Active Transportation/FUTS Master Plans

STAFF RECOMMENDED ACTION:

Discussion only

EXECUTIVE SUMMARY:

Staff will make a brief presentation to the City Council to introduce the City's Active Transportation and FUTS Master Plans. The presentation will include a description of the master plans and their contents, as well as an outline of the process and schedule for preparation and adoption of the plan over the next half-year. Staff will also highlight the Council's role in the process.

INFORMATION:

The Active Transportation Master Plan will make specific recommendations for policies, strategies, actions, projects, and programs to improve the pedestrian and bicycle environment in Flagstaff, while the FUTS Master Plan will guide future development of the Flagstaff Urban Trails System.

Both master plans implement the goals and policies found in the *Flagstaff Regional Plan 2030: Place Matters* regarding walking, biking, and trails. The master plans will also advance the Council's goal for Transportation and Other Public Infrastructure:

Deliver quality community assets and continue to advocate and implement a highly performing multi-modal transportation system.

Master plans are intended to provide specifics in the space between the goals and policies of the Regional Plan, which are high-level and aspirational, and detailed implementation documents like the Zoning Code, Subdivision Code, Engineering Standards, and Capital Improvement Program.

Community Development Division staff have outlined a process and schedule for completion of the master plans in five phases, beginning now and ending with consideration by the City Council in July of this year. Over the next several months, the planning process anticipates presentations to a variety of boards and commissions, targeted stakeholder engagement, and a check-in with the public via planned open houses and a community survey. The process and schedule are described in detail in the attached Process and Public Engagement Plan.

Over the last few years, substantial work has been done in support of the master plans, including background research, inventories of existing walking and biking facilities, and extensive public engagement. This allows for a somewhat compressed schedule for review and approval.

More information on the master plans can be found at the plan website, https://www.flagstaff.az.gov/atmp

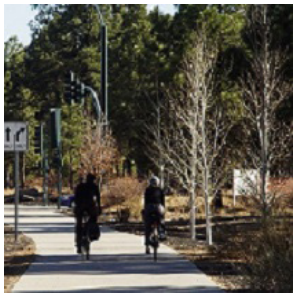
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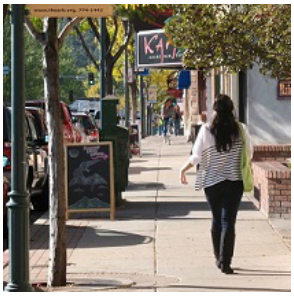
Attachments: Process and public engagement plan
Council presentation

City of Flagstaff

Active Transportation/FUTS Master Plans











Process and public engagement plan

January 2019

Prepared by
City of Flagstaff
211 West Aspen Avenue
Flagstaff, Arizona 86001

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www.flagstaff.az.gov/atmp

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1 | Introduction

This document describes the process for preparation and adoption of an Active Transportation Master Plan and FUTS Master Plan for the City of Flagstaff, and outlines how the community and stakeholders will be engaged as part of the process.

The Active Transportation Master Plan will make specific recommendations for strategies, actions, projects, and programs to improve the pedestrian and bicycle environment in Flagstaff, while the FUTS Master Plan will guide future development of the Flagstaff Urban Trails System. Both master plans implement the goals and policies of the *Flagstaff Regional Plan 2030: Place Matters* regarding walking, biking, and trails.



Walking, biking, and trails are important to Flagstaff. The Flagstaff community is very supportive of walk and bike-friendliness, and walking and biking mode share is significantly higher here than state and national averages. Additionally, Flagstaff residents are very engaged, knowledgeable, and well informed with regard to pedestrian and bicycle issues and the FUTS system.

A robust public participation process will…

- Capture the community's thoughts, concerns, wants and needs for walking,

biking, and trails.

- Create a shared vision for what needs to be done to improve walking, biking, and trails in Flagstaff.
- Lead to broad community endorsement for the master plans and their recommendations.
- Reach segments of Flagstaff's population who walk and bike, and for economic reasons rely on walking and biking, but do not typically participate in traditional planning processes.

The process for these two master plans will differ from traditional planning processes in that a significant amount of public engagement and background research has already been conducted in support of the master plans.

Work already done is described in Phase 0: Previous work and engagement in section 3|Process phases, and public engagement efforts to date are summarized in Appendix A|Completed public engagement.

As a result, the process described in this document begins more toward the middle of a typical planning process, and allows the timeframe for adoption to be significantly shortened.

City of Flagstaff Public Participation Policy

In 2012, the Flagstaff City Council adopted Resolution 2012-39, which establishes a public participation policy for the City to promote transparency, two-way communication, and clear direction in planning processes. The policy incorporates five levels of engagement:

- **Inform** to provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions
- **Consult** to obtain public feedback on analysis, alternatives and/or decisions
- **Involve** to work directly with the public throughout the process to ensure that public issues and concerns are consistently understood and considered.
- **Collaborate** to partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution
- **Empower** to place final decision-making in the hands of the public.

Engagement levels for each phase in the process are indicated below:

Phase 0	Previous work and engagement	Collaborate
Phase 1	Process introduction	Inform and consult
Phase 2	Stakeholder engagement	Inform and collaborate
Phase 3	Public review	Involve
Phase 4	Detailed review	Collaborate
Phase 5	Final approval	Empower

Organization of this plan

2|Key messages This section outlines answers to important questions about the master plans; to help staff, stakeholders, policy makers, and the community understand the context for the planning process.

3|Process phases Describes a specific series of steps in six phases for preparation of the master plans, community engagement, and final approval.

4|Schedule Attaches tentative dates to steps in the process, commencing in January 2019 and concluding in July 2019.

5|Communication tools As the process moved forward, a variety of methods and mediums will be used to engage the community and convey information.

Appendix A|Completed public engagement Significant community outreach has already been done in support of the master plans. This section summarizes those efforts.

Appendix B|Stakeholders Lists individuals and community groups who have a stake in walking, biking, and trails and in the planning process, and who will be central to engagement.

Appendix C|Process requirements Outlines the procedural requirements for adoption of a specific plan, as described in Flagstaff City Code, the Zoning Ordinance, and the Flagstaff Regional Plan 2030.

2 | Key messages

What is the purpose of these master plans

- The Active Transportation Master Plan and FUTS Master Plan will serve as detailed policy and guidelines to make Flagstaff more walk and bike-friendly and enhance our urban trail system.
- The plans will identify goals, strategies, actions, programs, and projects for walking, biking, and trails.
- Having these master plans in place will help ensure that walking, biking, and trails are accommodated in new private development and public capital projects as Flagstaff continues to grow.
- As policy documents, the plans help guide regulatory changes needed to implement the policies regarding walking, biking and trails.
- Infrastructure projects identified in the master plans will become part of the City's capital planning process and facilitate a progression from plan to design to project to construction.
- Detailed plans help position the City to take advantage of grants, transportation tax dollars, and other sources of funding as opportunities become available.
- The plans will be guide pedestrian and bicycle accommodation in a future City streets master plan.
- The two master plans will implement the goals and policies of the *Flagstaff Regional Plan 2030: Place Matters* for walking, biking, and trails. The Regional Plan is a high-level policy guide that covers a variety of tropics regarding the future physical development of Flagstaff; master plans are intended to fill-in the details for specific topics.

What will be included in the master plans

- A comprehensive list of goals, strategies, actions needed to improve walking, biking, and trails in Flagstaff.
- Inventories of existing pedestrian and bicycle facilities – including sidewalks, bike lanes, FUTS trails, crossings, bridges and tunnels – and a plan for where future facilities are needed.

- A description of existing conditions relative to walking, biking, and trails; and analyses of what we do well and what we can do better.
- Discussion of potential non-infrastructure programmatic elements to support walking, biking, and trails in the areas of education, enforcement, encouragement, and evaluation.
- An evaluation of priorities; which projects and programs are most needed and will provide the most benefit.
- Guidance regarding best practices for trails, pedestrian and bicycle facilities; as well as basic design guidelines.
- Considerations to ensure successful implementation of the plans.
- Performance targets and measures, and a process for evaluation to assess how we are doing following adoption of the plan.



Is there funding to implement the master plans?

- The transportation tax renewal will bring in an anticipated $29 million over the next 20 years specifically for pedestrian, bicycle, and trail infrastructure projects. This will fund a portion of missing sidewalks and bike lanes, in addition to the highest priority planned FUTS, crossings, and bridges/tunnels.

- Anticipated transportation tax funding for roadway widening projects – including Lone Tree Road, Butler Avenue, West Route 66, and J.W. Powell Boulevard – will also complete sidewalks, bike lanes, FUTS trails, crossings, and bridges/tunnels along these streets where they are missing or planned.

- Pedestrian, bicycle, and FUTS infrastructure identified in the plans will be constructed when they are part of private development projects and City public works projects.

- Other pedestrian, bicycle and FUTS infrastructure projects and programs in the plans do not have identified funding. However, identifying them in a planning document makes it more likely to find funding, grants, or other means for implementation.

3 | Process phases

This section generally describes the process to be followed for preparation and adoption of the master plans, and illustrates how public engagement will be incorporated into the overall process. A detailed schedule is included in the next section 4|Schedule.



Phase 0 **Previous work and engagement**

A significant amount of foundational work has already been done in support of the Active Transportation Master Plan and FUTS Master Plan, as described below for public engagement, background research, and inventory and analysis of existing facilities.

0.1 **Background research** collected to date helps provide a better understanding of existing conditions and the context for the master plans:

- Working Paper 1: Existing plans, policies, regulations, and guidelines
- Working Paper 2: Resources and literature review
- Working Paper 3: Mode share trends and peer cities analysis
- Working Paper 4: Pedestrian and bicycle crash data

0.2 **Facilities inventories** have been compiled and analyzed in detail for existing pedestrian, bicycle, and trails infrastructure:

- FUTS priority evaluation
- Working Paper 7: Missing sidewalk inventory and prioritization
- Working Paper 8: Missing bike lane inventory and prioritization
- Working Paper 9.1 At-grade pedestrian and bicycle crossings
- Working Paper 9.2 Grade-separated pedestrian and bicycle crossing

0.3 **Previous public engagement** efforts have been conducted since 2014 in a variety of activities in support of the master plans. These efforts are described in more detail in Appendix A|Completed public engagement.

Phase 1 **Process introduction**

1.1 **Draft outlines** for the two master plans will to be completed for the beginning of the process, based on information already collected and feedback already received. The City's Pedestrian Advisory Committee (PAC) and Bicycle Advisory Committee (BAC) will review the draft outlines at their meetings in early February.

1.2 **Introductory presentations** to the City Council, Planning and Zoning Commission, and Transportation Commission to make them aware of the master plans and the planning process.

1.3 **Commission presentations** to eight relevant City and regional boards and commissions, which are listed in the Appendix B|Stakeholders section.

Phase 2 **Stakeholder engagement**

2.1 **Stakeholder interviews** with a focused selection of 12 to 15 individuals representing internal and agency staff and representatives of community groups. Interviews will include these questions:

- What are the most critical actions we can take for walking, biking, and trails from among the draft goals, strategies, and actions in the plans?
- What should be the highest priorities for planned pedestrian, bicycle, and trail infrastructure?
- Have we missed anything in the plan?
- How does walking, biking, and trails support the mission and work of your program or agency?

2.2 **Stakeholder survey** will ask the same questions as the stakeholder interviews, but will be administered via an online survey for a broader group of internal and agency staff and representatives of community groups.

2.3 **Community group presentations** will be offered and made available to community groups.

2.4 **Draft plans** will be completed toward the end of the stakeholder engagement phase. The draft documents will be reviewed first at the March PAC and PAC meetings, then submitted to internal and agency technical review staff for their review and comment.



Phase 3 **Public review**

3.1 **Community survey** hosted on the Flagstaff Community Forum to facilitate public review of the draft plans and to solicit comments on their content and recommendations.

3.2 **Public open houses** will be planned on two occasions. The open houses will follow a drop-in format, with a series of boards and displays illustrating the content of the plans and providing opportunities to submit com-

ments. The two open houses will be held in locations, generally corresponding to the east and west sides of town.

3.3 **Other public opportunities** for engagement may be available during the planning process, such as the All Hands on Deck climate meeting, Earth Day, and Bike to Work Week.

3.4 **60-day public comment period** copies of the draft plans will be made available to the public for the required comment period at the beginning of March.

3.5 **Revised plans** will be prepared at the conclusion of the public review phase. The draft documents will be revised to incorporate comments received from both the public and internal/agency technical review staff. Revised plans will be reviewed first by PAC and BAC at their May regular meetings.

Phase 4 **Detailed review**

4.1 **Detailed presentations** to the Transportation Commission, Planning and Zoning Commission, and City Council will allow for in-depth review and discussions. The intent of this step is to make sure the content of the plans are fully understood and to allow policy makers adequate time for detailed review and discussion.

4.2 **Final plans** will be updated at the conclusion of the detailed review phase to reflect any final comments received.

Phase 5 **Final approval**

5.1 **Combined PAC/BAC/Transportation Commission meeting** a combined meeting is planned for the Transportation Commission and its two subcommittees. BAC and PAC make a recommendation regarding the plan to the Transportation Commission, which in turn makes a recommendation to the City Council. This combined meeting will serve as the required neighborhood meeting.

5.2 **Planning and Zoning Commission** makes a recommendation to the City Council. Two public hearings are required - at two different locations - before the Planning and Zoning Commission.

5.3 **City Council** approves the master plans via resolution following a public hearing.

4 | Schedule

The table and graphic below describe a detailed schedule for preparation and adoption of the master plans. The process is anticipated to be fairly short, because significant background work and community engagement has already been done. This process commences in January 2019 with preparation of the first master plan drafts, and is anticipated to conclude in July 2019 with City Council adoption.

It should be noted that specific dates on this schedule are tentative and could be changed for a variety of reasons.

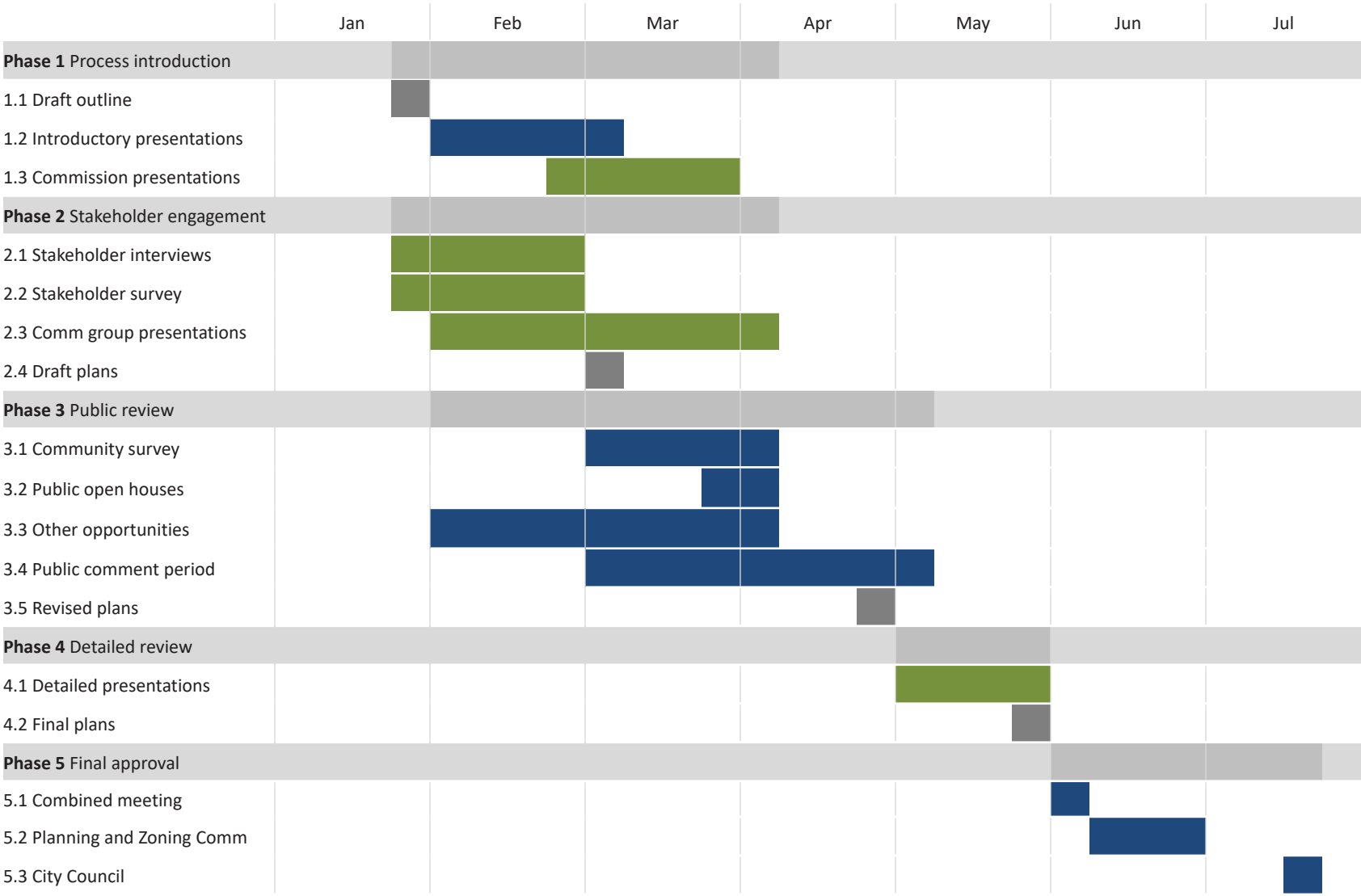
Detailed schedule

Phase 1 **Process introduction**	
1.1 Draft outlines	
▪ Complete draft outlines	Jan 25
▪ BAC review	Feb 7
▪ PAC review	Feb 14
1.2 Introductory presentations	
▪ Transportation Commission	Feb 6
▪ Planning and Zoning Commission	Feb 13
▪ City Council	Mar 5
1.3 Commission presentations	
▪ FMPO/NAIPTA Coordinated Mobility Council	Feb 16
▪ NAIPTA Transit Advisory Committee	Mar 7
▪ FMPO Technical Advisory Committee	Mar 7
▪ NAIPTA Board of Directors	Mar 20
▪ Parks and Recreation Commission	Mar 20
▪ Open Spaces Commission	Mar 25
▪ Inclusion and Adaptive Living Commission	Mar 26
▪ Tourism Commission	Mar 26
▪ Sustainability Commission	Mar 28

Phase 2 **Stakeholder engagement**	
2.1 Stakeholder interviews	Jan 28 - Feb 28

2.2 Stakeholder survey	Jan 28 - Feb 28
2.3 Community group presentations	Feb 1 - Apr 5
2.4 Draft plans	
▪ Prepare draft plans	Jan 25 - Mar 1
▪ Complete draft plans	Mar 1
▪ BAC review	Mar 7
▪ PAC review	Mar 14
▪ Internal/agency review	Mar 4 - Mar 29
Phase 3 **Public review**	
3.1 Community survey	Mar 4 - Apr 5
3.2 Public open houses	Mar 25 - Apr 5
3.3 Other public opportunities	Feb 1 - Apr 5
3.4 60-day public comment period	Mar 4 - May 3
3.5 Revised plans	
▪ Prepare revised plans	Apr 5 - Apr 26
▪ Complete revised plans	Apr 26
▪ BAC review	May 2
▪ PAC review	May 9
▪ Internal/agency review	Apr 29 - May 17
Phase 4 **Detailed review**	
4.1 Detailed presentations	
▪ Transportation Commission	TBD
▪ Planning and Zoning Commission	May 22
▪ City Council	May 28
4.2 Final plans	May 31
Phase 5 **Approval process**	
5.1 Combined BAC/PAC/Trans Comm meeting	Jun 6
5.2 Planning and Zoning Commission	
▪ P&Z public hearing 1	Jun 12
▪ P&Z public hearing 2	Jun 26
5.3 City Council	Jul 16

Schedule graphic



5 | Communication tools

Communication tools

- **Website**

  An Active Transportation Master Plan web page on the City of Flagstaff website is the primary repository for information regarding the master plans and the planning process.

  www.flagstaff.az.gov/ATMP

  The site includes a description of the plans and process, a collection of relevant information and documents, topical and timely information, and opportunities for getting involved. The page also links from other related City of Flagstaff web pages, including:

  Flagstaff Urban Trails System
  Pedestrian Program
  Bicycle Program

  Staff will also seek opportunities to link to other related websites.

- **Facebook**

  The City has maintained a Facebook page for the Flagstaff Urban Trails system since 2009. At present the page has just over 2,900 likes.

  www.facebook.com/Flagstaff-Urban-Trails-System-207094295408/

  This page is used to communicate information not just for the FUTS system, but also for walking, biking, and general multimodal transportation. Select posts are financially "boosted" to increase the audience that will view the post.

  In addition to the FUTS Facebook page, staff regularly works with administrators of other Facebook pages, both inside and outside of the City, to cross-post on items of mutual interest.



- **Notify Me**

  This feature on the City's website allows citizens to subscribe to a variety of email lists to receive information from the City.

  www.flagstaff.az.gov/list.aspx

  Subscribers to the "Pedestrian-Bicycle-FUTS" list are sent information of interest related to the Flagstaff Urban Trails System (FUTS), walking, and bicycling. Subscribers are also sent monthly meeting agendas for the City's Pedestrian Advisory Committee and Bicycle Advisory Committee. This list currently has about 940 subscribers.

- **Flagstaff Community Forum**

  The Flagstaff Community Forum is an online platform for civic engagement that is hosted on the City of Flagstaff website.

  www.flagstaff.az.gov/FCF

  Most of the surveys already conducted in support of this planning process were hosted on the Forum, and any future surveys will use the Forum as well.

- **Story maps**

  Esri story maps combine maps, narrative text, images, charts and graphics, and other media in a single interactive webpage, and provide an effective and compelling way to communicate information.

  storymaps.arcgis.com/en/

  Several story maps have already been created for these master plans to illustrate existing and planned facilities. It is anticipated that additional story maps will be used to convey information from the plans.

- **Media releases**

  Staff will work with the City's communications manager to issue media releases at appropriate milestones in the planning process to convey information about the plan and process to the public.

- **Radio/television spots**

  There may be opportunities for staff and members of the PAC and BAC to appear on local radio and television outlets to discuss the master plans.

Appendix A | Completed public engagement

A significant amount of public outreach has already been done, beginning in 2014, in support of the Active Transportation and FUTS Master Plans. Staff has conducted eight community surveys, hosted two public open houses, talked to hundreds of citizens about walking and biking at dozens of community events, and held monthly discussions at PAC and BAC about pedestrian and bicycle issues. This appendix summarizes those engagement efforts.

Community surveys

- **Walking and biking survey** Summer 2014 | 458 responses

  Open-ended survey intended to gather information about where walking and biking is good and where there are issues, what are the factors that making walking and biking good or problematic, and what could be done to improve walking and biking in Flagstaff.

  For this survey, the City worked with North Country and Hermosa Vida to target populations that are not typically reached in surveys and public engagement, including low income and minority communities.

- **Pedestrian and bicycle project survey** Summer 2016 | 294 responses

  Respondents were asked to rate the importance and priority of a variety of pedestrian and bicycle projects in five categories: missing sidewalks, missing bike lanes, planned FUTS trails, enhanced at-grade crossings, and potential overpasses/underpasses.

- **Milton Road survey** Fall 2016 | 189 responses

  This survey was conducted to gain a better understanding of the walking and bicycling issues along Milton Road. Respondents were invited to share their thoughts about walking and biking along or across Milton Road, and were asked to rate a variety of potential facilities to accommodate pedestrians and bicyclists on Milton Road.

- **Regional Transportation Plan surveys**

  Transportation values survey: Winter 2016, 460 responses
  Future transportation spending survey: Spring 2016, 372 responses
  Transportation project priorities survey: Fall 2016, 84 responses
  Have your say survey: Spring 2017, 125 responses

A series of four public surveys were conducted in support of the Regional Transportation Plan. Although the focus of the RTP surveys is transportation more broadly defined, there are significant results in the surveys for walking and biking.

- **FUTS trail users survey** Summer 2017 | 375 responses

  Survey of users of the Flagstaff Urban Trails System, conducted to determine patterns of trail use and solicit users' perceptions of the FUTS system. The survey updated a previous FUTS survey from 2011.

- **Draft goals and strategies survey** Fall 2017 | 167 responses

  Intended to gather public feedback regarding a number of proposed goals and strategies to improve walking and biking in Flagstaff. The goals and strategies were developed for the Active Transportation Master Plan.

- **PedBikeWays survey** Winter 2018 | 277 responses

  This survey introduced the concept of PedBikeWays to the public and helped gauge the level of interest and support for the concept. Respondents were also asked which segments or features they think are most important, and if any additional facilities should be added to the plans.

- **Bicycle Friendly Community survey** Fall 2018 | 284 responses

  The League of American Bicyclists conducted a survey in conjunction with the City's application for renewal of Bicycle Friendly Community status to gain a better understanding of local bicyclists' experiences in Flagstaff.

Walking-Biking-Trail Summits

Two summits were hosted in late 2017: on November 1 at the Joe Montoya Center on the west side, and November 15 at Pine Forest Charter School on the east side. Approximately 100 residents attended the two summits.

The summits were structured in a drop-in open house format. Attendees were able to participate in a variety of activities:

- **Facilities voting maps** Participants placed dots on a series of six large-scale maps that depicted existing and missing/planned sidewalks, bike lanes, FUTS trails, crossings, PedBikeWays, and the bikeway network. Dots were color coded by priority.

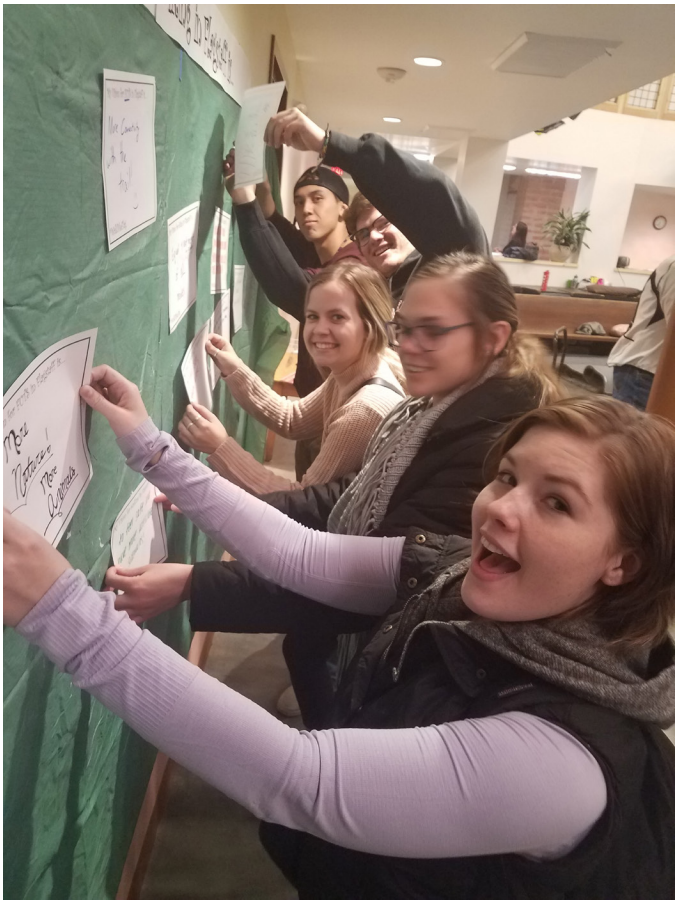
- **Goals and strategies survey** A paper version of the online survey described

above was made available for participants to complete. Submitted surveys are folded into the results of the online survey, summarized above.

- **Strategies voting chart** Draft goals and strategies were printed on a series of large posters; dots were placed adjacent to strategies that participants consider most important or highest priority.

- **Vision board** Participants were invited to express their vision for walking or biking on a sheet of paper, which was then attached to a wall with other vision statements.

- **Comment cards** Provided a medium for participants to express any additional thoughts and comments about the master plan and the summits.



Tabling events

Over the past several years, staff and PAC/BAC members have engaged with the public at a variety of community events, including

- Earth Day
- Bike Bazaar/Bike to Work Week
- Arizona Trail Day
- Flagstaff Community Market

For these events staff has a series of maps on hand illustrating existing and future FUTS trails, sidewalks, bike lanes and crossings. FUTS trail maps and other pedestrian and bicycle literature are also distributed.

Discussions with the public at these events typically focused on future plans for multimodal facilities, existing concerns with walking, biking, and trails, the Active Transportation Master Plan, and the upcoming transportation tax renewal.

Transportation tax open houses

Five open houses were held in conjunction with the informational campaign for the three transportation-related sales tax propositions on the ballot in November of 2018:

- September 18, 2018: Flagstaff City Hall Lobby
- September 26, 2018: Flagstaff Aquaplex
- October 5, 2018: Heritage Square, First Friday Art Walk
- October 8, 2018: FUSD Board Room
- October 17, 2018: Murdoch Center

Maps of existing and planned sidewalks, bike lanes, FUTS trails, and crossings were available during these open houses. In additional to answering questions about the tax propositions, staff discussed information on the maps with attendees and had more general conversations about walking and biking in Flagstaff.



PAC/BAC meetings

For the past several years, discussion of the Active Transportation Master Plan and FUTS Master Plan has been essentially a standing item on the agendas of the City's Pedestrian Advisory Committee and Bicycle Advisory Committee.

As the process moves forward, PAC and BAC meetings will continue to serve as primary review and discussion forums for the various aspects of the plan. Both meetings are open to the public and can be live-streamed from the City's website.

Appendix B | Stakeholders

Pedestrian Advisory Committee/Bicycle Advisory Committee

For the past several years, PAC and BAC have discussed a wide variety of topics relative to the master plans nearly every month at their regular meetings. As this process moves forward, PAC and BAC will continue to serve as primary review and discussion bodies for the various aspects of the plan.

Boards and commissions

- Parks and Recreation Commission
- Open Spaces Commission
- Sustainability Commission
- Inclusion and Adaptive Living Commission
- Tourism Commission
- NAIPTA Transit Advisory Committee
- FMPO Technical Advisory Committee
- FMPO/NAIPTA Coordinated Mobility Council

Internal/agency technical review staff

City of Flagstaff

- Tiffany Antol, Interim Planning Director
- Nicole Antonopoulos, Sustainability Manager
- Rick Barrett, City Engineer
- Jeff Bauman, Traffic Engineer
- Sara Dechter, Comprehensive Planning Manager
- Dan Folke, Interim Community Development Director
- Amy Hagin, Parks Manager
- Carlton Johnson, Associate Planner
- Scott Overton, Streets Section Director
- Gary Miller, Development Engineer
- Jenny Nieman, Sustainability Specialist
- Bret Petersen, Capital Improvements Engineer

FMPO

- David Wessel, Manager

Coconino County

- Tim Dalegowski, Transportation Planner
- Jess McNeely, Community Development Assistant Director
- Brian Grube, Parks and Recreation Assistant Director

ADOT

- Donna Lewandowski, Bicycle/ Pedestrian Program Coordinator
- Nathan Reisner, Northcentral District Development Engineer

Northern Arizona University

- Greg Mace, Facility Services Associate Director
- Erin Stam, Parking Services Director

NAIPTA

- Kate Morley, Development Director
- Estella Hollander, Associate Transit Planner

Extended internal/agency staff

City of Flagstaff

- Reid Miller
- Stephanie Sarty
- Eli Reisner
- Shane Dille, Deputy City Manager
- Andy Bertlesen, Public Works Director
- Adam Miele
- Rebecca Sayers
- Alan Sanderson, Traffic Engineering Project Manager

Coconino County

- Jay Christelman, Community Development Director
- Norma Gallegos, Community Services Interim Director
- Cynthia Nemeth, Parks and Recreation Director
- Melissa Shaw, Long Range Planner
- Melinda Tracey, Senior Services Program Director
- Christopher Tressler, County Engineer

Coconino County Public Health Services District

- Kim Austin, Coconino County Safekids
- Denise Burley, Division Manager
- Heather Williams, Injury Prevention Program Manager
- Mare Schumacher, Epidemiologist
- Amy Young, Healthy Policy Analyst

ADOT

- Dan Gabiou, Planning Studies Program Manager
- Audra Merrick, Flagstaff District Engineer
- John Wennes, Transportation Planning Program Manager

NAU

- Daniel Okoli, Vice President for Capital Planning and Campus Operations
- Janel Wilcox, Landscape Architect
- Cori Cusker, First Year Experience Instructor

NAIPTA

- Anne Dunno, Capital Project Manager
- Erika Mazza, Chief Executive Officer

NACOG

- Jason James, Transportation Planner
- Tod Morris, Mobility Management Planner
- Jen O'Connor, Transit Planner

Community groups

Walking/biking/running groups

- Flagstaff Biking Organization
- Northern Arizona Trail Runners Association
- Flagstaff Ultrarunning Club
- Flagstaff Trail Divas
- Girls on the Run
- Jack's Walks
- Team Run Flagstaff
- Latino Outdoors Flagstaff

Community groups

- Friends of Flagstaff's Future
- Stand Up for Flagstaff
- Coconino Hispanic Advisory Council

Tourism

- Convention and Visitors Bureau
- Flagstaff Visitors Center
- Flagstaff Lodging, Restaurant, and Tourism Association

Business/economic development groups

- Downtown Business Alliance
- Economic Collaborative of Northern Arizona
- Flagstaff Independent Business Alliance
- Greater Flagstaff Area Chamber of Commerce
- Northern Arizona Association of Realtors
- Northern Arizona Building Association
- Sustainable Economic Development Initiative

Environmental groups

- Sierra Club
- Citizens Climate Lobby
- Willow Bend Center
- Grand Canyon Trust

Public Health

- Coconino County Public Health Services District
- Flagstaff Medical Center – Fit Kids
- NAPEBT Wellness Program
- Native Americans for Community Action
- NAU Employee Assistance and Wellness Office
- North Country Health Care
- Northern Arizona Healthcare Foundation

NAU groups

- NAU Office of Sustainability
- GPR faculty
- Sustainable Communities faculty
- NAU Cycling Club
- NAU Hiking Club

- Run NAU
- Student Health and Physical Education Club
- College Health Education Club
- Fossil Free NAU
- NAU Our Climate
- Student Health Advocacy Committee
- Res-Life Coordinator, Sustainability
- Associate Vice President
- Bike Hub
- Green Jacks

Neighborhood associations

- La Plaza Vieja Neighborhood Association
- Southside Community Association
- Sunnyside Neighborhood Association
- Townsite Neighborhood Association

Bike/running shops

- Absolute Bikes
- Arizona Pedal Tours
- Cosmic Cycles
- Flag Bike Revolution
- Flagstaff Bicycle & Fitness
- Flagstaff Bikes
- REI
- Run Flagstaff
- Single Track Bikes

Appendix C | Process requirements

Flagstaff Regional Plan 2030

The Flagstaff Regional Plan 2030 indicates the purpose of a specific plan as providing a greater level of detail for a geographic area or element of the Regional Plan. The Regional Plan further describes specific plans as follows:

- Specific plans provide for the systematic implementation of the Regional Plan
- The development of specific plans is essential for implementation of the Flagstaff Regional Plan and its vision.
- Specific plans adopted by resolution are official City policy providing direction on how to implement the Regional Plan.
- Specific plans are processed as a minor amendment but follow the enhanced procedural requirements for public participation and notification required of major plan amendments.

Flagstaff City Code

Procedural requirements for adopting a specific plan are found in several locations in Title 10 (Zoning Code) and Title 11 of the Flagstaff City Code:

- 10-20.30.060 Neighborhood Meeting
- 10-20.30.070 Additional Requirements for Citizen Outreach
- 10-20.30.080 Notice of Public Hearings
- 11-10.10.020 Common Procedures
- 11-10.20.010 Comprehensive Plan Updates
- 11-10.20.020 Major Plan Amendments and New Elements
- 11-10.30.020 Elements of a Specific Plan
- 11-10.30.030 Specific Plan Adoption/Amendment

Relevant process and notice requirements for adoption of a specific plan are listed below:

Additional notice

- Notice must be provided to other jurisdictions and agencies to ensure coordination.
- At least 60 days before the first public hearing at the Planning and Zoning

Commission, the proposal must be transmitted to the Planning and Zoning Commission and City Council, submitted to a variety of outside agencies for review and comment, and made available to the public.

Neighborhood meeting

- A neighborhood meeting must be conducted for the Specific Plan.
- A plan for the neighborhood meeting must be approved by the Planning Director.
- The meeting must be noticed in compliance with 11-10.10.020.D.3.b and 10-20.30.060.D.
- Notice of the meetings must be provided to the registry of interested persons or groups.
- A record of proceedings must be kept.

Planning and Zoning Commission

- Two public hearings must be conducted at the Planning and Zoning Commission.
- Notice of the hearings must be published in the newspaper at least 15 but not more than 30 days prior.
- The two hearings must be held within 30 days of each other on consecutive Planning and Zoning Commission regular meeting dates.
- Notice of the meetings must be provided to the registry of interested persons or groups.
- General notice requirements for public hearings are described in 10-20.30.080, 11-10.10.020.J, 11-10.20.020.B.3, and 11-10.20.020.B.4.

City Council

- One public hearing must be held before the City Council.
- Specific plans are adopted by the City Council by resolution.









Active Transportation/ FUTS Master Plans

City Council

5 March 2019

TEAM FLAGSTAFF

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Active Transportation/ FUTS Master Plans

Martin Ince

Multimodal transportation planner

City of Flagstaff/FMPO

Tonight

Introduction to the Active Transportation/FUTS Master Plans

- Description of the master plans and their content
- Outline for the planning process

Introductory presentations to

- Transportation Commission
- Planning and Zoning Commission
- City Council

Presentations to other boards and commissions

Master plans

Active Transportation

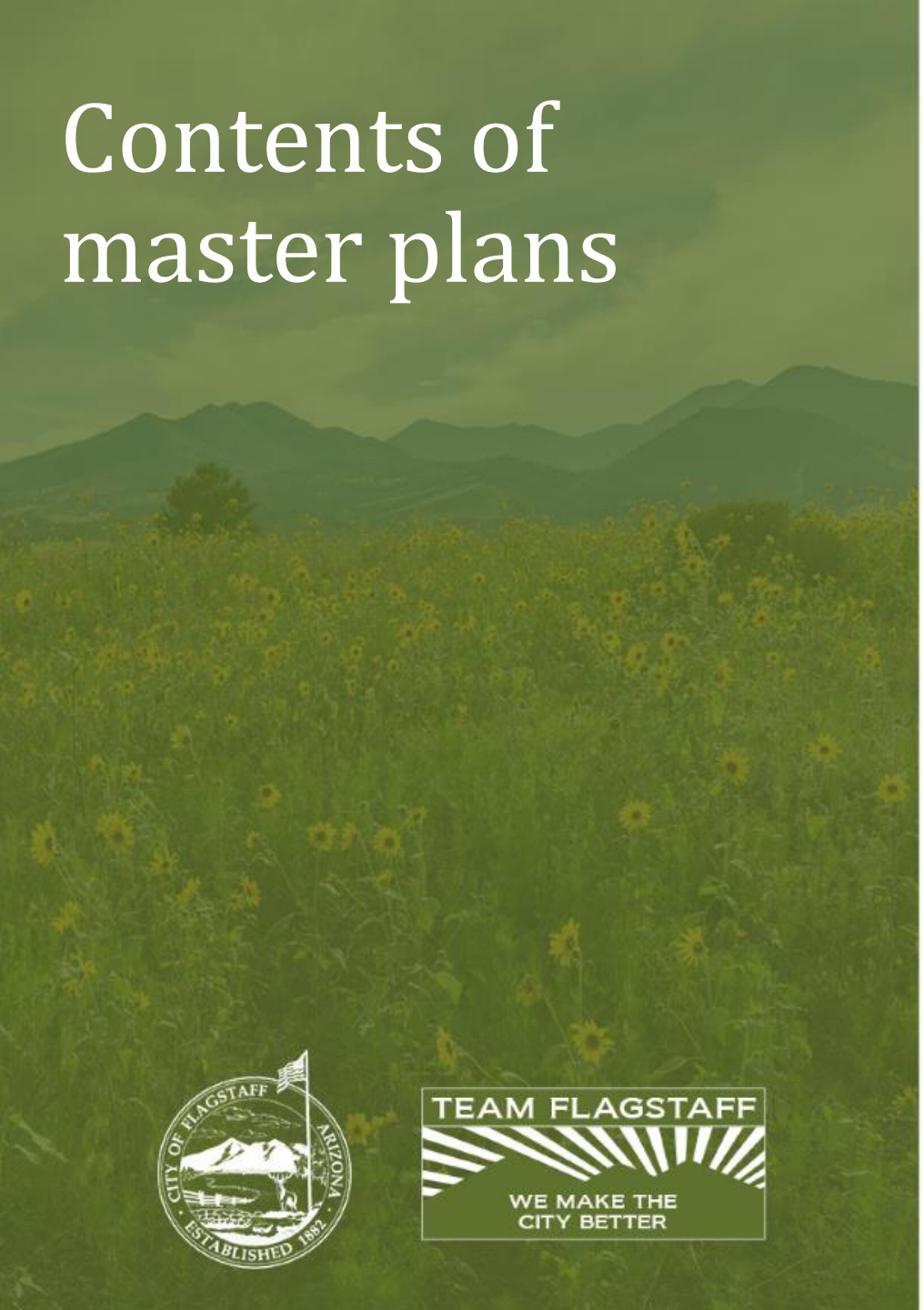
- Strategies, actions, projects, and programs to improve the pedestrian and bicycle environment in Flagstaff

FUTS

- Guide future development of the Flagstaff Urban Trails System



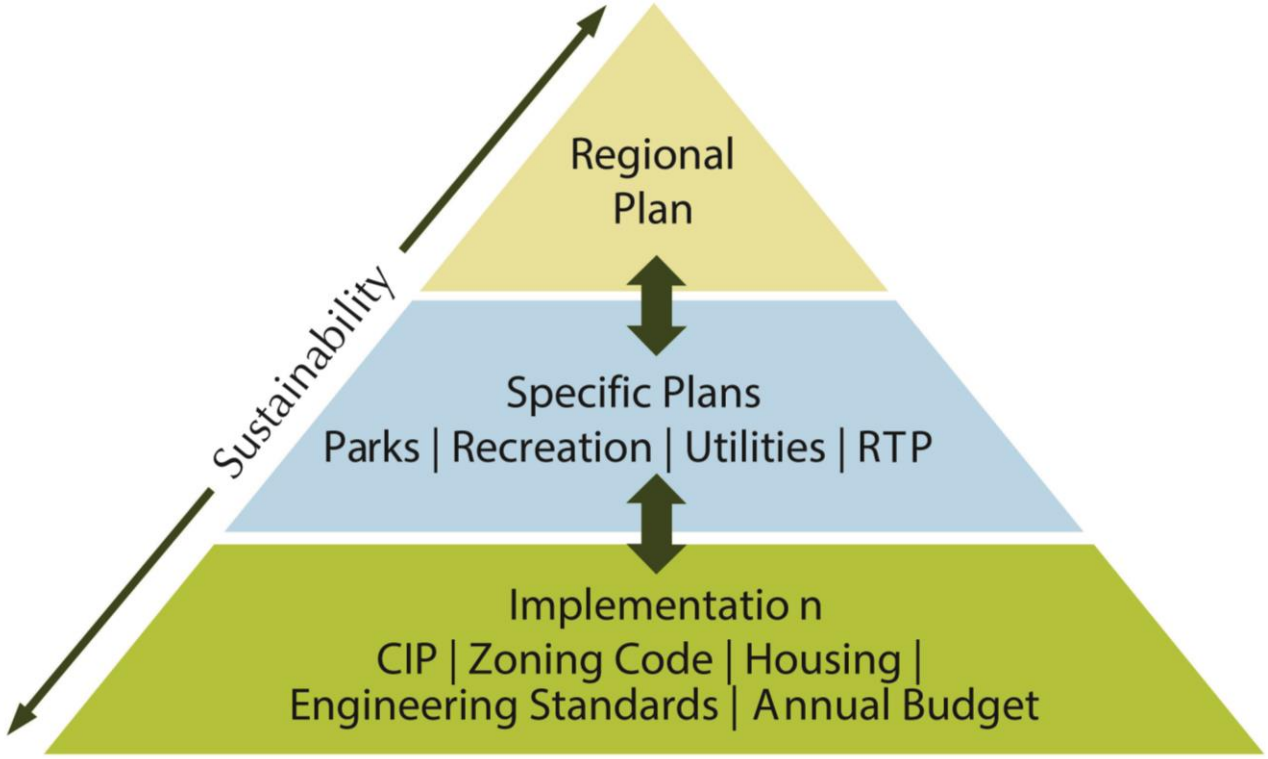
Contents of master plans



- Goals, strategies, and actions
- Existing conditions
- Planned infrastructure
- Program elements
- Design guidance and best practices
- Implementation
- Evaluation

Policy framework

- **Both master plans implement the goals and policies of the *Flagstaff Regional Plan 2030: Place Matters* regarding walking, biking, and trails**



Guiding principles

- **Being walk and bike-friendly are widely supported, but we need to better define what that means**
- **There is a substantial opportunity in Flagstaff to increase walking and biking**
- **Walking and biking need to be supported and encouraged in order to thrive**
- **More people will choose to walk and bicycle when it is comfortable, convenient, and appealing**
- **Better walking and biking options are essential to enhancing mobility**

Benefits of walking and biking

- Promote health and physical activity
- Contribute to quality of life
- Support our community character
- **Enhance mobility for all segments of the population**
- Build economic sustainability
- Protect the environment
- Promote equity
- **Manage congestion**

Organized around seven goals

1. Complete networks for walking and biking
2. Take care of what we have
3. Build a supportive community
4. Improve safety
5. Promote supporting land use, development, street standards
6. Use Travel Demand Management
7. Assess how we're doing

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1 Complete networks for walking/biking

- Sidewalks
- Bike lanes and bikeways
- FUTS trails
- Crossings
- PedBikeWays
- Bicycle parking
- NAU access
- Transit access and integration
- Regional trails
- Wayfinding



2 Take care of what we have



- Maintenance
- Snow removal
- Obstructions
- Closures and detours

3 Build a supportive community

- Information
- Events
- Promotion
- Tourism
- Equity



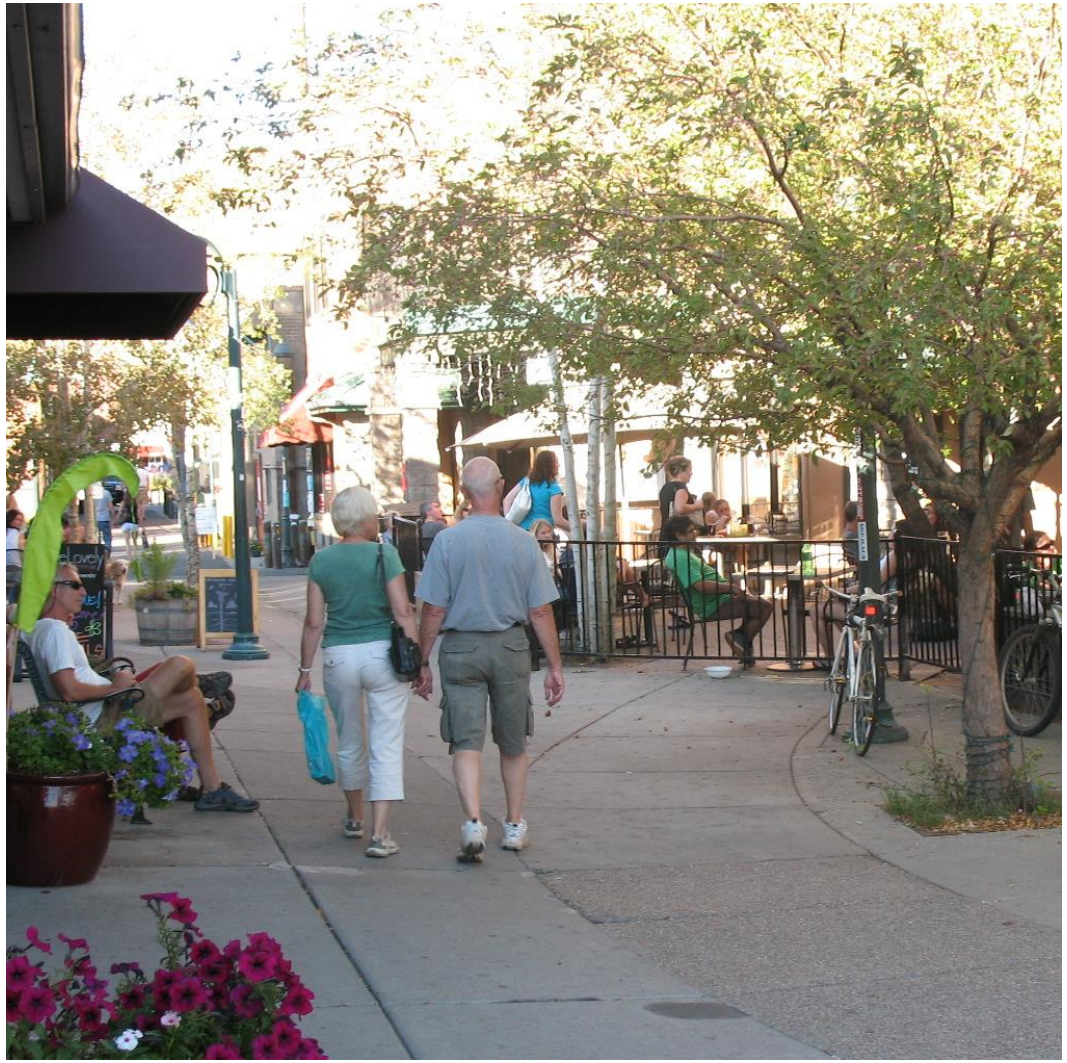
4 Improve safety



- Education
- Enforcement
- Safety campaigns
- Crash analysis

5 Promote supportive land use, streets

- Density, compact form, mixed use
- Placemaking
- Complete streets
- Context sensitive streets



6 Travel demand management



- TDM principles
- TDM program

7 Assess how we're doing

- Benchmarks and targets
- Ped/bike/trail counts
- Walkability and bikeability assessments
- Public feedback mechanisms



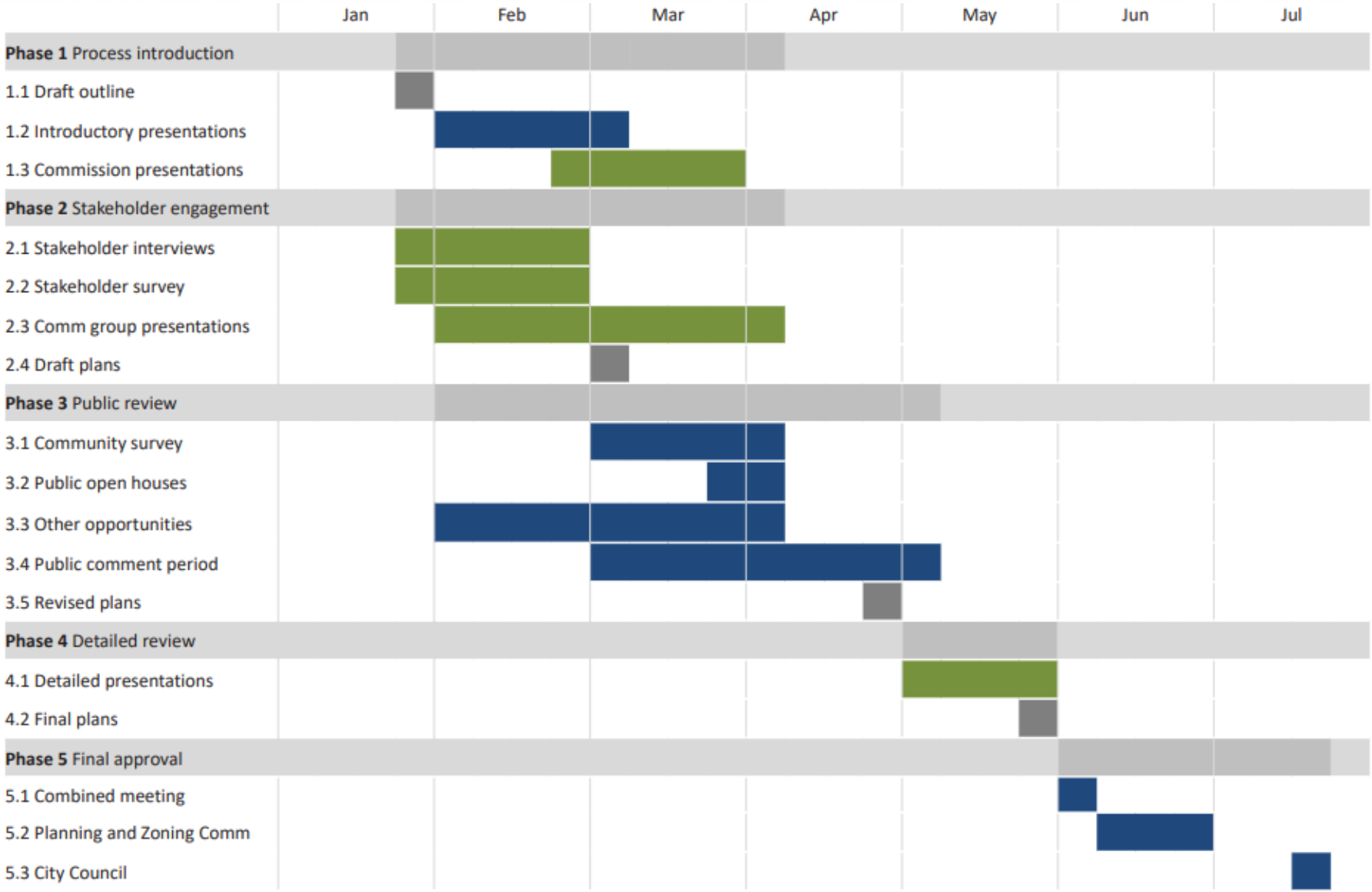
Community engagement to date

- Community surveys (7 total, more than 2000 combined responses)
- Walking-Biking-Trails Summits
- Community events
- PAC/BAC meetings

Process outline

- Phase 1: Process introduction
- Phase 2: Stakeholder engagement
- Phase 3: Public review
- Phase 4: Detailed review
- Phase 5: Final approval

Plan schedule



For more information…

www.flagstaff.az.gov/atmp

TEAM FLAGSTAFF
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14. A.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Stacy Saltzburg, City Clerk
Date:	02/27/2019
Meeting Date:	03/05/2019

TITLE

Future Agenda Item Request (F.A.I.R.): A request by Councilmember Whelan to place on a future agenda a discussion about continuing to communicate with the Arizona Board of Regents and invite them to a meeting or send a letter with our concerns about impact on our city.

STAFF RECOMMENDED ACTION:

Council direction.

EXECUTIVE SUMMARY:

Rule 4.01, Procedures for Preparation of Council Agendas, of the City of Flagstaff City Council Rules of Procedure outlines the process for bringing items forward to a future agenda. Councilmember Whelan has requested this item be placed on an agenda under Future Agenda Item Requests (F.A.I.R.) to determine if there is another member of Council interested in placing it on a future agenda.

INFORMATION:

Attachments:

14. B.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Stacy Saltzburg, City Clerk
Date:	02/27/2019
Meeting Date:	03/05/2019

TITLE

Future Agenda Item Request (F.A.I.R.): A request by former Councilmember Putzova to place on a future agenda a discussion on changing the City's organizational structure to create a Sustainability division and elevate the function of the section.

STAFF RECOMMENDED ACTION:

Council direction.

EXECUTIVE SUMMARY:

Rule 4.01, Procedures for Preparation of Council Agendas, of the City of Flagstaff City Council Rules of Procedure outlines the process for bringing items forward to a future agenda. Former Councilmember Putzova had requested this item be placed on an agenda under Future Agenda Item Requests (F.A.I.R.) to determine if there is another member of Council interested in placing it on a future agenda.

INFORMATION:

Attachments: