

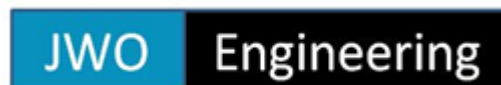


COMMUNICATIONS TOWER INSTALLATION

CONTRACT DOCUMENTS

**BIDDING REQUIREMENTS, CONTRACT FORMS,
CONDITIONS OF THE CONTRACT,
TECHNICAL SPECIFICATIONS AND DRAWINGS**

PREPARED BY



**Bids will be received at the office of South Valley Water Reclamation Facility
located at**

7495 South 1300 West, West Jordan, Utah 84084

until March 9th, 2020 at 2 PM

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SECTION 00030 - NOTICE INVITING BIDS

RECEIPT OF BIDS: Sealed Bids will be received at the office of the South Valley Water Reclamation Facility; OWNER of the WORK located at 7495 South 1300 West, West Jordan, Utah 84084, until 2:00 PM on March 9th, 2020 for construction of a Communications Tower at South Valley Water Reclamation Facility. Any Bids received after the specified time and date will not be considered.

OPENING OF BIDS: The Bids will be publicly opened and read at 2:00 PM, March 9th, 2020 at the above-mentioned office of the OWNER. Anticipated Notice to Proceed date is March 30th, 2020.

COMPLETION OF WORK: The WORK shall be completed as described below:

- a) Contractor shall procure new equipment, demolish and remove existing equipment to be replaced, and install the new equipment. Contractor shall provide all materials required for the Work described. The Work shall be completed by June 1st, 2020

DESCRIPTION OF WORK: The project consists of the following Items:

- a) The Work consists of the installation of a 70' communications tower that the OWNER has purchased. The work also consists of construction of a concrete base for the tower and assembly of the tower during installation. This also includes electrical grounding of the tower.

SITE OF WORK: The site of the WORK is located at the OWNER's water reclamation facility at 7495 South 1300 West, West Jordan, Utah.

OBTAINING CONTRACT DOCUMENTS: The Contract Documents are entitled "South Valley Water Reclamation Facility – Communications Tower Installation".

The Contract Documents will be available on the OWNER'S website (www.svwater.com > Engineering > Communications Tower Installation) beginning February 13th, 2020. There will be no charge for bid documents.

BID SECURITY: Each Bid shall be accompanied by a certified check or cashier's check or Bid Bond in the amount of 5 percent of the Total Bid Price payable to the OWNER as a guarantee that the Bidder, if its Bid is accepted, will promptly execute the Agreement. A bid shall not be considered unless one of the forms of Bidder's security is enclosed with it.

BIDS TO REMAIN OPEN: The Bidder shall guarantee the Total Bid Price for a period of 45 calendar days from the date of bid opening.

MANDATORY PRE-BID VISIT TO WORK SITE: For a bid to be considered complete, prospective bidders are **required** to attend a pre-bid walk through of the proposed work site which will be conducted by the OWNER at 10:00 AM on Monday, March 2nd, 2020. The object of the walk through is to acquaint bidders with the site conditions. The pre-bid visit will start at the office of the OWNER located at 7495 South 1300 West, West Jordan City, Utah. Follow-up visits by prospective bidders and subcontractors are available by appointment only. Contact Taigon Worthen, P.E. of the SVWRF for appointments.

PROJECT ADMINISTRATION: Technical communications relative to this WORK shall be directed to the ENGINEER prior to opening of the Bids. Communications relative to the purchase of Bid Documents shall be directed to the OWNER.

JWO ENGINEERING, PLLC
726 S 400 E
Orem, Utah 84097
Telephone: 801-607-1285
e-mail: jared@jwoengineering.com
Attention: Jared Oldroyd, P.E.

SOUTH VALLEY WATER RECLAMATION FACILITY
7495 South 1300 West
West Jordan, Utah 84084
Telephone: 801-495-5469
e-mail: tworthen@svwater.com
Attention: Taigon Worthen, P.E.

OWNER'S RIGHTS RESERVED: The OWNER reserves the right to reject any or all bids, to waive any informality in a bid, and to make awards to the lowest responsive, responsible bidder as the OWNER in its sole discretion shall determine may best serve the interest of the OWNER.

- END OF NOTICE INVITING BIDS -

SECTION 00100 - INSTRUCTIONS TO BIDDERS

1. **DEFINED TERMS.** Terms used in these Instructions to Bidders and the Notice Inviting Bids which are defined in the General Conditions have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to OWNER, as distinct from a sub-bidder, who submits a price or quote to a Bidder.
2. **INTERPRETATIONS AND ADDENDA.**
 - 2.1 All questions about the meaning or intent of the Contract Documents are to be directed to the ENGINEER. Additions, deletions, or revisions to the Contract Documents considered necessary by the ENGINEER in response to such questions will be issued by Addenda, mailed, emailed, or delivered to all parties recorded by the OWNER as having received the Contract Documents. Questions received less than 5 days prior to the date of Bids may not be answered. Only answers to such questions issued by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
 - 2.2 Addenda may also be issued to make other additions, deletions, or revisions to the Contract Documents.
 - 2.3 Bidders shall make no special interpretation or inference of intent from differing formats in the Technical Specifications.
3. **BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE.**
 - 3.1 It is the responsibility of each Bidder before submitting a Bid:
 - A. To examine thoroughly the Contract Documents and other related data identified in the Bidding Documents (including "technical" data referred to below);
 - B. To visit the site to become familiar with local conditions that may affect cost, progress, or performance, of the WORK;
 - C. To consider federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the WORK;
 - D. To study and carefully correlate the Bidder's observations with the Contract Documents; and
 - E. To notify the OWNER of all conflicts, errors, ambiguities, or discrepancies in or between the Contract Documents and such other related data.
 - 3.2 (Not Used)
 - 3.3 It is also the responsibility of each Bidder before submitting a Bid to examine thoroughly those reports of physical conditions in or relating to existing surface and subsurface conditions (except underground utilities as defined in Article 1 of the General Conditions) which are at or adjacent to the site and which were utilized by the OWNER in the preparation of the Contract Documents. Copies of such report and drawings are available for information at the office of the OWNER.
 - 3.4 Information and data reflected in the Contract Documents with respect to Underground Utilities at or contiguous to the site are based upon information and data furnished to the

OWNER by the owners of such Underground Utilities or others, and the OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions.

- 3.5 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Utilities, and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions.
- 3.6 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and Underground Utilities) at or contiguous to the site or otherwise which may affect cost, progress, or performance of the WORK and which the Bidder deems necessary to determine its Bid for performing the WORK in accordance with the time, price, and other terms and conditions of the Contract Documents.
- 3.7 On reasonable request in advance, the OWNER will provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests, and studies as each Bidder deems necessary for submission of a Bid. Location of any excavation or boring shall be subject to prior approval of OWNER and applicable agencies. Bidder shall fill all holes, restore all pavement to match existing structural section, and shall clean up and restore the site to its former condition upon completion of such explorations. OWNER reserves the right to require Bidder to execute an Access Agreement with the OWNER prior to accessing the site.
- 3.8 The lands upon which the WORK is to be performed, rights-of-way, and easements for access thereto and other lands designated for use by the CONTRACTOR in performing the WORK are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the OWNER unless otherwise provided in the Contract Documents.
- 3.9 The submission of a Bid will constitute an absolute representation by the Bidder that the Bidder has complied with every requirement of this Paragraph 3 and the following:
 - A. That the Bid is premised upon performing the WORK required by the Contract Documents without exception and such means, methods, techniques, sequences, or procedures of construction (if any) as may be required by the Contract Documents;
 - B. That Bidder has given the OWNER written notice of all conflicts, errors, ambiguities, and discrepancies in the Contract Documents and the written resolution thereof by the OWNER is acceptable to the Bidder; and
 - C. That the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the WORK.
4. BID FORMS. The Bid shall be submitted on the Bid Forms bound herein. All blanks on the Bid Forms shall be completed in ink. All names must be printed below the signatures. The Bid shall be submitted in a sealed envelope which shall be plainly marked in the upper left hand corner with the name and address of the Bidder and shall bear the words "BID FORM" followed by the title of the Contract Documents for the WORK, the name of the OWNER,

the address where Bids are to be delivered or mailed to, and the date and hour of opening of Bids.

5. CERTIFICATES.

5.1 Bids by corporations must be executed in the corporate name by the president, a vice-president, or other corporate officer. Such Bid shall be accompanied by the enclosed Certificate of Authority to sign, attested by the secretary or assistant secretary, and with the corporate seal affixed. The corporate address and state of incorporation must appear below the signature.

5.2 Bids by partnerships must be executed in the partnership name and be signed by a managing partner, accompanied by the enclosed Certificate of Authority to sign, and his/her title must appear under the signature and the official address of the partnership must appear below the signature.

5.3 Bids by joint ventures must be executed in the joint venture name and be signed by a joint venture managing partner, accompanied by the enclosed Certificate of Authority to sign, and his/her title must appear under the signature and the official address of the joint venture must appear below the signature.

6. DISQUALIFICATION OF BIDDERS. More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. If the OWNER believes that any Bidder has financial interest in more than one Bid for the WORK contemplated, all Bids in which such Bidder is interested will be rejected. If the OWNER reasonably believes that collusion exists among the Bidders, all Bids will be rejected. A party who has quoted prices to a Bidder is not hereby disqualified from quoting prices to other Bidders, but is disqualified from submitting a Bid directly for the WORK.

7. QUANTITIES OF WORK. The quantities of work or material stated in unit price items of the Bid are supplied only to give an indication of the general scope of the WORK; the OWNER does not expressly or by implication agree that the actual amount of work or material will correspond therewith, and reserves the right after award to increase or decrease the quantity of any unit price item of the WORK by an amount up to and including 25 percent of any Bid item, without a change in the unit price, and shall include the right to delete any Bid item in its entirety, or to add additional Bid items up to and including an aggregate total amount not to exceed 25 percent of the Bid price.

8. COMPETENCY OF BIDDERS. Only qualified and E100 licensed CONTRACTORS specializing in mechanical construction may submit a bid for the performance of the WORK.

9. SUBMISSION OF BIDS. The Bid shall be delivered by the time and to the place stipulated in the Notice Inviting Bids. It is the Bidder's sole responsibility to see that its Bid is received in proper time and at the proper place.

10. BID SECURITY, BONDS, AND INSURANCE. Each Bid shall be accompanied by a certified or cashier's check or approved Bid Bond in the amount stated in the Notice Inviting Bids. Said check or bond shall be made payable to the OWNER and shall be given as a guarantee that the Bidder, if awarded the WORK, will enter into an Agreement with the OWNER, and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond; each of said bonds to be in the amount stated in the Supplementary General Conditions. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, shall be forfeited to the OWNER. If the Bidder elects to furnish a Bid Bond as its

Bid security, the Bidder shall use the Bid Bond form bound herein, or one conforming substantially to it in form. Bid Bonds shall comply with the requirements applicable to payment and performance bonds in the General Conditions.

11. **DISCREPANCIES IN BIDS.** In the event there is more than one Bid item in a Bid Schedule, the Bidder shall furnish a price for all Bid items in the Schedule, and failure to do so will render the Bid non-responsive and shall cause its rejection. In the event there are unit price Bid items in a Bidding schedule and the amount indicated for a unit price Bid item does not equal the product of the unit price and quantity, the unit price shall govern and the amount will be corrected accordingly, and the BIDDER shall be bound by said correction. In the event there is more than one Bid item in a Bid Schedule and the total indicated for the Schedule does not agree with the sum of the prices Bid on the individual items, the prices Bid on the individual items shall govern and the total for the Schedule will be corrected accordingly, and the BIDDER shall be bound by said correction.
12. **MODIFICATIONS AND UNAUTHORIZED ALTERNATIVE BIDS.** Unauthorized conditions, limitations, or provisos attached to the Bid shall render it informal and may cause its rejection as being non-responsive. The Bid forms shall be completed without interlineations, alterations, or erasures in the printed text. Alternative Bids will not be considered unless called for. Oral, telegraphic, telephonic or electronic Bids or modifications will not be considered.
13. **WITHDRAWAL OF BID.** The Bid may be withdrawn by the Bidder by means of a written request, signed by the Bidder or its properly authorized representative. Such written request must be delivered to the place stipulated in the Notice Inviting Bids for receipt of Bids prior to the scheduled closing time for receipt of Bids.
14. **AWARD OF CONTRACT.** Award of the contract, if awarded, will be made to the lowest responsive, responsible Bidder whose Bid complies with the requirements of the Contract Documents. Unless otherwise specified, any such award will be made within the period stated in the Notice Inviting Bids that the bids are to remain open. Unless otherwise indicated, a single award will be made for all the Bid items in an individual Bid Schedule.
15. **RETURN OF BID SECURITY.** Within 14 days after award of the contract, the OWNER will, if requested, return the Bid securities accompanying such Bids that are not being considered in making the award. All other Bid securities will be held until the Agreement has been finally executed. They will then be returned, if requested, to the respective Bidders whose Bids they accompany.
16. **EXECUTION OF AGREEMENT.** The Bidder to whom award is made shall execute a written Agreement with the OWNER on the form of agreement provided, shall secure all insurance, and shall furnish all certificates and bonds required by the Contract Documents within 14 calendar days after receipt of the agreement forms from the OWNER. Failure or refusal to enter into an Agreement as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the Bid security. If the lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the Contract to the second lowest responsive, responsible Bidder. If the second lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the third lowest responsive, responsible Bidder. On the failure or refusal of such second or third lowest Bidder to execute the Agreement, each such Bidder's Bid securities shall be likewise forfeited to the OWNER.

17. LIQUIDATED DAMAGES. Provisions for liquidated damages, if any, are set forth in the Agreement.
18. PREFERENCE FOR RESIDENT CONTRACTORS. The OWNER will apply the provisions of Utah Procurement Code 63G-6-405. titled Preference for Resident Contractors (Utah Code -- Title 63G -- Chapter 6) wherein it is stated "(2) (a) When awarding contracts for construction, a public procurement unit shall grant a resident contractor a reciprocal preference as against a nonresident contractor from any state that gives or requires a preference to contractors from that state. (b) The amount of the reciprocal preference shall be equal to the amount of the preference applied by the state of the nonresident contractor."

- END OF INSTRUCTIONS TO BIDDERS -

SECTION 00300 – BID FORMS

BID

BID TO: South Valley Water Reclamation Facility

1. The undersigned Bidder proposes and agrees, if this Bid is accepted to enter into an Agreement with the OWNER in the form included in the Contract Documents to perform the WORK as specified or indicated in said Contract Documents entitled "South Valley Water Reclamation Facility – Communications Tower Installation".
2. Bidder accepts all of the terms and conditions of the Contract Documents, including without limitation those in the Notice Inviting Bids and Instructions to Bidders, dealing with the dispositions of the Bid security.
3. This Bid will remain open for the period stated in the "Notice Inviting Bids" unless otherwise required by law. Bidder will enter into an Agreement within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders", required by the Contract Documents.
4. Bidder has examined copies of all the Contract Documents including the following Addenda (receipt of all of which is hereby acknowledged):

| Number | Date |
|--------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Failure to acknowledge addenda shall render the bid non-responsive and shall be cause for its rejection.

5. Bidder has familiarized itself with the nature and extent of the Contract Documents, WORK, site, locality where the WORK is to be performed, the legal requirements (federal, state, and local laws, ordinances, rules, and regulations), and the conditions affecting cost, progress or performance of the WORK and has made such independent investigations as Bidder deems necessary.

To all the foregoing, and including all Bid Forms contained in the Bid, said Bidder further agrees to complete the WORK required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefore the Contract Price based on the Total Bid Price(s) named in the aforementioned Bid forms.

| | | | |
|--------|-------|---------|-------|
| Dated: | _____ | Bidder: | _____ |
| | | By: | _____ |
| | | Title: | _____ |

BID CERTIFICATE

(if Corporation)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Board of Directors of the _____

a corporation existing under the laws of the State of _____, held
on _____, 20 _____, the following resolution was duly passed and
adopted:

“RESOLVED, that _____, as
_____ of this
Corporation, be and is hereby authorized to execute the Bid dated _____,
20____, to the South Valley Water Reclamation Facility by this Corporation and that his/her
execution thereof, attested by the Secretary of this Corporation, and with the Corporate Seal
affixed, shall be the official act and deed of this Corporation.”

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the
corporation this _____, day of _____, 20____.

Secretary

(SEAL)

BID CERTIFICATE

(if Partnership)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Partners of the _____

a partnership existing under the laws of the State of _____, held
on _____, 20 _____, the following resolution was duly passed and adopted:

“RESOLVED, that _____, as
_____ of the
Partnership, be and is hereby authorized to execute the Bid dated _____, 20____,
to the South Valley Water Reclamation Facility by this Partnership and that his/her execution
thereof, attested by the _____ shall be the official act and deed
of this Partnership.”

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of
_____, 20____.

BID CERTIFICATE

(if Joint Venture)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Principals of the _____

a joint venture existing under the laws of the State of _____, held
on _____, 20 _____, the following resolution was duly passed and adopted:

“RESOLVED, that _____, as
_____ of the Joint
Venture, be and is hereby authorized to execute the Bid dated _____, 20____, to
the “South Valley Water Reclamation Facility by this Joint Venture and that his/her execution
thereof, attested by the _____ shall be the official act and deed of this
Joint Venture.”

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the
corporation this _____, day of _____, 20____.

LIST OF SUBCONTRACTORS

The Bidder shall list below the name and the location of the place of business of each Subcontractor who will perform work or labor or render service to the prime contractor in or about the construction of the work or improvement, or a Subcontractor who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent of the prime contractor's total bid or ten thousand dollars (\$10,000), whichever is greater. The Bidder shall also list below the portion of the WORK which will be performed by each Subcontractor under its contract. The prime contractor shall list only one Subcontractor for each portion as is defined by the prime contractor in its bid. The prime contractor shall submit information (see next page) required of specialty subcontractors which are proposed to do Coatings, Mechanical Work or Electrical Work, if any.

The Bidder's attention is directed to the provisions of Paragraph entitled "Subcontract Limitations," of the Supplementary General Conditions which stipulates the percent of the WORK to be performed with the Bidder's own forces. Failure to comply with this requirement will render the Bid non-responsive and may cause its rejection.

| <u>Work to be Performed</u> | <u>Subcontr. License Number</u> | <u>Percent of Total Bid</u> | <u>Subcontractor's Name and Address</u> |
|-----------------------------|-----------------------------------------|-------------------------------------|-------------------------------------------|
| 1. _____ | _____ | _____ | _____ _____ _____ _____ |
| 2. _____ | _____ | _____ | _____ _____ _____ _____ _____ |
| 3. _____ | _____ | _____ | _____ _____ _____ _____ |
| 4. _____ | _____ | _____ | _____ _____ _____ _____ |

Note: Attach additional sheets if required.

INFORMATION REQUIRED OF SPECIALTY SUBCONTRACTORS

The Bidder shall furnish the following information for each specialty subcontractor. Additional sheets shall be attached as required. Failure to complete Item Nos. 1, 2, and 3, will cause the Bid to be non-responsive and may cause its rejection.

(1) SPECIALTY SUBCONTRACTOR's name and address:

(2) SPECIALTY SUBCONTRACTOR's license:

Primary Classification _____

State License No. and Expiration Date _____

Specialty classifications held, if any: _____

Name of Licensee, if different from (1) above:

(3) ATTACH TO THIS BID a list of the 5 most recent construction contracts or subcontracts completed by the SPECIALTY SUBCONTRACTOR involving Coatings, Mechanical or Electrical Work of similar type and comparable value at Municipal Water Treatment Plants or Municipal Wastewater Treatment Plants.

The list shall include the following information as a minimum:

- Names, address, and telephone number of owner.
- Name of Project.
- Location of Project.
- Brief description of the work involved.
- Contract amount.
- Date of completion of the contract.
- Name, address, and telephone number of architect or engineer.
- Name of owner's project engineer.

INFORMATION REQUIRED OF BIDDER

The Bidder shall furnish the following information. Additional sheets shall be attached as required. Failure to complete Items will cause the Bid to be non-responsive and may cause its rejection.

- (1) CONTRACTOR's name and address:

- (2) CONTRACTOR'S telephone number: _____

- (3) CONTRACTOR's fax number: _____

- (4) CONTRACTOR's license: Primary Classification _____

State License No. and Expiration Date _____

Specialty classifications held, if any: _____

Name of Licensee, if different from (1) above: _____

- (5) Name, address, and telephone number of surety company and agent who will provide the required bonds on this contract:

- (6) ATTACH TO THIS BID a financial statement, references, and other information, sufficiently comprehensive to permit an appraisal of CONTRACTOR's current financial condition.

- (7) ATTACH TO THIS BID a list of the 5 most recent construction contracts completed by the CONTRACTOR involving coatings of similar type and comparable value at Municipal Water Treatment Plants or Municipal Wastewater Treatment Plants. The list shall include the following information as a minimum:

- Names, address, and telephone number of owner.
- Name of Project.
- Location of Project.
- Brief description of the work involved.
- Contract amount.
- Date of completion of the contract.
- Name, address, and telephone number of architect or engineer.
- Name of owner's project engineer.

NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER

AND SUBMITTED WITH BID

STATE OF)
) SS:
COUNTY OF)

_____, being first duly sworn, deposes and says that he or she is _____ of _____ the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit or cost element of awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Signed: _____

Subscribed and sworn to before me

this _____ day of _____, 20____

Notary Public in and for the
County of _____
State of _____

(SEAL)

BID BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____ as Principal, and
_____ as Surety, are held
and firmly bound unto the South Valley Water Reclamation Facility hereinafter called "OWNER,"
in the sum of _____ dollars, for
the payment of which sum, well and truly to be made, we jointly and severally bind ourselves,
our heirs, executors, administrators, successors, and assigns firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required
under the bidding schedule(s) of the OWNER's Contract Documents entitled "South Valley
Water Reclamation Facility – Communications Tower Installation".

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time
and in the manner required in the "Notice Inviting Bids" and the "Instruction to Bidder" enters
into a written Agreement on the form of agreement bound with said Contract documents,
furnishes the required certificates of insurance, and furnishes the required Performance Bond
and Payment Bond, and performs in all other respects the agreement created by this bid, then
this obligation shall be null and void, otherwise it shall remain in full force and effect. The Surety
stipulates and agrees that the obligation of said Surety shall in no way be impaired or affected
by an extension of the time within which the OWNER may accept such bid and Surety further
waives notice of any such extension. In the event suit is brought upon this bond by said
OWNER and OWNER prevails, said Principal and Surety shall pay all costs incurred by said
OWNER in such suit, including reasonable attorney's fees and costs to be fixed by the court.

| | |
|----------------------------------------------------|---------------------------------|
| SIGNED AND SEALED, this _____ day of _____, 20____ | |
| _____ (Principal) | (SEAL) _____ (SEAL) (Surety) |
| By: _____ (Signature) | By: _____ (Signature) |

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

- END OF BID FORMS -

SECTION 00310 – BID SCHEDULES

PART 1 – GENERAL

1.01 CONSTRUCTION CONTRACT

- A. Name of Project: South Valley Water Reclamation Facility – Communications Tower Installation

1.02 SCHEDULES TO BE ADDED TO THE AGREEMENT

- A. This Bid Schedule contains the schedules of prices which will be incorporated into the Agreement by reference.

1.03 TAXES

- A. The Bidder agrees that all sales, consumer, use, and other similar taxes are included in the stated bid prices for the WORK, unless provision is made herein for the Bidder to separately itemize the estimated amount of tax.

1.04 SCHEDULES OF PRICES

- A. Schedule A: Base Lump Sum Bid. This item includes all of the WORK for the project as specified and shown on the Contract Documents. Bidder shall complete Schedule A in its entirety (see next page).

SCHEDULE A Communications Tower Installation

| Item No. | Description | Quantity Unit | Unit Cost ¹ | Total Cost ² |
|----------|--------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------|-------------------------|
| 1 | Mobilization, Permits, Clean-up, Demobilization | 1 Lump Sum | \$ | \$ |
| 2 | All work to complete construction of reinforced concrete foundation for communications tower, including all related demolition | 1 Lump Sum | \$ | \$ |
| 3 | Complete assembly and installation of communications tower including electrical grounding | 1 Lump Sum | \$ | \$ |

Bid Schedule Total In Words: _____

¹Where equipment pricing is provided, show the Unit Cost for installation only of each item. Where equipment pricing is not provided, show Unit Cost to furnish and install the items.

²The Total Cost is the sum of the equipment costs, if provided, plus the Quantity multiplied by the Unit Cost. All Unit Costs and Total Costs shall include all labor, equipment, tools, supplies, insurance, taxes, overhead, markups, applicable fees and all other costs associated with performing the Work. These costs shall be distributed fairly among the Bid Items according to their relative amounts and not weighted or unbalanced. The Owner may elect to perform or not perform any of the Bid Item Work according to its best interest, financial limitations or other considerations. The Unit Costs and Total Costs will be used to adjust the Contractor's compensation accordingly. No other compensation will be made for loss of revenue or profit or other expenses associated with these items.

- END OF BID SCHEDULES -

SECTION 00500 – AGREEMENT

THIS AGREEMENT is dated as of the _____ day of _____ in the year 2020 by and between South Valley Water Reclamation Facility (hereinafter called OWNER) and _____
_____(Hereinafter called CONTRACTOR).

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

ARTICLE 1. WORK.

CONTRACTOR shall complete the WORK as specified or indicated in the OWNER's Contract Documents entitled "South Valley Water Reclamation Facility – Communications Tower Installation". The WORK is generally described as follows and as listed in Schedule A:

- a) The WORK consists of the installation of a 70' communications tower provided by the OWNER. The WORK also consists of construction of a concrete base for the tower and assembly of the tower during installation including electrical grounding of the tower.

ARTICLE 2. CONTRACT TIMES

COMPLETION OF WORK: The WORK shall be completed as follows:

1. Contractor shall begin WORK as soon as the Notice to Proceed is issued following award of WORK. Notice to Proceed is planned for March 30th, 2020. Work shall be completed by June 1st, 2020.

ARTICLE 3. LIQUIDATED DAMAGES

OWNER and the CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the WORK is not completed within the time specified in Article 2 herein, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual loss suffered by the OWNER if the WORK is not completed on time. Accordingly, instead of requiring any such proof, the OWNER and the CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay the OWNER \$250.00 for each day that expires after the deadlines specified in Article 2 herein.

ARTICLE 4. CONTRACT PRICE

OWNER shall pay CONTRACTOR for completion of the WORK in accordance with the Contract Documents in current funds the amount set forth in the Bid Schedule(s).

ARTICLE 5. PAYMENT PROCEDURES

COMMUNICATIONS TOWER INSTALLATION

AGREEMENT
PAGE 00500-1

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

ARTICLE 6. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the WORK consist of this Agreement (pages 00500-1 to 00500-6, inclusive) and the following attachments to this Agreement:

- Notice Inviting Bids (pages 00030-1 to 00030-2, inclusive).
- Instructions to Bidders (pages 00100-1 to 00100-5, inclusive).
- Bid Forms including the Bid, Bid Schedule(s), information required of Bidder, Bid Bond, and all required certificates and affidavits (pages 00300-1 to 00300-9 and 00310-1 to 00310-3, inclusive).
- Performance Bond (pages 00610-1 to 00610-1, inclusive).
- Payment Bond (pages 00620-1 to 00620-1, inclusive).
- General Conditions (pages 00700-1 to 00700-37, inclusive).
- Supplementary General Conditions (pages 00800-1 to 00800-7, inclusive).
- Supplementary General Conditions (Utah) (pages 00810-1 to 00810-4, inclusive).
- Technical Specifications consisting of Divisions and pages, as listed in the Table of Contents.
- Figures and Drawings consisting of 6 sheets, as listed in the Table of Contents/List of Figures and Drawings.
- Appendix A consisting of the SuperTitan Tower & Foundation Installation Manual rev10
- Addenda numbers ___ to ___, inclusive.
- Notice to Proceed.
- Change Orders which may be delivered or issued after Effective Date of this Agreement and are not attached hereto.

There are no Contract Documents other than those listed in this Article 6. The Contract Documents may only be amended by Change Order as provided in Paragraph 3.03 of the General Conditions.

ARTICLE 7. ASSIGNMENTS

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have caused this Agreement to be executed the day and year first above written.

OWNER:

South Valley Water Reclamation Facility

By _____
(Jerry Knight, Board Chairman)

Attest _____

Address for giving notices:

South Valley Water Reclamation Facility
7495 South 1300 West
West Jordan, Utah 84084

Approved as to Form:

(Signature)

(Facility Attorney)

CONTRACTOR:

By _____

[CORPORATE SEAL]

Attest _____

Address for giving notices:

Agent for service of process: _____

Telephone No. for Agent

AGREEMENT CERTIFICATE

(if Corporation)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Board of Directors of the _____

a corporation existing under the laws of the State of _____, held
on _____, 20 _____, the following resolution was duly passed and
adopted:

“RESOLVED, that _____, as
_____ of this
Corporation, be and is hereby authorized to execute the Agreement dated
_____, 20____, to the South Valley Water Reclamation Facility by this
Corporation and that his/her execution thereof, attested by the Secretary of this Corporation,
and with the Corporate Seal affixed, shall be the official act and deed of this Corporation.”

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the
corporation this _____, day of _____, 20____.

Secretary

(SEAL)

AGREEMENT CERTIFICATE

(if Partnership)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Partners of the _____

a partnership existing under the laws of the State of _____, held
on _____, 20 _____, the following resolution was duly passed and adopted:

“RESOLVED, that _____, as
_____ of the
Partnership, be and is hereby authorized to execute the Agreement dated _____,
20____, by and between this Partnership and South Valley Water Reclamation Facility by this
Partnership and that his/her execution thereof, attested by the _____ shall be
the official act and deed of this Partnership.”

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of
_____, 20____.

AGREEMENT CERTIFICATE

(if Joint Venture)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Principals of the _____

a joint venture existing under the laws of the State of _____, held
on _____, 20 _____, the following resolution was duly passed and adopted:

“RESOLVED, that _____, as
_____ of the Joint
Venture, be and is hereby authorized to execute the Agreement dated _____,
20____, by and between this Joint Venture and South Valley Water Reclamation Facility and
that his/her execution thereof, attested by the _____ shall be the official
act and deed of this Joint Venture.”

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of
_____, 20____.

SECTION 00610 - PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____ as CONTRACTOR,
and _____ as Surety,
are held and firmly bound unto South Valley Water Reclamation Facility hereinafter called
"OWNER," in the sum of _____ dollars,
for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors,
administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that said CONTRACTOR has been
awarded and is about to enter into the annexed Agreement with said OWNER to perform the WORK
as specified or indicated in the Contract Documents entitled "South Valley Water Reclamation
Facility – Communications Tower Installation".

NOW THEREFORE, if said CONTRACTOR shall perform all the requirements of said Contract
Documents required to be performed on its part, at the times and in the manner specified therein,
then this obligation shall be null and void, otherwise it shall remain in full force and effect.

PROVIDED, that any alterations in the WORK to be done or the materials to be furnished, or
changes in the time of completion, which may be made pursuant to the terms of said Contract
Documents, shall not in any way release said CONTRACTOR or said Surety hereunder, nor shall
any extensions of time granted under the provisions of said Contract Documents, release either
said CONTRACTOR or said Surety, and notice of such alterations or extensions of the Agreement
is hereby waived by said Surety.

IN WITNESS WHEREOF, we have hereunder set our hands this _____ day
of _____, 20____.

(SEAL)

(SEAL)

(CONTRACTOR)

(Surety)

By: _____
(Signature and SEAL)

By: _____
(Signature and SEAL)

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

SECTION 00620 – PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____ as CONTRACTOR,
and _____ as Surety,
are held and firmly bound unto South Valley Water Reclamation Facility hereinafter called
"OWNER," in the sum of _____ dollars, for the
payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors,
administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that said CONTRACTOR has been
awarded and is about to enter into the annexed Agreement with said OWNER to perform the WORK
as specified or indicated in the Contract Documents entitled "South Valley Water Reclamation
Facility – Communications Tower Installation".

NOW THEREFORE, if said CONTRACTOR, or subcontractor, fails to pay for any materials,
equipment, or other supplies, or for rental of same, used in connection with the performance of work
contracted to be done, or for amounts due under applicable State law for any work or labor thereon,
said Surety will pay for the same in an amount not exceeding the sum specified above, and, in the
event suit is brought upon this bond, reasonable attorney's fees to be fixed by the court. This bond
shall inure to the benefit of any persons, companies, or corporations entitled to file claims under
applicable State law so as to give a right of action to them or their assigns in any suit brought upon
this bond.

PROVIDED, that any alterations in the WORK to be done or the materials to be furnished, or
changes in the time of completion, which may be made pursuant to the terms of said Contract
Documents, shall not in any way release said CONTRACTOR or said Surety thereunder, nor shall
any extensions of time granted under the provisions of said Contract Documents release either said
CONTRACTOR or said Surety, and notice of such alterations or extensions of the Agreement is
hereby waived by said Surety.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of
_____, 20____.

_____(CONTRACTOR) (SEAL) _____(Surety) (SEAL)

By: _____ (Signature) By: _____ (Signature and SEAL)

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

- END OF BID FORMS -

**SECTION 00700
GENERAL CONDITIONS**

ARTICLE 1 – DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents and printed with initial or all capital letters, the following terms have the meanings indicated:

Addenda – Written or graphic instruments issued prior to the opening of Bids which make additions, deletions, or revisions to the Contract Documents.

Agreement – The written contract between the OWNER and the CONTRACTOR for the performance of the WORK pursuant to the Contract Documents. Documents incorporated into the contract by reference become part of the contract and of the Agreement.

Application for Payment – The form furnished by the ENGINEER and completed by the CONTRACTOR to request progress or final payment including supporting documentation to substantiate the amounts for which payment is requested.

Bid – The offer or proposal of a Bidder, submitted on the prescribed form, setting forth the price or prices for the WORK to be performed.

Bidder – Any person, firm or corporation submitting a Bid for the WORK.

Bonds – Bid, Performance and Payment Bonds and other instruments which protect the OWNER against loss due to inability or refusal of the CONTRACTOR to perform pursuant to the Contract Documents.

Change Order – A document recommended by the OWNER'S REPRESENTATIVE, which is signed by the CONTRACTOR and the OWNER and authorizes an addition, deletion, or revision in the WORK, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents – The documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the WORK, consisting of the Drawings, Technical Specifications, General Conditions, Supplementary General Conditions, Notice Inviting Bids, Instructions to Bidders, Addenda, CONTRACTOR's Bid, Information Required of Bidder, Agreement, Performance Bond, Payment Bond, Notice To Proceed and Change Orders. Only printed or hard copies of the documents listed above are Contract Documents.

Contract Price – The total monies payable by the OWNER to the CONTRACTOR for completion of the WORK under the terms and conditions of the Contract Documents.

Contract Time – The number of successive Days or the date stated in the Contract Documents for Substantial Completion of the WORK. The Contract Time begins to run on the date specified in the Notice to Proceed.

CONTRACTOR – The person, firm, or corporation with whom the OWNER has executed the Agreement.

Day – A calendar day of 24 hours measured from midnight to the next midnight.

Defective Work – Work that: is unsatisfactory, faulty, or deficient; does not conform to the Contract Documents; does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; has been damaged prior to the ENGINEER's recommendation of final payment.

Drawings – The drawings, plans, maps, profiles, diagrams, and other graphic representations which show the character, location, nature, extent, and scope of the WORK.

Effective Date of the Agreement – The date indicated in the Agreement on which it was executed.

ENGINEER – The person, firm or corporation named as such in the Contract Documents.

Field Order – A written order issued by the OWNER which requires minor changes in the WORK, but which does not involve a change in the Contract Price or Contract Time.

General Requirements – Division 1 of the Technical Specifications.

Laws and Regulations; Laws or Regulations – Includes any and all applicable state, federal and local statutes, common law, rules, regulations, ordinances, codes, and/or orders.

Notice of Award – The OWNER's written notice to the apparent successful Bidder stating that upon compliance with the conditions precedent enumerated therein by the apparent successful Bidder within the time specified, the OWNER will enter into the Agreement.

Notice to Proceed – The OWNER's written notice to the CONTRACTOR authorizing the CONTRACTOR to proceed with the work and establishing the date of commencement of the Contract Time.

OWNER – SOUTH VALLEY WATER RECLAMATION FACILITY.

OWNER'S REPRESENTATIVE – The authorized representative of the OWNER who is assigned to the site or any part thereof.

Partial Utilization – Placing a portion of the WORK in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion of the WORK.

Project – A unit of total construction of which the WORK to be provided under the Contract Documents, may be the whole, or a part thereof.

Shop Drawings – All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the CONTRACTOR to illustrate some portion of WORK and all illustrations, brochures, standard schedules, performance charts, instruction, and diagrams to illustrate material or equipment for some portion of the WORK.

Specifications – (Same definition as for Technical Specifications hereinafter).

Subcontractor – An individual, firm, or corporation having a direct contract with the CONTRACTOR or with any other Subcontractor for the performance of a part of the WORK.

Substantial Completion – That state of construction when the WORK has progressed to the point where, in the opinion of the OWNER as evidenced by the Notice of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the WORK can be

utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to any work refer to substantial completion thereof.

Supplementary General Conditions – The part of the Contract Documents which makes additions, deletions, or revisions to these General Conditions.

Supplier – A manufacturer, fabricator, supplier, distributor, materialman, or vendor.

Technical Data – The factual information contained in reports describing physical conditions, including: exploration method, plans, logs, laboratory test methods and factual data. Technical Data does not include conclusions, interpretations, interpolations, extrapolations or opinions contained in reports or reached by the CONTRACTOR.

Technical Specifications – Those portions of the Contract Documents consisting of the General Requirements and written technical descriptions of products and execution of the WORK.

Underground Utilities – All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments and any encasements containing such facilities which have been installed under ground to furnish any of the following services or materials: water, sewage and drainage removal, electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic, or other control systems.

WORK – The entire construction required to be furnished under the Contract Documents. WORK is the result of performing services, furnishing labor and supervision, and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 DELIVERY OF BONDS/INSURANCE CERTIFICATES

- A. The CONTRACTOR shall deliver to the OWNER the Bonds and insurance certificates required by the Contract Documents within ten (10) days after receiving the Notice of Award from the OWNER.

2.02 COPIES OF DOCUMENTS

- A. The OWNER shall furnish the CONTRACTOR five copies of the Contract Documents (Specifications and reduced Drawings), together with two sets of full-scale Drawings. Additional quantities of the Contract Documents will be furnished at reproduction cost.

2.03 STARTING THE PROJECT

- A. The CONTRACTOR shall begin construction of the WORK within 10 days after the commencement date stated in the Notice to Proceed, but shall not commence construction prior to the commencement date.

2.04 BEFORE STARTING CONSTRUCTION

- A. Before undertaking each part of the WORK, the CONTRACTOR shall carefully study and compare the Contract Documents to check and verify pertinent figures and dimensions shown thereon with all applicable field measurements. The CONTRACTOR shall promptly report in writing to the OWNER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the OWNER before proceeding with any work affected thereby.
- B. The CONTRACTOR shall submit to the OWNER for review those documents called for under the Section entitled “Contractor Submittals” in the General Requirements.

2.05 PRECONSTRUCTION CONFERENCE

- A. The CONTRACTOR shall attend a preconstruction conference with the OWNER, the ENGINEER and others as appropriate to discuss the construction of the WORK in accordance with the Contract Documents.

2.06 FINALIZING SCHEDULES

- A. At least 7 days before the CONTRACTOR's submittal of its first Application for Payment, the CONTRACTOR, the OWNER, and others as appropriate will meet to finalize the schedules submitted in accordance with the General Requirements.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 INTENT

- A. The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the WORK. The Contract Documents are complementary, what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

- B. It is the intent of the Contract Documents to describe the WORK, as completely as possible and in a functional manner. The WORK is intended to be constructed in accordance with the Contract Documents. All work, materials, or equipment that may be reasonably inferred from the Contract Documents as being required to produce the completed work shall be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or equipment such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals, or codes or any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the OWNER, the CONTRACTOR, or the ENGINEER or any of their consultants, agents, or employees from those set forth in the Contract Documents.
- C. If, during the performance of the WORK, the CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, the CONTRACTOR shall immediately report it to the OWNER in writing and before proceeding with the work affected thereby. The OWNER shall then make a written interpretation, clarification, or correction.

3.02 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

- A. In resolving issues resulting from conflicts, errors, or discrepancies in any of the Contract Documents, or the order of precedence shall be as follows:
1. Change Orders
 2. Agreement
 3. Addenda
 4. Supplementary General Conditions
 5. General Conditions
 6. Technical Specifications
 7. Referenced Standard Specifications
 8. Drawings
 9. Contractor's Bid (Bid Form).
- B. With reference to the Drawings the order of precedence is as follows:
1. Figures govern over scaled dimensions
 2. Detail drawings govern over general drawings
 3. Addenda/change order drawings govern over general drawings

4. Contract Drawings govern over standard drawings.

3.03 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS

- A. The Contract Documents may be amended by a Change Order (pursuant to Article 10) to provide for additions, deletions or revisions in the WORK or to modify terms and conditions.

3.04 REUSE OF DOCUMENTS

- A. Neither the CONTRACTOR, Subcontractor, Supplier, nor any other person or organization performing any of the WORK under a contract with the OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Technical Specifications, or other documents used on the WORK, and they shall not reuse any of them on the extensions of the Project or any other project without the written consent of the OWNER and the ENGINEER.

ARTICLE 4 – AVAILABILITY OF LANDS: PHYSICAL CONDITIONS, REFERENCE POINTS

4.01 AVAILABILITY OF LANDS

- A. The OWNER shall furnish the lands, rights-of-way and easements upon which the WORK is to be performed and for access thereto, together with other lands designated for the use of the CONTRACTOR in the Contract Documents. Easements for permanent structures or permanent changes in existing major facilities will be obtained and paid for by the OWNER, unless otherwise provided in the Contract Documents. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or rights-of-way provided. The CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment. The CONTRACTOR shall not enter upon nor use any property not under the control of the OWNER until a written temporary construction easement agreement has been executed by the CONTRACTOR and the property owner, and a copy of the easement furnished to the ENGINEER prior to its use. Neither the OWNER nor the ENGINEER shall be liable for any claims or damages resulting from the CONTRACTOR's unauthorized trespass or use of any properties.

4.02 PHYSICAL CONDITIONS – SUBSURFACE AND EXISTING STRUCTURES

- A. Explorations and Reports: The Supplementary General Conditions may identify exploration reports and subsurface conditions tests at the site that have been utilized by the OWNER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the Technical Data contained in these reports. The CONTRACTOR is responsible for the interpretation, extrapolation or interpolation of all technical as well as nontechnical data and its reliance on the completeness, opinions and interpretation of the reports.
- B. Existing Structures: The Supplementary General Conditions identify the drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Utilities referred to in Paragraph 4.04 herein) which are at or contiguous to the site that have been utilized by the OWNER in the preparation of the Contract Documents. The CONTRACTOR is responsible for the interpretation, extrapolation or

interpolation of all technical as well as nontechnical data and its reliance on the completeness, opinions and interpretation of the reports.

4.03 DIFFERING SITE CONDITIONS

- A. The CONTRACTOR shall notify the OWNER upon encountering any of the following unforeseen conditions, hereinafter called "differing site conditions," during the prosecution of the WORK. The CONTRACTOR's notice to the OWNER shall be in writing and delivered before the differing site conditions are disturbed, but in no event later than 14 days after their discovery.
1. Subsurface or latent physical conditions at the site of the WORK which could not reasonably have been discovered through diligent inspection by CONTRACTOR before his Bid was submitted which differs materially from those indicated, described, or delineated in the Contract Documents including those reports and documents discussed in Paragraph 4.02; and
 2. Physical conditions at the site of the WORK of an unusual nature which could not reasonably have been discovered through diligent inspection by CONTRACTOR before his Bid was submitted and which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents including those reports and documents discussed in Paragraph 4.02.
- B. The OWNER will review the alleged differing site conditions; determine the necessity of obtaining additional explorations or tests with respect to verifying their existence and extent.
- C. If the OWNER concludes that because of newly discovered conditions a change in the Contract Documents is required, a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the differing site conditions.
- D. In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to the differing site conditions. If the OWNER and the CONTRACTOR are unable to agree as to the amount or length of the Change Order, a claim may be made as provided in Articles 11 and 12.
- E. The CONTRACTOR's failure to give written notice of differing site conditions within 14 days of their discovery and before they are disturbed shall constitute a waiver of all claims in connection therewith, whether direct or consequential in nature.

4.04 PHYSICAL CONDITIONS – UNDERGROUND UTILITIES

- A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Utilities at or contiguous to the site are based on information and data furnished to the OWNER by the owners of Underground Utilities or by others. Unless it is expressly provided in the Supplementary General Conditions, the OWNER and the ENGINEER shall not be responsible for the accuracy or completeness of any Underground Utilities information or data. The CONTRACTOR's responsibility relating to underground utilities are: review and check all information and

data, locate all Underground Utilities shown or indicated in the Contract Documents, coordinate the WORK with the owners of Underground Utilities during construction, safeguard and protect the Underground Utilities, and repair any damage to Underground Utilities resulting from the WORK. The cost of all these activities will be considered as having been included in the Contract Price.

- B. Not Shown or Indicated: If an Underground Utility not shown or indicated in the Contract Documents is uncovered or revealed at or contiguous to the site and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall identify the owner of the Underground Utility, give written notice of the location to that owner and notify the OWNER.

4.05 REFERENCE POINTS

- A. The OWNER will provide one bench mark, near or on the site of the WORK, and will provide two points near or on the site to establish a base line for use by the CONTRACTOR in laying out the WORK. Unless otherwise specified in the General Requirements, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.
- B. The CONTRACTOR shall preserve all bench marks, stakes, and other survey marks. In case of their removal or destruction by its own employees or by its subcontractor's employees, the CONTRACTOR shall be responsible for the accurate replacement of reference points by professionally qualified personnel at no additional cost to the OWNER.

ARTICLE 5 – BONDS AND INSURANCE

5.01 PERFORMANCE, PAYMENT AND OTHER BONDS

- A. The CONTRACTOR shall furnish Performance and Payment Bonds, each in the amount of 100% of the Contract Price as security for the faithful performance and payment of all the CONTRACTOR's obligations under the Contract Documents. The Performance Bond shall remain in effect at least until one year after the date of Notice of Completion, except as otherwise provided by Law or Regulation or by the Contract Documents. After the OWNER issues the Notice of Completion, the amount of the Performance Bond may be reduced to 10 percent of the Contract Price, or \$1,000, whichever is greater. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions.
- B. If the surety on any Bond furnished by the CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days after written approval by the OWNER of a substitute Bond and Surety substitute the approved Bond and Surety.

5.02 INSURANCE

- A. The CONTRACTOR shall purchase and maintain the insurance required under this paragraph. This insurance shall include the specific coverages set out herein and be written for not less than the limits of liability and coverages provided in the Supplementary General Conditions, or required by law, whichever is greater. The CONTRACTOR's

liabilities under the Agreement shall not be deemed limited in any way to the insurance coverage required.

- B. The CONTRACTOR shall furnish the OWNER with certificates indicating the type, amount, class of operations covered, effective dates and expiration dates of all policies. All insurance policies purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 30 days' prior written notice has been given to the OWNER by certified mail. Contract or certificate terms which state that reasonable efforts will be made to notify the OWNER prior to cancellation, change or renewal of the policy are not acceptable. All insurance shall remain in effect until the OWNER issues the Notice of Final Completion and at all times thereafter when the CONTRACTOR may be correcting, removing, or replacing defective work in accordance with Paragraph 13.01B or completing punch list items required by the Notice of Substantial Completion. In addition, the insurance required herein (except for Worker's Compensation and Employer's Liability) shall name the OWNER, the ENGINEER, and their officers, agents, and employees as "additional insured" under the policies. All liability insurance policies shall be occurrence and not claims made policies.

1. Workers' Compensation and Employer's Liability: This insurance shall protect the CONTRACTOR against all claims under applicable state workers' compensation laws. The CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a workers' compensation law. This policy shall include an "all states" endorsement. The CONTRACTOR shall require each subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in the WORK unless its employees are covered by the protection afforded by the CONTRACTOR's Workers' Compensation Insurance. In the event a class of employees is not protected under the Workers' Compensation Statute, the CONTRACTOR or Subcontractor, as the case may be, shall provide adequate employer's liability insurance for the protection of its employees not protected under the statute.
2. Comprehensive General Liability: This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims arising from injuries to persons other than its employees and damage to property of the OWNER or others arising out of any act or omission of the CONTRACTOR or its agents, employees or subcontractors. The policy shall include the following endorsements: (1) Protective Liability endorsement to insure the contractual liability assumed by the CONTRACTOR under the indemnification provisions in these General Conditions; (2) Broad Form Property Damage endorsement; (3) Personal Injury endorsement to cover personal injury liability for intangible harm. The Comprehensive General Liability coverage shall contain no exclusion relative to blasting, explosion, collapse of building, or damage to underground structures.
3. Comprehensive Automobile Liability: This insurance shall be written in comprehensive form. The policy shall protect the CONTRACTOR against all claims for injuries to employees, members of the public and damage to property of others arising from the use of CONTRACTOR's motor vehicles, whether they are owned, non-owned, or hired, and whether used or operated on or off the site. The motor vehicle insurance required under this paragraph shall include: (a) motor

vehicle liability coverage; (b) personal injury protection coverage and benefits; (c) uninsured motor vehicle coverage; and (d) underinsured motor vehicle coverage.

4. Subcontractor's Insurance: The CONTRACTOR shall require each of its subcontractors to procure and to maintain Comprehensive General Liability Insurance and Comprehensive Automobile Liability Insurance of the type and in the amounts specified in the Supplementary General Conditions or insure the activities of its subcontractors in the CONTRACTOR's own policy, in like amount.
5. Builder's Risk: This insurance shall be of the "all risk" type, shall be written in completed value form, and shall protect the CONTRACTOR, the OWNER, and the ENGINEER against damage to buildings, structures, materials and equipment. The amount of this insurance shall not be less than the insurable value of the WORK at completion. Builder's risk insurance shall provide for losses to be payable to the CONTRACTOR, the OWNER, and the ENGINEER as their interests may appear. The policy shall contain a provision that in the event of payment for any loss under the coverage provided, the insurance company shall have no rights of recovery against the CONTRACTOR, the OWNER, or the ENGINEER. The Builder's Risk policy shall insure against all risks of direct physical loss or damage to property from any external cause including flood and earthquake. Allowable exclusions, if any, shall be as specified in the Supplementary General Conditions.

ARTICLE 6 – CONTRACTOR RESPONSIBILITIES

6.01 SUPERVISION AND SUPERINTENDENCE

- A. The CONTRACTOR shall supervise and direct the WORK competently and efficiently, devoting the attention and applying the skills and expertise necessary to perform the WORK in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incidental thereto. The CONTRACTOR shall be responsible to see that the finished WORK complies accurately with the Contract Documents.
- B. The CONTRACTOR shall employ the superintendent named in "Information Required of Bidder" on the work site at all times during the progress of the WORK. The superintendent shall not be replaced without the OWNER's written consent. The superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CONTRACTOR shall issue all its communications to the OWNER.
- C. The CONTRACTOR's superintendent, or OWNER approved representative shall be present at the site of the WORK at all times while work is in progress. Failure to observe this requirement shall be considered suspension of the WORK by the CONTRACTOR until the superintendent is again present at the site.

6.02 LABOR, MATERIALS, AND EQUIPMENT

- A. The CONTRACTOR shall provide skilled, competent and suitably qualified personnel to survey and lay out the WORK and perform construction as required by the Contract Documents. The CONTRACTOR shall at all times maintain good discipline and order at the site.
- B. Except in connection with the safety or protection of persons at the WORK, or property at the site or adjacent thereto, all work at the site shall be performed during regular working hours (7:00 a.m. – 6:00 p.m., Monday through Friday), and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday or any legal holiday observed by the OWNER without the OWNER's written consent given after prior written notice to the OWNER. Except as otherwise provided in this Paragraph, the CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of 8 hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the OWNER in writing. Additional compensation will be paid the CONTRACTOR for overtime work in the event extra work is ordered by the OWNER and the Change Order specifically authorizes the use of overtime work, but only to the extent that the CONTRACTOR pays overtime wages on a regular basis being paid (>40 hours per week) for overtime work of a similar nature in the same locality.
- C. All costs of inspection and testing performed during overtime work approved solely for the convenience of the CONTRACTOR shall be borne by the CONTRACTOR. The OWNER shall have the authority to deduct the costs of all inspection and testing from any partial payments otherwise due to the CONTRACTOR.
- D. Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish, erect, maintain and remove the construction plant, and temporary works and assume full responsibility for all materials, equipment, labor, transportation, construction equipment, machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities and all other facilities and incidentals necessary for the furnishing, performance testing, start-up and completion of the WORK.
- E. All materials and equipment incorporated into the WORK shall be of new and good quality, except as otherwise provided in the Contract Documents. If required by the OWNER, the CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. The CONTRACTOR shall apply, install, connect, erect, use, clean, and condition all material and equipment in accordance with the instructions of the manufacturer and Supplier except as otherwise provided in the Contract Documents.

6.03 ADJUSTING PROGRESS SCHEDULE

- A. The CONTRACTOR shall submit any adjustments in the progress schedule to the OWNER for acceptance in accordance with the provisions for "Contractor Submittals" in the General Requirements.

6.04 SUBSTITUTES AND "OR-EQUAL" ITEMS

- A. The CONTRACTOR shall submit proposed substitutes and "or-equal" items in accordance with the provisions for "Contractor Submittals" in the General Requirements.

6.05 SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- A. The CONTRACTOR shall be responsible to the OWNER and the ENGINEER for the acts and omissions of its subcontractors and their employees to the same extent as the CONTRACTOR is responsible for the acts and omissions of its own employees. Nothing contained in this paragraph shall create any contractual relationship between any subcontractor and the OWNER or the ENGINEER nor relieve the CONTRACTOR of any liability or obligation under the Agreement.

6.06 PERMITS

- A. Unless otherwise provided in the Supplementary General Conditions, the CONTRACTOR shall obtain and pay for all construction permits and licenses from the agencies having jurisdiction, including furnishing the insurance and bonds required by such agencies. The costs incurred by the CONTRACTOR in compliance with this paragraph shall not be made the basis for claims for additional compensation. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and licenses. The CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the WORK, which are applicable at the time of opening of Bids, including all utility connection charges for utilities required by the WORK.
- B. The CONTRACTOR shall pay all license fees and royalties and assume all costs when any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others when issued in the construction of the WORK or incorporated into the WORK. If a particular invention, design, process, product, or device is specified in the Contract Documents for incorporation into or use in the construction of the WORK and if to the actual knowledge of the OWNER or the ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of these rights shall be disclosed by the OWNER in the Contract Documents. The CONTRACTOR shall indemnify, defend and hold harmless the OWNER and the ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorneys' fees and court costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the WORK or resulting from the incorporation in the WORK of any invention, design, process, product, or device not specified in the Contract Documents.

6.07 LAWS AND REGULATIONS

- A. The CONTRACTOR shall observe and comply with all Laws and Regulations which in any manner affect those engaged or employed on the WORK, the materials used in the WORK, or the conduct of the WORK. If any discrepancy or inconsistency should be discovered in the Contract Documents in relation to any Laws or Regulations, the CONTRACTOR shall report the same in writing to the OWNER. Notwithstanding any immunity otherwise provided by applicable workers' compensation statutes, the CONTRACTOR shall indemnify, defend and hold harmless the OWNER, the ENGINEER and their officers, agents, and employees against all claims arising from violation of any

Laws or Regulations, by CONTRACTOR or by its employees or subcontractors. This indemnity provision is intended to provide the greatest protection of the OWNER and ENGINEER allowed by law. Any particular law or regulation specified or referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the CONTRACTOR to comply with all other provisions of federal, state, and local laws and regulations.

6.08 EQUAL OPPORTUNITY

- A. The CONTRACTOR agrees not to discriminate against anyone because of race, national origin, ancestry, color, religion, sex, age, or disability. The CONTRACTOR agrees to abide by all applicable civil rights Laws and Regulations.

6.09 TAXES

- A. The CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by the CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the WORK.

6.10 USE OF PREMISES

- A. The CONTRACTOR shall confine construction equipment, stored materials and equipment, and other operations of workers to (1) the Project site, (2) the land and areas identified for the CONTRACTOR's use in the Contract Documents, and (3) other lands whose use is acquired by Laws and Regulations, rights-of-way, permits, and easements. The CONTRACTOR shall be fully responsible to the owner and occupant of such lands for any damage to the lands or areas contiguous thereto, resulting from the performance of the WORK or otherwise. Should any claim be made against the OWNER or the ENGINEER by owner or occupant of lands because of the performance of the WORK, the CONTRACTOR shall promptly settle the claim by agreement, or resolve the claim through litigation. The CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify, defend, and hold the OWNER and the ENGINEER harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers, architects, attorneys, and other professionals and court costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any owner or occupant of land against the OWNER or the ENGINEER to the extent the claim is based or arises out of the CONTRACTOR's performance of the WORK.

6.11 SAFETY AND PROTECTION

- A. The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. All persons on or near the work site and other persons and organizations who may be affected by activities on or near the work site.

2. All the WORK and materials and equipment to be incorporated therein, whether in storage on or off the site; and
 3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
- B. The CONTRACTOR shall comply with all applicable Laws and Regulations (whether referred to herein or not) of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss and shall erect and maintain all necessary safeguards for such safety and protection. The CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the WORK may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Unless the CONTRACTOR otherwise designates in writing a different individual as the responsible individual, the CONTRACTOR's superintendent shall be CONTRACTOR's representative at the site whose duties shall include providing all persons on the work site with a reasonably safe environment and the prevention of accidents.

6.12 SHOP DRAWINGS AND SAMPLES

- A. After checking and verifying all field measurements and after complying with the applicable procedures specified in the General Requirements, the CONTRACTOR shall submit all shop drawings to the OWNER for review and approval in accordance with the approved schedule for shop drawing submittals specified in the General Requirements.
- B. The CONTRACTOR shall also submit to the OWNER for review and approval all samples in accordance with the approved schedule of sample submittals specified in the General Requirements.
- C. Before submitting shop drawings or samples, the CONTRACTOR shall determine and verify all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and review or coordinate each shop drawing or sample with other shop drawings and samples and with the requirements of the WORK and the Contract Documents. The CONTRACTOR shall stamp each shop drawing, certifying his review. If the same shop drawings require re-submittal more than two times, the CONTRACTOR shall pay for the costs of ENGINEER's and OWNER's subsequent review(s).

6.13 CONTINUING THE WORK

- A. The CONTRACTOR shall carry on the WORK and adhere to the progress schedule during all disputes or disagreements with the OWNER. No work shall be delayed or postponed pending resolution of any dispute or disagreement, except as the CONTRACTOR and the OWNER may otherwise mutually agree in writing.

6.14 INDEMNIFICATION

- A. To the fullest extent permitted by Laws and Regulations, and notwithstanding any immunity the CONTRACTOR might otherwise have under applicable workers' compensation statutes, the CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, and their officers, agents, and employees, against and from all claims and liability arising under or by reason of, or claimed by others to arise under or by reason of, the Agreement or any performance of the WORK, but not from the sole negligence or willful misconduct of the OWNER and/or the ENGINEER. Such indemnification by the CONTRACTOR shall include but not be limited to the following:
1. Liability or claims resulting in whole or in part, directly or indirectly from, or claimed by others to result in whole or in part, directly or indirectly from, the negligence, carelessness or other fault of the CONTRACTOR or its employees, Subcontractors, Suppliers or agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction;
 2. Liability or claims arising in whole or in part, directly or indirectly, from or based on, or claimed by others to arise in whole or in part, directly or indirectly, from or based on, the violation of any Laws or Regulations by the CONTRACTOR or its employees, Subcontractors, Suppliers or agents;
 3. Liability or claims arising in whole or in part, directly or indirectly, from, or claimed by others to arise in whole or in part, directly or indirectly from, the use or manufacture by the CONTRACTOR, or its Subcontractors, Suppliers or agents in the performance of this Agreement of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance, unless otherwise specifically stipulated in this Agreement.
 4. Liability or claims arising in whole or in part, directly or indirectly, from, or claimed by others to arise in whole or in part, directly or indirectly from, the breach of any warranties, whether express or implied, made by the CONTRACTOR or its Subcontractors, Suppliers or agents;
 5. Liabilities or claims arising in whole or in part, directly or indirectly, from, or claimed by others to arise in whole or in part, directly or indirectly from, the willful misconduct of the CONTRACTOR or its Subcontractors, Suppliers or agents; and,
 6. Liabilities or claims arising in whole or in part, directly or indirectly, from, or claimed by others to arise in whole or in part, directly or indirectly from, any breach of the obligations assumed herein by the CONTRACTOR or its Subcontractors, Suppliers or agents.
 7. If for any reason the OWNER is required to pay damages in proportion to the fault of the OWNER notwithstanding the above indemnity provisions, CONTRACTOR shall, notwithstanding any workers' compensation immunity, indemnify and hold OWNER harmless from the payment of any increased damages OWNER is required to pay which result from a reapportionment of the fault of the CONTRACTOR, or any of its employees, Subcontractors or Suppliers pursuant to Utah Code Annotated section 78b-5-818, Comparative negligence.

- B. The CONTRACTOR shall reimburse the OWNER, and the ENGINEER for all costs and expense, (including but not limited to fees and charges of engineers, architects, attorneys, and other professional and court costs) incurred by the OWNER, and the ENGINEER in enforcing the provisions of this Paragraph.
- C. The indemnification obligation under this Paragraph shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any such subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.

6.15 CONTRACTOR'S DAILY REPORTS

- A. The CONTRACTOR shall complete a daily report indicating manpower, major equipment, subcontractors, weather conditions, etc., involved in the performance of the WORK. The daily report shall be completed on forms prepared by the CONTRACTOR and acceptable to the OWNER, and shall be submitted to the OWNER at the conclusion of each workday.

6.16 ASSIGNMENT OF CONTRACT

- A. The CONTRACTOR shall not assign, sublet, sell, transfer, or otherwise dispose of the Agreement or any portion thereof, or its right, title, or interest therein, or obligations thereunder, without the written consent of the OWNER except as imposed by law. If the CONTRACTOR violates this provision, the Agreement may be terminated at the option of the OWNER. In such event, the OWNER shall be relieved of all liability and obligations to the CONTRACTOR and to its assignee or transferee, growing out of such termination.

ARTICLE 7 – OTHER WORK

7.01 RELATED WORK

- A. The OWNER may perform other work related to the Project at the site by the OWNER's own forces, have other work performed by utility owners, or let other direct contracts for the performance of the other work which may contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents written notice thereof will be given to the CONTRACTOR prior to commencing any other work.
- B. The CONTRACTOR shall afford each utility owner and other contractor who is a party to a direct contract (or the OWNER, if the OWNER is performing the additional work with the OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of the other work. The CONTRACTOR shall properly connect and coordinate the WORK with the other work. The CONTRACTOR shall do all cutting, fitting, and patching of the WORK that may be required to make its several parts come together properly and integrate with the other work. The CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and shall only cut or alter their work with the written consent of the OWNER and the others whose work will be affected.
- C. If the proper execution or results of any part of the CONTRACTOR's work depends upon the integration of work with the completion of other work by any other contractor or utility owner (or the OWNER), the CONTRACTOR shall inspect and report to the OWNER in

writing all delays, defects, or deficiencies in the other work that renders it unavailable or unsuitable for proper integration with the CONTRACTOR's work. Except for the results or effects of material latent defects and deficiencies in the other work which could not reasonably have been discovered by the CONTRACTOR, the CONTRACTOR's failure to report will constitute an acceptance of the other work as fit and proper for integration with the CONTRACTOR's work and as a waiver of any claim for additional time or compensation associated with the integration of the CONTRACTOR's work with the other work.

7.02 COORDINATION

- A. If the OWNER contracts with others for the performance of other work on the Project at the site, a coordinator will be identified to the extent that the coordinator can be identified at this time, in the Supplementary General Conditions and delegated the authority and responsibility for coordination of the activities among the various contractors. The specific matters over which the coordinator has authority and the extent of the coordinator's authority and responsibility will be itemized in the Supplementary General Conditions or in a notice to the CONTRACTOR at such time as the identity of the coordinator is determined.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 COMMUNICATIONS

- A. The OWNER shall issue all its communications directly to the CONTRACTOR.

8.02 PAYMENTS

- A. The OWNER shall make payments to the CONTRACTOR as provided in Article 14.

8.03 LANDS, EASEMENTS, AND SURVEYS

- A. The OWNER's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. The OWNER shall identify and make available to the CONTRACTOR copies of exploration reports and subsurface conditions tests at the site and in existing structures which have been utilized in preparing the Drawings and Technical Specifications as set forth in Paragraph 4.02

8.04 CHANGE ORDERS

- A. The OWNER shall execute approved Change Orders for the conditions described in Paragraph 10.01D.
- B. When funds are not budgeted to support continuation of performance in a subsequent fiscal period, the contract shall be canceled and the contractor shall be reimbursed for the reasonable value of any non-recurring costs incurred but not amortized in the price of the supplies or services delivered under the contract.

8.05 INSPECTIONS AND TESTS

- A. The OWNER's responsibility with respect to inspection, tests, and approvals is set forth in Paragraph 13.03B.

8.06 SUSPENSION OF WORK

- A. In connection with the OWNER's right to stop work or suspend work, see Paragraphs 13.04 and 15.01, Paragraphs 15.02 and 15.03 deal with the OWNER's right to terminate services of the CONTRACTOR under certain circumstances.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 OWNER'S REPRESENTATIVE

- A. The OWNER will designate a representative during the construction period. The duties, responsibilities and the limitations of authority of the OWNER's representative during construction are summarized hereafter.

9.02 VISITS TO SITE

- A. The ENGINEER will make visits to the site during construction to observe and inspect the progress and quality of the WORK and to determine, in general if the WORK is proceeding in accordance with the Contract Documents.

9.03 PROJECT REPRESENTATIVE

- A. The OWNER'S Representative will observe and inspect the performance of the WORK. The Owner's Representative and/or other authorized agents of the OWNER shall serve as the primary contact(s) with the Contractor during the construction phase. All submittals shall be delivered to, and communications between the OWNER and the CONTRACTOR shall be handled by, the Owner's Representative and/or other authorized agents. The Owner's Representative shall be the primary authorized representative of the OWNER in all on-site relations with the CONTRACTOR.

9.04 CLARIFICATIONS AND INTERPRETATIONS

- A. The OWNER will issue, with reasonable promptness written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as the OWNER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

9.05 AUTHORIZED VARIATIONS IN WORK

- A. The OWNER may authorize minor variations in the WORK as described in the Contract Documents when such variations do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These variations shall be accomplished by issuing a Field Order. The issuance of a Field Order requires the CONTRACTOR to perform the work described in the order promptly. If the CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount

or extent thereof, the CONTRACTOR may make a claim therefor as provided in Article 11 and 12.

9.06 REJECTION OF DEFECTIVE WORK

- A. The OWNER is authorized to reject work which the OWNER believes to be defective and require special inspection or testing of the WORK as provided in Paragraph 13.03G, whether or not the WORK is fabricated, installed, or completed.

9.07 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS

- A. The OWNER will review for approval all CONTRACTOR submittals, including shop drawings, samples, substitutes, and "or equal" items, etc., in accordance with the procedures set forth in the General Requirements.
- B. In connection with the OWNER's REPRESENTATIVE responsibilities as to Change Orders, see Articles 10, 11, and 12.
- C. In connection with the OWNER responsibilities as to Applications for Payment, see Article 14.

9.08 DISPUTES, CLAIMS AND OTHER MATTERS

- A. All claims, disputes, and other matters concerning the acceptability of the WORK, the interpretation of the requirements of the Contract Documents pertaining to the performance of the WORK, and claims for changes in the Contract Price or Contract Time under Articles 11 and 12 will be referred to the OWNER in writing with a request for formal decision in accordance with this paragraph. The OWNER will render a decision in writing within 30 days of receipt of the request. Written notice of each claim, dispute, or other matter will be delivered by the CONTRACTOR to the OWNER promptly (but in no event later than 30 days) after the occurrence of the event. Written supporting data will be submitted to the OWNER with the written claim unless the OWNER allows an additional period of time to ascertain more accurate data in support of the claim.
- B. When reviewing the claim or dispute, the OWNER'S REPRESENTATIVE will not show partiality to the OWNER or the CONTRACTOR and will incur no liability in connection with any interpretation or decision rendered in good faith. The OWNER'S REPRESENTATIVE rendering of a decision with respect to any claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Paragraph 14.12) shall be a condition precedent to the OWNER's or the CONTRACTOR's exercise of their rights or remedies under the Contract Documents or by Law or Regulations with respect to the claim, dispute, or other matter.

9.09 LIMITATION ON ENGINEER'S RESPONSIBILITIES

- A. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the OWNER as to the WORK, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the WORK for compliance with the Contract

Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the OWNER any duty or authority to supervise or direct the performance of the WORK.

- B. Neither the OWNER nor the ENGINEER will be responsible for the CONTRACTOR's means, methods, techniques, sequences, or procedures of construction not specified in the Contract Documents. Neither the OWNER nor the ENGINEER shall have any responsibility for safety precautions or programs on site or for the safety of CONTRACTOR'S employees, Subcontractors, employees of Subcontractors, Suppliers, employees of Suppliers or others on site.
- C. Neither the OWNER nor the ENGINEER will be responsible for the acts or omissions of the CONTRACTOR nor of any Subcontractor, Supplier, or any other person or organization performing any of the WORK to the extent that such acts or omissions are not reasonably discoverable considering the level of observation and inspection required by the ENGINEER's agreement with the OWNER.

ARTICLE 10 – CHANGES IN THE WORK

10.01 GENERAL

- A. Without invalidating the Agreement and without notice to any surety, the OWNER may at any time or from time to time, order additions, deletions, or revisions in the WORK; these will be authorized by a written Field Order and/or a Change Order issued by the OWNER. Upon receipt of any of these documents, the CONTRACTOR shall promptly proceed with the work involved pursuant to the applicable conditions of the Contract Documents.
- B. If the OWNER and the CONTRACTOR are unable to agree upon the increase or decrease in the Contract Price or an extension or shortening of the Contract Time, if any, that should be allowed as a result of a Field Order, a claim may be made therefor as provided in Articles 11 and 12.
- C. The CONTRACTOR shall not be entitled to an increase in the Contract Price nor an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented by Change Order, except in the case of an emergency and except in the case of uncovering work provided in the Paragraph 13.03G.
- D. The OWNER and the CONTRACTOR shall execute appropriate Change Orders covering:
 - 1. Changes in the WORK which are ordered by the OWNER pursuant to Paragraph 10.01A;
 - 2. Changes required because of acceptance of defective work under Paragraph 13.06;
 - 3. Changes in the Contract Price or Contract Time which are agreed to by the parties; or
 - 4. Any other changes agreed to by the parties.

5. Any construction contract change order which increases the contract amount shall have the prior written certification of the District's controller that the expenditure of the change order amount is properly authorized by the Districts board of trustees consistent with the District's budget and financial management policies and the instructions of the board of trustees.
- E. If the provisions of any Bond require notice of any change to be given to a surety, the giving of these notices will be the CONTRACTOR's responsibility. The CONTRACTOR shall provide for the amount of each applicable Bond to be adjusted accordingly.

10.02 ALLOWABLE QUANTITY VARIATIONS

- A. Whenever a unit price and quantity have been established for a bid item in the Contract Documents, the quantity stated may be increased or decreased to a maximum of 25 percent with no change in the unit price. An adjustment in the quantity in excess of 25 percent will be sufficient to justify a change in the unit price. All changes in the quantities of bid items shall be documented by Change Order.
- B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover the eliminated work, the price of the eliminated work shall be agreed upon in writing by the OWNER and the CONTRACTOR. If the OWNER and the CONTRACTOR fail to agree upon the price of the eliminated work, the price shall be determined in accordance with the provisions of Article 11.

ARTICLE 11 – CHANGE OF CONTRACT PRICE

11.01 GENERAL

- A. The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the WORK. Except as directed by Change Orders, all duties, responsibilities, and obligations assigned to or undertaken by the CONTRACTOR shall be at its expense without change in the Contract Price.
- B. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the OWNER promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered with the claim, unless the OWNER allows an additional period of time to ascertain more accurate data in support of the claim, and shall be accompanied by the CONTRACTOR's written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of the occurrence of the event. If the OWNER and the CONTRACTOR cannot otherwise agree on the amount involved, all claims for adjustment in the Contract Price shall be determined by the OWNER in accordance with Paragraph 9.08A. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph.
- C. The value of any work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

1. Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
2. Mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.
3. On the basis of the cost of work (determined as provided in Paragraphs 11.02 and 11.03) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.04).

11.02 COST OF WORK (BASED ON TIME AND MATERIALS)

- A. General: The term "cost of work" means the sum of all costs necessarily incurred and paid by the CONTRACTOR for labor, materials, and equipment in the proper performance of work. Except as otherwise may be agreed to in writing by the OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project.
- B. Labor: The cost of labor used in performing work by the CONTRACTOR, a Subcontractor, or other forces will be the sum of the following:
 1. The actual wages paid plus any employer payments to, or on behalf of workers for fringe benefits including health and welfare, pension, vacation, and similar purposes. The cost of labor may include the rates paid to foremen when determined by the OWNER that the services of foremen do not constitute a part of the overhead allowance.
 2. All payments imposed by state and federal laws including, but not limited to, compensation insurance, and social security payments.
 3. The amount paid for subsistence and travel required by collective bargaining agreements, or in accordance with the regular practice of the employer.
 4. At the beginning of the extra work and as later requested by the OWNER, the CONTRACTOR shall furnish the OWNER proof of labor compensation rates being paid.
- C. Materials: The cost of materials used in performing work will be the cost to the purchaser, whether CONTRACTOR or Subcontractor, from the Supplier thereof, except as the following are applicable:
 1. Trade discounts available to the purchase shall be credited to the OWNER notwithstanding the fact that such discounts may not have been taken by the CONTRACTOR.
 2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual Supplier as determined by the OWNER. Markup except for actual costs incurred in the handling of such materials will not be allowed.
 3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from these sources

on extra work items or current wholesale price for the materials delivered to the work site, whichever is lower.

4. If, in the opinion of the OWNER, the cost of material is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of the material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned, delivered to the work site less trade discount. The OWNER reserves the right to furnish materials for the extra work and no claim shall be made by the CONTRACTOR for costs and profit on such materials.

D. Equipment: The CONTRACTOR will be paid for the use of equipment at the rental rate listed for the equipment specified in the Rental Rate Blue Book published by Dataquest, Inc. The rental rate will be used to compute payments for equipment whether the equipment is under the CONTRACTOR's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate resulting in the least total cost to the Owner for the total period of use.

1. All equipment shall, in the opinion of the OWNER, be in good working condition and suitable for the purpose for which the equipment is to be used.
2. Before construction equipment is used on the extra work, the CONTRACTOR shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the OWNER, in duplicate, a description of the equipment and its identifying number.
3. Unless otherwise specified, manufacturers' ratings and manufacturer-approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
4. Individual pieces of equipment or tools having a replacement value of \$100 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore.
5. Rental time will not be allowed while equipment is inoperative due to breakdowns.

E. Equipment on the Work: The rental time to be paid for equipment used on the WORK shall be the time the equipment is in productive operation on the extra work being performed and, in addition, shall include the time required to move the equipment to the location of the extra work and return it to the original location or to another location that requires no more moving time than that required to return it to its original location. Moving time will not be paid if the equipment is used on other than the extra work, even though located at the site of the extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power. However, no payment will be made for loading and transporting costs when the equipment is used on other than the extra work even though located at the site of the extra work. The following shall be used in computing the rental time of equipment on the WORK.

1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be 1/2-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation.
2. When daily rates are listed, any part of a day less than 4 hours operation shall be considered to be 1/2-day of operation. When owner-operated equipment is used to perform extra work to be paid for on a time and materials basis, the CONTRACTOR will be paid for the equipment and operator, as set forth in Paragraph (3), (4), and (5), following.
3. Payment for the equipment will be made in accordance with the provisions in Paragraph 11.02D, herein.
4. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the CONTRACTOR to other workers operating similar equipment already on the WORK, or in the absence of such labor, established by collective bargaining agreements for the type of workmen and location of the extra work, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein in accordance with the provisions of Paragraph 11.02B, herein, which surcharge shall constitute full compensation for payments imposed by state and federal laws and all payments made to on behalf of workers other than actual wages.
5. To the direct cost of equipment rental and labor, computed as provided herein, will be added the allowances for equipment rental and labor as provided in Paragraph 11.04, herein.

11.03 SPECIAL SERVICES

- A. Special work or services are defined as that work characterized by extraordinary complexity, sophistication, or innovation or a combination of the foregoing attributes which are unique to the construction industry. The following may be considered by the OWNER in making estimates for payment for special services:
 1. When the OWNER and the CONTRACTOR, by agreement, determine that a special service or work is required which cannot be performed by the forces of the CONTRACTOR or those of any of its Subcontractors, the special service or work may be performed by an entity especially skilled in the work to be performed. After validation of invoices and determination of market values by the OWNER, invoices for special services or work based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental cost.
 2. When the CONTRACTOR is required to perform work necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the job site, the charges for that portion of the work performed at the off-site facility may by agreement, be accepted as a special service and accordingly, the invoices from the work may be accepted without detailed itemization.
 3. All invoices for special services will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not.

In lieu of the allowances for overhead and profit specified in Paragraph 11.04, herein, an allowance of 5 percent will be added to invoices for special services.

- B. All work performed hereunder shall be subject to all of the provisions of the Contract Documents and the CONTRACTOR's sureties shall be bound with reference hereto as under the original Agreement. Copies of all amendments to surety bonds or supplemental surety bonds shall be submitted to the OWNER for review prior to the performance of any work hereunder.

11.04 CONTRACTOR'S FEE

- A. Work ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the OWNER, plus allowances for overhead and profit. For extra work involving a combination of increases and decreases in the WORK, the actual necessary cost will be the arithmetic sum of the additive and deductive costs. The allowance for overhead and profit shall include full compensation for superintendence, bond and insurance premiums, taxes, office expenses, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Paragraphs 11.02B, C, and D herein, including extended overhead and home office overhead. The allowance for overhead and profit will be made in accordance with the following schedule:

OVERHEAD AND PROFIT ALLOWANCE

| | |
|-----------------|------------|
| Labor | 10 percent |
| Materials | 10 percent |
| Equipment | 10 percent |

- B. It is understood that labor, materials, and equipment may be furnished by the CONTRACTOR or by a Subcontractor, and that the allowance specified herein shall be applied to the labor, materials, and equipment costs of the Subcontractor, to which the CONTRACTOR may add five percent of the Subcontractor's total cost of work. Regardless of the number of hierarchical tiers of Subcontractors, the five-percent markup may be applied one time only for each separate work transaction.

ARTICLE 12 – CHANGE OF CONTRACT TIME

12.01 GENERAL

- A. The Contract Time may only be changed by a Change Order. Any claim for an extension of the Contract time shall be based on written notice delivered by the CONTRACTOR to the OWNER promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 30 days after such occurrence (unless the OWNER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. Claims for adjustment in the Contract Time shall be determined by the OWNER in accordance with Paragraph 9.08 if the OWNER's representative and the CONTRACTOR

cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph.

- B. The Contract Time will be extended in an amount equal to time lost if the CONTRACTOR makes a claim as provided in Paragraph 12.01A and the OWNER determines that the delay was caused by events beyond the control of the CONTRACTOR. Examples of events beyond the control of the CONTRACTOR include acts or neglect by the OWNER or others performing additional work as contemplated by Article 7, or by acts of God or of the public enemy, fire, floods, epidemics, quarantine restrictions, strikes, labor disputes, sabotage, or freight embargoes.
- C. All time limits stated in the Contract Documents are of the essence.
- D. None of the aforesaid time extensions shall entitle the CONTRACTOR to any adjustment in the Contract Price or any damages for delay. Furthermore, the CONTRACTOR hereby indemnifies and holds harmless the OWNER and ENGINEER, their officers, agents and employees from and against all claims, damages, losses and expenses (including lost property and attorney's fees) arising out of or resulting from the temporary suspension of work whether for the OWNER's convenience as defined in Article 15.01A or for whatever other reasons including the stoppage of work by the OWNER for the CONTRACTOR's failure to comply with any order issued by the OWNER.

12.02 EXTENSIONS OF THE TIME FOR DELAY DUE TO INCLEMENT WEATHER

- A. "Inclement weather" is any weather condition or conditions resulting immediately therefrom, causing the CONTRACTOR to suspend construction operations or preventing the CONTRACTOR from proceeding with at least 75 percent of the normal labor and equipment force engaged on the WORK.
- B. Should the CONTRACTOR prepare to begin work at the regular starting time at the beginning of any regular work shift on any day on which inclement weather, or its effects on the condition of the WORK prevents work from beginning at the usual starting time and the crew is dismissed as a result thereof, the CONTRACTOR will not be charged for a working day whether or not conditions change thereafter during the day and the major portion of the day could be considered to be suitable for construction operations.
- C. The CONTRACTOR shall base its construction schedule upon the inclusion of the number of days of inclement weather specified in the Supplementary General Conditions. No extension of the Contract Time due to inclement weather will be considered until after the stated number of days of inclement weather has been reached. However, no reduction in Contract Time will be made if the number of inclement weather days is not reached.

12.03 EXTENSIONS OF TIME FOR OTHER DELAYS

- A. If the CONTRACTOR is delayed in completion of the WORK beyond the Contract Time, by acts of God or of the public enemy, fire, floods, epidemics, quarantine restrictions, strikes, labor disputes, industry-wide shortage of raw materials, sabotage or freight embargoes, the CONTRACTOR shall be entitled to an adjustment in the Contract Time. No such adjustment will be made unless the CONTRACTOR shall notify the OWNER in writing of the causes of delay within 15 calendar days from the beginning of any such delay. The OWNER shall ascertain the facts and the extent of the delay. No adjustment

in time shall be made for delays resulting from noncompliance with the Contract Documents, accidents, failure on the part of the CONTRACTOR to carry out the provisions of the Contract Documents including failure to provide materials, equipment or workmanship meeting the requirements of the Contract Documents; the occurrence of such events shall not relieve the CONTRACTOR from the necessity of maintaining the required progress.

- B. If the CONTRACTOR is delayed in completing the WORK beyond the Contract Time by reason of shortages of raw materials required for CONTRACTOR-furnished items, the CONTRACTOR shall be entitled to an adjustment in the Contract Time in like manner as if the WORK had been suspended for the convenience and benefit of the OWNER; provided, however, that the CONTRACTOR shall furnish documentation acceptable to the OWNER that he placed or attempted to place firm orders with Suppliers at a reasonable time in advance of the required date of delivery of the items in question, that such shortages shall have developed following the date such orders were placed or attempts made to place same, that said shortages are general throughout the affected industry, that said shortages are shortages of raw materials required to manufacture CONTRACTOR furnished items and not simply failure of CONTRACTOR's Suppliers to manufacture, assemble or ship items on time, and that the CONTRACTOR shall, to the degree possible, have made revisions in the sequence of his operations, within the terms of the Contract Documents, to offset the expected delay. The CONTRACTOR shall notify the OWNER, in writing, concerning the cause of delay, within 15 calendar days of the beginning of such delay. The validity of any claim by the CONTRACTOR to an adjustment in the Contract Time shall be determined by the OWNER, and his findings thereon shall be based on the OWNER's knowledge and observations of the events involved and documentation submitted by the CONTRACTOR, showing all applicable facts relative to the foregoing provisions. Only the physical shortage of raw materials will be considered under these provisions as a cause for adjustment of time and no consideration will be given to any claim that items could not be obtained at a reasonable, practical, or economical cost or price, unless it is shown to the satisfaction of the OWNER that such items could have been obtained only at exorbitant prices entirely out of line with current rates taking into account the quantities involved and the usual practices in obtaining such quantities.
- C. If the CONTRACTOR is delayed in completion of the WORK by any act of the OWNER not authorized by the Contract Documents, an adjustment in the Contract Time will be made by the OWNER in like manner as if the WORK had been suspended for the convenience and benefit of the OWNER. In the event of such delay, the CONTRACTOR shall notify the OWNER in writing of the causes of delay within 15 calendar days from the beginning of any such delay.

ARTICLE 13 – WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

13.01 WARRANTY, GUARANTEE AND CORRECTION PERIOD

- A. The CONTRACTOR warrants and guarantees to the OWNER and the ENGINEER that all work, equipment, materials and workmanship are in accordance with the Contract Documents and are not defective. Reasonably prompt notice of defects discovered by the OWNER or ENGINEER shall be given to the CONTRACTOR. All defective work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13.

- B. If within one (1) year after the date of final completion, as set by the Contractor's Certificate of Final Completion, or a longer period of time prescribed by Laws or Regulations or by the terms of any applicable special guarantee or specific provisions of the Contract Documents, any part of the WORK is found to be defective, the OWNER shall notify the CONTRACTOR in writing and the CONTRACTOR shall promptly, without cost to the OWNER and in accordance with the OWNER's written notification, either correct the defective work, or, if it has been rejected by the OWNER, remove it from the site and replace it with non-defective work. In the event the CONTRACTOR does not promptly comply with the notification, or in an emergency where delay would cause serious risk of loss or damage, the OWNER may have the defective work corrected or rejected work removed and replaced. All direct, indirect, and consequential costs of the removal and replacement including but not limited to fees and charges of engineers, architects, attorneys and other professionals will be paid by the CONTRACTOR. This paragraph shall not be construed to limit nor diminish the CONTRACTOR's absolute guarantee to complete the WORK in accordance with the Contract Documents.

13.02 ACCESS TO WORK

- A. The ENGINEER, other representatives of the OWNER, testing agencies, and governmental agencies with jurisdictional interests shall have access to the work at reasonable times for their observation, inspections, and testing. The CONTRACTOR shall provide proper and safe conditions for their access.

13.03 TESTS AND INSPECTIONS

- A. The CONTRACTOR shall give the OWNER timely notice of readiness of the WORK for all required inspections, tests, or approvals.
- B. If Laws or Regulations of any public body other than the OWNER, with jurisdiction over the WORK require any work to be specifically inspected, tested, or approved, the CONTRACTOR shall pay all costs in connection therewith. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the OWNER's acceptance of a Supplier of materials or equipment proposed as a substitution or "or-equal" to be incorporated in the WORK and of materials or equipment submitted for review prior to the CONTRACTOR's purchase for incorporation in the WORK. The cost of all inspections, tests, and approvals, with the exception of the above which are required by the Contract Documents, shall be paid by the OWNER (unless otherwise specified).
- C. The OWNER will make, or have made, such inspections and tests as the OWNER deems necessary to see that the WORK is being accomplished in accordance with the Contract Documents. The CONTRACTOR, without additional cost to the OWNER, shall provide the labor and equipment necessary to make the WORK available for inspections. Unless otherwise specified in the Supplementary General Conditions, all other costs of inspection and testing will be borne by the OWNER. In the event the inspections or tests reveal non-compliance with the requirements of the Contract Documents, the CONTRACTOR shall bear the cost of corrective measures deemed necessary by the OWNER, as well as the cost of subsequent re-inspection and retesting. Neither observations by the OWNER nor inspections, tests, or approvals by others shall relieve the CONTRACTOR from the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

- D. All inspections, tests, or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by properly licensed organizations selected by the OWNER.
- E. If any work (including the work of others) that is to be inspected, tested, or approved is covered without the OWNER's written authorization, it must, if requested by the OWNER, be uncovered for testing, inspection, and observation. The uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR timely notified the OWNER of the CONTRACTOR's intention to cover the same and the OWNER failed to act with reasonable promptness in response to the notice.
- F. If any work is covered contrary to the written request of the OWNER, it must, if requested by the OWNER, be uncovered for the OWNER's observation at the CONTRACTOR's expense.
- G. If the OWNER considers it necessary or advisable that covered work be observed, inspected or tested by the OWNER or others, the OWNER shall direct the CONTRACTOR to uncover, expose, or otherwise make available for observation, inspection, or testing that portion of the work in question. The CONTRACTOR shall comply with the OWNER's direction and furnish all necessary labor, material, and equipment. If the work is defective, the CONTRACTOR shall bear all direct, indirect and consequential costs of uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction of the work, including, but not limited to, fees and charges for engineers, architects, attorneys, and other professionals. However, if the work is not defective, the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both. The increase in Contract Time and Contract Price shall be the CONTRACTOR's actual time and costs directly attributable to uncovering and exposing the work. If the parties are unable to agree as to the amount or extent of the changes, the CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

13.04 OWNER MAY STOP THE WORK

- A. If the WORK is defective, or the CONTRACTOR fails to perform work in such a way that the completed WORK will conform to the Contract Documents, the OWNER may order the CONTRACTOR to stop the WORK, or any portion thereof, until the cause for the order has been eliminated. This right of the OWNER to stop the WORK shall not give rise to any duty on the part of the OWNER to exercise this right for the benefit of the CONTRACTOR or any other party.

13.05 CORRECTION OR REMOVAL OF DEFECTIVE WORK

- A. When directed by the OWNER, the CONTRACTOR shall promptly correct all defective work, whether or not fabricated, installed, or completed, or, if the work has been rejected by the OWNER, remove it from the site and replace it with non-defective work. The CONTRACTOR shall bear all direct, indirect and consequential costs of correction or removal, including but not limited to fees and charges of engineers, architects, attorneys, and other professionals made necessary thereby. If the CONTRACTOR does not correct the defective work within 30 days, the OWNER may correct the WORK and charge the CONTRACTOR for the cost of correcting the defective WORK.

13.06 ACCEPTANCE OF DEFECTIVE WORK

- A. If, instead of requiring correction or removal and replacement of defective work, the OWNER prefers to accept the work, the OWNER may do so. The CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the OWNER's evaluation of and determination to accept the defective work. If any acceptance of defective work occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the WORK, and the OWNER shall be entitled to an appropriate decrease in the Contract Price.

ARTICLE 14 – PAYMENTS TO CONTRACTOR, LIQUIDATED DAMAGES AND COMPLETION

14.01 LUMP SUM BID

- A. A schedule of values or lump sum price breakdown will serve as the basis for progress payments for a lump sum Bid and will be incorporated into the form of Application for Payment included in the Contract Documents.

14.02 UNIT PRICE BID

- A. Progress payments for a unit price Bid will be based on the number of units completed.

14.03 APPLICATION FOR PROGRESS PAYMENT

- A. Unless otherwise prescribed by the OWNER, on the 25th of each month, the CONTRACTOR shall submit to the OWNER for review and approval, an Application for Payment completed and signed by the CONTRACTOR covering the WORK completed as of the date of the Application and accompanied by such supporting documentation as required by the Contract Documents.
- B. The Application for Payment shall identify, as a sub-total, the amount of the CONTRACTOR's Total Earnings to Date, plus the Net Value of Materials On-site which have not yet been incorporated in the WORK.
- C. The Net Payment Due to the CONTRACTOR shall be the above-mentioned sub-total, from which shall be deducted the retainage amount and the total amount of all previous payments made to the CONTRACTOR.
- D. The OWNER may retain five percent of the amount otherwise due to the Contractor as retainage. Monies retained shall be placed in an interest-bearing account for the benefit of the CONTRACTOR.
- E. Except as otherwise provided in the Supplementary General Conditions, the value of materials stored at the site shall be valued at 95 percent of the value of the materials. This amount shall be based upon the value of all acceptable materials and equipment stored at the site or at another location agreed to in writing by the OWNER; provided, each individual item has a value of more than \$5000 and will become a permanent part of the WORK. The Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that the CONTRACTOR has received the materials and equipment free and clear of all liens, charges, security interests, and encumbrances (which are hereinafter referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other

arrangements to protect the OWNER's interest therein, all of which will be satisfactory to the OWNER.

14.04 CONTRACTOR'S WARRANTY OF TITLE

- A. The CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by an Application for Payment, whether incorporated in the WORK or not, will pass to the OWNER no later than the time of final payment, free and clear of all liens.

14.05 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

- A. The OWNER will, within 7 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the OWNER, or return the Application to the CONTRACTOR indicating in writing the OWNER's reasons for refusing to recommend payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the Application. Thirty days after presentation of the Application for Payment with the OWNER's REPRESENTATIVE recommendation, the amount recommended will (subject to the provisions of Paragraph 14.05B) become due and when due will be paid by the OWNER to the CONTRACTOR.
- B. The OWNER may refuse to make payment of the full amount recommended by the OWNER's REPRESENTATIVE to compensate for claims made by the OWNER on account of the CONTRACTOR's performance of the WORK or other items entitling the OWNER to a credit against the amount recommended, but the OWNER must give the CONTRACTOR written notice within 7 days stating the reasons for such action.

14.06 PARTIAL UTILIZATION

- A. The OWNER may utilize or place into service any item of equipment or other usable portion of the WORK at any time prior to completion of the WORK. The OWNER shall notify the CONTRACTOR in writing of its intent to exercise this right. The notice will identify the equipment or specific portion or portions of the WORK to be utilized or otherwise placed into service.
- B. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all items or portions of the WORK to be partially utilized shall be borne by the CONTRACTOR. Upon the issuance of a notice of partial utilization, the OWNER's REPRESENTATIVE will deliver to the OWNER and the CONTRACTOR a written recommendation as to division of responsibilities between the OWNER and the CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities and insurance.
- C. The CONTRACTOR shall retain full responsibility for satisfactory completion of the WORK, regardless of whether a portion thereof has been partially utilized by the OWNER, and the CONTRACTOR's one-year correction period shall commence only after the date of Final Completion for the WORK.

14.07 DAMAGES

- A. The CONTRACTOR shall pay to the OWNER the amount specified in the Supplementary General Conditions, not as a penalty but as liquidated damages, if he fails to complete the WORK or specified parts of the WORK within the Contract Time. The periods for which these damages shall be paid shall be the number of Days from the Contract Time as contained in the Agreement, or from the date of termination of any extension of time approved by the OWNER, to the date or dates on which the OWNER issues the Notice of Substantial Completion as provided in Article 14.08, herein. The OWNER may deduct the amount of said damages from any monies due or to become due the CONTRACTOR. After Substantial Completion, if the CONTRACTOR fails to complete the remaining WORK within 45 days or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER the amount stated in the Supplementary General Conditions as liquidated damages for each day that expires after the 45 days, until readiness for final payment.
- B. The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would sustain; and said amount is agreed to be the amount of damages which the OWNER would sustain.
- C. If actual damages are assessed, they will include all costs incurred by the OWNER as a result of a delay in the completion time of the work beyond the contract time.
- D. All times specified in the Contract Documents are hereby declared to be of the essence.

14.08 SUBSTANTIAL COMPLETION

- A. When the CONTRACTOR considers the WORK ready for its intended use, the CONTRACTOR will notify the OWNER in writing that the WORK is Substantially Complete. Within a reasonable time thereafter, the OWNER and the CONTRACTOR, shall make an inspection of the WORK to determine the status of completion. If the OWNER does not consider the WORK Substantially Complete, the OWNER will notify the CONTRACTOR in writing giving the reasons therefor. If the OWNER considers the WORK Substantially Complete, the OWNER will execute the Notice of Substantial Completion signed by the CONTRACTOR, which shall fix the date of Substantial Completion.
- B. The Notice of Substantial Completion shall be a release by the CONTRACTOR of the OWNER and its agents from all claims and liability to the CONTRACTOR for anything done or furnished for, or relating to, the WORK or for any act or neglect of the OWNER or of any person relating to or affecting the WORK, to the date of Substantial Completion, except demands against the OWNER for the remainder of the amounts kept or retained from progress payments and excepting pending, unresolved claims filed in writing prior to the date of Substantial Completion. At the time of delivery of the Notice of Substantial Completion, the OWNER's REPRESENTATIVE will deliver to the OWNER and the CONTRACTOR, if applicable, a written recommendation as to division of responsibilities between the OWNER and the CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities and insurance. Upon the OWNER's acceptance of these recommendations, the recommendation will be binding on the OWNER and the CONTRACTOR until final payment.

- C. The OWNER, upon written notice to the CONTRACTOR, shall have the right to exclude the CONTRACTOR from the WORK after the date of Substantial Completion, and complete all or portions of the WORK at the CONTRACTOR's expense.

14.09 COMPLETION AND FINAL PAYMENT

- A. Upon written certification from the CONTRACTOR that the WORK is complete (if a Notice of Substantial Completion has been issued this certification must occur within 45 days of that date), the OWNER will make a final inspection with the CONTRACTOR. If the OWNER does not consider the WORK complete, the OWNER will notify the CONTRACTOR in writing of all particulars in which this inspection reveals that the WORK is incomplete or defective. The CONTRACTOR shall immediately take the measures necessary to remedy these deficiencies. If the OWNER considers the WORK complete, the CONTRACTOR may proceed to file its application for final payment pursuant to this Article. At the request of the CONTRACTOR, the OWNER's REPRESENTATIVE may recommend to the OWNER that certain minor deficiencies in the WORK that do not prevent the entire WORK from being used by the OWNER for its intended use, and the completion of which will be unavoidably delayed due to no fault of the CONTRACTOR, be exempted from being completed prerequisite to final payment. These outstanding items of pickup work, or "punch list items", shall be listed on the Notice of Substantial Completion, together with the recommended time limits for their completion, and extended warranty requirements for those items and the value of such items.
- B. After the issuance of the Notice of Completion and after the CONTRACTOR has completed corrections that have not been exempted to the satisfaction of the OWNER and delivered to the OWNER all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, marked-up record documents and other documents, all as required by the Contract Documents; and after the OWNER has indicated that the WORK is acceptable, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final application for payment shall be accompanied by all documentation called for in the Contract Documents and other data and schedules as the OWNER may reasonably require, including an affidavit of the CONTRACTOR that all labor, services, material, equipment and other indebtedness connected with the WORK for which the OWNER or his property might in any way be responsible, have been paid or otherwise satisfied, and a consent of the payment bond surety to final payment, all in forms approved by the OWNER.

14.10 FINAL APPLICATION FOR PAYMENT

- A. If, on the basis of the OWNER's observation of the WORK during construction and final inspection, and the OWNER's review of the final application for payment and accompanying documentation, all as required by the Contract Documents, the OWNER is satisfied that the WORK has been completed and the CONTRACTOR has fulfilled all of his obligations under the Contract Documents, the OWNER's REPRESENTATIVE will, within ten days after receipt of the final application for payment, indicate in writing his recommendation of payment and present the application to the OWNER for payment. Thereupon, the OWNER's REPRESENTATIVE will give written notice to the OWNER and the CONTRACTOR that the WORK is acceptable by executing the Notice of Completion. Otherwise, the OWNER will return the application to the CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case the CONTRACTOR shall make the necessary corrections and resubmit the application.

- B. Within 45 calendar days after the Notice of Completion, the OWNER will make final payment including all deducted retainage and interest to the CONTRACTOR. The OWNER's remittance of final payment shall be the OWNER's acceptance of the WORK if formal acceptance of the WORK is not indicated otherwise. The final payment shall be that amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract, including the following items:
1. Liquidated or actual damages, as applicable.
 2. Two times the value of any outstanding items of pickup work or "punch list items", indicated on the OWNER's Notice of Completion as being yet uncompleted.

14.11 CONTRACTOR'S CONTINUING OBLIGATIONS

- A. The CONTRACTOR's obligation to perform and complete the WORK in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the OWNER, nor the issuance of a Notice of Substantial Completion or Notice of Completion, nor payment by the OWNER to the CONTRACTOR under the Contract Documents, nor any use or occupancy of the WORK or any part thereof by the OWNER, nor any act of acceptance by the OWNER nor any failure to do so, nor any review of a shop drawing or sample submittal, will constitute an acceptance of work or materials not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

14.12 FINAL PAYMENT TERMINATES LIABILITY OF OWNER

- A. Final payment is defined as the last progress payment made to the CONTRACTOR for earned funds, less deductions listed in Paragraph 14.10B herein. The acceptance by the CONTRACTOR of the final payment referred to in Paragraph 14.10 herein, shall be a release of the OWNER and its agents from all claims of liability to the CONTRACTOR for anything done or furnished for, or relating to, the work or for any act or neglect of the OWNER or of any person relating to or affecting the work, except demands against the OWNER for the remainder, if any, of the amounts kept or retained under the provisions of Paragraph 14.10 herein; and excepting pending, unresolved claims filed prior to the date of the Notice of Substantial Completion.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 SUSPENSION OF WORK BY OWNER

- A. The OWNER may, by written notice to the Contractor, temporarily suspend the WORK, in whole or in part, for a period or periods of time, but not to exceed 90 days, for the convenience and benefit of the OWNER upon the occurrence of any one or more of the following: (1) unsuitable weather; (2) delay in delivery of OWNER- furnished equipment or materials, or such other conditions as are considered unfavorable for prosecution of the work; (3) Shortfall in construction funds; (4) Constraints imposed by public entities, public utilities, property owners or legal proceedings; (5) Failure or delay in acquisition of easements or right-of-way by the OWNER; or (6) Other conditions which, in the opinion of

the OWNER, warrant a delay in the WORK. Suspended WORK shall be resumed by the CONTRACTOR within 10 calendar days of receipt from the OWNER of written notice to resume work. Whenever the OWNER temporarily suspends work for any conditions enumerated in this Article, the CONTRACTOR shall be entitled to an adjustment in the Contract Time as specified in Article 12.03 C.

- B. The suspension of work shall be effective upon receipt by the CONTRACTOR of a written order suspending the work and shall be terminated upon receipt by the Contractor of a written order terminating the suspension.
- C. The CONTRACTOR hereby indemnifies and holds harmless the OWNER, their officers, agents and employees, from and against all claims, damages, losses and expenses, including lost profits and attorney's fees, arising out of or resulting from the temporary suspension of the WORK, whether for the OWNER's convenience described in this Article or for whatever other reasons, including the stoppage of work by the OWNER for the CONTRACTOR's failure to comply with any order issued by the OWNER.

15.02 TERMINATION OF AGREEMENT BY OWNER (CONTRACTOR DEFAULT)

- A. In the event of default by the CONTRACTOR, the OWNER may give written notice to the CONTRACTOR of OWNER's intent to terminate the Agreement. The notice shall state the event of default and the time allowed to remedy the default. It shall be considered a default by the CONTRACTOR whenever the CONTRACTOR shall: (1) declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors; (2) fail to provide materials or workmanship meeting the requirements of the Contract Documents; (3) disregard or violate provisions of the Contract Documents or OWNER's instructions, (4) fail to prosecute the WORK according to the approved progress schedule; or, (5) fail to provide a qualified superintendent, competent workmen, or materials or equipment meeting the requirements of the Contract Documents. If the CONTRACTOR fails to remedy the conditions constituting default within the time allowed, the OWNER may then issue a Notice of Termination.
- B. In the event the Agreement is terminated in accordance with Paragraph 15.02A, the OWNER may take possession of the WORK and may complete the WORK by whatever method or means the OWNER may select. The cost of completing the WORK shall be deducted from the balance which would have been due the CONTRACTOR had the Agreement not been terminated and the WORK completed in accordance with the Contract Documents. If such cost exceeds the balance which would have been due, the CONTRACTOR shall pay the excess amount to the OWNER. If such cost is less than the balance which would have been due, the CONTRACTOR shall have no claim to the difference.

15.03 TERMINATION OF AGREEMENT BY OWNER (FOR CONVENIENCE)

- A. The OWNER may terminate the Agreement at any time if it is found that reasons beyond the control of either the OWNER or CONTRACTOR make it impossible or against the OWNER's interests to complete the WORK. In such a case, the CONTRACTOR shall have no claims against the OWNER except: (1) for the value of the work, as determined by the OWNER, performed by the Contractor up to the date the Agreement is terminated; and, (2) for the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Agreement is terminated, which would be needed in the

WORK and which meet the requirements of the Contract Documents. The value of work performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined by the OWNER in accordance with the procedure prescribed from making the final application for payment and final payment under Paragraphs 14.09 and 14.10.

15.04 TERMINATION OF AGREEMENT BY CONTRACTOR

- A. The CONTRACTOR may terminate the Agreement upon 10 days written notice to the OWNER, whenever: (1) the WORK has been suspended under the provisions of Paragraph 15.01, for more than 90 consecutive days through no fault or negligence of the CONTRACTOR, and notice to resume work or to terminate the agreement has not been received from the OWNER within this time period; or, (2) the OWNER should fail to pay the CONTRACTOR any monies due him in accordance with the terms of the Contract Documents and within 60 days after presentation to the OWNER by the CONTRACTOR of a request therefore, unless within said 10-day period the OWNER shall have remedied the condition upon which the payment delay was based. In the event of such termination, the CONTRACTOR shall have no claims against the OWNER except for those claims specifically enumerated in Paragraph 15.03, and as determined in accordance with the requirements of that paragraph.

ARTICLE 16 – NOTICE

16.01 GIVING NOTICE

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

16.02 TITLE TO MATERIALS FOUND ON THE WORK

- A. The OWNER reserves the right to retain title to all soils, stone, sand, gravel, and other materials developed and obtained from excavations and other operations connected with the WORK. Unless otherwise specified in the Contract Documents, neither the CONTRACTOR nor any Subcontractor shall have any right, title, or interest in or to any such materials. The CONTRACTOR will be permitted to use in the WORK, without charge, any such materials which meet the requirements of the Contract Documents.

16.03 RIGHT TO AUDIT

- A. If the CONTRACTOR submits a claim to the OWNER for additional compensation, the OWNER shall have the right, as a condition to considering the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the CONTRACTOR's books. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plants, or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that

the right to audit encompasses all subcontracts and is binding upon subcontractors. The right to examine and inspect herein provided for shall be exercisable through such representatives as the OWNER deems desirable during the CONTRACTOR's normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the OWNER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the OWNER.

16.04 HAZARDOUS MATERIALS

- A. If the CONTRACTOR during the course of work observes the existence of hazardous material, the CONTRACTOR shall promptly notify the OWNER. The OWNER shall consult with others regarding removal or encapsulation of the hazardous material and the CONTRACTOR shall not perform any work pertinent to the hazardous material prior to receipt or special instruction from the OWNER.

ARTICLE 17 – SUBCONTRACT LIMITATIONS

17.01 SUBCONTRACT LIMITATIONS

- A. In addition to the provisions of Paragraph 6.05 of the General Conditions, the CONTRACTOR shall perform not less than 30 percent of the WORK with its own forces (i.e., without subcontracting). The 30 percent requirement shall be understood to refer to the WORK, the value of which totals not less than 30 percent of the Contract Price.

ARTICLE 18 – PATENTS AND COPYRIGHTS

18.01 PATENTS AND COPYRIGHTS

- A. The CONTRACTOR shall indemnify and save harmless the OWNER, the ENGINEER, and their officers, agents, and employees, against all claims or liability arising from the use of any patented or copyrighted design, device, material, or process by the CONTRACTOR or any of his subcontractors in the performance of the WORK.

-END OF SECTION-

**SECTION 00800
SUPPLEMENTARY GENERAL CONDITIONS**

PART 1 – GENERAL

These Supplementary General Conditions make additions, deletions, or revisions to the General Conditions as indicated herein. All provisions which are not so added, deleted, or revised remain in full force and effect. Terms used in these Supplementary General Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

SGC-1 DEFINITIONS

Add the following definitions to Article 1:

OWNER – The OWNER is further defined as South Valley Water Reclamation Facility, 7495 South 1300 West, West Jordan, Utah 84084. Telephone No.: (801) 566-7711.

OWNER'S REPRESENTATIVE – The OWNER'S REPRESENTATIVE is defined in SGC – 9.03 on page 00800-5. The OWNER'S REPRESENTATIVE for this project shall be Taigon Worthen.

BIDDER – The person, firm, or corporation, partnership or joint venture or LLC submitting a Bid for the Work.

CONTRACTOR – The person, firm, or corporation, partnership or joint venture or LLC with whom the OWNER has executed the Agreement.

ENGINEER – Defined as the firm of JWO Engineering, PLLC, located at 726 S 400 E Orem UT, 84097

SGC-2.02 COPIES OF DOCUMENTS

The OWNER shall furnish to the CONTRACTOR 5 copies of the Contract Documents which may include bound reduced drawings, if any, together with 2 sets of full-scale Drawings if requested. Additional quantities of the Contract Documents will be furnished at reproduction cost plus mailing costs if copies are mailed.

SGC-4.02 REPORTS OF PHYSICAL CONDITIONS

In the preparation of the Contract Documents, the OWNER has relied upon:

- A. The following drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground utilities) which are at or contiguous to the site of the WORK.
 - 1. Drawings dated May 28, 1982, prepared by James M. Montgomery, Consulting Engineers, Inc. entitled "SVWRF – Project 2A."
 - 2. Drawings dated May 8, 1984, prepared by James M. Montgomery, Consulting Engineers, Inc. entitled "SVWRF - Project 2B."

3. Drawings dated January 23, 1992, prepared by James M. Montgomery, Consulting Engineers, Inc. entitled "SVWRF – Project 3."
 4. Drawings dated May 3, 2001, prepared by Montgomery Watson entitled "SVWRF – Project 4A."
 5. Drawings dated March 21, 2003, prepared by Montgomery Watson Harza entitled "SVWRF – Project 4B."
 6. Drawings dated August 14, 2006, prepared by Black & Veatch Corporation entitled "Biosolids Thermal Drying Facility."
- B. Copies of these drawings may be examined at the office of the OWNER, during regular business hours. As provided in Paragraph 4.02 of the General Conditions and as identified and established above, the CONTRACTOR may rely upon the accuracy of the technical data contained in such reports and drawings, except for such physical dimensions that can be field verified; however, the interpretation of such technical data, including any interpolation or extrapolation thereof, and opinions contained in such reports and drawings are not to be relied on by the CONTRACTOR.

SGC-5.01 BONDS

Delete the first sentence of Paragraph 5.1A and add the following:

The CONTRACTOR shall furnish a satisfactory Performance Bond in the amount of 100 percent of the Contract Price and a satisfactory Payment Bond in the amount of 100 percent of the Contract Price as security for the faithful performance and payment of all the CONTRACTOR's obligations under the Contract Documents.

SGC-5.02 INSURANCE

- A. Substitute for Paragraph 5.02.B. the following:

All insurance required by the Contract Documents to be purchased and maintained by the CONTRACTOR shall be obtained from insurance companies that are duly licensed, admitted, and authorized to issue insurance policies for the limits and coverage so required in the State in which the Project is located. Such insurance companies shall have a current Best's Rating of at least an "A" (Excellent) general policy holder's rating and a Class VIII financial size category and shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.

- B. Add the following to Paragraph 5.02.B.5:

If the OWNER finds it necessary to occupy or use a portion or portions of the project prior to Substantial Completion, the OWNER shall provide notice of occupancy without the need for mutual agreement between the OWNER and the CONTRACTOR and to which the insurance company providing the Builder's Risk Insurance has consented by endorsement to the policy or policies.

- C. The limits of liability for the insurance required by Paragraph 5.2 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations. Limits may be provided by a combination of primary and excess liability policies or through a single policy. If the limits are provided by a combination of primary and excess liability policies, then the excess or umbrella liability coverages shall include commercial general, comprehensive automobile, and employer's liability and shall provide coverage at least as broad as the underlying policies.

1. Workers' Compensation:

- | | | |
|----|-----------------------------------|-------------|
| a. | State: | Statutory |
| b. | Applicable Federal (e.g. USHL&H): | Statutory |
| c. | Employer's Liability: | \$1,000,000 |

2. Comprehensive or Commercial General Liability:

Combined Single Limit:

- | | | |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| a. | Premises/operations | |
| | \$ 1,000,000 | Each Occurrence |
| | \$ 2,000,000 | Annual Aggregate |
| b. | Products/completed operations | |
| | \$ 1,000,000 | Each Occurrence |
| | \$ 2,000,000 | Annual Aggregate |
| c. | Personal Injury | |
| | \$ 1,000,000 | Each Occurrence |
| | \$ 2,000,000 | Annual Aggregate |
| d. | Policies shall include premises/operations, products, completed operations, independent contractors, owners' and contractors' protective, explosion, collapse, underground hazards, broad form contractual, personal injury with employment contractual exclusions deleted, and broad form property damage. | |
| e. | If policies are written on a Commercial General Liability form, the General Aggregate shall be at least two times the each occurrence limit or be written on a "per project" basis. | |
| f. | All policies shall be written on an occurrence basis. If the CONTRACTOR would like to substitute any "claims made" liability policies, then these must be pre-approved in writing according to the terms and conditions they may impose. | |
| g. | If policies are written for split limits, limits shall be equal for bodily injury and property damage liability. | |

3. Comprehensive Automobile Liability (including owned, hired, and non-owned vehicles):

Combined Single Limit:
 - a. Bodily Injury and Property Damage: \$2,000,000 each accident
 - b. If policies are written for split limits, limits shall be equal for bodily injury per person, bodily injury per accident and property damage.
4. Excess Liability Insurance:
 - a. \$4,000,000 over all underlying coverage lines
5. Builder's Risk Insurance:
 - a. In an amount equal to the replacement cost of the completed value of the project or \$4,000,000 whichever is greater.
 - b. Any deductibles of self-insured retentions shall be as agreed to by the OWNER and CONTRACTOR.
 - c. The CONTRACTOR shall include flood and earthquake coverage in the Builder's Risk Insurance requirements under Paragraph 5.02.B.5 of the General Conditions, with a minimum limit of \$4,000,000 per event or occurrence.
- D. All policies shall provide that the CONTRACTOR agrees to waive all rights of subrogation against the OWNER, the ENGINEER, and their subconsultants, employees, officers and directors, for WORK performed under the Agreement. Endorsements shall be provided with certificates of insurance.
- E. All policies shall also specify that the insurance provided by the CONTRACTOR will be considered primary and not contributory to another insurance available to the OWNER or ENGINEER.
- F. All policies except Workers' Compensation and Builders Risk shall name the OWNER, including their officers, directors or board members, employees agents or any others associated with the management or operations of South Valley Water Reclamation Facility; Engineer, their consultants, subconsultants, shall be additional insureds on the Auto Liability and Commercial General Liability policies. The Builders Risk insurance shall name the CONTRACTOR, OWNER, and ENGINEER as named insureds and subcontractors and additional insureds. The Workers' Compensation policy shall name the OWNER as additional insured by means of an alternative employer endorsement, with respect to the employer's liability coverage only.
- G. All policies shall provide for 60 days notice prior to any cancellation, reduction in coverage or nonrenewal.

- H. The deductible or self-insured retention on Comprehensive or Commercial General Liability shall not be greater than \$25,000. All deductibles are the responsibility of the CONTRACTOR.

SGC-6.05 SUBCONTRACT LIMITATIONS

Add the following as paragraph 6.05.B of the General Conditions

- B. The CONTRACTOR shall perform not less than 30 percent of the WORK with its own forces (i.e., without subcontracting). The 30 percent requirement shall be understood to refer to the WORK, the value of which totals not less than 30 percent of the Contract Price.

SGC-6.06 PERMITS

- A. The CONTRACTOR shall acquire and comply with the following permits if applicable:
1. State permits to construct and/or operate sources of air pollution.
 2. Certificates and permits are required for sources such as, but not limited to, the following:
 - a. Fuel burning equipment
 - b. Gasoline and petroleum distillate storage containers
 - c. Land disturbing activities
 - d. Processing equipment (sand, gravel, concrete batch plant, etc.)
 - e. Odors.
 3. Permit-Required Confined Space: The workspace in which the WORK is to be performed may contain permit-required confined spaces (permit spaces) as defined in 29 CFR 1910.146. Permit space entry is allowed in such spaces only through compliance with a confined space entry program meeting the requirements of 29 CFR 1910.146.
 4. Encroachment Permit
- B. The CONTRACTOR shall comply with OWNER requirements for a "Hot Work Permit" as described in Section 01520 – Security/Process Safety Management.
- C. The CONTRACTOR shall comply with the Conditional Use Permit the OWNER has acquired from the Planning Division of West Jordan City. A copy of the Planning and Zoning Commission Meeting Minutes is provided as an appendix to this section.

SGC-9.03 PROJECT REPRESENTATION

- A. The OWNER's Representative, will act as directed by and under the supervision of the OWNER and will confer with the OWNER regarding its actions. The OWNER's REPRESENTATIVE dealings in matters pertaining to the WORK shall, in general, be only with the OWNER and the CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of the CONTRACTOR.

- B. The OWNER's REPRESENTATIVE shall have the duties and responsibilities set forth in this paragraph.
1. Review the progress schedule of Shop Drawing submittals and schedule of values prepared by the CONTRACTOR and consult with the ENGINEER concerning their acceptability, as applicable.
 2. Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required and notify in advance those expected to attend.
Attend meetings and maintain and circulate copies of minutes thereof.
 3. Serve as the OWNER's liaison with the CONTRACTOR, working principally through the CONTRACTOR's superintendent and assist said superintendent in understanding the intent of the Contract Documents.
 4. Receive Shop Drawings and samples furnished by the CONTRACTOR.
 5. Conduct on-site observations of the WORK in progress to assist the OWNER in determining if the WORK is proceeding in accordance with the Contract Documents.
 6. Transmit to the CONTRACTOR the OWNER's or ENGINEER's clarifications and interpretations of the Contract Documents.
 7. Consider and evaluate the CONTRACTOR's suggestions for modifications in the Contract Documents and report them with recommendations to the OWNER.
 8. Review applications for payment with the CONTRACTOR for compliance with the established procedure for their submittal and forward them with recommendations to the OWNER, noting particularly their relation to the schedule of values, work completed, and materials and equipment delivered at the Site but not incorporated in the WORK.
 9. During the course of the WORK, verify that certificates, maintenance and operation manuals, and other data required to be assembled and furnished by the CONTRACTOR are applicable to the items actually installed.
 10. Before the OWNER prepares a Notice of Completion, as applicable, submit to the CONTRACTOR a list of observed items requiring completion or correction.
 11. Conduct final inspection in the company of the ENGINEER, the OWNER, and the CONTRACTOR, and prepare a punch list of items to be completed or corrected.
 12. Verify that all items on the punch list have been completed or corrected and make recommendations concerning acceptance.

SGC-11.03D EQUIPMENT

The CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the current edition of the following reference publication:

- A. "Rental Rate Blue Book for Construction Machinery" as published by the Machinery Information Division of the K-III Directory Corporation, telephone number (800) 669-3282.

SGC-12.02 WEATHER DELAYS

The CONTRACTOR's construction schedule shall anticipate 30 days of delay due to unusually severe weather.

SGC-14.03C AMOUNT OF RETENTION

Add the following to Paragraph 14.03C of the General Conditions:

Unless otherwise prescribed by law, the OWNER may retain a portion of the amount otherwise due to the CONTRACTOR, as follows:

1. Retention of 5 percent of each approved progress payment until the WORK is certified as having reached substantial completion.

SGC-14.03D VALUE OF MATERIALS STORED AT THE SITE

Unless otherwise prescribed by law or prescribed in Assigned Purchase Order Agreements, the value of materials stored at the SVWRF shall be 95 percent of the value of such materials.

SGC-14.05.A REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

Replace the last sentence with the following: "Forty-Five days after presentation of the Application for Payment with the ENGINEER'S recommendation, the amount recommended will (subject to the provisions of Paragraph 14.05B) become due and when due will be paid by the OWNER to the CONTRACTOR."

SGC-14.07.A DAMAGES

Add the following sentence: "The amount of liquidated damages shall be \$250.00 per calendar day."

-END OF SECTION-

Matt Quinney was opposed to any parking on New Bingham Highway. He suggested charging students to park on Grizzly Way, which would either reduce the number of students driving to school or encourage carpooling. He didn't think we should encourage more parking on the road.

Thomas McMurtry said parking on Grizzly Way on the east side is very unsafe because students have to cross the road. He spoke to students about their driving habits and there could be ways to incentivize. If we have the safe walking and biking infrastructure, we will see some behavioral change.

Bob Bedont liked segregated bike lanes generally, but he asked what we do with the snow.

Thomas McMurtry said they would need to be cleared with special machines.

MOTION: Matt Quinney moved, based upon the information and findings set forth in the staff report and upon the evidence and explanations received today, to approve the New Bingham Highway Connector Study. The motion was seconded by Corbin England and passed 6-0 in favor. Nichole Luthi was absent.

3. SVWRF Communications Tower; 7495 South 1300 West; Conditional Use Permit for a Communications Tower; P-F Zone; SVWRF/Taigon Worthen (applicant) [#19740; parcel 21-26-327-001]

Jared Oldroyd, JWO Engineering, said the application is for a communications tower to be located next to a building that has an existing roof-mounted antenna. This tower would enable better communication with their metering stations and employees. The tower is below the airport's required lighting height.

Mark Forsythe said the proposed tower is in the P-F zone on a 58-acre parcel owned by the Water Reclamation Facility. Uses to the east are the Trax line and regional power transmission lines. To the west is the North Jordan canal and a residential subdivision. To the north and south is more vacant land owned by South Valley Water Reclamation for future use. The tower is 400 feet away from the closest residential structure, which is about three times the required distance for cell towers and similar structures. He clarified that most of the cell towers in the city are governed by the Low Power Communications section of the code, which prohibits lattice towers. However, Title 13 Chapter 15 addresses public facilities and allows communication towers as a conditional use and does not have the stricter standards in the other section of the code. The tower is proposed to be 70 feet in height. Most cell towers are between 80-100 feet in height.

Staff recommended that the Planning Commission approve the Conditional Use Permit for the SVWRF Communications Tower, located at 7495 South 1300 West in a P-F zone, with the conditions of approval listed below:

1. The communications tower shall be substantially consistent with the submitted application, letter of intent and site plan.
2. The communications tower shall be solely owned and operated by the South Valley Water Reclamation Facility. Telecommunication antenna or equipment collocations that are not for

- the sole purposes of South Valley Water Reclamation Facility shall not be permitted.
3. The total height of the communications tower shall not exceed 70 feet. Any increase in height must be reviewed through another Conditional Use Permit.
 4. The communications tower shall comply with all Federal Communications Commission and Federal Aviation Administration requirements.
 5. A Building Permit for the tower construction shall be obtained, as required by the West Jordan Building & Safety Department.
 6. The Conditional Use Permit shall be valid for a period no longer than 12 months, unless a Building Permit is issued and construction is actually begun within that period and is thereafter diligently pursued to completion, unless a longer time is requested and granted by the Planning Commission.

Kelvin Green clarified that condition #6 meant construction has to begin within twelve months of the conditional use approval or else it isn't valid.

Larry Gardner showed a drawing of the tower in relation to the building height. The tower will project 30 feet above that, which is much shorter than the 170-foot tall transmission lines by the Jordan River.

Matt Quinney pointed out a five-foot tall space that appeared to be in addition to the 70 feet.

Jared Oldroyd said the tower needs to be on a structural base that would be five feet tall at a worst-case scenario. The tower is 70 feet in height, but overall with the base it could be up to 75 feet.

Matt Quinney opened the public hearing.

Becky Smith, West Jordan resident on Fox Den Drive, understood that the tower will be built, but her biggest concern was with the construction period and hours of construction. This past summer the facility had maintenance and the outside noise levels were unbearable. She fears that the residents will lose another year of being able to go outside. Trucks using the access road are very loud. She recommended that a condition of approval stating construction can only occur between 9 a.m. and 5 p.m. Monday through Friday be added in order to meet criteria #2 regarding the health and general welfare of the persons in the neighborhood. That way they can enjoy their yards on the weekends.

Michelle Foote, West Jordan resident, agreed with the comments from Becky Smith. She lives about three blocks away from the facility and they could hear the maintenance noise this year. She wasn't opposed to the tower, although she wasn't happy about it and it will be an eyesore. However, with conditions of mitigation she hoped that the noise level will not be at the same level and inconvenience it was this summer.

Further public comment was closed at this point for this item.

Jared Oldroyd said this is a fairly minor project and he didn't think the facility would have any issues with including the proposed construction hours. The construction period will be short, and it will be blocked by building. It is a much different type of construction than the maintenance that occurred over the summer. Once the equipment arrives and the base is in, the tower will go up in a matter of weeks.

Duncan Murray said hour limitations are sometimes included with a conditional use permit. The proposed hours are a little more stringent than is typical, but if the applicant is agreeable to them it would be appropriate.

MOTION: Kelvin Green moved to amend the conditions of approval, changing #3 from 70 to 75 feet, changing #6 the word 'permit' to 'approval' for consistency with the law, and adding #7 The hours of construction will be from 9 a.m. to 5 p.m. Monday through Friday for this communications tower. The motion was seconded by Corbin England and passed 6-0 in favor. Nichole Luthi was absent.

MOTION: Kelvin Green moved, based on the information and findings set forth in the staff report and upon the evidence, explanation, and amendments, to approve the Conditional Use Permit for the SVWRF Communications Tower; 7495 South 1300 West; SVWRF/Taigon Worthen (applicant) with the conditions 1 through 7 as amended. The motion was seconded by Jay Thomas and passed 6-0 in favor. Nichole Luthi was absent.

4. Station at Gardner Mill Executive Suites; 1286 West 7800 South; Conditional Use Permit for Hotel; P-C (TSOD) Zone; The Station at Gardner Mill LLC/Joe Colosimo (applicant) [#19798; parcel 21-26-351-026, 023]

Joe Colosimo, applicant, gave an update on their construction schedule and hoped to be completed in 6-8 months. Through the course of construction, they have advertised the bottom floors of buildings 1 and 2 to commercial tenants. Bad Ass Coffee Company is taking the south end of building #2 for their franchise training store. A waxing studio has the space north of that. El Mexiquense fast service restaurant will take the south space in building #1. They received pushback from potential tenants that the deeper areas don't have visibility from 7800 South, and the lack of parking. During this same timeframe they've had inquiries about nightly rentals or executive suites for people who just need a short stay while they transition in moving, or people who want to cook their own meals, or who have business stays. The proposal is to turn the balance of the bottom floors into nightly rental executive suites/boutique hotel. There are ten extra parking spaces in the garage that eight units in building #1 could use. He pointed out potential parking locations for the nightly rentals in building two. He believes there is more parking to accommodate the proposed use rather than for 30,000 square feet of commercial space. Rentals for these units would be a minimum of 24 hours and up to a week or for the period that is needed.

Mark Forsythe said the property is in the P-C (TSOD) zone and the proposal of a hotel use combined with restaurants and a waxing studio would provide a good mix of uses and will fit in the area. He reviewed the current and future uses of the surrounding properties. The original development plan called for the ground floor space to be reserved as a commercial use, and a hotel won't change that. Hotels wouldn't create any more noise, dust, or odors to impact the surrounding uses. There will be few or no exterior changes to the building. The applicant will need to meet building code requirements for any interior remodeling. Parking for an 18-unit hotel is adequate and traffic should be minimal. The Trax station to the south should help to alleviate any of those concerns.

**SECTION 00810
SUPPLEMENTARY GENERAL CONDITIONS (UTAH)**

SGC-18 UTAH STATE REQUIREMENTS

- A. Retainage of Compensation to CONTRACTOR: Pursuant to Utah Code Ann. 13-8-5, any retainage of CONTRACTOR's compensation hereunder shall be placed in an interest-bearing escrow account and the interest which accrues thereon shall do so for the benefit of CONTRACTOR and Subcontractors. Release of the retainage shall be as contemplated by the General Conditions and Supplementary General Conditions, Article 14 – Payments to Contractor, Liquidated Damages and Completion. Any interest which has accrued on the retainage and which is released to the CONTRACTOR shall be promptly disbursed by CONTRACTOR to itself and/or to Subcontractors on a pro rata basis.
- B. Certification of Change Orders: Pursuant to Utah Code Ann. Section 63G-6-602, no change order shall be authorized without a written certification, signed by an official representative of the OWNER responsible for monitoring and reporting the status of the costs of the total Project or the contract budget, stating that funds are available for the subject change order.
- C. Adjustments in Price: Pursuant to Utah Code Ann. Section 63G-6-601, any adjustment in compensation due CONTRACTOR under this agreement shall be computed in one or more of the following ways:
1. By agreement on a fixed-price adjustment before commencement of the pertinent performance or as soon as practicable;
 2. By unit prices specified in the contract or subsequently agreed upon;
 3. By the costs attributable to the events or situations with adjustment of profit or fee, all as specified in the contract or subsequently agreed upon;
 4. In any other manner as OWNER and CONTRACTOR may mutually agree;
 5. In the absence of agreement between CONTRACTOR and OWNER, by a unilateral determination by OWNER of the costs attributable to the events or situations with adjustment of profit or fee, all as computed by the OWNER in accordance with Utah Code Ann. Section 63G-6-415 and/or the rules and regulations promulgated thereunder.
- D. Cost Principles: CONTRACTOR shall comply in all respects with applicable provisions of Utah Code Ann. Section 63G-6-415, and the rules and regulations promulgated thereunder. To the extent that such provisions are inconsistent with the other terms and conditions of this agreement, the former shall prevail. OWNER may, at reasonable times and places, audit the books and records of CONTRACTOR, any Subcontractor, or any other person who has submitted cost or pricing data pursuant to said section. The books and records of CONTRACTOR shall be maintained for 3 years following the end of the fiscal year in which final payment is made under the Contract. The books and records of the Subcontractor and all other persons shall be maintained for 3 years following the end of the fiscal year in which final payment is made under the

subcontract and/or to the person, unless a shorter period is otherwise authorized in writing.

- E. Project Safety: CONTRACTOR shall comply in all respects with the Utah Occupational Safety and Health Act, Utah Code Ann. Sections 34A-6-101 et seq., and the rules, regulations and standards promulgated thereunder by the Utah State Industrial Commission, as such act, rules, regulations or standards now exist or may be amended during the term of this agreement. Specifically, but not in limitation, CONTRACTOR shall comply with Construction Standards, Rules and Regulations, promulgated by the Utah Occupation and Safety and Health Division, Utah State Industrial Commission.
- F. Protection of Underground Utility Facilities: CONTRACTOR shall comply in all respects with Utah Code Ann. Section 54 Chapter 8a et seq. and the rules and regulations promulgated thereunder, as it now exists or may be amended during the term of this agreement, with regard to the protection of underground utility facilities. Specifically, but not in limitation, CONTRACTOR shall notify the appropriate public utility(s) when making an excavation with power equipment. CONTRACTOR shall further refrain from proceeding with excavation until such time as the appropriate public utility(s) have advised CONTRACTOR of the location of any underground facilities in the area proposed for excavation by marking such facilities with stakes, paint, or other customary way, indicating horizontal location within 24 inches of the outside dimensions of both sides of the underground facility.
- G. Review of Construction by OWNER: OWNER may, at its option, assign a field representative to review the construction of the Project in progress. Said representative will cooperate with the ENGINEER/OWNER in attempting to note deviations from, or necessary adjustments to, the Contract Documents or deficiencies or defects in the construction. Said representative's presence on the Project, however, shall in no way relieve CONTRACTOR of its primary responsibility for construction of the Project in accordance with the Contract Documents.
- H. OWNER Inspection: Pursuant to Utah Code Ann. Section 63G-6-418, OWNER may, at reasonable times, inspect the plant or place of business of the CONTRACTOR or any Subcontractor which is related to the performance of this contract or any subcontract entered into hereunder.
- I. Code Requirements: The provisions of the latest editions of the International Building Code, National Electric Code, and Utah Plumbing Code, as adopted or followed in Utah, including standards adopted in relation thereto, as supplemented or amended, shall apply to the Project except as specific variances may be expressly authorized by the OWNER. If the Contract Documents fail to meet the minimum standards of the referenced codes, CONTRACTOR shall be responsible to bring such information to the attention of the architect/OWNER associated with the Project. Subcontractors shall also inform CONTRACTOR of any infractions of the above-referenced codes regarding their own particular trades. In the event that workmanship or incidental materials are not specified or indicated, they shall at least conform to the above-referenced codes and shall be incorporated into the Work without any additional cost to the OWNER. If the Contract Documents call for items or workmanship which exceed code requirements, the Contract Documents shall take precedence over such requirements.

- J. Workers Compensation: CONTRACTOR shall comply in all respects with Utah Code Ann. Section 34A-2-101, et seq. and the rules and regulations promulgated thereunder by the Utah State Industrial Commission, as such law, rules or regulations now exist or may be amended during the term of this agreement.
- K. Archaeological, Anthropological, or Paleontological Findings: CONTRACTOR shall comply with Utah Code Ann. Section 9-8-301 et seq., with respect to the discovery of archaeological, anthropological, or paleontological findings at or on the Project site. Specifically, but not in limitation, CONTRACTOR shall promptly notify the Utah Division of State History of any such findings.
- L. Nondiscrimination Equal Employment Opportunity: CONTRACTOR shall comply in all respects with the Utah Anti-Discrimination Act of 1965, Utah Code Ann. Section 34A-5-101 et seq., and the rules and regulations promulgated thereunder by the Utah State Industrial Commission and/or its Anti-Discrimination Division, as such act, rules or regulations now exist or may be amended during the term of this agreement, specifically:
1. CONTRACTOR shall not discriminate against any employee or applicant for employment because of race, color, sex, religion, ancestry or national origin.
 2. In all solicitations or advertisements for employees, CONTRACTOR shall state that all qualified applicants shall receive consideration without regard to race, color, sex, religion, ancestry or national origin.
 3. CONTRACTOR shall send to each labor union or worker's representative notices to be provided, stating the CONTRACTOR's responsibilities under the statute.
 4. CONTRACTOR shall furnish such information or reports as are requested by the Utah State Industrial Commission and/or its Anti-Discrimination Division, for the purpose of determining compliance with the statute.
 5. CONTRACTOR shall include the provisions of paragraphs 1 through 4 above in all subcontracts for this Project.
 6. Failure of the CONTRACTOR to comply with the statute, the rules and regulations promulgated thereunder, and this provision, shall be deemed a breach of contract entitling OWNER, in its discretion, to cancel, terminate, or suspend this agreement in whole or in part.
- M. Affirmative Action: CONTRACTOR shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but shall not be limited to: employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layout or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

At its discretion, OWNER may perform a compliance review at CONTRACTOR's place of business and/or the Project site to verify CONTRACTOR's compliance with this provision. Such compliance verifications may be conducted with such frequency as is needed to assure CONTRACTOR's compliance with this provision.

- N. Citizens Preferred: Pursuant to Utah Code Ann. Section 34-30-1, CONTRACTOR shall give preference in hiring to citizens of the United States or those having declared their intention to become citizens; failure to comply may render this contract null and void at the discretion of OWNER.
- O. Veterans' Preference: Pursuant to Utah Code Ann. Section 71-10-2, CONTRACTOR shall give preference in hiring to honorable discharged veterans who have served in the Armed Forces of the United States during a period of conflict, war, or other national emergencies as defined by Congress, and to any un-remarried surviving spouse of an honorably discharged veteran, if they possess qualifications for that employment and if the honorably discharged veteran is or, if deceased, was a resident of the State of Utah.
- P. Specific OWNER Requirements: CONTRACTOR shall comply with the specific rules and regulations promulgated by OWNER pursuant to authority granted or retained under the Utah Procurement Code, Utah Code Ann. Section 63G-6-101, et seq.

-END OF SECTION-

SECTION 01010 SUMMARY OF WORK

PART 1 – GENERAL

1.1 THE REQUIREMENT

- A. The WORK to be performed under this Contract shall consist of furnishing all plant, tools, equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all WORK, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The WORK shall be complete, and all WORK, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete, safe and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Project consists of the construction of the “South Valley Water Reclamation Facility – Communications Tower Installation”, complete and operational including:
 - 1. Complete assembly of the provided communications tower; construction of the reinforced concrete base; installation of the communications tower including electrical grounding; mobilization and demobilization.

1.3 CONTRACT METHOD

- A. The WORK hereunder will be performed under a single lump sum contract.

1.4 WORK BY OTHERS

- A. There may be two or more contracts being performed at one time on the same Site or adjacent land in such a manner that work under one contract may interfere with work under another. The OWNER will determine the sequence and order of the WORK in either or both contracts. When the Site of one contract is the necessary or convenient means of access for performance of work under another, the OWNER may grant privilege of access or other reasonable privilege to the CONTRACTOR so desiring, to the extent, amount, and in manner and at time that the OWNER may determine. No OWNER determination of method or time or sequence or order of the work or access privilege shall be the basis for a claim for delay or damage except under provisions of the General Conditions for temporary suspensions of the work. The CONTRACTOR shall conduct its operations so as to cause a minimum of interference with the work of such other contractors, and shall cooperate fully with such contractors to allow continued safe access to their respective portions of the Site, as required to perform work under their respective contracts.

1.5 WORK SEQUENCE AND SCHEDULING CONSTRAINTS

- A. WORK sequence and scheduling constraints are described below
 - 1. If Schedule A is awarded, the CONTRACTOR may deliver equipment and materials required for that Work as early as possible following the Notice to Proceed.
 - 2. The Work shall be done during business hours. This is restricted to 9 am to 5 pm, Monday through Friday.
 - 3. The Work shall be complete by June 1st, 2020.

1.6 CONTRACTOR USE OF PROJECT SITE

- A. The CONTRACTOR's use of the project Site shall be limited to its construction operations, including on-site storage of materials and on-site fabrication facilities. Details regarding CONTRACTOR use of project site will be discussed during the pre-construction meeting.

1.7 OWNER USE OF THE PROJECT SITE

- A. The OWNER may utilize all or part of the existing facilities during the entire period of construction for the conduct of the OWNER's normal operations. The CONTRACTOR shall cooperate and coordinate with the OWNER to facilitate the OWNER's operations and to minimize interference with the CONTRACTOR's operations at the same time. In any event, the OWNER shall be allowed safe access to the Site during the period of construction.

1.8 PARTIAL UTILIZATION OF THE WORK BY OWNER (not used.)

1.5 PROJECT MEETINGS

- A. Preconstruction Conference
 - 1. Prior to the commencement of WORK at the Site, a preconstruction conference will be held at a mutually agreed time and place. The CONTRACTOR'S Project Manager, its Superintendent, its Safety Representative, and its Subcontractors shall attend the conference as the CONTRACTOR deems appropriate. Other attendees will be:
 - a. ENGINEER;
 - b. Representatives of OWNER;
 - c. Governmental representatives as appropriate;
 - d. Others as requested by CONTRACTOR, OWNER, or ENGINEER.
 - 2. The CONTRACTOR shall bring the preconstruction conference submittals in accordance with Section 01300 – Contractor Submittals.
 - 3. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the CONTRACTOR prior to the meeting date. However, CONTRACTOR should be prepared to discuss all of the items listed below.
 - a. Status of CONTRACTOR's insurance and bonds.

- b. CONTRACTOR's tentative schedules.
 - c. Transmittal, review, and distribution of CONTRACTOR's submittals.
 - d. Processing applications for payment.
 - e. Maintaining record documents.
 - f. Critical WORK sequencing.
 - g. Field decisions and Change Orders.
 - h. Use of project site, office and storage areas, security, housekeeping, and OWNER's needs.
 - i. Major equipment deliveries and priorities.
 - j. CONTRACTOR's assignments for safety and first aid.
 - k. Contract authority and channels of communication.
 - l. Utilities required for construction.
 - m. CONTRACTOR's preliminary schedule.
 - n. Establishment of emergency contacts.
- 4. The OWNER will preside at the preconstruction conference and will arrange for keeping and distributing the minutes to all persons in attendance.
 - 5. The CONTRACTOR and its Subcontractors should plan on the conference taking no less than one half working day.

B. Progress Meetings

- 1. The CONTRACTOR shall schedule and hold regular on-site progress meetings at times requested by OWNER or as required by progress of the WORK. The CONTRACTOR, OWNER and all Subcontractors active on the Site must attend each meeting. CONTRACTOR may at its discretion request attendance by representatives of its suppliers, manufacturers, and other subcontractors.
- 2. The OWNER will preside at the progress meetings and will arrange for keeping and distributing the minutes. The purpose of the meetings will be to review the progress of the WORK, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop. During each meeting, the CONTRACTOR shall present any issues which may impact its progress with a view to resolving these issues expeditiously.

1.11 SURVEY CONTROL AND REQUIREMENTS (not applicable)

1.12 BUILDING PERMIT (not applicable)

1.13 DEFINITIONS APPLICABLE TO TECHNICAL SPECIFICATIONS

A. The following words shall have the defined meaning in the Technical Portions of the WORK:

Indicated is a word used to direct the CONTRACTOR to information contained on the Drawings or in the Specifications. Terms such as "shown," "noted," "scheduled," and "specified" also may be used to assist in locating information, but no limitation of location is implied or intended.

Furnish means to supply and deliver to the site, to unload and unpack ready for assembly, installation, testing, and startup.

| | |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Install | defines operations at the site including assembly, erection, placing, anchoring, applying, shaping to dimension, finishing, curing, protecting, and cleaning, ready for the OWNER's use. |
| Provide | is defined as furnish and install, test, adjust, program, and demonstrate proper operation if required by the specification, ready for the intended use. |
| Installer | a person or firm engaged by the CONTRACTOR or its subcontract or any subcontractor for the performance of installation, erection, or application work at the site. Installers must be expert in the operations they are engaged to perform. |

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

-END OF SECTION-

**SECTION 01025
MEASUREMENT AND PAYMENT**

PART 1 – GENERAL

1.1 SCOPE

- A. Lump Sum Payment for the various items of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies and manufactured articles, and for all labor, operations and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the WORK, all in accordance with the requirements of the Contract Documents, including appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U. S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Bid Schedule(s), and all costs therefore shall be included in the prices named in the Bid Schedule(s) for the various appurtenant items of work.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

-END OF SECTION-

**SECTION 01300
CONTRACTOR SUBMITTALS**

PART 1 – GENERAL

1.1 GENERAL

- A. CONTRACTOR "Submittals" may be Shop Drawings, schedules, surveys, reports, samples, plans, lists, drawings, documents, findings, programs, manuals, data, or any other item or information required by the Contract Documents to be submitted or offered by the CONTRACTOR in accomplishing the Work.
- B. Wherever Submittals are required hereunder, all such documents shall be furnished to the OWNER.
- C. The CONTRACTOR shall be responsible for the accuracy, completeness, and coordination of all Submittals. The CONTRACTOR shall not delegate this responsibility in whole or in part to any Subcontractor. Submittals may be prepared by the CONTRACTOR, Subcontractor, or Supplier, but the CONTRACTOR shall ascertain that each Submittal meets the requirements of the Contract and the Project. The CONTRACTOR shall ensure that there is no conflict with other Submittals and shall notify the OWNER in each case where its Submittal may affect the work of another Contractor or the OWNER. The CONTRACTOR shall ensure coordination of Submittals of related crafts and Subcontractors.

1.2 SHOP DRAWINGS

- A. Wherever called for in the Proposal Documents, or where required by the OWNER, the CONTRACTOR shall furnish to the OWNER for review, 5 copies of each shop drawing submittal. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, shop drawings, fabrication, and installation drawings, erection drawings, list, graphs, catalog sheets, data sheets, and similar items. Whenever the CONTRACTOR is required to submit design calculations as part of a submittal, such calculations shall bear the signature and seal of an engineer registered in the appropriate branch and in the state wherein the project is to be built, unless otherwise directed.
- B. Except as may otherwise be indicated herein, the OWNER will return prints of each submittal to the CONTRACTOR with its comments noted thereon, within 20 working days following their receipt by the OWNER. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the OWNER by the second submission of a submittal item. The OWNER reserves the right to withhold monies due to the CONTRACTOR to cover additional costs of the OWNER's review beyond the second submittal.
- C. If a submittal is returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision and resubmission of said submittal will not be required.
- D. If a submittal is returned to the CONTRACTOR marked "MAKE CORRECTIONS NOTED," formal revision and resubmission of said submittal will not be required.

- E. If a submittal is returned to the CONTRACTOR marked "AMEND-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the OWNER.
 - F. If a submittal is returned to the CONTRACTOR marked "REJECTED-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the OWNER.
 - G. Fabrication of an item shall be commenced only after the OWNER has reviewed the pertinent submittals and returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or MAKE CORRECTIONS NOTED." Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Proposal Documents and shall not be taken as the basis for changes to the proposal requirements.
 - H. All CONTRACTOR shop drawings submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR, prior to submission to the OWNER. Each submittal shall be dated, signed, and certified by the CONTRACTOR, as being correct and in strict conformance with the Proposal Documents. In the case of shop drawings, each sheet shall be so dated, signed, and certified. No consideration for review by the OWNER of any CONTRACTOR submittals will be made for any items that have not been so certified by the CONTRACTOR. All non-certified submittals will be returned to the CONTRACTOR without action taken by the OWNER, and any delays caused thereby shall be the total responsibility of the CONTRACTOR.
 - I. The OWNER's review of CONTRACTOR shop drawings submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.
- 1.4 OWNER'S MANUAL (NOT USED)
 - 1.5 SPARE PARTS LIST (NOT USED)
 - 1.6 CONTRACTOR'S SCHEDULE
 - A. The CONTRACTOR's construction schedules and reports shall be prepared and submitted to the OWNER.
 - 1.7 WEEKLY FORCE REPORT
 - A. The CONTRACTOR and each Subcontractor shall submit to the OWNER, or designee, a weekly force report. Deliver report not later than 9:00 A.M. of the Monday following the report date and include the following:
 - 1. Days of week, date, CONTRACTOR name and Report number.
 - 2. Summary of work in process (segregated by CONTRACTOR and Subcontractor).

3. Details of work accomplished including quantities of work installed.
4. Summary of equipment working and where working.
5. Summary of manpower by work element and Subcontractor.
6. Receipt of major equipment or materials.
7. All required testing performed and, if available, documented results.

1.8 REQUESTS FOR INFORMATION

- A. In the event that the CONTRACTOR, Subcontractor or supplier, at any tier, determines that some portion of the drawings, specifications, or other Contract Documents requires clarification or interpretation by the OWNER, the CONTRACTOR shall submit a Request for Information in writing to the OWNER. Requests for Information may only be submitted by the CONTRACTOR and shall only be submitted on the Request for Information form provided by the OWNER. The CONTRACTOR shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed from the OWNER. In the Request for Information the CONTRACTOR shall set forth their own interpretation or understanding of the requirement along with reasons why they have reached such an understanding.
- B. The OWNER will review all Requests for Information to determine whether they are Requests for Information within the meaning of this term. If the OWNER determines that the document is not a Request for Information it will be returned to the CONTRACTOR, unreviewed as to content, for resubmittal on the proper form and in the proper manner.
- C. Responses from the OWNER will not change any requirement of the Contract Documents unless so noted by the OWNER in the response to the Request for Information. In the event the CONTRACTOR believes that a response to a Request for Information will cause a change to the requirements of the Contract Documents the CONTRACTOR shall immediately give written notice to the OWNER stating that the CONTRACTOR considers the response to be a Change Order. Failure to give such written notice immediately shall waive the CONTRACTOR's right to seek additional time or cost under the Contract.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

-END OF SECTION-

SECTION 01510 TEMPORARY UTILITIES

PART 1 – GENERAL

1.1 THE REQUIREMENT

A. The CONTRACTOR shall provide temporary utilities as required to provide the Work and perform the services, complete, in accordance with the Contract Documents.

B. Types: The types of utility services required for general temporary use at the project site include the following:

Water service (potable for certain uses)
Storm sewer
Sanitary sewer
Electric power service
Telephone service
Gas Service

1.2 JOB CONDITIONS

A. Scheduled Uses: In conjunction with establishment of the job progress schedule, establish a schedule for implementation and termination of service for each temporary utility or facility; at earliest feasible time, and when acceptable to OWNER, change over from use of temporary utility service to permanent service.

PART 2 – PRODUCTS

2.1 MATERIALS

A. The CONTRACTOR shall provide either new or used materials and equipment, which are in substantially undamaged condition and without significant deterioration and which are recognized in the construction industry, by compliance with appropriate standards, as being suitable for intended use in each case. Where a portion of temporary utility is provided by a utility company, the CONTRACTOR shall provide the remaining portion with matching and compatible materials and equipment and shall comply with recommendations of utility company.

PART 3 – EXECUTION

3.1 INSTALLATION OF TEMPORARY UTILITY SERVICES

A. General: Wherever feasible, engage the utility company to install temporary service to project, or as a minimum, to make connection to existing utility service; locate services where they will not interfere with total project construction Work, including installation of permanent utility services; and maintain temporary services as installed for required period of use; and relocate, modify or extend as necessary from time to time during that period as required to accommodate total project construction Work.

- B. Approval of Electrical Connections: All temporary connections for electricity shall be subject to approval of the ENGINEER and the power company representative, and shall be removed in like manner at the CONTRACTOR's expense prior to final acceptance of the Work.
- C. Separation of Circuits: Unless otherwise permitted by the ENGINEER, circuits separate from lighting circuits shall be used for all power purposes.
- D. Construction Wiring: All wiring for temporary electric light and power shall be properly installed and maintained and shall be securely fastened in place. All electrical facilities shall conform to the requirements of Subpart K of the OSHA Safety and Health Standards for Construction.

3.2 INSTALLATION OF POWER DISTRIBUTION SYSTEM

- A. Power: Provide all necessary power required for its operations under the Contract, and provide and maintain all temporary power lines required to perform the Work in a safe and satisfactory manner.
- B. Temporary Power Distribution: Provide a weatherproof, grounded, temporary power distribution system sufficient to accommodate performance of entire Work of project, including temporary electrical heating where indicated, operation of test equipment and test operation of building equipment and systems which cannot be delayed until permanent power connections are operable, temporary operation of other temporary facilities, including permanent equipment and systems which must be placed in operation prior to use of permanent power connections (pumps, HVAC equipment, elevators, and similar equipment), and power for temporary operation of existing facilities (if any) at the site during change-over to new permanent power system. Provide circuits of adequate size and proper power characteristics for each use; run circuit wiring generally overhead, and rise vertically in locations where it will be least exposed to possible damage from construction operations, and result in least interference with performance of the Work; provide rigid steel conduit or equivalent raceways for wiring which must be exposed on grade, floors, decks, or other recognized exposures to damage or abuse. All temporary construction power wiring shall be on a Ground Fault Installation System.

3.3 INSTALLATION OF LIGHTING

- A. Construction Lighting: All Work conducted at night or under conditions of deficient daylight shall be suitably lighted to ensure proper Work and to afford adequate facilities for inspection and safe working conditions.
- B. Temporary Lighting: The CONTRACTOR shall provide a general, weatherproof, grounded temporary lighting system in every area of construction work, as soon as overhead floor/roof deck structure has been installed; and provide sufficient illumination for safe work and traffic conditions; and run circuit wiring generally overhead, and rise vertically in locations where it will be least exposed to possible damage from construction operations on grade, floors, decks, or other recognized areas of possible damage or abuse.

3.4 WATER SUPPLY

- A. The CONTRACTOR shall connect to the potable water pipe located at the southwest corner of Blower Building No. 3 for water of a quality suitable for domestic service. A valve or corp stop shall be provided to isolate the CONTRACTOR'S water system. The CONTRACTOR shall be solely responsible for the adequate functioning of its water supply system and shall be solely liable for any claims arising from use of the same, including discharge or waste of water therefrom. The cost for domestic water will be paid by the OWNER.
- B. Water Connections: The CONTRACTOR shall not make connection to or draw water from any fire hydrant or pipeline without first obtaining permission of the authority having jurisdiction over the use of said fire hydrant or pipeline and from the agency owning the affected water system. For each such connection made, the CONTRACTOR shall first attach to the fire hydrant or pipeline a valve and a meter, if required by the said authority, of a size and type acceptable to said authority and agency.

3.5 INSTALLATION OF SANITARY FACILITIES

- A. Toilet Facilities: Fixed or portable chemical toilets shall be provided wherever needed for the use of CONTRACTOR's employees. Toilets at construction job sites shall conform to the requirements of Subpart D, Section 1926.51 of the OSHA Standards for Construction.
- B. Sanitary and Other Organic Wastes: The CONTRACTOR shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wastes from any other source related to the CONTRACTOR's operations shall be disposed of away from the Site in a manner satisfactory to the ENGINEER and in accordance with all laws and regulations pertaining thereto.

3.6 INSTALLATION OF GAS SERVICE

- A. Gas service: If the CONTRACTOR requires natural gas at its construction trailers, gas may be obtained from the pipe located at the southwest corner of Blower Building No. 3. Installation costs are the responsibility of the CONTRACTOR. Installation shall conform to the requirements of the natural gas supplier.

3.7 INSTALLATION OF COMMUNICATIONS

- A. Telephone Services: The CONTRACTOR shall provide and maintain at all times during the progress of the WORK not less than one telephone and one fax machine in good working order at its own field construction office at or near the Site. Each such telephone and fax machine shall have a separate connection to an established exchange for toll service.
- B. Telephone Use: The CONTRACTOR shall permit the ENGINEER, the OWNER, or their authorized representatives or employees free and unlimited use of said telephone facilities for all calls that do not involve published toll charges. Calls originated by the ENGINEER, the OWNER, their authorized representatives or employees which involve toll or message unit charges shall be billed to the OWNER by the CONTRACTOR at the rates charged by the telephone company.

3.8 OPERATIONS AND TERMINATIONS

- A. Inspections: Prior to placing temporary utility services into use, the CONTRACTOR shall inspect and test each service and arrange for governing authorities' required inspection and tests, and obtain required certifications and permits for use thereof.
- B. Protection: The CONTRACTOR shall maintain distinct markers for underground lines, and protect from damage during excavating operations.
- C. Termination and Removal: When need for a temporary utility service or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than time of substantial completion, the CONTRACTOR shall promptly remove installation unless requested by ENGINEER to retain it for a longer period. The CONTRACTOR shall complete and restore WORK which may have been delayed or affected by installation and use of temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces.
- D. Removal of Utility Connections: Before final acceptance of the WORK on the project, all temporary connections and piping installed by the CONTRACTOR shall be entirely removed, and all affected improvements shall be restored to original condition or better, to the satisfaction of the RPR and to the agency owning the affected utility.

END OF SECTION

SECTION 01520
SECURITY AND PROCESS SAFETY MANAGEMENT

PART 1 – GENERAL

1.1 SECURITY PROGRAM

A. The CONTRACTOR shall:

1. Protect WORK, existing premises and OWNER's operations from theft, vandalism, and unauthorized entry.
2. Maintain program throughout construction period.
3. Require that the workers employed by the CONTRACTOR, his Subcontractors and his Vendors shall obey all Rules and Ordinances enacted by the SVWRF regarding the existence of firearms on SVWRF property. The CONTRACTOR shall immediately suspend any such worker who disobeys said Rules and Ordinances and remove such worker from the SVWRF property.

1.2 ENTRY CONTROL

A. The CONTRACTOR shall:

1. Limit entry of persons and vehicles into project site.
2. Allow entry only to authorized persons.
3. Require that all personal vehicles of the workers employed by the CONTRACTOR, his Subcontractors and his Vendors shall park their cars outside of the SVWRF property enclosed by SVWRF gates and fencing. At his option, the CONTRACTOR may construct a temporary parking facility on the OWNER'S property southwest of the main SVWRF entry gate to be used by the workers.
4. Entry to the SVWRF facility by the workers of the CONTRACTOR, his Subcontractors and his Vendors may be by walking through the front gate or by official shuttle bus operated by the CONTRACTOR.

B. OWNER will control entrance of persons and vehicles related to OWNER's operations.

C. The CONTRACTOR's and all Subcontractor's personnel shall report at the Lower Maintenance Building at the start and the end of the work day. Each person shall sign the daily roll log and indicate the time of sign-in and sign-out. The RPR will copy the daily roll log and submit to the OWNER's designated person to monitor for Process Safety Management purposes.

1.3 PERSONNEL IDENTIFICATION

A. The CONTRACTOR shall:

1. Maintain al list of authorized persons and submit copy to OWNER on request.
2. Require that an identifying badge shall be worn by each of the workers of the CONTRACTOR, his subcontractors and Vendors on the front of their construction hard hats. Further, the CONTRACTOR shall collect the Driver's License of each worker as he first comes on-site and submit them to the RPR. The RPR will oversee the production of the badges and will return the Driver's Licenses with Badges to the CONTRACTOR's Project Superintendent.

1.4 PROCESS SAFETY MANAGEMENT PLAN

- A. The CONTRACTOR shall conform to the OWNER's Process Safety Management Plan which is available for review from the Owner's designated Safety officer.
- B. Hot Work Permit. The CONTRACTOR's personnel shall obtain a Hot Work Permit when conducting work on any existing electrical equipment. Hot Work permits shall be completed daily by each employee and counter-signed by the OWNER.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

**SECTION 01530
PROTECTION OF EXISTING FACILITIES**

PART 1 – GENERAL

1.1 GENERAL

- A. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than prior to such damage or temporary relocation.

1.2 RIGHTS-OF-WAY

- A. The CONTRACTOR shall not do any WORK that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electrical transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon the rights-of-way involved until notified that the OWNER has secured authority therefore from the proper party.
- B. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin WORK, if required by said party, and shall remove, shore, support, or otherwise protect such pipeline, transmission line, ditch, fence, or structure, re replace the same.
- C. Some of the SVWRF facilities are located on Rocky Mountain Power (RMP) Rights-of-Way as shown on the Drawings. SVWRF has permanent easements to install remove, repair or replace sewer pipelines and other facilities on these easements. Copies of the easements and conditions for their use may be examined at the office of the SVWRF during regular business hours. The CONTRACTOR shall comply with the conditions of each easement. The CONTRACTOR shall maintain the minimum clearance mandated by RMP or 6-feet, whichever is greater, between the lowest conductor on the RMP power lines and maximum vertical reach of the equipment booms operated by the CONTRACTOR.
- D. When two or more contracts are being executed at one time of the same or adjacent land in such manner the WORK on one contract may interfere with that on another, the OWNER shall determine the sequence and order of the WORK. When the territory of one contract is necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the OWNER to CONTRACTOR so desiring, to the extent, amount, in the manner, and at the times permitted, No such decision as to the method or time of conducting the WORK or the use of territory shall be made the basis of any claim for delay or damage, except as provided for temporary suspension of the WORK in Article o the General Conditions of the Contract.

1.3 PROTECTION OF STREET OR ROADWAY MARKERS

- A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced.

Survey markers or points disturbed by the CONTRACTOR shall be accurately restored after street or roadway resurfacing has been complete.

1.4 RESTORATION OF PAVEMENT

- A. General: All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. The pavement restoration requirement to match existing sections shall apply to all components of existing sections, including sub-base, base, and pavement. Temporary and permanent pavement shall conform to the requirements of the affected pavement owner. Pavements which are subject to partial removal shall be neatly saw cut in straight lines.
- B. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- C. Restoration of Sidewalks or Private Driveways: Wherever sidewalks or private roads have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or roadways promptly after backfilling and shall maintain them in satisfactory condition until the final restoration thereof has been made.

1.5 EXISTING UTILITIES AND IMPROVEMENTS

- A. General: The CONTRACTOR shall protect underground utilities and other improvements which may be impaired during construction operations, regardless of whether or not the utilities are indicated on the Drawings. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.
- B. Except where the Drawings indicate utilities have been field located during design or certain utility locations shall be exposed as part of the WORK, the CONTRACTOR shall be responsible for exploratory excavations as it deems necessary to determine the exact locations and depths of utilities which may interfere with its work. All such exploratory excavations shall be performed as soon as practicable after Notice to Proceed and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's progress. When such exploratory excavations show the utility location as shown on the Drawings to be in error, the CONTRACTOR shall so notify the RESIDENT PROJECT REPRESENTATIVE (RPR).
- C. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.
- D. Utilities to be Moved: In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the

CONTRACTOR, be notified by the OWNER to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the RPR a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.

- E. Utilities to be Removed: Where the proper completion of the WORK requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is indicated, the CONTRACTOR shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the RPR and the owner of the facility. In all cases of such temporary removal or relocation, restoration to the former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal. Permanent relocation of any utility shall be noted on the CONTRACTOR's record drawings.
- F. OWNER's Right of Access: The right is reserved to the OWNER and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the WORK of this Contract.
- G. Underground utilities Indicated: Existing utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and if damaged, shall be immediately repaired or replaced by the CONTRACTOR, unless otherwise repaired by the owner of the damaged utility. If the owner of the damaged facility performs its own repairs, the CONTRACTOR shall reimburse said owner for the costs of repair.
- H. Underground Utilities Not Indicated: In the event that the CONTRACTOR damages existing utility lines that are not indicated or the locations of which are not made known to the CONTRACTOR prior to excavation, a verbal report of such damage shall be made immediately to the RPR and a written report thereof shall be made promptly thereafter. The RPR will immediately notify the owner of the damaged utility. If the RPR is not immediately available, the CONTRACTOR shall notify the utility owner of the damage. If directed by the RPR, repairs shall be made by the CONTRACTOR under the provisions for changes and extra work contained in the General Conditions.
- I. Costs of locating and repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Contract Documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the WORK which was interrupted or idled by removal or relocation of such utility facilities, and which was necessarily idled during such work will be paid for as extra work in accordance with the provisions of Articles, 10, 11, and 12 of the General Conditions.
- J. Approval of Repairs: All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other work.

- K. Maintaining in Service: Unless indicated otherwise, oil and gasoline pipelines, power, and telephone or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the WORK shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the RPR are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or it not discovered until after completion of the backfilling.

1.6 TREES OR SHURBS WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- A. General: Except where trees or shrubs are indicated to be removed, the CONTRACTOR shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or OWNER. Existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the CONTRACTOR or a certified tree company under permit from the jurisdictional agency and/or the OWNER. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.
- B. Trimming: Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to the trunk or large branch. Spikes shall not be used for climbing live trees. Cuts over 1-1/2 inches in diameter shall be coated with a tree paint product that is waterproof, adhesive, and elastic, and free from kerosenes, coal tar, creosote, or other materials injurious to the life of the tree.
- C. Replacement: The CONTRACTOR shall immediately notify the jurisdictional agency and/or the OWNER if any tree or shrub is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the OWNER, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree or shrub at its own expense. The tree or shrub shall be of a like size and variety as the one damaged, or, if of a smaller size, the CONTRACTOR shall pay to the owner of said tree a compensatory payment acceptable to the tree or shrub owner, subject to the approval of the jurisdictional agency or OWNER. The size of the tree or shrub shall be not less than 1-inch diameter nor less than 6 feet in height. Planting of replacement trees and shrubs shall be in accordance with the recommendations of the nursery furnishing the plants. Unless otherwise indicated, the CONTRACTOR shall water and maintain the replacements trees and shrubs for 6 months after planting.

1.7 LAWN AREAS

- A. Lawn or landscaped areas and irrigation systems damaged during construction shall be repaired to match the pre-construction condition to the satisfaction of the OWNER. The damaged lawn shall be replaced with sod on top of an adequate layer of topsoil. Damaged sprinkler heads shall be replaced with identical heads. Installation details for sprinkler system and sprinkler heads shall match existing.

1.8 NOTIFICATION BY THE CONTRACTOR

- A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way, the CONTRACTOR shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than 3 days nor more than 7 days prior to excavation so that a representative of said owners or agencies can be present during such work if they so desire. The CONTRACTOR shall notify RMP three days prior to mobilizing any machinery or equipment within reach of any overhead power lines and shall comply with RMP requirements regarding the operation of such machinery or equipment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

**SECTION 01550
SITE ACCESS AND STORAGE**

PART 1 – GENERAL

1.1 HIGHWAY LIMITATIONS

- A. The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

1.2 TEMPORARY CROSSINGS

- A. General: Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants and parking lots. The CONTRACTOR shall cooperate with parties involved in removal of trash, garbage and screenings so as to maintain existing schedules for such services.
- B. Temporary Bridges: Wherever necessary, the CONTRACTOR shall provide suitable temporary bridges or steel plates over unfilled excavations. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation.
- C. Street Use: Nothing herein shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. Where excavation is being performed in streets, one lane in each direction shall be kept open to traffic at all times unless otherwise indicated. Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the CONTRACTOR to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.

1.3 CONTRACTOR'S WORK AND STORAGE AREA

- A. The OWNER will designate and arrange for the CONTRACTOR's use, a portion of the property near to the WORK for its exclusive use during the term of the Contract as a storage and shop area for its construction operations relative to this Contract. Security at the CONTRACTOR's work and storage area is the responsibility of the CONTRACTOR. At completion of WORK, the CONTRACTOR shall return this area to its original condition, including grading and landscaping.
- B. The CONTRACTOR shall make its own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the WORK.
- C. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK.

1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are all products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.
2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.
3. The CONTRACTOR shall develop and submit to the RPR a plan for storing and disposing of the materials above.
4. The CONTRACTOR shall obtain and submit to the RPR a single EPA number for wastes generated at the Site.
5. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials.
6. All hazardous materials which are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

1.4 PARKING

A. The CONTRACTOR shall:

1. Park official company vehicles and equipment in areas as directed by the RPR.
2. Traffic and parking areas shall be maintained in a sound condition, free of excavated materials, construction equipment, mud, and construction materials. The CONTRACTOR shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.
3. See Section 01520 – Security and Process Safety Management for parking of personal vehicles.

1.5 VEHICLE CLEANING

- ##### A.
- All vehicles leaving the site shall be cleaned to prevent the carrying of mud, gravel or other debris onto the Plant access road system or 1300 West Street. CONTRACTOR shall install and maintain a “Contractor’s Entrance” per City of West Jordan Standard 5105.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01560
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 – GENERAL

1.1 EXPLOSIVES AND BLASTING

- A. Use of explosives on the work is not permitted.

1.2 DUST ABATEMENT

- A. The CONTRACTOR shall prevent its operation from producing dust in amounts damaging to property, cultivated vegetation or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity. The CONTRACTOR shall be responsible for any damage resulting from dust originating from its operations. The dust abatement measures shall be continued throughout all phases of construction, including suspension of work, until final acceptance. The CONTRACTOR shall abate dust nuisance by cleaning, sweeping and sprinkling with water, or other means necessary. Use of water resulting in mud on access areas used by the public or OWNER will not be permitted as a substitute for sweeping or other methods.

1.3 RUBBISH CONTROL

- A. During progress of the WORK, the CONTRACTOR shall keep the Site and other areas used by it in a neat and clean condition, free from accumulation of rubbish. The CONTRACTOR shall dispose of all rubbish and waste materials of any nature occurring at the Site, and shall establish regular intervals of collection and disposal of such materials and waste. The CONTRACTOR shall also keep its haul roads free from dirt, rubbish and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the Site in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.

1.4 CHEMICALS

- A. All chemicals used during project construction or furnished for project operations, whether defoliant, soil sterilent, herbicide, pesticide, disinfectant, polymer, reactant or other classification shall show approval of either the USEPA or the USDA. Use of such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer(s). In addition, see the requirements set forth in the General Conditions.

1.5 AIR POLLUTION CONTROL

- A. The CONTRACTOR shall not discharge smoke, dust or any other air contaminants into the atmosphere in such quantity as may violate the regulations of any legally constituted authority having jurisdiction.

1.6 WATER POLLUTION CONTROL

- A. The CONTRACTOR shall exercise every reasonable precaution to protect plant facilities, drainage channels and storm facilities from pollution. It shall avoid muddying and silting of said channels. Water pollution control work shall consist of constructing those facilities which may be required to provide prevention, control and abatement of water pollution.
- B. SVWRF Storm Water Pollution Prevention Plan Requirements for Contractors – South Valley WRF has an active Storm Water Discharge Permit. CONTRACTORS working at either of our facilities are required to take actions to minimize the potential of storm water contamination that come from their work activities. At our main facility, precipitation that falls on paved or packed dirt parking areas is collected and discharged directly into the Jordan River. Currently, the storm water receives no additional treatment, which requires SVWRF to be proactive in controlling potential pollution sources on site. As part of the SVWRF Storm Water Pollution Prevention Plan, CONTRACTORS are required under our Good Housekeeping Policy to take the necessary actions to minimize potential negative impacts on storm water. Following are some of situations and the expected actions to be taken by the CONTRACTOR to control possible storm water contamination. This is not meant to be a comprehensive list, but only a few examples of situations that might develop during construction. Included are the corrective actions required by SVWRF if a spill or leak occurs. Any spills or leaks on the construction site **must be reported immediately** to the Resident Project Representative, who in turn will report to the SVWRF Storm Water Pollution Prevention Plan Coordinator, Lee Rawlings, and/or the Safety Coordinator, Chuck McStotts.

| Item | Pollution Source | Required Action |
|-----------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Road and Parking Areas | Dirt, gravel, sand, etc., tracked onto roads by CONTRACTOR's equipment. | Remove immediately. Ongoing hauling /excavation may require scheduled hourly cleaning. |
| CONTRACTOR Equipment | Leaking oil, hydraulic fluid, antifreeze, routine maintenance, etc. | Contain the spill immediately to minimize contamination. Clean up the spilled material; i.e. remove contaminated soil, clean asphalt and replace if necessary. Clean cement. |
| Vehicle Fueling Area | Fuel spilled | Immediately clean up the spilled material; i.e. remove contaminated soil, clean asphalt and replace if necessary. Clean cement. |
| Chemicals and Other Hazardous Materials | Outside storage | Must be kept completely covered. Hazardous materials must be removed from site ASAP after using it for its intended purpose. |
| | Spills and leaks | Immediately clean up the spilled material; i.e. remove contaminated soil, clean asphalt and replace if necessary. Clean cement. |
| Above Ground Storage Tanks | Leakage and/or spills | Immediately clean up the spilled material; i.e. remove contaminated soil, clean asphalt and replace if necessary. Clean cement. |
| Ground Water | Pumping to clear an | Control measures must be in place to |

| | | |
|--|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | excavation | minimize silt, gravel, etc., from entering the storm water collection system. Only discharge of uncontaminated ground water is allowed by the SVWRF permit. Additional testing may be required before pumping begins. |
|--|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

C.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01600 - PRODUCTS, MATERIALS and EQUIPMENT

PART 1 - GENERAL

1.1 DEFINITIONS

- A. The word "Products," as used herein, is defined to include purchased items for incorporation into the WORK, regardless of whether specifically purchased for the project or taken from CONTRACTOR's stock of previously purchased products. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form units of work. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items). Definitions in this paragraph are not intended to negate the meaning of other terms used in the Contract Documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," "special construction," and similar terms, which are self-explanatory and have recognized meanings in the construction industry.
- B. Neither "Products" nor "Materials" nor "Equipment" includes machinery and equipment used for preparation, fabrication, conveying and erection of the WORK.

1.2 QUALITY ASSURANCE

- A. Source Limitations: To the greatest extent possible for each unit of work, the CONTRACTOR shall provide products, materials, and equipment of a singular generic kind from a single source.
- B. Compatibility of Options: Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, the CONTRACTOR shall select an option which is compatible with other products, materials, or equipment. Compatibility is a basic general requirement of product, material and equipment selections.

1.3 PRODUCT DELIVERY AND STORAGE

- A. The CONTRACTOR shall deliver and store the WORK in accordance with methods and means that will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long-term storage of products at the CONTRACTOR'S facility and the OWNER'S site and overcrowding of construction spaces. In particular, the CONTRACTOR shall ensure coordination to ensure minimum holding or storage times.

1.4 TRANSPORTATION AND HANDLING

- A. Products shall be transported by methods to avoid damage and shall be delivered in undamaged condition.
- B. The CONTRACTOR shall provide equipment and personnel to handle products, materials, and equipment, by methods to prevent soiling and damage while the equipment is in the CONTRACTOR'S control.

- C. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.
- D. The CONTRACTOR shall be responsible to deliver the equipment to the job site. The CONTRACTOR will also be responsible for unloading, storing, protecting and installing the equipment at the job site.

1.5 STORAGE AND PROTECTION PRIOR TO SHIPMENT

- A. Products shall be stored in accordance with component manufacturer's written instructions and with seals and labels intact and legible. Sensitive products shall be stored in weather-tight climate controlled enclosures and temperature and humidity ranges shall be maintained within tolerances required by manufacturer's recommendations.
- B. For exterior storage of fabricated products, products shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet covering and ventilation shall be provided to avoid condensation.
- C. Storage shall be arranged to provide access for inspection. The CONTRACTOR shall periodically inspect to assure products are undamaged and are maintained under required conditions.
- D. Storage shall be arranged in a manner to provide access for maintenance of stored items and for inspection.

1.6 MAINTENANCE OF STORAGE

- A. Stored products shall be periodically inspected on a scheduled basis. The CONTRACTOR shall maintain a log of inspections and shall make the log available on request.
- B. The CONTRACTOR shall maintain manufacturer-required environmental conditions continually.
- C. The CONTRACTOR shall ensure that surfaces of products exposed to the elements are not adversely affected and that weathering of finishes does not occur.
- D. For mechanical and electrical components, the CONTRACTOR shall provide a copy of the component manufacturer's service instructions with each item and the exterior of the package shall contain notice that instructions are included.
- E. Products shall be serviced on a regularly scheduled basis, and a log of services shall be maintained and submitted as a record document prior to acceptance by the OWNER in accordance with the Proposal Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

-END OF SECTION-

**SECTION 01640
DEMOLITION AND RECONSTRUCTION**

PART 1 – GENERAL

1.1 THE REQUIREMENT

- A. The CONTRACTOR shall demolish and reconstruct existing civil, landscaping, structural, architectural, mechanical, HVAC, electrical, and instrumentation facilities as indicated, in accordance with the Contract Documents.

1.2 COORDINATION

- A. The CONTRACTOR shall carefully coordinate the WORK in areas where existing facilities are interconnected with new facilities. Existing facilities shall remain operational during all phases of demolition and construction. The CONTRACTOR shall schedule all demolition and reconstruction to minimize equipment 'down-time'. If necessary, the CONTRACTOR shall provide a sufficient number of temporary lights to maintain a well-lighted and safe environment.
- B. The WORK indicated in the Contract Documents is not all inclusive and the CONTRACTOR shall be responsible to perform the reconstruction indicated plus that which can be reasonably inferred from the Contract Documents as necessary to complete the project.
- C. The CONTRACTOR shall note that the Drawings used to indicate demolition and reconstruction are based on record drawings of the existing facilities, which have been reproduced to show existing conditions and to clarify the scope of work as much as possible. Prior to bidding, the CONTRACTOR shall conduct a comprehensive survey at the Site to verify the correctness and exactness of the Drawings, the scope of work, and the extent of auxiliary utilities. A complete set of record drawings is available for review at the South Valley Water Reclamation Facility (SVWRF) during regular business hours.
- D. While demolition and reconstruction are being performed, the CONTRACTOR shall provide adequate access for the continued operation and maintenance of equipment and treatment processes. The CONTRACTOR shall erect and maintain fences, warning signs, barricades, and other devices around the reconstruction as required for the protection of the CONTRACTOR's employees and the OWNER's personnel at the plant. The CONTRACTOR shall remove all such protection when reconstruction activities are complete, or as work progresses, or when directed by the ENGINEER.

1.3 CONTRACTOR SUBMITTALS

- A. Demolition and reconstruction activities and procedures, including operation sequence, shall be submitted to the ENGINEER for approval. The procedures shall provide for safe conduct of the WORK, careful removal and disposition of materials and equipment, protection of existing facilities which are to remain undisturbed, coordination with existing facilities to remain in service, and timely disconnection and reconnection of utility services. The procedures shall include a detailed description and time schedule of the

methods and equipment to be used for each operation and the sequence of operation. A storage plan for all salvaged items shall be included.

1.4 DEMOLITION

- A. Existing pavement, structures, equipment, piping, valves, ductwork, electrical gear, instrumentation, utilities, and related appurtenances such as anchors, supports, and hardware shown or required to be demolished as part of the WORK shall be removed and disposed of unless otherwise indicated. Removal of buried structures, utilities, and appurtenances includes the related excavation and backfill as required. Removed items shall be disposed of offsite by the CONTRACTOR. The following items shall be demolished, disposed of, returned to the OWNER or salvaged and reused as indicated. See the drawings for additional requirements. Not every item requiring demolition may be listed below.
- B. Solids Handling Building: Remove and dispose of all existing HVAC equipment, except as otherwise may be indicated on the Drawings.

1.5 SALVAGE

- A. Items of existing equipment, piping, valves, electrical gear, instrumentation, utilities, and appurtenances indicated to be salvaged shall be removed without any degradation in condition from that prior to removal. Salvaged items shall be stockpiled and protected on the Site at a location directed by the ENGINEER. The CONTRACTOR shall be responsible to properly safeguard the salvaged items against damage and loss during removal and handling.

1.6 DISPOSAL

- A. The CONTRACTOR shall be responsible for the offsite disposal of debris resulting from demolition and reconstruction in compliance with local, state, and federal codes and requirements. Those demolished items not returned to the OWNER or reused in the WORK become the property and responsibility of the CONTRACTOR to dispose of as described above, or to exercise salvage rights to if desired. All disposal fees shall be paid by the CONTRACTOR at no additional cost to the OWNER. Any revenues obtained by salvage of equipment and materials abandoned by the OWNER are the property of the CONTRACTOR.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 GENERAL

- A. The CONTRACTOR shall coordinate demolition and reconstruction work with the OWNER and ENGINEER. Unless otherwise indicated, the CONTRACTOR shall be responsible for the sequence of activities. WORK shall be performed in accordance with applicable safety rules and regulations.

- B. The CONTRACTOR shall verify that any utilities connected to structures, equipment, and facilities to be removed, relocated, salvaged, replaced, or abandoned are rendered inoperable, replaces with new utilities, or adequately bypassed with temporary utilities before proceeding with demolition and reconstruction.
- C. The CONTRACTOR shall take precautions to avoid damage to adjacent facilities and to limit the work activities to the extent indicated. If reconstruction beyond the scope indicated is required, the CONTRACTOR shall obtain approval from the ENGINEER prior to commencing work.

3.2 PROTECTION OF EXISTING FACILITIES

- A. Before beginning any reconstruction work, the CONTRACTOR shall carefully survey the existing facilities and examine the Specifications and Drawings to determine the extent of reconstruction and coordination with the WORK. Existing facilities not subject to the reconstruction shall be protected and maintained in accordance with Section 01530 – Protection of Existing Facilities. Damaged existing facilities shall be repaired to the previous condition or replaced.
- B. Persons shall be afforded safe passages around areas of demolition.
- C. Structural elements shall not be overloaded. The CONTRACTOR shall be responsible for shoring, bracing, or adding new supports as may be required for adequate structural support as a result of work performed under this Section. The CONTRACTOR shall remove all temporary protection when the WORK is complete or when so authorized by the ENGINEER.
- D. The CONTRACTOR shall carefully consider bearing loads and capacities before placement of equipment and material on Site. In the event of any question as to whether an area to be loaded has adequate bearing capacity, the CONTRACTOR shall consult with the ENGINEER prior to the placement of such equipment or material.

3.3 DEMOLITION, SALVAGE, AND RELOCATION

- A. The CONTRACT Documents indicate existing facilities to be demolished, salvaged, and/or relocated. Auxiliary utilities such services as water, air, chemicals, drainage, lubrication, fluid power, electrical wiring, controls, and instrumentation are not necessarily indicated. The CONTRACTOR shall verify the scope of the work to remove the equipment indicated; coordinate its shutdown, removal, replacement, or relocation; and submit an outage plan in accordance with Section 01030 –Special Project Constraints. The removal of existing facilities for demolition, salvage, and relocation shall include the following requirements.
 - 1. Equipment supports, including concrete pads, baseplates, mounting bolts, and support hangers, shall be removed. Damage to the existing structure shall be repaired or restored.
 - 2. Exposed piping including vents, drains, and valves shall be removed. Where exposed piping penetrates existing floors and walls, the piping, including wall thimbles, shall be removed to a minimum depth of 2 inches. Resultant openings in the structure shall be filled.

3. Electrical control panels, junction boxes, motor control centers, and local switches and pushbuttons shall be removed.
4. Exposed electrical conduits and associated wiring shall be removed. Resultant openings in structures shall be made flush with the adjacent finished surface.
5. Connections to embedded electrical conduits shall be removed a minimum of 2 inches inside the finished surface of the existing structure. Wiring shall be removed and the resulting openings shall be made flush with the adjacent finished surface.
6. Associated instrumentation devices shall be removed.
7. Auxiliary utility support systems shall be removed.
8. The area shall be thoroughly cleaned such that little or no evidence of the previous equipment installation will remain.
9. Asphalt and concrete pavement, curbs, and gutters shall be removed as necessary to perform reconstruction. The limits of removal shall be sawcut. When the required improvements have been constructed, new asphalt and concrete pavement, curbs, and gutters shall be placed to match the original unless otherwise indicated.
10. Footings, foundation walls, below-grade construction and concrete slabs on grade shall be demolished and removed to a depth which will not interfere with new construction, but not less than 36 inches below existing ground surface or future ground surface, whichever is lower.
11. When existing pipe is removed, the CONTRACTOR shall plug all resulting open ends whether or not indicated. Where removed piping is exposed, the remaining piping shall be blind-flanged or fitted with a removable cap or plug.
12. When existing piping is removed from existing structures, the CONTRACTOR shall fill all resulting openings in the structures and repair any damage such that the finished rehabilitated structure shall appear as a new homogeneous unit with little or no indication of where the new and old materials join. The openings in water-bearing structures shall be filled with non-shrink grout to be watertight and reinforced as required or indicated. In all locations where the surface of the grout will be exposed to view, the non-shrink grout shall be recessed approximately ½-inch and the recessed area filled with cement mortar grout.
13. The CONTRACTOR shall conduct electrical reconstruction in a safe and proper manner at all times to avoid injury from electrical shock to the OWNER's and CONTRACTOR's personnel. Electrical equipment to be shut off for a period of time shall be tagged, locked out, and sealed with a crimped wire and lead seal and made inoperable. At no time shall electrical wiring or connections, which are energized or could become energized, be accessible to CONTRACTOR, OWNER, or other personnel without suitable protection or warning signs.

3.4 REHABILITATION

- A. Certain areas of existing structures, piping, conduits, and the like will be affected by work necessary to complete modifications under this Contract. The CONTRACTOR shall be responsible to rehabilitate those areas affected by its construction activities.
- B. Where new rectangular openings are to be enlarged in floors, the CONTRACTOR shall score the edges of each opening (both sides of wall or floor slab) by saw cutting clean straight lines to a minimum depth of 1 inch and then chipping out the concrete. Alternately, the sides of the opening (not the corners) can be formed by saw cutting completely through the slab or wall. Saw cuts deeper than 1 inch (or the depth of cover over existing reinforcing steel, whichever is less) shall not be allowed to extend beyond the limits of the opening. Corners and edges shall be made square and true by a combination of core drilling and chipping or grinding. All necessary precautions shall be taken during removal of concrete to prevent debris from falling into or entering adjacent channels in service or from damaging adjacent equipment or piping. Saw cuts allowed to extend beyond the opening shall be repaired by filling with non-shrink grout. The concrete around any exposed reinforcement steel shall be chipped back and exposed reinforcement steel cut a minimum of 2 inches from the finished face of the new opening and painted with epoxy paint. The inside face of the new opening shall be grouted with an epoxy cement grout to fill any voids and cover the exposed aggregate and shall be trowel-finished to provide a plumb and square opening.
- C. Where existing equipment, equipment pads and bases, piping, piping supports, electrical panels and devices, conduits, and associated appurtenances are removed, the CONTRACTOR shall rehabilitate the affected area such that little or no evidence of the previous installation remains. Openings in concrete floors, walls, and ceilings from piping, conduit, and fastener penetrations shall be filled with non-shrink grout and finished to match the adjacent area. Concrete pads and bases for equipment and supports shall be removed by chipping away concrete and cutting any exposed reinforced steel and anchor bolts a minimum of 2 inches below finished grade and painted with epoxy paint. The area of concrete to be rehabilitated shall be scored by saw cutting clean, straight lines to a minimum depth of 1-1/2-inches, and all concrete within the scored lines removed to a depth of 1-1/2-inches (or the depth of cover over reinforcing steel, whichever is less). The area within the scored lines shall be patched with non-shrink grout to match the adjacent grade and finish. Abandoned connections to piping and conduits shall be terminated with blind flanges, caps, and plugs suited for the material, type, and service of the pipe or conduit.
- D. Existing reinforcement to remain in place shall be protected, cleaned, and extended into new concrete. Existing reinforcement not to be retained shall be cut-off as follows:
 - 1. Where new concrete joins existing concrete at the removal line, reinforcement shall be cut-off flush with the concrete surface at the removal line.
 - 2. Where the concrete surface at the removal line is the finished surface, the reinforcement shall be cut back 2 inches below the finished concrete surface, the ends painted with epoxy paint and the remaining holes patched with a cement mortar grout.

3.5 DISPOSAL

- A. Demolition and removal of debris shall minimize interference with roads, streets, walks, and other adjacent occupied or used facilities, which shall not be closed or obstructed without permission from the OWNER. Alternate routes shall be provided around closed or obstructed traffic ways.
- B. Site debris, rubbish, and other materials resulting from reconstruction operations shall be legally removed and disposed of. Structures and equipment to be demolished shall be cleaned prior to demolition and the wash water properly disposed of. No trace of these structures shall remain prior to placing of backfill in the area from which structures were removed.
- C. Refuse, debris, and waste materials resulting from demolition and clearing operations shall not be burned.

3.6 OCCUPANCY AND POLLUTION CONTROL

- A. Water sprinkling, temporary enclosures, chutes, and other suitable methods shall be used to limit dust and dirt rising and scattering in the area. The CONTRACTOR shall comply with government regulations pertaining to environmental protection.
- B. Water shall not be used if it creates hazardous or objectionable conditions such as ice, flooding, or pollution.

3.7 CLEANING

- A. During and upon completion of WORK, the CONTRACTOR shall promptly remove tools and equipment, surplus materials, rubbish, debris, and dust and shall leave areas affected by WORK in a clean, approved condition.
- B. Adjacent structures shall be cleaned of dust, dirt, and debris caused by reconstruction, as directed by the ENGINEER or governing authorities, and adjacent areas shall be returned to condition existing prior to start of WORK. Dust control at existing electrical substations and switchgear is specified elsewhere.
- C. The CONTRACTOR shall clean and sweep the street and road surrounding the project daily.

END OF SECTION

**SECTION 01700
PROJECT CLOSEOUT**

PART 1 – GENERAL

1.1 FINAL CLEANUP

- A. The CONTRACTOR shall promptly remove from the vicinity of the completed WORK, all rubbish, unused materials, construction equipment, and temporary facilities used during construction. Final acceptance of the WORK by the OWNER will be withheld until the CONTRACTOR has satisfactorily performed the final cleanup of the Site.

1.2 CLOSEOUT TIMETABLE

- A. The CONTRACTOR shall establish dates for equipment testing, acceptance periods, and on-site instructional periods (as required under the Contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the OWNER, the ENGINEER, and their authorized representatives sufficient time to schedule attendance at such activities.

1.3 TECHNICAL MANUAL SUBMITTAL

- A. No portion of the project will be accepted for partial utilization until approved Technical Manual(s) for each piece of mechanical equipment within that portion is submitted.
- C. Approved Technical Manuals shall be submitted prior to shipment of individual pieces of equipment. Money claimed by the CONTRACTOR for stored materials related to the receipt of equipment will be withheld until approved Technical Manuals are submitted.

1.4 FINAL SUBMITTALS

- A. The CONTRACTOR, prior to requesting final payment, obtain and submit the following items to the ENGINEER for transmittal to the OWNER:
1. Written guarantees, where required.
 2. Technical Manuals and Instructions.
 3. Maintenance stock items; spare parts; special tools.
 4. Completed record drawings.
 5. Release from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of the law.

1.5 MAINTENANCE AND GUARANTEE

- A. The CONTRACTOR shall comply with the maintenance and guarantee requirements contained in the General Conditions.

- B. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order from the OWNER. If the CONTRACTOR fails to make such repairs or replacements promptly, the OWNER reserves the right to do the Work and the CONTRACTOR and his surety shall be liable to the OWNER for the cost thereof.

1.6 BONDS

- A. The CONTRACTOR shall provide bonds as required by the General Conditions.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

-END OF SECTION-

SECTION 01732 SELECTIVE DEMOLITION

PART 1 – GENERAL

1.1 SECTION REQUIREMENTS

- A. Unless otherwise indicated, demolished materials become Contractor's property and are to be removed from the project site at the Contractor's expense.
- B. Items indicated to be removed and salvaged remain Owner's property. Remove, clean, and deliver to Owner's designated storage area.
- C. Comply with EPA regulations and disposal regulations of authorities having jurisdiction.
- D. Conduct demolition without disrupting Owner's use of the facility.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 DEMOLITION

- A. Maintain and protect existing utilities to remain in service before proceeding with demolition, providing bypass connections as necessary to maintain service.
- B. Locate, identify, shut off, disconnect, and cap off utility services to be demolished.
- C. Conduct demolition operations and remove debris to prevent injury to people and damage to adjacent buildings and site improvements.
- D. Provide and maintain shoring, bracing, or structural support to preserve building stability and prevent movement, settlement, or collapse.
- E. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.
- F. Promptly patch and repair holes and damaged surfaces of building caused by demolition. Restore exposed finishes of patched areas and extend finish restoration into remaining adjoining construction.
- G. Promptly remove demolished materials from Owner's property and legally dispose of them. Do not burn demolished materials.

END OF SECTION

SECTION 03200 REINFORCEMENT STEEL

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish, fabricate and install reinforcing steel as shown on Contract Documents.
- B. Work shall include installation of tie wires, clips, supports, and other appurtenances necessary to meet Specifications and produce finished concrete structures.

1.2 RELATED SECTIONS

- A. Section 03300 – Cast-In-Place Concrete

1.3 REFERENCES

- A. American Concrete Institute (ACI) standards, most recent editions:

ACI 315 Details of Concrete Reinforcement

ACI 318 Building Code Requirements for Structural Concrete

ACI 350 Code Requirements for Environmental Engineering
Concrete Structures

- B. American Welding Society (AWS):

D1.4 Structural Welding Code – Reinforcing Steel

- C. ASTM International (ASTM) standards, most recent editions:

ASTM A615 Standard Specification for Deformed and Plain Billet-Steel
Bars for Concrete Reinforcement

ASTM A706 Standard Specification for Low Alloy Steel Deformed Bars
for Concrete Reinforcement

ASTM A775 Standard Specification for Epoxy-Coated Reinforcing Steel
Bars

ASTM A1064 Standard Specification for Carbon-Steel Wire and Welded
Wire Reinforcement, Plain and Deformed, for Concrete

- D. Concrete Reinforcing Steel Institute (CRSI) standards, most recent editions:

Manual of Standard Practice

1.4 SUBMITTALS

- A. Comply with Section 01300 – Contractor Submittals.
- B. Details of the concrete reinforcement steel and concrete inserts shall be submitted at the earliest possible date after receipt of the Notice to Proceed.
- C. Include, but not limit to, the following:
 - 1. Complete bar schedule, bar details and erection drawings to conform to ACI 315.
 - 2. Each type of bar marked with identification corresponding to identification tag on bar.
 - 3. Length, type, and location of all splices.
 - 4. Erection drawings shall be clear, easily legible and to a minimum scale of:
 - a. 1/4 inch = 1 foot.
 - b. 1/8 inch = 1 foot if bars in each face are shown in separate views.
 - 5. Size and location of openings.
- D. Contract Documents shall not be used as erection drawings.

1.5 QUALITY ASSURANCE

- A. Qualifications
 - 1. Welding operators, processes, and procedures to be qualified in accordance with AWS D1.4.
 - 2. Welding operators to have been qualified during the previous 12 months prior to commencement of welding.
- B. Certifications
 - 1. Submit manufacturer's certification that products submitted meet requirements of standards referenced.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Store reinforcing steel on wood supports in a manner that prevents it from coming in contact with the ground.
- B. Store only bars with same identifying label in same stack.
- C. Cover epoxy coated reinforcement for protection against both moisture and ultraviolet light and so that condensation does not form on the bars.
- D. When handling coated bars, use systems with padded contact areas.
- E. Thoroughly inspect coated steel after delivery to the job site and again after installation to ensure that it is not damaged.
 - 1. Repair damage with patching material meeting manufacturer's requirements.
 - 2. Promptly patch sheared ends and other cuts or exposed areas before detrimental oxidation occurs.

PART 2 - PRODUCTS

2.1 REINFORCEMENT STEEL

- A. Materials:
 - 1. Reinforcing bars: ASTM A615, Grade 60.
 - 2. Reinforcing bars to be welded: ASTM A706.

2.2 BOLSTERS, CHAIRS AND ACCESSORIES

- A. Conform to ACI 315 and CRSI Manual of Standard Practice.
- B. Provide spacers, bolsters, chairs, ties and other devices necessary to properly space, place, support, and fasten steel reinforcement in place during concrete placement.
- C. Metal accessories shall be stainless steel with plastic coated tips where legs will be exposed in finished concrete surfaces. Color of plastic shall be grey to match concrete color.
- D. Do not use rocks, broken bricks, wood blocks, or concrete fragments for support of steel reinforcement.
- E. Support between Reinforcing Steel and Formed Exposed Surfaces: Metal bar chairs.

2.3 MECHANICAL COUPLERS

- A. Provide mechanical couplers where shown and where approved by ENGINEER. The couplers shall develop a tensile strength, which exceeds 125 percent of the yield strength of the reinforcement bars being spliced at each splice.
- B. Where the type of coupler used is composed of more than one component, supply all components required for a complete splice. This shall apply to all mechanical splices, including those splices intended for future connections.
- C. Reinforcement steel and coupler used shall be compatible for obtaining the required strength of the connection. Straight threaded type couplers shall require the use of the next larger size reinforcing bar or shall be used with reinforcing bars with specially forged ends which provide upset threads which do not decrease the basic cross section of the bar.
- D. Couplers:
 - 1. Lenton Form Saver by Erico Products.
 - 2. Dowel Bar Splicer System by Richmond Screw Anchor Company.
 - 3. ENGINEER-approved equal.

2.4 FABRICATION

- A. Tolerances:
 - 1. Sheared lengths: plus or minus 1 inch.
 - 2. Overall dimensions of stirrups, ties, and spirals: plus or minus 1/2 inch.
 - 3. All other bends: +0 inch, -1/2 inch.

- B. Minimum diameter of bends measured on the inside of the rebar to be as indicated in ACI 318 or ACI 350 as applicable.
- C. Ship all reinforcement to job site with attached plastic or metal tags.
 - 1. Place on each tag the mark number of the reinforcement corresponding to the mark number indicated on the shop drawings.
 - 2. Mark numbers on tags to be so placed that the numbers cannot be removed.

2.5 TESTING

- A. Perform at mill for each heat.
- B. Furnish a certified Affidavit of Compliance issued by steel manufacturer that reinforcing steel furnished for project meets requirements of ASTM standards referenced above, as applicable. If requested by the ENGINEER, furnish samples of each type of welded splice used in the Work in a quantity and of dimensions adequate for testing.
- C. At the discretion of the ENGINEER, radiographic testing of direct butt-welded splices will be performed. Provide assistance necessary to facilitate testing. Repair any weld which fails to meet the requirements of AWS D1.4. The costs of testing will be paid by the OWNER; except, the costs of all tests which fail to meet specified requirements shall be paid by the CONTRACTOR at no increase in cost to the OWNER.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Tolerances:
 - 1. Rebar Placement:
 - a. Clear distance to formed surfaces: plus or minus 1/4 inch.
 - b. Minimum spacing between bars: 1/4 inch.
 - c. Top bars in slabs and beams:
 - 1) Members 8 inches deep or less: plus or minus 1/4 inch.
 - 2) Members between 8 inches and 2 feet deep: plus or minus 1/4 inch.
 - 3) Members more than 2 feet deep: plus or minus 3/4 inch.
 - d. Crosswise of members: Spaced evenly within plus or minus 1 inch.
 - e. Lengthwise of members: plus or minus 2 inches.
 - 2. Minimum clear distance between rebars:
 - a. Beams, walls, and slabs: Distance equal to rebar diameter or 1 inch, whichever is greater.
 - b. Columns: Distance equal to 1.5 times the rebar diameter or 1-1/2 inch, whichever is greater.
Beam and slab rebars shall be threaded through the column vertical rebars without displacing the column vertical rebars and still maintaining the clear distances required for the beam and slab rebars.
- B. Minimum concrete protective covering for reinforcement, unless indicated otherwise on Contract Documents:

1. Concrete deposited against earth: 3 inches.
 2. Formed surfaces exposed to weather or in contact with earth:
 - a. 2 inches for reinforcing bars #6 or larger.
 - b. 1-1/2 inch for reinforcing bars less than #6.
 3. Formed surfaces exposed to any liquid: 2 inches for all rebar sizes.
 4. Interior surfaces:
 - a. 1-1/2 inch for beams, girders, and columns.
 - b. 3/4 inch for slabs, walls, and joists.
- C. Splice steel to conform to Chapter 12 of ACI 318 or ACI 350 as applicable. Unless indicated otherwise on Contract Documents, provide splices for reinforcing as follows:
1. Rebar:
 - a. Lapped splices shall be not less than a Class B splice for reinforcement unless otherwise indicated.
 - b. Mechanical splices shall be used whenever shown on the Contract Documents and may be used at other locations at CONTRACTOR's option. Such locations shall be shown specifically on the rebar shop drawings.
 - c. Welding:
 - 1) Perform welding of rebars in accordance with requirements of AWS D1.4.
 - 2) Have each welder place an approved identifying mark near each completed weld.
 2. Welded wire fabric: Splice lap length measured between outermost cross wires of each fabric sheet shall not be less than 1 spacing of cross wires plus 2 inches, or less than 1.5 times the development length, nor less than 6 inches. Development length shall be as required for the basic development length for the specified fabric yield strength in accordance with Section 12 of ACI 318 or ACI 350.
 3. Provide splices of reinforcing not specifically indicated or specified subject to approval of ENGINEER.
- D. Placing Rebars
1. Assure that reinforcement at time concrete is placed is free of mud, oil, or other materials that may affect or reduce bond.
 2. Reinforcement with rust, mill scale, or a combination of both will be accepted as being satisfactory without cleaning or brushing provided dimensions and weights including heights of deformations on a cleaned sample are not less than required by applicable ASTM specifications that govern the rebar supplied.
 3. Rebar support:
 - a. Support rebars and fasten together to prevent displacement by construction loads or placing of concrete.
 - b. On ground, provide supporting concrete blocks.
 - c. Over formwork, provide plastic-coated metal chairs, runners, boosters, spacers, hangers, and other rebar support. Only tips in contact with the forms need to be plastic coated.
 - d. Bars additional to those shown on the Contract Documents, which may be found necessary or desirable by the CONTRACTOR for the purpose of securing reinforcement in position, shall be provided by the CONTRACTOR at his own expense.

- e. Tie securely at minimum of 33% of intersections with 16-gage or larger annealed iron wire.
 - f. Accommodate placement of formed openings.
 - g. Where parallel horizontal reinforcement in beams is indicated to be placed in two or more layers, rebars in the upper layers shall be placed directly above rebars in the bottom layer with clear distance between layers to be 1 inch. Place spacer rebars at 3 feet maximum centers to maintain the required 1-inch clear distance between layers.
 - h. Extend reinforcement to within 2 inches of concrete perimeter edges. If perimeter edge is earth formed, extend reinforcement to within 3 inches of the edge.
 - i. To insure proper placement, furnish templates for all column vertical bars and dowels.
 - j. Provide splices of reinforcement not specifically indicated or specified subject to ENGINEER's approval.
 - k. Do not bend reinforcement after embedding in hardened concrete unless approved by ENGINEER. Do not bend reinforcing by means of heat.
 - l. Tie wires shall be bent away from form surfaces.
 - m. Do not tack-weld reinforcement.
- E. Ensure that steel reinforcement and embedments do not exceed 160 Degrees F at time of concrete placement.

3.2 FIELD QUALITY CONTROL

- A. Reinforcement Congestion and Interfaces:
- 1. Notify ENGINEER whenever the specified clearances between rebars cannot be met.
 - 2. Do not place any concrete until ENGINEER submits a solution to rebar congestion problem.
 - 3. Rebars may be moved slightly to avoid interference with other reinforcement steel, conduits, or embedded items.
 - 4. If rebars are moved more than 1 bar diameter, or enough to exceed above tolerances, obtain ENGINEER's approval of resulting arrangement of rebars.
 - 5. No cutting of rebars shall be done without written approval of ENGINEER.
- B. Employ a testing laboratory to perform and report following:
- 1. Review and approve CONTRACTOR proposed welding procedures and processes for conformance with AWS D1.4.
 - 2. Qualify welders in accord with AWS D1.4.
 - 3. Test three samples of each bar size and each type of weld in accord with AWS D1.4. The tensile strength of each test shall be not less than 125 percent of the required yield strength of the rebar tested.
 - 4. Conduct nondestructive field tests (radiographic or magnetic particle) on not less than one random sample for each 10 welds. In addition, if any welds are found defective, test five previous welds performed by the same welder.
 - 5. Visually inspect each weld for presence of cracks, undercuts, inadequate size, and other visible defects.

3.3 COORDINATION

- A. Coordination with placement of formwork, formed openings, embedded items, and other Work.

END OF SECTION

**SECTION 03300
CAST-IN-PLACE CONCRETE**

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide cast-in-place concrete work as shown on Contract Drawings and as specified herein.
- B. Section includes:
 - 1. Concrete Materials.
 - 2. Proportioning and Mixing.
 - 3. Ready Mixed Concrete.
 - 4. Curing Materials.
 - 5. Expansion Joint Filler.
 - 6. Liquid Floor Hardener.
 - 7. Preparing for Concreting.
 - 8. Placing of Concrete.
 - 9. Finishing.
 - 10. Curing.
 - 11. Field Quality Control.

1.2 RELATED SECTIONS

- A. Section 03200 – Reinforcement Steel.

1.3 REFERENCES

- A. American Concrete Institute (ACI) standards, most recent editions:

| | |
|---------|---------------------------------------------------------------------|
| ACI 211 | Standard Practice for Selecting Proportions for Concrete |
| ACI 212 | Chemical Admixtures |
| ACI 117 | Standard Tolerances for Concrete Construction and Materials |
| ACI 301 | Specifications for Structural Concrete for Buildings |
| ACI 306 | Recommended Practice for Cold Weather Concreting |
| ACI 318 | Building Code Requirements for Structural Concrete |
| ACI 350 | Code Requirements for Environmental Engineering Concrete Structures |
- B. ASTM International (ASTM) standards, most recent editions:

| | |
|-----------|------------------------------------------------------------------------------------------|
| ASTM C31 | Standard Specification Making and Curing Concrete Test Specimens in the Field |
| ASTM C33 | Standard Specifications for Concrete Aggregates |
| ASTM C39 | Test for Compressive Strength of Cylindrical Concrete Specimens |
| ASTM C42 | Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete |
| ASTM C94 | Standard Specifications for Ready-Mixed Concrete |
| ASTM C150 | Standard Specifications for Portland Cement |
| ASTM C172 | Standard Practice for Sampling Freshly Mixed Concrete |
| ASTM C260 | Specification for Air-Entraining Admixtures for Concrete |
| ASTM C494 | Standard Specification for Chemical Admixtures for Concrete |

1.4 DEFINITIONS

- A. Construction Joints: Fresh concrete placed against a hardened concrete surface; joint between two pours is called a construction joint. Unless otherwise indicated, provide construction joints with a waterstop and sealant groove of the shape indicated.
- B. Expansion Joints: To allow concrete to expand freely, space provided between two pours, formed as indicated. Space is made by placing filler joint material against the first pour; acts as a form for the second pour.
- C. Control Joints: Provide weakened plane in concrete, where shrinkage cracks will likely occur. A groove, shape and dimensions indicated in Drawings, formed or saw-cut in concrete. Groove is filled with joint sealant material.
- D. Laitance: In placement of concrete, accumulation of small inert particles of cement and aggregate on surface, caused by excess of water that, when it evaporates, leaves a thin layer, causing weakened plane for subsequent pour.
- E. Alkalies: Term "alkalies" referred to herein is defined as sum of percentage of sodium oxide and 0.658 times percentage of potassium oxide ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$). These oxides shall be oxide content determined in accordance with ASTM C114.

1.5 SUBMITTALS

- A. In accordance with Section 01300 – Contractor Submittals.
- B. Product data:

1. Concrete mix design(s) proposed for use. Proposed concrete mix design submittal to include the following information:
 - a. Sieve analysis and source identification of fine and coarse aggregates. Include sand equivalency.
 - b. Source test results for aggregate organic impurities.
 - c. Source test results for deleterious aggregate per ASTM standards.
 - d. Proportioning of all materials.
 - e. Type of cement with mill certificate for cement.
 - f. Slump.
 - g. Air Content.
 - h. Brand, type, ASTM designation, and quantity of each admixture proposed for use.
 - i. 28-day cylinder compressive test results of trial mixes per ACI 350 and as indicated herein.
 - j. Shrinkage test results.
 - k. Standard deviation value for concrete production facility.

1.6 QUALITY ASSURANCE

- A. Perform all preliminary and trial batch laboratory tests on cement, aggregates, and concrete. Assist ENGINEER in obtaining specimens for testing during construction phase of Work.
 1. Provide access for ENGINEER to aggregate stockpiles for concurrent sampling during construction.
 2. Provide access for ENGINEER to batch plant for monitoring batching procedures during construction.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Mixing, transporting, handling, placing, curing and testing of concrete in accordance with applicable ACI and ASTM specifications and as specified.
- B. Storage of material:
 1. Cement:
 - a. Protect cement from exposure to moisture until used.
 - b. Do not use if caked or lumpy.
 - c. Store sacked cement to permit access for inspection and sampling.
 2. Aggregate:
 - a. Store to prevent segregation and contamination with other sizes or foreign materials.
 - b. Obtain samples for testing from aggregates at point of batching.
 - c. Do not use frozen or partially frozen aggregates.
 - d. Do not use the bottom 6 inches of stockpiles in contact with ground.
 - e. Allow sand to drain until moisture content is uniform prior to use.
 3. Admixtures:
 - a. Protect from contamination, evaporation, freezing, or damage.
 - b. Maintain within temperature range recommended by manufacturer.
 - c. Completely mix solutions and suspensions prior to use.

- C. Delivery:
1. Prepare a delivery ticket for each load of ready-mix concrete delivered to the project. Truck operator shall hand ticket to ENGINEER at time of delivery, which shows the following information for each load:
 - a. Mix identification mark.
 - b. Quantity delivered (by volume).
 - c. Amount of each material in batch.
 - d. Outdoor temperature in the shade.
 - e. Time at which cement was added.
 - f. Amount of water added at jobsite by CONTRACTOR.
 - g. Amount of superplasticizer added where applicable.

1.8 SITE ENVIRONMENTAL REQUIREMENTS

- A. When temperature is below 40°F or is likely to fall below 40°F during 24-hour period after placing concrete, heat materials, (not in excess of 140°F) including both water and aggregates and protect concrete so that temperature of the concrete is between 50°F and 90°F for 24-hour period after placing concrete.
- B. During hot weather, shade materials from sun and use cool water so temperature of concrete does not exceed 90°F at time of placing concrete.
- C. Placing of concrete not permitted where, in opinion of ENGINEER, wind, rain or inadequate facilities furnished by CONTRACTOR prevents proper finishing or curing of concrete.

1.9 COORDINATION

- A. Coordination with placement of reinforcing steel, embedded items, and other Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portland cement: Comply with ASTM C150, Type II or V.
 1. Portland cement shall contain not more than 0.60 percent alkalis per ASTM C33.
 2. Single brand of cement used throughout Work; brand approved by ENGINEER.
- B. Fly ash: ASTM C618, Class F including supplementary optional requirements relating to reactive aggregates and alkalis, and loss on ignition (LOI) not to exceed 5 percent.
 1. Maximum of 15 percent replacement at 1.2 pounds of fly ash per pound of cement replaced.
- C. Coarse Aggregate: Non-reactive; in accordance with ASTM C33.
 1. Clean, hard, durable gravel, crushed gravel, crushed rock or combination thereof.
 2. Prepare and handle coarse aggregates in two or more size groups for combined aggregates with maximum size greater than 3/4 inch.

3. When aggregates are proportioned for each batch of concrete, combine the size groups.
 4. Obtain coarse aggregates from sources approved by ENGINEER.
- D. Combined Aggregates: Well graded from coarse to fine sizes; uniformly graded between screen sizes to produce a concrete that has optimum workability and consolidation characteristics. Where a trial batch is required for a mix design, the final combined aggregate gradation will be established during the trial batch process.
- E. Fine Aggregates: Natural or combination of natural and manufactured sand that is hard and durable.
1. Lightweight Sand for Fine Aggregate: Not permitted.
 2. Sand Equivalency: Tested in accordance with ASTM D2419; not less than 80 percent for an average of 3 samples; not less than 80 percent for an individual test.
 3. Gradation: In accordance with ASTM C33; 15 to 30 percent passing number 50 screen; 5 to 10 percent passing number 100 screen.
 4. Fineness Modulus: Not over 3.00.
 5. Obtain fine aggregates from sources approved by ENGINEER
- F. Water: Clean and free from objectionable quantities of organic matter, alkali, salts and other impurities, as determined by ENGINEER.
- G. Admixtures:
1. Maximum total water soluble chloride ion content contributed from all ingredients of concrete including water, aggregates, cementitious materials, and admixtures by weight percent of cement:
 - a. 0.06 For prestressed concrete.
 - b. 0.10 For all other concrete.
 2. Do not use calcium chloride.
 3. Provide admixtures of same type, manufacturer, and quantity as used in establishing required concrete proportions in the mix design.
 4. Air entraining admixtures: ASTM C260.
- H. Curing Materials
1. Polyethylene sheet for use as concrete curing blanket shall be white, and shall have a nominal thickness of 6 mils. The loss of moisture when determined in accordance with the requirements of ASTM C156 shall not exceed 0.055 grams per square centimeter of surface.
 2. Polyethylene-coated waterproof paper sheeting for use as concrete curing blanket shall consist of white polyethylene sheeting free of visible defects, uniform in appearance, having a nominal thickness of 2 mils and permanently bonded to waterproof paper conforming to the requirements of Federal Specification UU B 790A (1) (2). The loss of moisture, when determined in accordance with the requirements of ASTM C156, shall not exceed 0.055 gram per square centimeter of surface.
 3. Polyethylene-coated burlap for use as concrete curing blanket shall be 4 mils thick, white opaque polyethylene film impregnated or extruded into one side of the burlap. Burlap shall weigh not less than 9 ounces per square yard. The loss of

- moisture, when determined in accordance with the requirements of ASTM C156, shall not exceed 0.055 gram per square centimeter of surface.
4. Membrane Curing Compound (with fugitive dye added): ASTM C309, Type 1-D, Class B. Sodium silicate compounds shall not be allowed.

2.2 EQUIPMENT

A. Concrete Pumps:

1. Provide pumping equipment with two cylinders, designed to operate with only one cylinder in case one is not functioning. In lieu of this requirement, provide a standby pump on the site during pumping.
 - a. Minimum Diameter of Hose (conduit): 4 inches.
 - b. Aluminum conduits for conveying the concrete will not be permitted.

B. Vibrators:

1. Internally vibrated, high speed power vibrators of an approved immersion type. In sufficient numbers with standby units as required.

C. Truck Mixers:

1. At the CONTRACTOR's option, ready-mixed concrete may be used meeting the requirements as to materials, batching, mixing, transporting, and placing as specified herein and in accordance with ASTM C94, including the following supplementary requirements.
2. Ready-mixed concrete shall be delivered to the site of the Work, and discharge shall be completed within 90 minutes after the addition of the cement to the aggregates or before the drum has been revolved 250 revolutions, whichever is first.
3. Truck mixers shall be equipped with electrically-actuated counters by which the number of revolutions of the drum or blades may be readily verified. The counter shall be of the resettable, recording type, and shall be mounted in the driver's cab. The counters shall be actuated at the time of starting mixers at mixing speeds.
4. Each batch of concrete shall be mixed in a truck mixer for not less than 70 revolutions of the drum or blades at the rate of rotation designated by the manufacturer of equipment. Additional mixing, if any, shall be at the speed designated by the manufacturer of the equipment as agitating speed. All materials including mixing water shall be in the mixer drum before actuating the revolution counter for determining the number of revolution of mixing.
5. Truck mixers and their operation shall be such that the concrete throughout the mixed batch as discharged is within acceptable limits of uniformity with respect to consistency, mix, and grading. If slump tests taken at approximately the 1/4 and 3/4 points of the load during discharge give slumps differing by more than one inch when the specified slump is 3 inches or less, or if they differ by more than 2 inches when the specified slump is more than 3 inches, the mixer shall not be used on the Work unless the causing condition is corrected and satisfactory performance is verified by additional slump tests. All mechanical details of the mixer, such as water measuring and discharge apparatus, condition of the blades, speed of rotation, general mechanical condition of the unit, and clearance of the drum, shall be checked before a further attempt to use the unit will be permitted.

6. The use of non-agitating equipment for transporting ready-mixed concrete will not be permitted. Combination truck and trailer equipment for transporting ready-mixed concrete will not be permitted. The quality and quantity of materials used in ready-mixed concrete and in batch aggregates shall be subject to continuous inspection at the batching plant by the ENGINEER.

2.3 REINFORCEMENT STEEL

- A. Provide in accordance with Section 03200 – Reinforcement Steel.

2.4 CONCRETE MIXES

- A. General: Concrete shall be composed of cement, admixtures, aggregates and water. These materials shall be of the qualities specified and in accordance with ACI 301 specifications. The exact proportions in which these materials are to be used for different parts of the Work will be determined during the trial batch. In general, the mix shall be designed to produce a concrete capable of being deposited so as to obtain maximum density and minimum shrinkage and, where deposited in forms, to have good consolidation properties and maximum smoothness of surface. The aggregate gradations shall be formulated to provide fresh concrete that will not promote rock pockets around reinforcing steel or embedded items. The proportions shall be changed whenever necessary or desirable to meet the required results at no additional cost to the OWNER. All changes shall be subject to review by the ENGINEER.
- B. Fine Aggregate Composition:
1. In mix designs for structural concrete, the percentage of fine aggregate in total aggregate by weight shall be as indicated in the following table:

| Fineness Modulus | Maximum Percent |
|------------------|-----------------|
| 2.7 or less | 41 |
| 2.7 to 2.8 | 42 |
| 2.8 to 2.9 | 43 |
| 2.9 to 3.1 | 44 |

2. In all other concrete, the maximum percentage of fine aggregate of total aggregate, by weight, shall not exceed 50.

- C. Concrete compressive strength, aggregate size and slump in accordance with the following:

| Type of Construction | Compressive Strength (psi) | Aggregate Gradation (ASTM C33) | Slump in Inches (Max.) | Max W/C Ratio (by Weight) |
|---------------------------------------------------|----------------------------|--------------------------------|------------------------|---------------------------|
| Structure footings; foundations and bottom slabs. | 4,500 | #467 (1-1/2") | 4 | 0.45 |

1. Compressive Strength: minimum at 28 days of age.
 2. Slump as shown above shall be plus or minus 1 inch.
 - a. Slump to be measured before addition of any plasticizing agents at the job site.
 - b. Measure at point of discharge of the concrete into the concrete member per ASTM C143.
 - c. Concrete of lower than maximum slump may be used provided it can be properly placed and consolidated.
 - d. For pumped concrete, provide additional water at batch plant to allow for slump loss due to pumping. Provide only enough additional water so that slump of concrete at discharge end of pump hose does not exceed maximum slump specified above.
 3. Minimum cement content:
 - a. Reinforced Concrete: Six sacks Portland Cement per cubic yard.
 - b. Unreinforced Concrete: Five sacks Portland Cement per cubic yard.
 4. Air content: Provide air entrainment resulting in a total air content of 4 to 6 percent for all types of construction.
 - a. Air content to be measured in accordance with ASTM C231, ASTM C173, or ASTM C138.
 - b. Air may be omitted from interior slabs to be trowel finished.
- D. Selection of Proportions:
1. General: Proportion ingredients to produce proper workability, durability, strength, and other required properties. Prevent segregation and collection of excessive free water on the surface.
 2. Pan stair fill:
 - a. Coarse aggregate: 100 percent passing a 1/2 inch sieve.
 - b. Proportions:
 - 1) One sack cement.
 - 2) 150 pounds coarse aggregate.
 - 3) 150 pounds fine aggregate (sand).
 - 4) Adjust mix to obtain satisfactory finishing.
 3. Submit mix design data for approval as required by this specification section.
 4. Proportion mixture to provide desired characteristics using one of the methods described below:
 - a. Method 1 (Trial Mix): Per ACI 350, Chapter 5, except as modified herein.
 - 1) Air content within range specified above.
 - 2) Record and report the temperature of trial mixes.
 - 3) Proportion trial mixes per ACI 211.1.
 - b. Method 2 (Field Experience): Per ACI 350, Chapter 5, except as modified herein.
 - 1) Field test records must be acceptable to Engineer to use this method.
 - 2) Test records shall represent materials, proportions, and conditions similar to those specified herein.
 - c. Required average strength to exceed the specified 28-day compressive strength by the amount determined or calculated in accordance with the

requirements of ACI 350, using the standard deviation of the proposed concrete production facility.

5. Shrinkage Limitation
 - a. The maximum concrete shrinkage for specimens cast in the laboratory from the trial batch, as measured at 21-day drying age or at 28-day drying age shall be 0.036 percent or 0.042 percent, respectively per ASTM C157. Use a mix design for construction that has first met the trial batch shrinkage requirements. Shrinkage limitations apply only to structural concrete.

2.5 SOURCE QUALITY CONTROL

1. Fine and coarse aggregates shall be tested in accordance with ASTM C289 or ASTM C1260 to show compliance with ASTM C33 for reactivity and the aggregates shall be non-reactive.
2. The fine and coarse aggregates shall be tested in accordance with ASTM C586 to show compliance with ASTM C33 for reactivity and shall be non-reactive.
3. The fine aggregate shall be tested in accordance with ASTM C40 to show compliance ASTM C33 for organic impurities.
4. The fine and coarse aggregate shall be tested in accordance with ASTM C88 to show compliance with ASTM C33.
5. The fine and coarse aggregate shall be tested in accordance with ASTM C142 to show compliance with ASTM C33.
6. The fine and coarse aggregate shall be tested in accordance with ASTM C123 to show compliance with ASTM C33.
7. The fine and coarse aggregate shall be tested in accordance with ASTM C117 to show compliance with ASTM C33.
8. The coarse aggregate shall be tested in accordance with ASTM C131 to show compliance with ASTM C33.
9. In addition to initial aggregate testing, each type of aggregate shall be tested at no increased cost to the OWNER for conformance to ASTM C33 under any of the following conditions:
 - a. Concrete placement extending longer than six months.
 - b. There is a noticeable change in aggregate appearance, consistency, or ease of excavation.
 - c. The aggregate supplier changes pits, or locations in the original pit.
10. If the test results fail to meet the requirements of ASTM C33 and this Section, the ENGINEER may stop the placement of concrete, and may require additional testing of aggregates or field and trial batch testing of concrete to verify conformance to ASTM C33 and the strength and shrinkage requirements of this Section.
11. The ENGINEER may conduct any additional testing of aggregates at anytime during the concrete placement period. Depending on the test results, testing cost shall be paid by the CONTRACTOR or OWNER, according to the General Conditions. If test data fails to conform to ASTM C33, the ENGINEER may stop the placement of concrete or take corrective actions as indicated above.

PART 3 - EXECUTION

3.1 PREPARING FOR CONCRETING

- A. Earth surfaces shall be thoroughly wetted by sprinkling, prior to the placing of any concrete, and these surfaces shall be kept moist by frequent sprinkling up to the time of placing concrete thereon. Surface shall be free from standing water, mud and debris at the time of placing concrete.
- B. Construct forms to the shape, lines and dimensions of members shown on Drawings and sufficiently tight to prevent leakage of mortar. Take special care when forming concrete containing high range water reducing agents. Brace and tie forms to maintain position and shape.
- C. Complete all formwork, installation of parts to be embedded, reinforcement and surface preparation prior to placing concrete.
 - 1. Use setting diagrams, templates, and instructions for locating and setting embedments and attachments.
 - 2. Prior to placing concrete, position and support pipe, conduit, dowels and other ferrous items required to be embedded, to ensure a 2-inch minimum clearance between items and any part of concrete reinforcement.
 - 3. Securing such items in position by wiring or welding to reinforcement is prohibited.
- D. Provide openings in formwork to accommodate other trades. Accurately place and securely support all items built into forms.
- E. Thoroughly clean surfaces of metalwork to be in contact with concrete immediately before concrete is placed.
- F. Remove ponded water from the excavation and moisten fill.

3.2 PLACING OF CONCRETE

- A. Notify ENGINEER not less than 24 hours in advance of the times and places at which CONTRACTOR intends to place concrete.
- B. Place concrete in compliance with ACI Specifications and requirements of this Section.
- C. Place concrete only in presence of duly authorized representative of ENGINEER.
- D. Ready Mix Equipment:
 - 1. Do not exceed manufacturer's rated capacity of the mixer.
 - 2. Ensure sufficient mixing time for uniform distribution of materials.
 - 3. Discharge all concrete from mixer prior to mixing new batch.
 - 4. In accordance with ASTM C94.
- E. Transporting:
 - 1. Transport concrete from mixer to place of deposit by methods, which prevent segregation or loss of material.
 - 2. Provide runways when wheelbarrows are used to transport concrete.

3. Do not wheel conveying equipment over reinforcement or support runways on reinforcement.
- F. Placing:
1. Deposit concrete in continuous manner and as rapidly as possible within planned joints or sections.
 2. Do not use concrete that has attained initial set or contained mixing water for more than 1 hour.
 3. Uniformly distribute concrete during process of depositing and in no case move deposited concrete in forms more than 6 feet in horizontal direction.
 4. Do not drop freely more than 5 feet in unexposed work or more than 3 feet in exposed work; where greater drops are required, use duct or other approved method.
 5. Do not place concrete against icy or frost covered earth surfaces.
- G. Compacting:
1. Compact by internal type vibrators supplemented by rodding and tamping as necessary, to maximum practicable density, free from pockets of coarse aggregate in such a manner that surfaces are smooth and free from voids.
 2. Avoid excessive vibration of concrete; avoid segregation of aggregates.
 3. Avoid disturbance of previous lifts where initial set has taken place.
 4. Use of form vibrators or tapping of forms is prohibited.
- H. Protection:
1. Protect all concrete against physical injury until final acceptance by OWNER.
 2. Protect concrete from reduced strength due to weather extremes.
 3. When the temperature is below 40 Degrees F, or is likely to fall below 40 Degrees F during the 24-hour period after placing the concrete, follow the recommendations of ACI 306R, except as modified herein.
 - a. Do not place concrete on frozen ground or in contact with forms or reinforcing bars coated with frost, ice, or snow.
 - b. Minimum concrete temperature at the time of mixing:

| Outdoor Temperature at Placement (In shade) | Concrete Temperature at Mixing |
|---------------------------------------------|--------------------------------|
| Below 30 Degrees F | 65 Degrees F |
| Between 30 and 45 Degrees F | 60 Degrees F |
| Above 45 Degrees F | 50 Degrees F |
 - c. Do not place heated concrete that is warmer than 80 Degrees F.
 - d. If freezing temperatures are expected during curing, maintain the concrete temperature at or above 50 Degrees F for 72 hours, with additional requirements listed under Article 3.3 - Curing below.
 - e. Do not allow concrete to cool suddenly.
 - f. Calcium chloride will not be permitted as a concrete accelerator or to thaw frozen subgrade prior to concrete placement.
 4. When the temperature is 90 Degrees F or above, or is likely to rise above 90 Degrees F within the 24-hour period after concrete placement; or when there is any combination of high air temperature, low relative humidity, and wind velocity

which would impair concrete strength or quality, follow the recommendations of ACI 305R and the following:

- a. Keep concrete as cool as possible during placement and curing.
- b. Do not allow concrete temperature to exceed 90 Degrees F at placement.
- c. Prevent plastic shrinkage cracking due to rapid evaporation of moisture.
- d. Dampen subgrade and forms with cool water immediately prior to placement of concrete.
- e. Protect the concrete with temporary wet covering during any appreciable delay between placement and finishing.
- f. Take appropriate precautions per ACI 305R when the actual or anticipated evaporation rate equals or exceeds 0.2 LBS/SF/HR as determined from ACI 305R.

3.3 CURING

- A. Cure concrete for not less than 14 days after placing.
- B. Leave forms in place at least 14 days, or until concrete has attained specified 28-day strength, unless otherwise approved by ENGINEER. If forms are allowed to be removed within 14 days of placing concrete, continue curing in accordance with other methods specified herein or as directed by ENGINEER.
- C. Strictly follow careful procedures for the removal of forms and perform with care so as to avoid injury to the concrete. No heavy loading on green concrete will be permitted.

3.4 TREATMENT OF SURFACE DEFECTS

- A. General: Surfaces shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness of any kind, and shall present a finished, smooth, continuous hard surface. Allowable deviations from plumb or level and from the alignment, profiles, and dimensions shown are defined as tolerances and are specified herein. These tolerances are to be distinguished from irregularities in finish as described herein.
- B. Aluminum finishing tools shall not be used.
- C. Formed Surfaces:
 1. Exterior buried surfaces require no treatment after form removal except for curing, repair of defective concrete, and treatment of surface defects.
 2. Surfaces exposed to view shall be finished as specified under "Architectural Concrete Finish" below.
- D. Surface holes larger than 1/2 inch in diameter or deeper than 1/4-inch are defined as surface defects in basins and exposed walls.

3.5 FIELD QUALITY CONTROL

- A. General

1. Tests on component materials and for slump, temperature, air content, compressive strength and shrinkage of concrete will be performed as specified herein.
 2. The cost of all laboratory tests for qualification of mix designs on cement, aggregates, and concrete, including strength and shrinkage testing will be borne by the CONTRACTOR. The cost of all field testing during construction, including slump, temperature, air, strength and shrinkage will also be borne by the OWNER. However, the CONTRACTOR will be charged for the cost of any additional tests and investigation on work performed which does not meet the Specifications. The testing laboratory shall meet or exceed the requirements of ASTM C1077.
 3. Concrete for testing shall be supplied by the CONTRACTOR at no additional cost to the OWNER, and the CONTRACTOR shall provide assistance to the ENGINEER in obtaining samples, and disposal and cleanup of excess material.
 4. Composite samples of concrete placed in the Work shall be taken in accordance with ASTM C172 from the first placement of each class of concrete and at the following minimum frequency for each class:
 - a. Not less than one sample per day on which concrete is placed.
 - b. Not less than one sample for each 150 cubic yards of concrete placed.
 - c. Not less than one sample for each 5,000 square feet of surface area for slabs or walls.
 - d. Not less than 5 samples from randomly selected batches for the Work.
- B. Slump Tests
1. Perform in accordance with requirements of ASTM C143 at frequency indicated for sampling above.
- C. Temperature Tests
1. Test concrete temperature per ASTM C1064 at frequency indicated for sampling above.
- D. Air Content Tests
1. Test air content per ASTM C231 at frequency indicated for sampling above.
- E. Field Compression Tests
1. Field compression test specimens will be made at the frequency indicated for sampling above.
 2. Each set of test specimens will be a minimum of five cylinders.
 3. Compression test specimens for concrete shall be made in accordance with ASTM C31. Specimens shall be 6-inch diameter by 12-inch high cylinders.
 4. Compression tests shall be performed in accordance with ASTM C 39. One test cylinder will be tested at 7 days and two at 28 days. The remaining cylinders will be held to verify test results, if needed.
- F. Evaluation and Acceptance of Concrete
1. Evaluation and acceptance of the compressive strength of concrete shall be according to the requirements of ACI 350 and as specified herein.
 2. A statistical analysis of compression test results will be performed according to the requirements of ACI 214. The standard deviation of the test results shall not exceed 640 psi, when ordered at equivalent water content as estimated by slump.

3. If any concrete fails to meet these requirements, immediate corrective action shall be taken to increase the compressive strength for all subsequent batches of the type of concrete affected.
4. When the standard deviation of the test results exceeds 640 psi, the average strength for which the mix is designed shall be increased by an amount necessary to satisfy the statistical requirement that the probability of any test being more than 500 psi below or the average of any three consecutive tests being below the specified compressive strength is 1 in 100. The required average strength shall be calculated by Criterion No. 3 of ACI 214 using the actual standard of deviation.
5. All concrete which fails to meet the ACI requirements and these Specifications, is subject to removal and replacement at no increase in cost to the OWNER.

END OF SECTION

SECTION 05500 METAL FABRICATIONS

PART 1 – GENERAL

1.1 SUMMARY

- A. Furnish, fabricate, and install metal fabrications in accordance with Contract Documents.

1.2 REFERENCES

- A. ASTM International (ASTM) standards, most recent editions:
- | | |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| ASTM A36 | Specification for Structural Steel |
| ASTM A48 | Gray Iron Castings |
| ASTM A53 | Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless |
| ASTM A123 | Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products |
| ASTM A153 | Zinc Coating (Hot-Dip) on Iron and Steel Hardware |
| ASTM A193 | Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications |
| ASTM A194 | Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both |
| ASTM A197 | Standard Specification for Cupola Malleable Iron |
| ASTM A276 | Standard Specification for Stainless Steel Bars and Shapes |
| ASTM A325 | Specification for Structural bolts, Steel Heat Treated, 120/105 ksi Minimum Tensile Strength |
| ASTM A500 | Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes |
| ASTM A536 | Standard Specification for Ductile Iron Castings |
| ASTM A563 | Specification for Carbons and Alloy Steel Nuts |
| ASTM F593 | Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs |
| ASTM F594 | Standard Specification for Stainless Steel Nuts |

- | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------|
| ASTM A653 | Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process |
| ASTM A666 | Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar |
| ASTM A780 | Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings |
| ASTM F1554 | Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength |
- B. American National Standards Institute (ANSI), most recent editions:
- | | |
|------------|----------------------------------------------------|
| ANSI A14.3 | Standard for Ladders - Fixed - Safety Requirements |
|------------|----------------------------------------------------|
- C. American Welding Society (AWS) Standards, most recent editions:
- | | |
|----------|-----------------------------------------------------------|
| AWS D1.1 | Structural Welding Code – Steel |
| AWS D1.2 | Structural Welding Code – Aluminum |
| AWS D1.6 | Structural Welding Code – Stainless Steel |
| AWS QC1 | Specification for AWS Certification of Welding Inspectors |
- AWS Welding Handbook
- D. Federal Specifications:
- | | |
|------------|----------------------------------------------|
| MIL-A-907E | Anti-seize Thread Compound, High Temperature |
|------------|----------------------------------------------|
- E. Occupational Safety and Health Administration (OSHA), most recent editions:
- OSHA 1910.27 - Fixed Ladder
- 1.3 DEFINITIONS
- A. Metal Fabrications: Defined as items to be fabricated from metal shapes, plates, or bars and their products.
- 1.4 SUBMITTALS
- A. Shop Drawings: Submit shop drawings of all metal fabrications to the ENGINEER for review.

1. Shop drawings detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other Sections.
 2. Submit layout drawings for grating showing the direction of span, type and depth of grating, size and shape of grating panels, seat angle details, and details of grating hold down fasteners. Submit load and deflection tables for each style and depth of grating used.
- B. Submit ICC-ES report listing the ultimate load capacity in tension and shear for each size and type of concrete anchor submitted. Submit manufacturer's recommended installation instructions and procedures for adhesive anchors. Upon review, by ENGINEER, these instructions shall be followed specifically.
- C. No substitution for the indicated adhesive anchors will be considered unless accompanied by an ICC-ES report verifying strength and material equivalency, including temperature at which load capacity is reduced to 90 percent of that determined at 75 degrees F.

1.5 QUALITY ASSURANCE

- A. All weld procedures and welder qualifications shall be available in the CONTRACTOR's field office for review.
- B. Qualification of Welders: Use welders with current certifications (previous 12 months) for the material, type, and position of welding used. Certify in accordance with AWS Specifications according to the following:
1. AWS D1.1, Structural Welding Code – Steel.
 2. AWS D1.6, Structural Welding Code – Stainless Steel.
- C. All welding shall be inspected by a CONTRACTOR-furnished inspector qualified in accordance with AWS requirements and approved by the ENGINEER.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Metal fabrications shall be loaded for transport in such a manner that they may be transported and unloaded without being excessively stressed, deformed, or otherwise damaged.
- B. Protect metal fabrications from corrosion and deterioration.
- C. Store material in a dry area and do not place in direct contact with the ground.
1. Do not place materials on the structure in a manner that might cause distortion or damage to the members or supporting structures.
 2. Repair or replace damaged materials or structures as directed.

1.7 PROJECT CONDITIONS

- A. Check actual locations of walls and other construction to which metal fabrications must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the WORK.
 - 1. Where field measurements cannot be made without delaying the WORK, guarantee dimensions and proceed with fabricating products without field measurements. Coordinate construction to ensure that actual dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following Manufacturers are acceptable:
 - 1. Concrete and masonry anchors:
 - a. Hilti, Inc.
 - b. ITW Ramset/Redhead.
 - c. Simpson Strong Tie Company, Inc.
 - d. ENGINEER approved equal.

2.2 MATERIALS

- A. Stainless steel: ASTM A666 and ASTM A276, Type 316 or 316L
- B. Bolts and Anchors:
 - 1. Contractor supplied bolts, nuts, and washers shall be stainless steel.
 - 2. Stainless steel bolts, anchor bolts, nuts, and washers shall be Type 316 stainless steel, conforming to ASTM F593 for bolts and to ASTM F594 for nuts. All threads on stainless steel bolts shall be protected with an anti-seize lubricant suitable for submerged stainless steel bolts, to meet government specification MIL-A-907E and classified as acceptable for potable water use by NSF. Buried bolts in poorly drained soil shall be coated the same as the buried pipe.
 - 3. Bolt requirements:
 - a. The bolt and nut material shall be free-cutting steel.
 - b. The nuts shall be capable of developing the full strength of the bolts.
 - c. Threads shall be Coarse Thread Series conforming to the requirements of the American Standard for Screw Threads.
 - d. Provide bolts with hexagon heads. Provide nuts conforming to Heavy Hexagon Series.
 - e. Install all bolts and nuts with washers fabricated of material matching the base material of bolts, except that hardened washers for high strength bolts shall conform to the requirements of the AISC Specification.

- f. Install lock washers with washers where indicated and fabricated of material matching the bolts.
 - g. Provide bolts of length such that after joints are made up, each bolt shall extend through the entire nut, but in no case more than ½-inch beyond the nut.
- C. Epoxy Anchors: Unless otherwise indicated, all drilled concrete or masonry anchors shall be epoxy anchors. No substitutions will be considered unless accompanied with ICC-ES reports verifying strength and material equivalency.
 - 1. Epoxy anchors are required for drilled anchors where exposed to weather, in submerged, wet, splash, overhead, and corrosive conditions, and for anchoring handrails, pumps, mechanical equipment, and reinforcing bars. Provide threaded stainless steel rod, Type 316.
 - 2. Unless otherwise indicated, epoxy anchors will also be permitted in locations not indicated above.
 - 3. Products:
 - a. HIT-RE 500-SD, Hilti.
 - b. Set XP, Simpson Strong-Tie.
 - c. Epcon G5, ITW Ramset/Redhead.
 - d. ENGINEER approved equal.

2.3 FABRICATION

- A. Verify field conditions and dimensions prior to fabrication.
- B. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
- C. Form exposed work true to line and level with accurate angles and surfaces straight and sharp edges.
- D. Drill and punch holes with smooth edges.
- E. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.
 - 1. Temperature Range: 0 degrees F minimum to 110 degrees F maximum ambient temperature.
- F. Shear and punch metals cleanly and accurately. Remove burrs.
- G. Ease exposed edges to a radius of approximately 1/32 inch unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

- H. Remove sharp or rough areas on exposed traffic surfaces.
- I. Welding
1. Welding shall be by the metal-arc method or gas-shielded arc method as described in the American Welding Society's "Welding Handbook" as supplemented by other pertinent standards of the AWS. Qualification of welders shall be in accordance with the AWS Standards governing same.
 2. In assembly and during welding, the component parts shall be adequately clamped, supported and restrained to minimize distortion and for control of dimensions. Weld reinforcement shall be as indicated by the AWS Code. Upon completion of welding, all weld splatter, flux, slag, and burrs left by attachments shall be removed. Welds shall be repaired to produce a workmanlike appearance, with uniform weld contours and dimensions. All sharp corners of material that are to be painted or coated shall be ground to a minimum of 1/32-inch on the flat.
 3. Weld corners and seams continuously to comply with the following:
 - a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - b. Obtain fusion without undercut or overlap.
 - c. Remove welding flux immediately.
 - d. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.
- J. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners whenever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.
- K. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- L. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- M. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- N. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

2.4 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of the required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Hot-dip galvanize after fabrication.

2.5 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the WORK. Provide each unit with no fewer than two integrally welded steel studs for embedding into concrete.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installing anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.
- B. Inspect and verify condition of substrate. Correct any surface defects or conditions which might interfere with or prevent a satisfactory installation.
- C. Set sleeves in concrete with tops flush with finish surface elevations. Protect sleeves from water and concrete entry.

3.2 INSTALLATION

- A. Set metal work level, true to line, plumb.
- B. In fabrication and erection of structural steel, conform to the requirements of the American Institute of Steel Construction "Manual of Steel Construction."
- C. Shim and grout as necessary.
- D. To the maximum extent possible, use bolted field connections. Where practicable, conceal the fastenings. When field welding is warranted, comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish/grind exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.
- E. Unless noted or specified otherwise:
 - 1. Connect steel members to steel members with 3/4-inch diameter high strength bolts.
 - 2. Connect aluminum to aluminum with 3/4-inch diameter aluminum bolts.

3. Connect aluminum to structural steel using 3/4-inch diameter stainless steel bolts.
 4. Connect aluminum and steel members to concrete and masonry using 3/4-inch stainless steel epoxy anchors. Provide a minimum of 5 1/2 inches of embedment into concrete or masonry.
- F. Do not field splice fabricated items unless said items exceed standard shipping length or change of direction requires splicing. Provide fully welded splices where continuity is required.
- G. Provide each fabricated item complete with attachment devices as indicated or required to install.
- H. Anchor metal items so that items will not be distorted nor fasteners overstressed from expansion and contraction.
- I. Install bollards in concrete as detailed. Fill pipe with concrete and round off at top of pipe.
- J. Attach grating to end and intermediate supports with grating saddle clips and bolts.
1. Maximum spacing: 2 feet on center with a minimum of two attachments per support.
 2. Attach individual units of grating together with clips or attachments at 2 feet on center maximum with a minimum of two clips per side.

3.3 DRILLED ANCHORS

- A. Drilled-in anchors and reinforcing bars shall be installed in strict accordance with the manufacturer's instructions. Holes shall be roughened with a brush on a power drill, cleaned and dried. Drilled anchors shall not be installed until the concrete has reached the specified 28-day compressive strength. Epoxy anchors shall not be loaded until the adhesive has reached its indicated strength in accordance with the manufacturer's instructions.

3.4 SETTING LOOSE PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.
- B. Set loose level and bearing plates on wedges or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.
1. Use nonshrink grout in concealed locations where not exposed to moisture.
 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

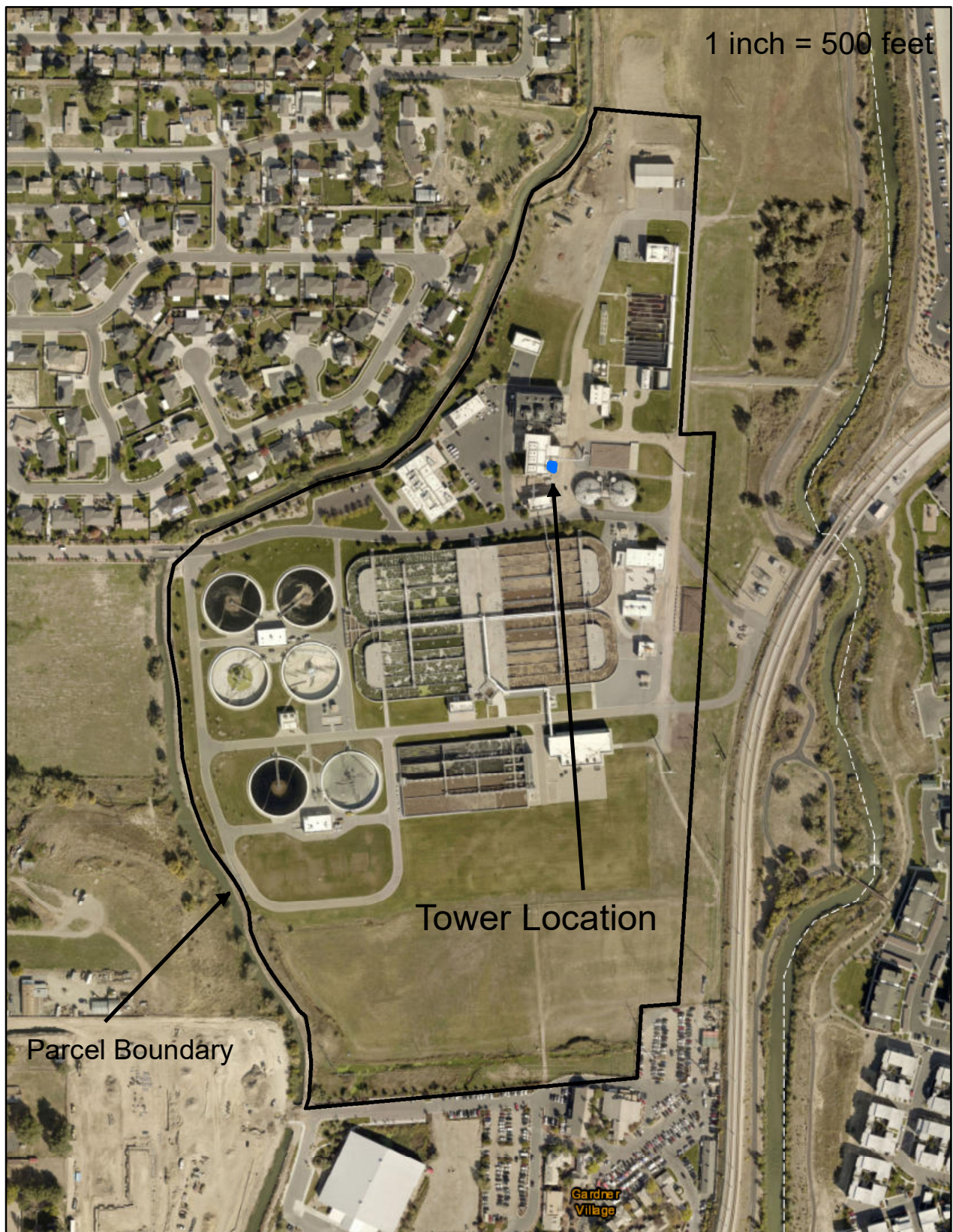
END OF SECTION

Figures and Drawings



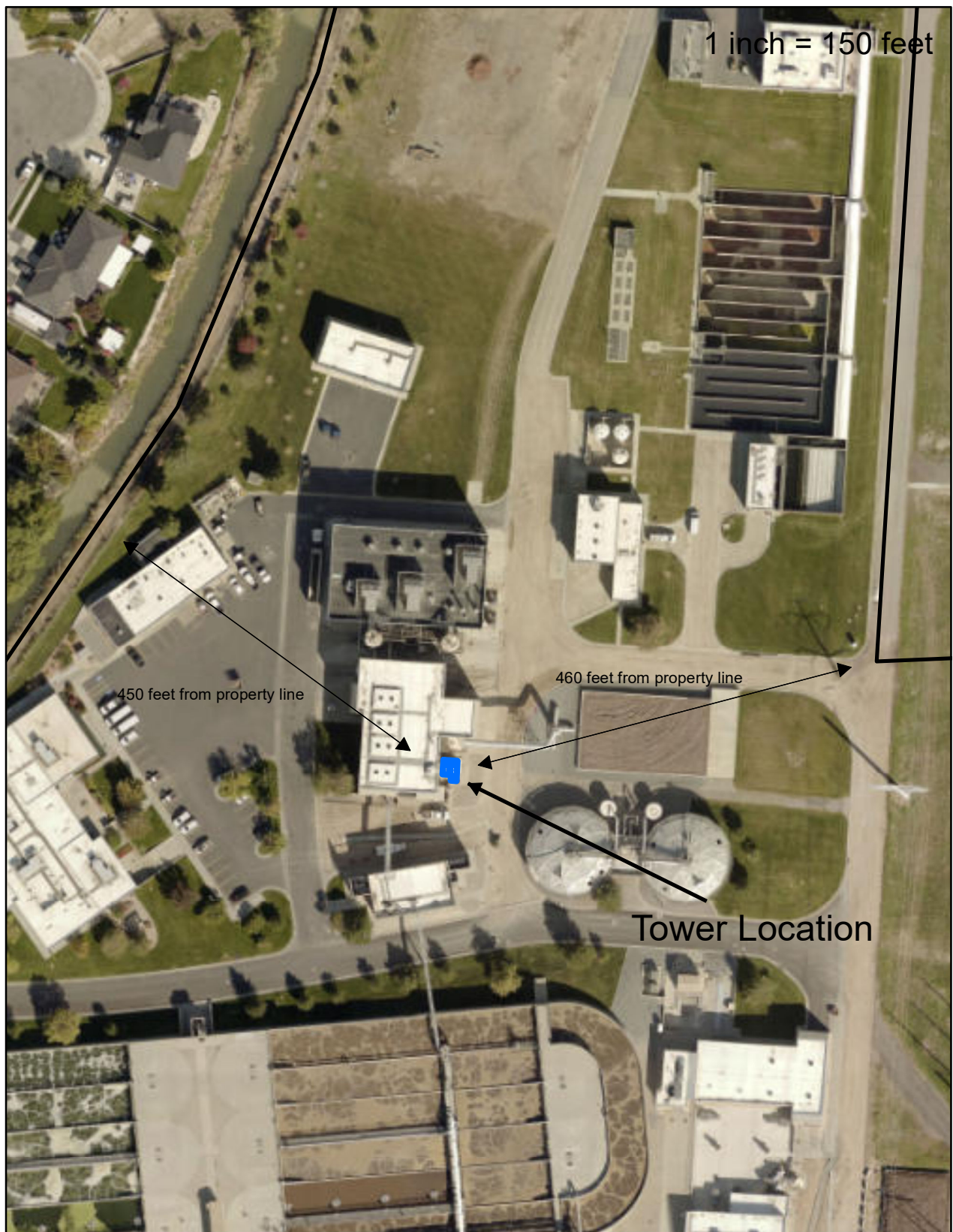
South Valley Water Reclamation Facility
7495 S 1300 W, West Jordan, UT 84084
Parcel # 21263270010000

Figure 1



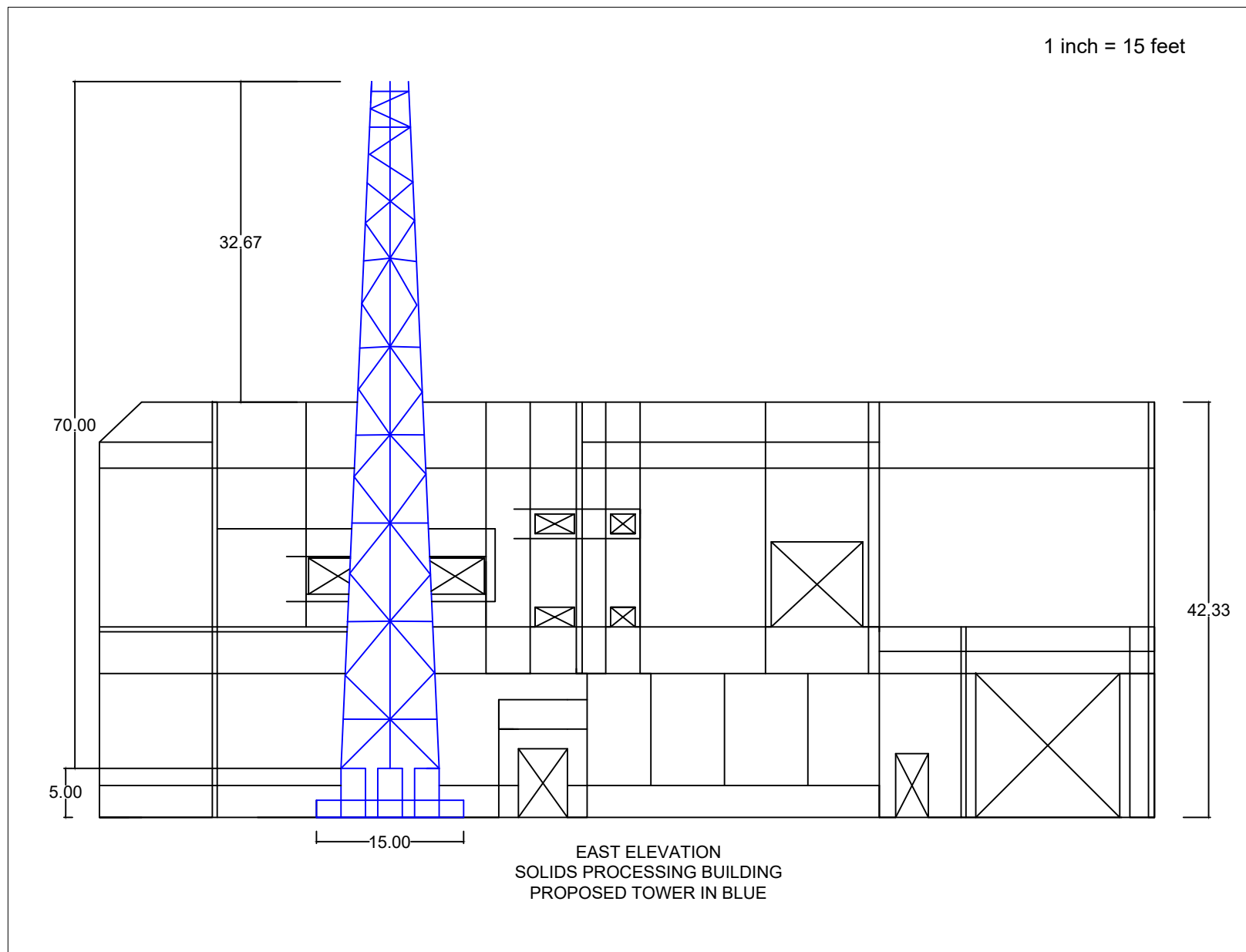
South Valley Water Reclamation Facility
7495 S 1300 W, West Jordan, UT 84084
Parcel # 21263270010000

Figure 2



South Valley Water Reclamation Facility
7495 S 1300 W, West Jordan, UT 84084
Parcel # 21263270010000

Figure 3



South Valley Water Reclamation Facility
7495 S 1300 W, West Jordan, UT 84084
Parcel # 21263270010000

Figure 5

2.25' H/H

TOP
SECTION #6

SECTION #7

SECTION #8

SECTION #9

SECTION #10

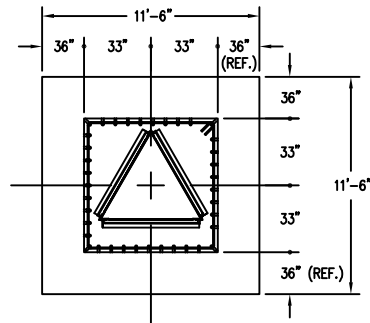
SECTION #11HD

SECTION #12HD

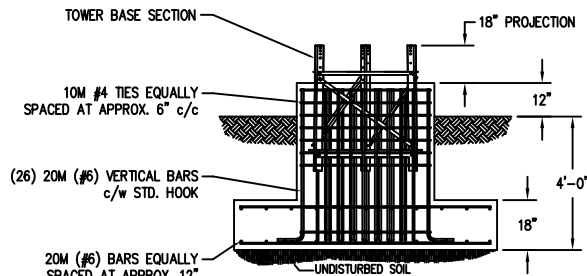
| | | | | | | | | | |
|----------------------------|------------------------------------------------|-------|-------|--------------------|-------|--------|--------------------|-------|-------|
| C A N A D A | MAXIMUM ALLOWABLE ANTENNA AREA – PER CSA–S37–1 | | | | | | | | |
| | ROUND ANTENNA MEMBER / FLAT ANTENNA MEMBER | | | | | | | | |
| | CLASS 1 (10mm ICE) | | | CLASS 1 (25mm ICE) | | | CLASS 3 (25mm ICE) | | |
| | 350Pa | 450Pa | 550Pa | 350Pa | 450Pa | 550Pa | 350Pa | 450Pa | 550Pa |
| 80/57 | 50/35 | 30/21 | 75/53 | 50/35 | 30/21 | 132/88 | 92/61 | 69/46 | |

FOUNDATION LOADS:
 MAX. OVERTURNING MOMENT (K*FT) =
 MAX. SHEAR (kips) =
 MAX. AXIAL (kips) =

| CUBIC YARDS OF CONCRETE | | |
|-------------------------|----------------|------------|
| PAD CONC VOL. | PIER CONC VOL. | TOTAL VOL. |
| 7.4 | 3.9 | 11.3 |



DESIGN ASSUMES THAT FROST DEPTH IS LESS THAN 4'-0"



— 5' EMBEDMENT SECTION
INCLUDED IN KITS

- NOTES: 1) KNOCK-DOWN PART NUMBER 5.94.H600.070.
2) PRE-ASSEMBLED PART NUMBER 5.95.H600.070.
3) ANTENNA LOADS ARE CENTRALLY LOCATED AND BALANCED, 3-FT OR LESS ABOVE THE TOWER TOP.
4) WIND LOADING ASSUMES (1) 1/2" TRANSMISSION LINE PER 10 SQ.FT. OF ROUND MEMBER ANTENNA AREA.

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REFERENCE DRAWINGS:

[illegible]

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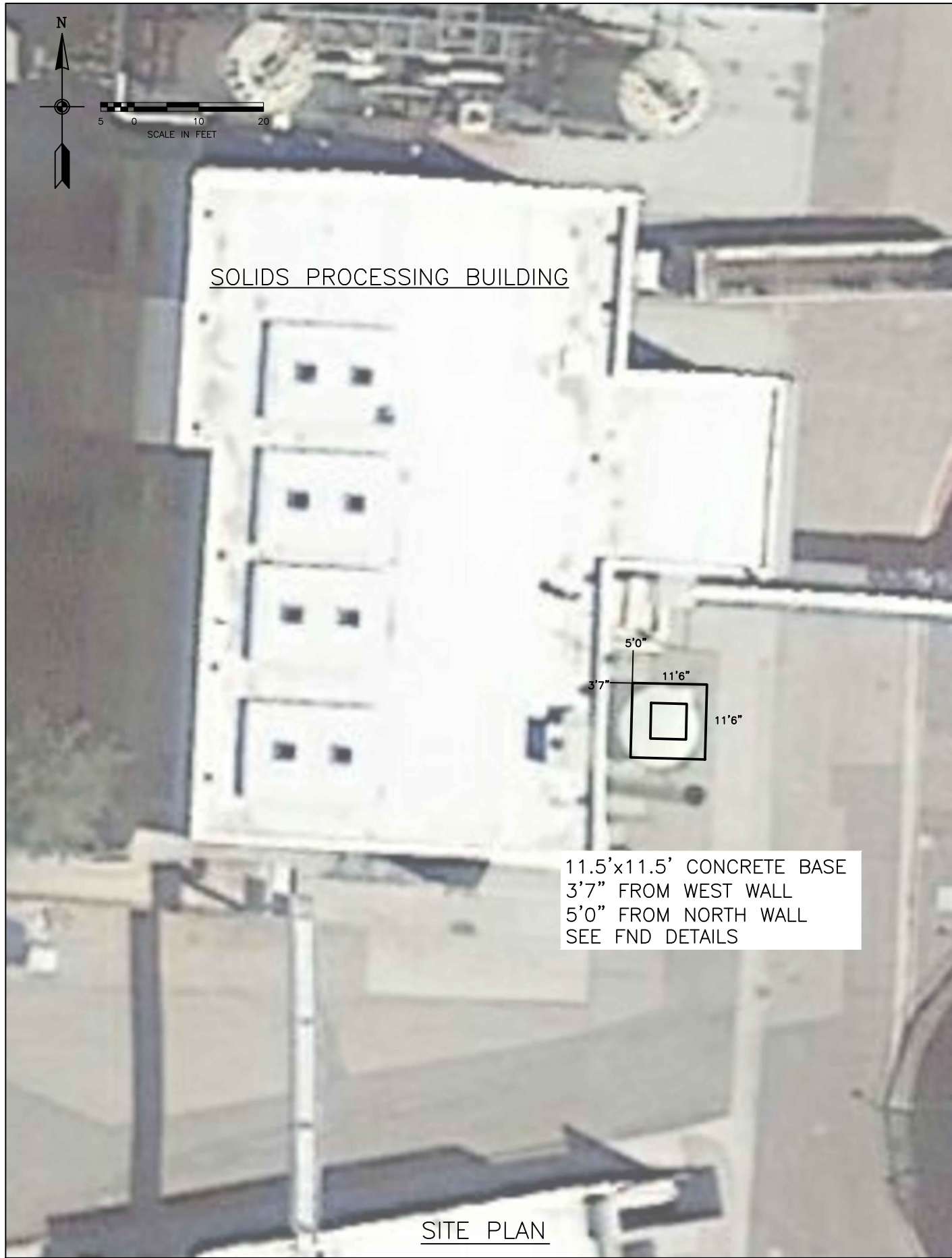


DRAWING NO.
000001.620.0314

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| CUSTOMER: | SITE: | SCALE: 115 |
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TITLE: 70FT H600 SUPERTITAN PROFILE

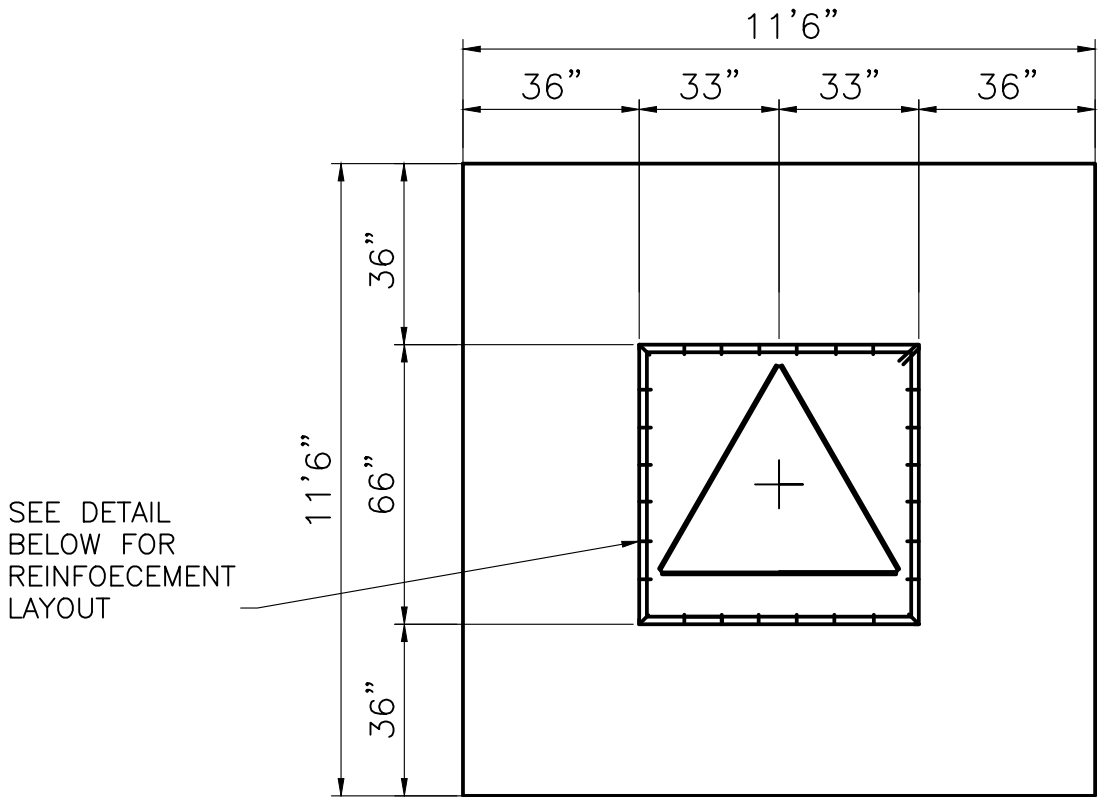


SOLIDS PROCESSING BUILDING

11.5'x11.5' CONCRETE BASE
3'7" FROM WEST WALL
5'0" FROM NORTH WALL
SEE FND DETAILS

SITE PLAN

SUPER TITAN FOUNDATION DESIGN DETAILS – BASE SECTION #13–FHD



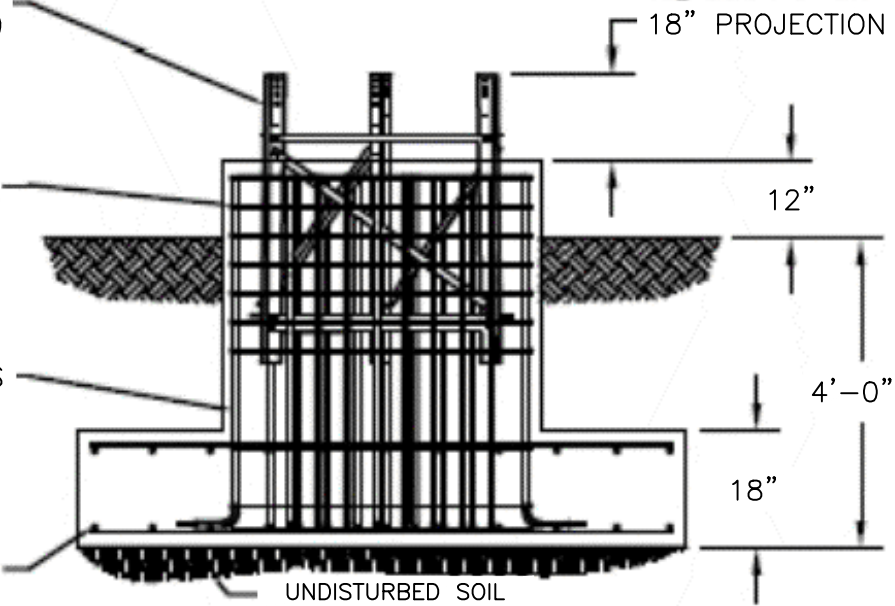
FOUNDATION DESIGN (NORMAL DRY SOIL)
FROST DEPTH IS LESS THAN 4'0"

TOWER BASE SECTION
REFER TO DRAWING "1.620.0029
ASS'Y OF FND SEC 13FHD" IN
TRYLON INSTAL. MANUAL

10M #4 TIES EQUALLY
SPACED AT APPROX. 6"
c/c

26 20M (#6) VERTICAL BARS
c/w STD. HOOK

20M (#6) BARS
EQUALLY SPACED AT
APPROX 12"



Engineering

JWO

PROJECT #
014-2019-002
DATE: 02/13/2020

VERIFY SCALE:
BAR IS 1" IN
ORIGINAL DRAWING

PROFESSIONAL
ENGINEER
JARED
OLDROYD
02/13/20
STATE OF UTAH

| REVISION | DATE | DRAWN BY | CHECKED BY | DESCRIPTION |
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SWRF COMMUNICATIONS
TOWER INSTALLATION

SITE PLAN AND
DETAILS

DRAWING
C-01
SHEET
1 OF 1

Appendix

INSTALLATION MANUAL



ISO 9001: 2000 Registered

LITERATURE PART #5.95.0000.000*

Revision date: August 2014

* include with all SuperTitan Towers



Building the Global Communications Infrastructure

21 South Field Drive, Elmira, Ontario, N3B 0A6 - Tel: (519)-669-5421 - Fax: (519)-669-8912
Website: www.trylon.com

NEW SUPERTITAN PACKAGING

Trylon TSF and the Stock Products group are proud to announce a major innovation for our SuperTitan Tower packaging. Trylon will no longer use wood crates to package SuperTitan sections 1 - 12HD, and their corresponding foundations. Instead the section's tower legs will be used to create a metal crate, pictured above (Patent Pending).



Within the tower legs all of the diagonals and sectional hardware will be nested. Steel end-caps are used seal the ends of the sections. This packaging, which will be fully implemented over the next few months, has been rigorously tested to ensure durability and strength in transport and will protect against the potential for a loss of section parts/hardware. During testing the new self-contained packaging vastly outperformed the existing wood crate.

This improved form of packaging will provide the customer with a product where the packaging material is up to 95.5% lighter and uses 72% less space in shipping (comparison photos can be seen below). This results in lowered freight costs and a cost savings to our end customers. This lowered freight also represents a reduced carbon footprint associated with shipping the tower material. An additional “Green” benefit is the reduction of waste on site. Empty crates no longer need to be disposed of as the Steel end-caps can be easily collected and recycled.

Trylon is extremely proud of our Packaging team for developing an innovative solution. We hope you the customer enjoy the environmental & cost benefits from the new design.

SuperTitan Unpacking Manual:

Step 1: Place SuperTitan section on flat, sturdy surface. Check section for any signs of damage.



Step 2: Disassemble the bolt connection that is connecting the end-cap to the top section leg.



Step 3: Remove Leg, exposing the section's hardware on the inside.



Step 4: Carefully remove the section's hardware, taking care to ensure all parts are accounted for.



Step 5: Disassemble the remaining bolt connections, and separate the section legs from the end-cap.



Step 6: Review SuperTitan Installation Manual, Part Number 5.95.0000.000.



Step 7: Recycle End-Cap and Bolt Assemblies.



SuperTitan Manual Update:

Dear Customer;

Thank you for purchasing one of our SuperTitan Towers! Welcome to the Trylon family, we hope that you enjoy your tower purchase and that this tower meets your expectations of a high quality product. Ensuring quality in our products is something that Trylon always strive to achieve and we believe that it shows.

One of the ways we want to help you the customer is to indicate some updates to our product that are not yet shown in our manual. Please review the below update notes:

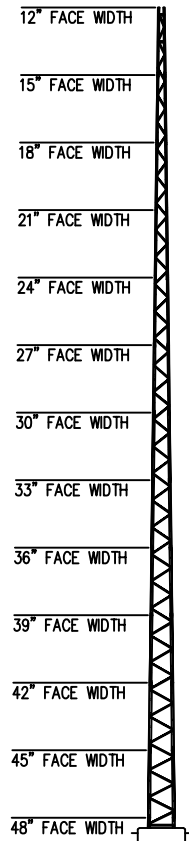
- 1) FOR PAGES 28-41(Dwg#1.620.014-1.620.0029): Sections 2F-13FHD will now have an additional hole on both sides of the angle at the bottom of the leg. This additional hole has been added to facilitate Trylon's NEW SuperTitan Packaging method. The addition of these two holes does not in any way affect the structural integrity of the leg.
- 2) FOR PAGES 17-25(Dwg#1.620.0058-1.620.0066): For Sections #13-21, all diagonal members now have two bolt holes at either end of the member. This change has been made to allow for easier installation. The addition of the second hole does not affect the diagonal's structural integrity.

If you ever have a question regarding the above or your tower in general please feel free to call our office at (519) 669-5421 or email info@trylon.com and ask for a representative from the Stock Products Team. We will gladly answer any questions you may have.

Thanks for taking the time to review and we hope you enjoy your tower.

Sincerely


The Stock Products Team
Trylon TSF



| SECT No | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|------------------------------------------|---------------------------|---------------------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|---|
| KNOCKDOWN TOWER HEIGHT AND KIT NUMBER | 120' TOWER #5.94.0100.120 | | | | | | | | | | | |
| | | 110' TOWER #5.94.0100.110 | | | | | | | | | | |
| | | | 100' TOWER #5.94.0100.100 | | | | | | | | | |
| | | | | 90' TOWER #5.94.0100.090 | | | | | | | | |
| | | | | | 80' TOWER #5.94.0100.080 | | | | | | | |
| | | | | | | 70' TOWER #5.94.0100.070 | | | | | | |
| | | | | | | | 60' TOWER #5.94.0100.060 | | | | | |
| | | | | | | | | 50' TOWER #5.94.0100.050 | | | | |
| | | | | | | | | | 40' TOWER #5.94.0100.040 | | | |
| | | | | | | | | | | 30' TOWER #5.94.0100.030 | | |
| | | | | | | | | | | | 20' TWR #5.94.0100.020 | |
| | | | | | | | | | | | | |

| SECT No | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|----------------------------------------------|---------------------------|---------------------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|---|
| PRE-ASSEMBLED TOWER HEIGHT AND KIT NUMBER | 120' TOWER #5.95.0100.120 | | | | | | | | | | | |
| | | 110' TOWER #5.95.0100.110 | | | | | | | | | | |
| | | | 100' TOWER #5.95.0100.100 | | | | | | | | | |
| | | | | 90' TOWER #5.95.0100.090 | | | | | | | | |
| | | | | | 80' TOWER #5.95.0100.080 | | | | | | | |
| | | | | | | 70' TOWER #5.95.0100.070 | | | | | | |
| | | | | | | | 60' TOWER #5.95.0100.060 | | | | | |
| | | | | | | | | 50' TOWER #5.95.0100.050 | | | | |
| | | | | | | | | | 40' TOWER #5.95.0100.040 | | | |
| | | | | | | | | | | 30' TOWER #5.95.0100.030 | | |
| | | | | | | | | | | | 20' TWR #5.95.0100.020 | |
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| SUPERTITAN SELF SUPPORT | | | | |

1) Check all tower sections for damage before signing the

- 1) Check all tower sections for damage before signing the shipping papers.
- 2) ID any material that is damaged or missing, note it on all copies of the shipping papers for future reference. (note: do not attempt to repair damaged members, as this will weaken the structure.)
- 3) Assembly instructions are located in a plastic bag with the hardware.
- 4) Check for presence of hardware. Bolt heads are marked on the assembly drawings.
- 5) Before erection, check for loose or missing bolts and tighten or replace as required.
- 6) Excavate for concrete base as shown on foundation drawing and install reinforcing bars.
- 7) Assemble 5 foot base section and place in excavation. Top of base leg must be 18" above finished concrete. Plumb tower section with a transit or level.
- 8) Pour concrete and allow to harden for one (1) week.
- 9) Tower may be erected using (1) section at a time by using the gin pole method or by lifting section with a crane. (Note: if using a crane, all tower sections are erected and all towers are lightened!)
- 10) All tower bolts shall be installed to a snug-tight condition. Snug-tight is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a person using a spud wrench such that all piles of the joint are in firm contact.
- 11) Any g325 bolt ass'y that has been removed after tightening must be replaced.
- 12) All tower bracing and leg splice bolts shall be g325 (unless noted otherwise).
- 13) All g325 bolt assemblies shall be in full tension.
- 14) Where extra flat washers are used to achieve full bearing, on bracing members, the flat washers shall be installed under the nut.
- 15) Bolt assemblies shall be installed with nuts and washers to the "outside" of the tower (u.N.O.)
- 16) Tower members are identical on all (3) faces (unless noted otherwise).
- 17) Where suffix "T" follows bolt description an additional flat washer is required.
- 18) Do not exceed manufacturer's loading specifications.
- 19) Only an experienced installer should carry out the installation.
- 20) Complete tower erection is recommended every two (2) to three (3) years.

1) Assembly should be undertaken by qualified and experienced personnel only.

- 1) Assembly should be undertaken by qualified and experienced persons only.
- 2) To determine the top of a leg, the leg part number is stamped towards the top end of the leg.
- 3) To ensure truss sections must be assembled on a level surface. Timbers and adjustable jack stands can be used to create an assembly jig for this purpose.
- 4) Assemble one complete face (two legs C/W all bracing) on the jig, leaving bolts hand tight. All bracing should be installed with the head of the bolt towards the top of the truss.
- 5) Measure the c/c distances between the top bolt of leg 1 and the bottom bolt of leg 2. Repeat this measurement between top bolt of leg 2 and bottom and bottom bolt of leg 1. Both measurements will be identical if assembly is true. Adjust leg positions until this is achieved and carefully tighten one brace at each end of section. Verify trueness and tighten all bolts fully.
- 6) Install the top two diagonals and the bottom diagonal of the other faces on each leg of the assembled face. Lift leg 3 over the center and connect those six members to it. Install all remaining bracing on both faces leaving bolts hand tight.
- 7) Measure, fit and achieve trueness of new faces as described in 4) above. Fully tighten all bolts.

1) Erection should be undertaken by qualified and experienced

- 2) Erection should be undertaken by qualified and experienced personnel only.
- 3) Prior to erection verify trueness of all sections. (See Superlifter Tower Section Field Assembly Instructions 5) for method). This is an important first step in achieving tower plumb. To skip this step will make it more complicated to correct any problems which may arise during erection.
- 4) Erection can be undertaken using a variety of methods. For multiple sections, using a gin pole or a crane. Whatever the chosen method, care must always be taken to achieve and maintain tower plumb throughout the process. Each method presents it's own problems.
- 4) If erection is undertaken in high wind conditions, care must be taken to counter any effect on tower plumb before final splice bolt tightening.
- 5) If erection is undertaken using a gin pole, the effect of the rig (weight and pull direction) on tower plumb must be considered and countered.
- 6) If tower is to be erected using a variety of multiple sections. Lifts must be assembled without introducing bends or twists. Lift assembly must be on a level surface using timber cribbing as needed. With splice bolts brought "snug tight" as defined in 10) of the Superlifter Tower Instruction Sheet.
- 7) When lifting multiple sections care must be taken in choosing sling method and tie points to avoid introducing any deformations during the lifting process.
- 8) When connecting lifts on the tower splice bolts are first installed hand tight until the lifting line or crane or gin pole is positioned sufficiently to eliminate any effect on tower plumb. Only then can they be brought to "snug tight" condition.
- 9) Tower plumb should be monitored continuously during erection by observing deflection of each leg using a transit or a theodolite. As soon as a problem is detected the cause should be found and corrected. Before continuing with erection all splices should then be tightened fully, starting at the bottom and moving up. Full tightness is defined in section 10) of Superlifter Tower Instruction Sheet.
- 10) When all sections are installed and tower plumb is confirmed all remaining "snug tight" splice bolts should be fully tightened. Starting with the lowest and moving upwards.
- 11) Once the erection of tower is complete and final antennas and other accessories can be installed.

1) All towers are triangular in cross-section.

- 1) All towers are triangular in cross section.
- 2) Legs constructed from 350W structural angle formed to 60 degrees.
- 3) Diagonals and horizontal bracing constructed from 350W structural angle.
- 4) Bolts are ASTM-A325.
- 5) All tower components including bolts are hot dipped galvanized.
- 6) The middle of diagonal members are designed to support a climber of maximum 200 pounds.
- 7) Towers are available in pre-assembled sections or knock-down sections.
- 8) Knock-down towers are professionally assembled with the use of proper assembly jigs.
- 9) Knock-down tower are ideal for large quantity requirements where freight cost is a major factor.
- 10) Tower may be constructed using any sequential portion of the twelve 10-foot sections which comprise this structure. For example, the top 80 feet may be chosen to support a small antenna load or the bottom 20 feet may be chosen to support a large antenna load.
- 11) Please refer to our tower design program to determine the right tower for your requirements.

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| CUSTOMER: | | | DRAFTING NO. 000001.620.0046 | |
| SITE: | | | SCALE: 1.000 | |
| DATE: 06 SEP 03 | BY: | CHK: | APP: | |
| TITLE: SUPERTITAN INSTRUCTIONS | | | | |

TURN-OF-NUT TIGHTENING

1. AFTER ALIGNING THE HOLES IN A JOINT, SUFFICIENT BOLTS SHALL BE PLACED AND BROUGHT TO A SNUG-TIGHT CONDITION TO ENSURE THAT THE PARTS OF THE JOINT ARE BROUGHT INTO FULL CONTACT WITH EACH OTHER. "SNUG-TIGHT" IS THE TIGHTNESS ATTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A PERSON USING A SPUD WRENCH.
2. FOLLOWING THE INITIAL SNUGGING OPERATION, BOLTS SHALL BE PLACED IN ANY REMAINING OPEN HOLES AND BROUGHT TO SNUG-TIGHTNESS. RE-SNUGGING MAY BE NECESSARY IN LARGE JOINTS.
3. WHEN ALL BOLTS ARE SNUG-TIGHT, EACH BOLT IN THE JOINT SHALL THEN BE TIGHTENED ADDITIONALLY BY THE APPLICABLE AMOUNT OF RELATIVE ROTATION GIVEN IN THE CHART BELOW, WITH TIGHTENING PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT TO IT'S FREE EDGES. DURING THIS OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH, UNLESS THE BOLT AND NUT ARE MATCH-MARKED TO ENABLE THE AMOUNT OF RELATIVE ROTATION TO BE DETERMINED.
4. ANY BOLT THAT IS LOOSENED AFTER INITIAL TENSION NEEDS TO BE REPLACED.

| Bolt Diameter (Inch) | Bolt Length (inch) | Turns beyond snug tight | Bolt Diameter (Inch) | Bolt Length (inch) | Turns beyond snug tight | Bolt Diameter (Inch) | Bolt Length (inch) | Turns beyond snug tight |
|----------------------|--------------------|-------------------------|----------------------|---------------------|-------------------------|----------------------|--------------------|-------------------------|
| 1/2 | up to 2 inch | 1/3 | 1/2 | over 2 up to 4 inch | 1/2 | 1/2 | over 4 inch | 2/3 |
| 5/8 | up to 2.5 inch | 1/3 | 5/8 | over 2.5 up to 5 | 1/2 | 5/8 | over 5 | 2/3 |
| 3/4 | up to 3 inch | 1/3 | 3/4 | over 3 up to 6 | 1/2 | 3/4 | over 6 | 2/3 |
| 7/8 | up to 3.5 inch | 1/3 | 7/8 | over 3.5 up to 7 | 1/2 | 7/8 | over 7 | 2/3 |
| 1 | up to 4 inch | 1/3 | 1 | over 4 up to 8 | 1/2 | 1 | over 8 | 2/3 |


NOTE: TOLERANCE ON ROTATION = 30° OVER OR UNDER.

NOTE: BOLT LENGTH IS MEASURED FROM THE UNDERSIDE OF THE HEAD TO THE EXTREME END OF POINT.

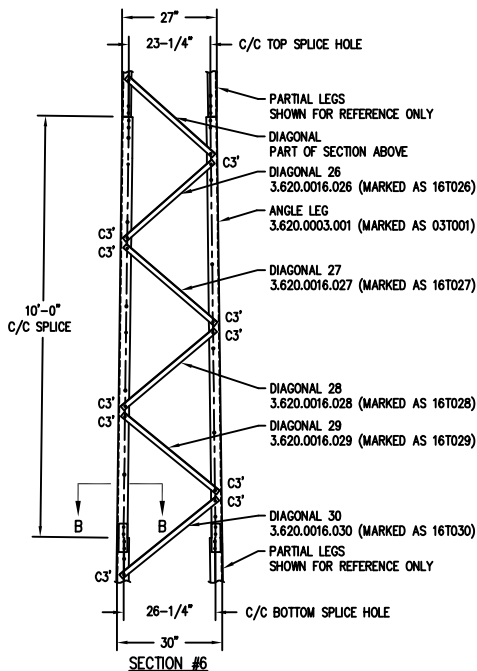
| REV. | BY: REV. | BY: CHK. | DESCRIPTION | DATE |
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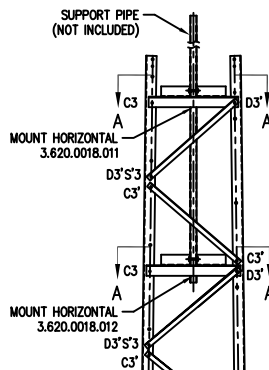
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| DRAWING NO. 000001.630.0004 | | SCALE: 1.000 | |
| CUSTOMER: | SITE: | APP: JB | |
| DATE: 06 JUN 11 | BY: MAW | CHK: TLD | APP: JB |
| TITLE: ASSEMBLY NOTES | | | |

NOTES:

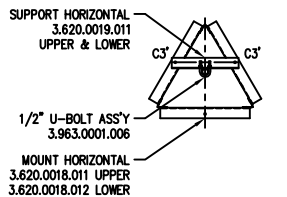


PRE-ASSEMBLED SECTION #6 - KIT #5.95.0061.000
KNOCK-DOWN SECTION #6 - KIT #5.94.0061.000

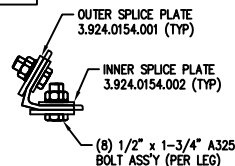


(INCLUDES ALL PARTS SHOWN IN SECTION #6)

PRE-ASSEMBLED TOP SECTION #6 - KIT #5.95.0062.000
KNOCK-DOWN TOP SECTION #6 - KIT #5.94.0062.000



SECTION A-A



SECTION B-B

| BOLT SCHEDULE SECTION #6 | | |
|--------------------------|---------------------------------|-----|
| MARK | SIZE | QTY |
| C3' | 1/2" x 1-1/2" A325 + FLATWASHER | 30 |

| BOLT SCHEDULE TOP SECTION #6 | | |
|------------------------------|---------------------------------------|-----|
| MARK | SIZE | QTY |
| C3 | 1/2" x 1-1/2" A325 | 6 |
| C3' | 1/2" x 1-1/2" A325 + FLATWASHER | 22 |
| D3' | 1/2" x 1-3/4" A325 + FLATWASHER | 12 |
| S'3 | 3/16" x 2" x 2" SPACER c/w 9/16" HOLE | 6 |

| REV. | BY: | CHK: | DESCRIPTION | DATE |
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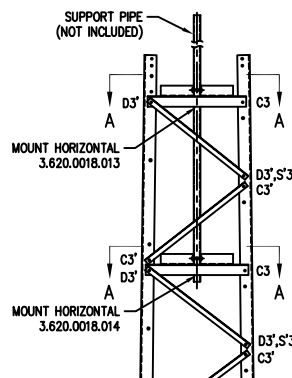
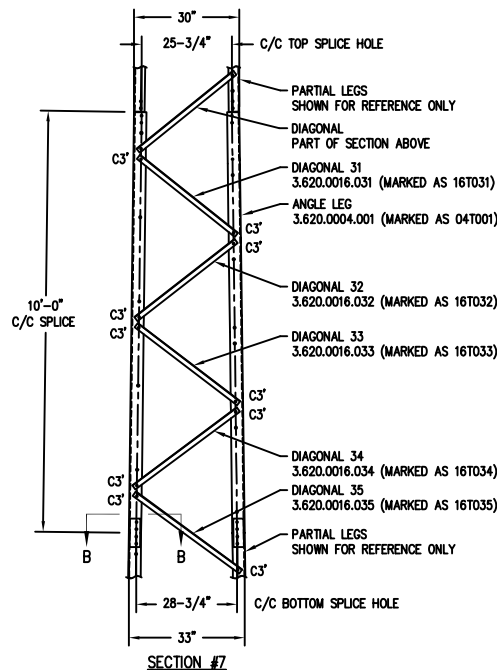
DRAWING NO. 000001.620.0007

CUSTOMER: SITE: SCALE: 25.000

DATE: 28 JAN 03 BY: ML CHK: MAW APP: JB

TITLE: ASSEMBLY OF SECTION #6

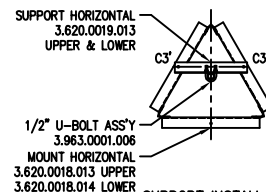
NOTES: LEG: V 3" x 3" x 1/4" ANGLE (50W)
DIAGONAL: L 1-1/2" x 1-1/2" x 1/8" ANGLE (44W)
TOP SECTION HORIZONTAL: L 3" x 3" x 3/16" ANGLE (44W)



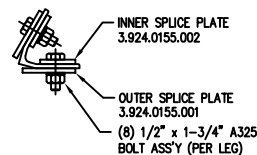
TOP SECTION #7

(INCLUDES ALL PARTS SHOWN IN SECTION #7)

PRE-ASSEMBLED TOP SECTION #7 - KIT #5.95.0072.000
KNOCK-DOWN TOP SECTION #7 - KIT #5.94.0072.000



**SUPPORT INSTALLATION
SECTION A-A**



**SPLICE DETAIL #4
SECTION B-B**

| BOLT SCHEDULE SECTION #7 | | |
|--------------------------|---------------------------------|-----|
| MARK | SIZE | QTY |
| C3" | 1/2" x 1-1/2" A325 + FLATWASHER | 30 |

| BOLT SCHEDULE TOP SECTION #7 | | |
|------------------------------|---------------------------------------|-----|
| MARK | SIZE | QTY |
| C3 | 1/2" x 1-1/2" A325 | 6 |
| C3" | 1/2" x 1-1/2" A325 + FLATWASHER | 22 |
| D3" | 1/2" x 1-3/4" A325 + FLATWASHER | 12 |
| S'3 | 3/16" x 2" x 2" SPACER c/w 9/16" HOLE | 6 |


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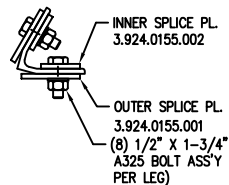
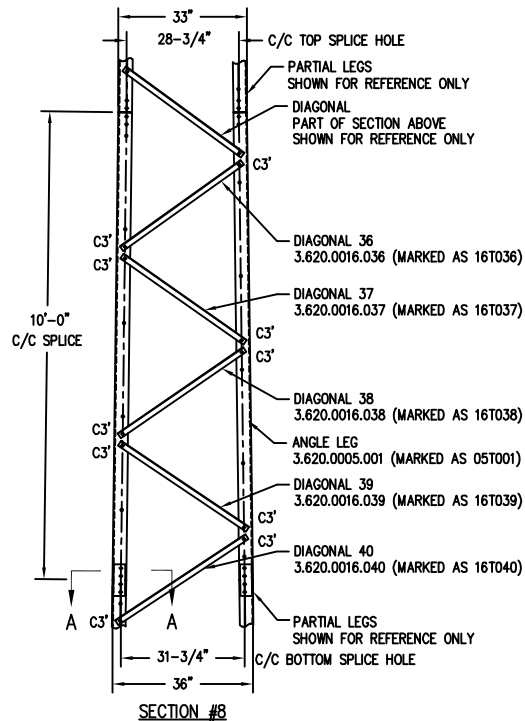
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PRE-ASSEMBLED SECTION #7 - KIT #5.95.0071.000
KNOCK-DOWN SECTION #7 - KIT #5.94.0071.000

NOTES: LEG: V 3-1/2" x 3-1/2" x 1/4" ANGLE (50W)
 DIAGONAL: L 1-1/2" x 1-1/2" x 1/8" ANGLE (44W)
 TOP SECTION HORIZONTAL: L 3" x 3" x 3/16" ANGLE (44W)

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| DRAWING NO. | | 000001.620.0008 | |
| CUSTOMER: | | SITE: | |
| DATE: 28 JAN 03 | | SCALE: 25.000 | |
| BY: ML | | CHK: MAW | |
| APP: JB | | TITLE: ASSEMBLY OF SECTION #7 | |



SECTION A-A
SPLICE DETAIL #4

| BOLT SCHEDULE | | |
|---------------|--------------------------|-----|
| MARK | SIZE | QTY |
| C3' | 1/2" x 1-1/2" A325 + F/W | 30 |


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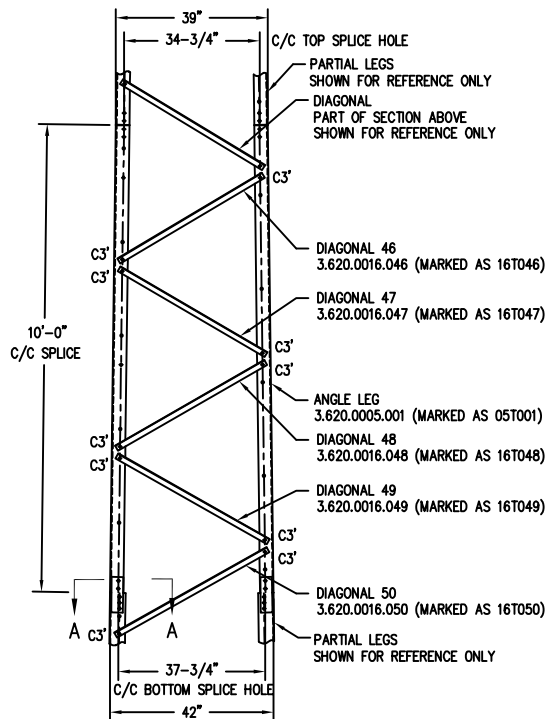
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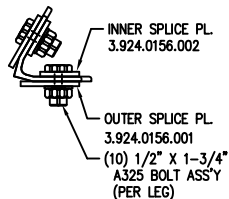
PRE-ASSEMBLED SECTION #8 - KIT #5.95.0081.000
KNOCK-DOWN SECTION #8 - KIT #5.94.0081.000

NOTES: LEG: V 3-1/2" x 3-1/2" x 1/4" ANGLE (50W)
DIAGONAL: L 1-1/2" x 1-1/2" x 1/8" ANGLE (44W)

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| CUSTOMER: | | DRAWING NO. 000001.620.0009 | |
| DATE: 27 JAN 03 | | SCALE: 25.000 | |
| BY: AL | | APP: JB | |
| TITLE: ASSEMBLY OF SECTION #8 | | | |



SECTION #10



SECTION A-A
SPLICE DETAIL #5

| BOLT SCHEDULE | | |
|---------------|--------------------------|-----|
| MARK | SIZE | QTY |
| C3' | 1/2" x 1-1/2" A325 + F/W | 30 |


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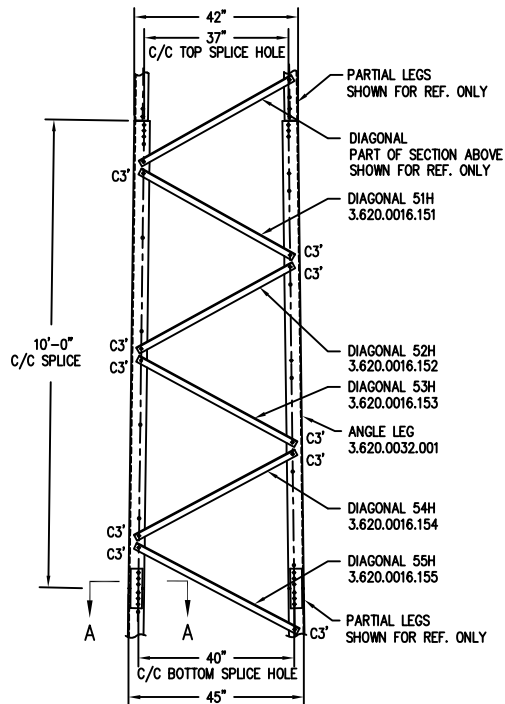
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PRE-ASSEMBLED SECTION #10 - KIT #5.95.0101.000
KNOCK-DOWN SECTION #10 - KIT #5.94.0101.000

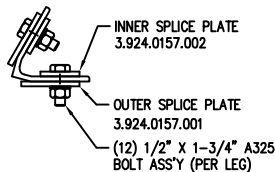
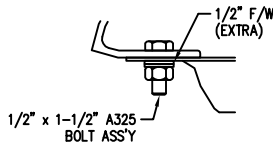
NOTES: LEG: V 3-1/2" x 3-1/2" x 1/4" ANGLE (50W)
DIAGONAL: L 1-1/2" x 1-1/2" x 1/8" ANGLE (44W)

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| DRAWING NO. 000001.620.0011 | | SITE: 25.000 | |
| DATE: 27 JAN 03 | BY: AL | CHK: MAW | APP: JB |
| TITLE: ASSEMBLY OF SECTION #10 | | | |

SECTION #11HD



TOWER MEMBER CONN.



SECTION A-A SPlice DETAIL #6

BOLT SCHEDULE

| MARK | SIZE | QTY |
|------|--------------------------|-----|
| C3' | 1/2" X 1-1/2" A325 + F/W | 30 |


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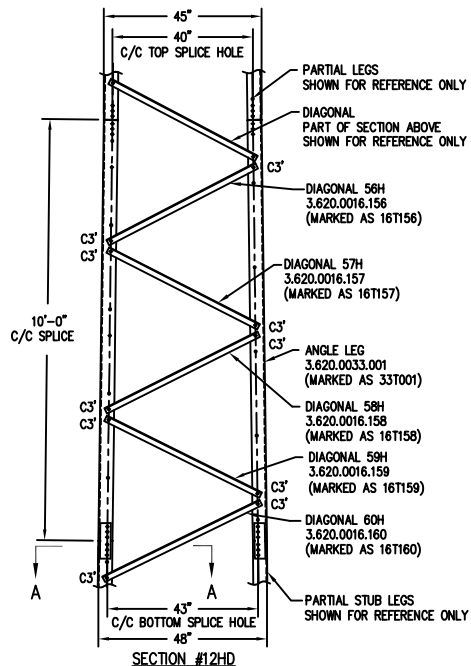
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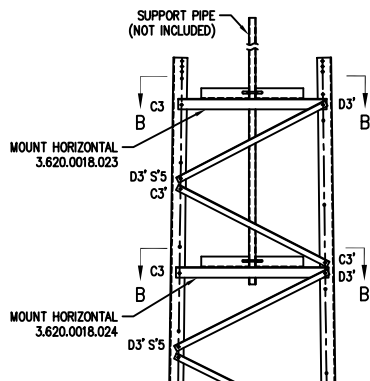
PRE-ASSEMBLED SECTION #11HD - KIT #5.95.0111.0HD
KNOCK-DOWN SECTION #11HD - KIT #5.94.0111.0HD

NOTES: LEG: V 4" X 4" X 5/16" ANGLE (50W)
DIAGONAL: L 1-3/4" X 1-3/4" X 3/16" ANGLE (44W)

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| DRAWING NO. 000001.620.0026 | | SCALE: 25.000 | |
| DATE: 03 JUN 04 | BY: MAW | CHK: JAG | APP: JAG |
| TITLE: ASSEMBLY OF SECTION #11HD | | | |

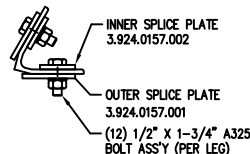
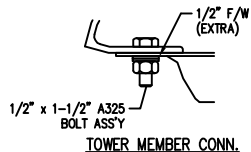
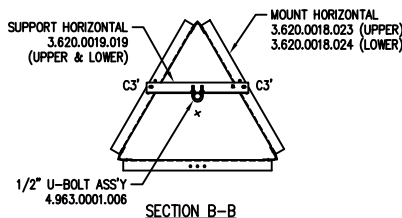


PRE-ASSEMBLED SECTION #12HD - KIT #5.95.0121.OHD
KNOCK-DOWN SECTION #12HD - KIT #5.94.0121.OHD



TOP SECTION #12HD
(INCLUDES ALL PARTS SHOWN IN SECTION #12HD)

PRE-ASSEMBLED TOP SECTION #12HD - KIT #5.95.0122.OHD
KNOCK-DOWN TOP SECTION #12HD - KIT #5.94.0122.OHD



| BOLT SCHEDULE SECTION #12HD | | |
|-----------------------------|--------------------------|-----|
| MARK | SIZE | QTY |
| C3' | 1/2" x 1-1/2" A325 + F/W | 30 |

| BOLT SCHEDULE TOP SECTION #12HD | | |
|---------------------------------|------------------------------------|-----|
| MARK | SIZE | QTY |
| C3 | 1/2" x 1-1/2" A325 | 6 |
| C3' | 1/2" x 1-1/2" A325 + F/W | 18 |
| D3' | 1/2" x 1-3/4" A325 + F/W | 12 |
| S5 | 5/16"x2"x2" SPACER c/w 9/16"Ø HOLE | 6 |

| REV. | BY: | CHK: | DESCRIPTION | DATE |
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DRAWING NO. 000001.620.0027

CUSTOMER: SITE: SCALE: 25.000

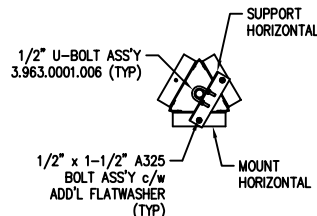
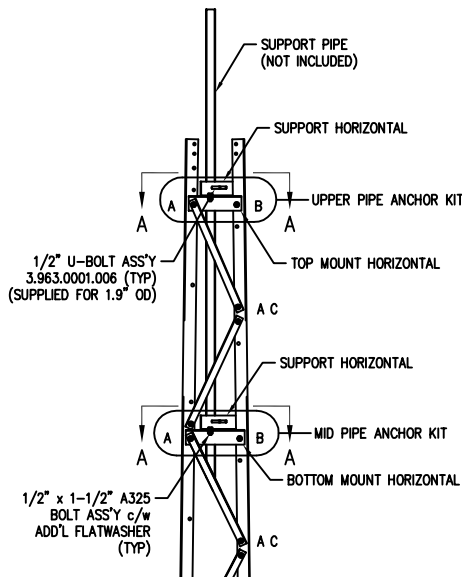
DATE: 01 JUN 05 BY: MRH CHK: JAG APP: JB

TITLE: ASSEMBLY OF SECTION #12HD

NOTES: LEG: V 4" x 4" x 5/16" ANGLE (50W)
DIAGONAL: L 1-3/4" x 1-3/4" x 3/16" ANGLE (44W)

| BOLT SCHEDULE (SECT. 1 TO 5) | | |
|------------------------------|------------------------------------|-----|
| MARK | SIZE | QTY |
| A | 1/2" x 1-1/2" A325 | 12 |
| B | 1/2" x 1-1/2" A325 + FLATWASHER | 10 |
| C | 3/16"x2"x2" SPACER c/w 9/16"Ø HOLE | 6 |

| BOLT SCHEDULE (SECT. 6 TO 12) | | |
|-------------------------------|------------------------------------|-----|
| MARK | SIZE | QTY |
| A | 1/2" x 1-3/4" A325 + FLATWASHER | 12 |
| B | 1/2" x 1-1/2" A325 | 10 |
| C | 3/16"x2"x2" SPACER c/w 9/16"Ø HOLE | 6 |




SECTION A-A

NOTE:
SUPPORT HORIZONTAL IS DESIGNED
TO ACCOMMODATE 1.9\"/>

NOTES: 1) REFER TO DWG. 000001.620.0032 FOR KIT NUMBERS AND COMPONENT PART NUMBERS FOR THE SUPPORT HORIZONTAL AND MOUNT HORIZONTAL.
2) THE SAME PART NUMBER IS UTILIZED FOR BOTH THE UPPER AND MID SUPPORT HORIZONTAL WITHIN EACH SECTION.

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| CUSTOMER: | | DRAWING NO. 000001.620.0031 | |
| DATE: 11 APR 03 | | SCALE: 20.000 | |
| BY: | | CHK: | |
| APP: | | TITLE: TOP MOUNT DETAILS | |

TOP MOUNT KITS

| KIT NUMBER | SECTION NUMBER | DESCRIPTION | MOUNT HORIZONTAL | SUPPORT HORIZONTAL |
|---------------|----------------|-------------------|------------------|--------------------|
| 4.83.0001.001 | 1 | UPPER PIPE ANCHOR | 3.620.0018.001 | 3.620.0019.001 |
| 4.83.0001.002 | 1 | MID PIPE ANCHOR | 3.620.0018.002 | 3.620.0019.001 |
| 4.83.0002.001 | 2 | UPPER PIPE ANCHOR | 3.620.0018.003 | 3.620.0019.003 |
| 4.83.0002.002 | 2 | MID PIPE ANCHOR | 3.620.0018.004 | 3.620.0019.003 |
| 4.83.0003.001 | 3 | UPPER PIPE ANCHOR | 3.620.0018.005 | 3.620.0019.005 |
| 4.83.0003.002 | 3 | MID PIPE ANCHOR | 3.620.0018.006 | 3.620.0019.005 |
| 4.83.0004.001 | 4 | UPPER PIPE ANCHOR | 3.620.0018.007 | 3.620.0019.007 |
| 4.83.0004.002 | 4 | MID PIPE ANCHOR | 3.620.0018.008 | 3.620.0019.007 |
| 4.83.0005.001 | 5 | UPPER PIPE ANCHOR | 3.620.0018.009 | 3.620.0019.009 |
| 4.83.0005.002 | 5 | MID PIPE ANCHOR | 3.620.0018.010 | 3.620.0019.009 |
| 4.83.0006.001 | 6 | UPPER PIPE ANCHOR | 3.620.0018.011 | 3.620.0019.011 |
| 4.83.0006.002 | 6 | MID PIPE ANCHOR | 3.620.0018.012 | 3.620.0019.011 |
| 4.83.0007.001 | 7 | UPPER PIPE ANCHOR | 3.620.0018.013 | 3.620.0019.013 |
| 4.83.0007.002 | 7 | MID PIPE ANCHOR | 3.620.0018.014 | 3.620.0019.013 |
| 4.83.0008.001 | 8 | UPPER PIPE ANCHOR | 3.620.0018.015 | 3.620.0019.015 |
| 4.83.0008.002 | 8 | MID PIPE ANCHOR | 3.620.0018.016 | 3.620.0019.015 |
| 4.83.0009.001 | 9 | UPPER PIPE ANCHOR | 3.620.0018.017 | 3.620.0019.016 |
| 4.83.0009.002 | 9 | MID PIPE ANCHOR | 3.620.0018.018 | 3.620.0019.016 |
| 4.83.0010.001 | 10 | UPPER PIPE ANCHOR | 3.620.0018.019 | 3.620.0019.017 |
| 4.83.0010.002 | 10 | MID PIPE ANCHOR | 3.620.0018.020 | 3.620.0019.017 |
| 4.83.0011.001 | 11 | UPPER PIPE ANCHOR | 3.620.0018.021 | 3.620.0019.018 |
| 4.83.0011.002 | 11 | MID PIPE ANCHOR | 3.620.0018.022 | 3.620.0019.018 |
| 4.83.0012.001 | 12 | UPPER PIPE ANCHOR | 3.620.0018.023 | 3.620.0019.019 |
| 4.83.0012.002 | 12 | MID PIPE ANCHOR | 3.620.0018.024 | 3.620.0019.019 |

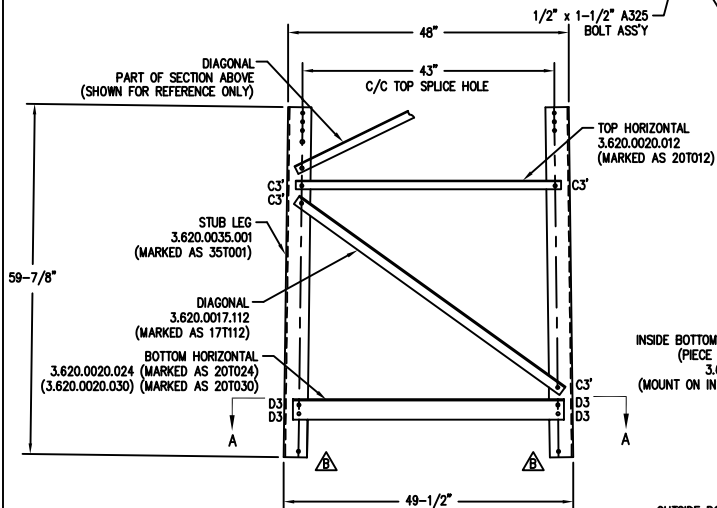
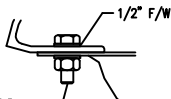
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NOTES: 1) REFER TO DWG. 000001.620.0031 FOR INSTALLATION DETAILS.

| BOLT SCHEDULE | | |
|---------------|--------------------------|-----|
| MARK | SIZE | QTY |
| C3' | 1/2" x 1-1/2" A325 + F/W | 12 |
| D3 | 1/2" x 1-3/4" A325 | 12 |

ASSEMBLY OF FOUNDATION SECTION 13FHD

TOWER MEMBER CONN.



KNOCK-DOWN SECTION #13FHD - KIT #5.81.0213.OHD

OUTSIDE BOTTOM HORIZONTAL 3.620.0020.024

STUB LEG 3.620.0035.001

STUB LEG 3.620.0035.001

INSIDE BOTTOM HORIZONTAL (PIECE OF FLATBAR) 3.620.0020.029 (MOUNT ON INSIDE OF LEG)

INSIDE BOTTOM HORIZONTAL (PIECE OF FLATBAR) 3.620.0020.030 (MOUNT ON INSIDE OF LEG)

OUTSIDE BOTTOM HORIZONTAL 3.620.0020.024

SECTION A-A

| REV. | BY: | CHK: | DESCRIPTION | DATE |
|------|-----|------|-------------|------|
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REFERENCE DRAWINGS:

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Tryllon

DRAWING NO. 000001.620.0029

CUSTOMER: SITE: SCALE: 15.000

DATE: 01 JUN 05 BY: MRH CHK: JAG APP: JB

TITLE: ASSEMBLY OF FND SECTION 13FHD

NOTES: LEG : 4" x 4" x 5/16" ANGLE (50W)
 DIAGONAL: 1-3/4" x 1-3/4" x 3/16" ANGLE (44W)
 TOP HORIZONTAL: 1-1/2" x 1-1/2" x 1/8" ANGLE (44W)
 OUTSIDE BOTTOM HORIZONTAL: 3-1/2" x 3-1/2" x 1/4" ANGLE (44W)
 INSIDE BOTTOM HORIZONTAL: 3-1/2" x 1/4" FLATBAR (44W)

GENERAL:

1) THE CO

- 1) THE CONTRACTOR SHALL FIELD CHECK ALL DIMENSIONS AND DETAILS BEFORE PROCEEDING WITH THE WORK.
- 2) ALL WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF ACI STANDARDS.
- 3) FOUNDATIONS ARE DESIGNED FOR NORMAL DRY SOIL CONDITIONS.
- 4) NORMAL DRY SOIL CONDITIONS ARE ASSUMED WITH AN ALLOWABLE BEARING CAPACITY OF 3500psf. THESE CONDITIONS SHOULD BE VERIFIED ON SITE BY A GEOTECHNICAL CONSULTANT WHEN THE BEARING SURFACE IS EXPOSED. NOTIFY ENGINEER IF SITE CONDITIONS DO NOT COMPLY WITH DESIGN CONDITIONS.
- 5) THE TOWER BASE PAD SHALL BE PLACED AGAINST UNDISTURBED SOIL.
- 6) ALL GALVANIZED STEEL IN CONTACT WITH SOIL IS TO BE COATED WITH ROOF PATCH.

CONCRETE:

- 1) CONCRETE CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF STANDARD ACI-318.
- 2) CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF NOT LESS THAN 3600 psi.
- 3) CONCRETE SHALL CONTAIN AN AIR ENTRAINING AGENT. TOTAL AIR CONTENT TO BE 5% TO 7% FOR THE SIZE OF AGGREGATE BEING USED. THE AIR ENTRAINING AGENT SHALL BE COMPATIBLE WITH THE WATER REDUCING AGENT.
- 4) THE MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 3/4".
- 5) THE USE CALCIUM CHLORIDE OR ACCELERATING ADMIXTURES IS PROHIBITED.
- 6) SLUMP SHALL BE $3" \pm 1"$.
- 7) IF THE AIR TEMPERATURE IS 41 DEGREES F OR LESS, THE TEMPERATURE OF THE CONCRETE AT TIME OF PLACING SHALL BE BETWEEN 59 AND 86 DEGREES F.
- 8) PROVIDE EFFECTIVE MEANS OF MAINTAINING THE TEMPERATURE OF CONCRETE IN PLACE AT A MINIMUM OF 50 DEGREES F AND A MAXIMUM OF 86 DEGREES F FOR THREE DAYS AFTER PLACING. WHEN THE MEAN DAILY AIR TEMPERATURE IS LESS THAN 41 DEGREES F PROVIDE PROTECTION FOR NEWLY PLACED CONCRETE BY MEANS OF SUITABLE ENCLOSURES OR RAISED COVERINGS, HEAT AND INSULATION.
- 9) CHAMFER EXPOSED CORNERS OF CONCRETE (APPROX. 3/4").

REINFORCEMENT:

- 1) CLEAN REINFORCEMENT OF ANY LOOSE SCALE, DIRT OR OTHER COATINGS WHICH WOULD DESTROY OR REDUCE BONDING. REJECT BARS WITH KINKS OR BENDS NOT SHOWN ON THE FOUNDATION DETAILS.
- 2) ALL REINFORCEMENT SHALL HAVE A MINIMUM OF 3" CONCRETE COVER.
- 3) REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING WITH ASTM A615 (GRADE 60).

BACKFILLING:

- 1) BACKFILL SHALL BE PLACED IN THIN LIFTS (MAXIMUM 6") AND COMPACTED TO A MINIMUM OF 95 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY. IN THE EVENT THAT EXCAVATED MATERIALS ARE NOT SUITABLE FOR BACKFILL, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY AND COMPACT SUITABLE CLEAN MATERIAL TO MEET THAT REQUIREMENT.

STANDARDS:

- 1) FOUNDATIONS ARE DESIGNED IN ACCORDANCE WITH EIA-222-F.
- 2) CONCRETE WORK SHALL BE ACCORDANCE WITH ACI 318.
- 3) REINFORCEMENT FOR CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318.

[illegible]

GENERAL:

- 1) THE CONTRACTOR SHALL FIELD CHECK ALL DIMENSIONS AND DETAILS BEFORE PROCEEDING WITH THE WORK.
- 2) ALL WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF CSA STANDARDS.
- 3) FOUNDATIONS ARE DESIGNED FOR NORMAL DRY SOIL CONDITIONS.
- 4) NORMAL DRY SOIL CONDITIONS ARE ASSUMED WITH AN ALLOWABLE BEARING CAPACITY OF 150 KPa. THESE CONDITIONS SHOULD BE VERIFIED ON SITE BY A GEOTECHNICAL CONSULTANT WHEN THE BEARING SURFACE IS EXPOSED. NOTIFY ENGINEER IF SITE CONDITIONS DO NOT COMPLY WITH DESIGN CONDITIONS.
- 5) THE TOWER BASE PAD SHALL BE PLACED AGAINST UNDISTURBED SOIL.
- 6) ALL GALVANIZED STEEL IN CONTACT WITH SOIL IS TO BE COATED WITH ROOF PATCH.

CONCRETE:

- 1) CONCRETE CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF CSA STANDARD CAN-3-A23.3.
- 2) CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF NOT LESS THAN 25 MPa.
- 3) CONCRETE SHALL CONTAIN AN AIR ENTRAINING AGENT. TOTAL AIR CONTENT TO BE 5% TO 7% FOR THE SIZE OF AGGREGATE BEING USED. THE AIR ENTRAINING AGENT SHALL BE COMPATIBLE WITH THE WATER REDUCING AGENT.
- 4) THE MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 19mm.
- 5) THE USE CALCIUM CHLORIDE OR ACCELERATING ADMIXTURES IS PROHIBITED.
- 6) SLUMP SHALL BE 76mm \pm 25mm.
- 7) IF THE AIR TEMPERATURE IS 5 DEGREES C OR LESS, THE TEMPERATURE OF THE CONCRETE AT TIME OF PLACING SHALL BE BETWEEN 15 AND 30 DEGREES C.
- 8) PROVIDE EFFECTIVE MEANS OF MAINTAINING THE TEMPERATURE OF CONCRETE IN PLACE AT A MINIMUM OF 10 DEGREES C AND A MAXIMUM OF 30 DEGREES C FOR THREE DAYS AFTER PLACING. WHEN THE MEAN DAILY AIR TEMPERATURE IS LESS THAN 5 DEGREES C PROVIDE PROTECTION FOR NEWLY PLACED CONCRETE BY MEANS OF SUITABLE ENCLOSURES OR RAISED COVERINGS, HEAT AND INSULATION.
- 9) CHAMFER EXPOSED CORNERS OF CONCRETE (APPROX. 19mm).

REINFORCEMENT:


- 1) CLEAN REINFORCEMENT OF ANY LOOSE SCALE, DIRT OR OTHER COATINGS WHICH WOULD DESTROY OR REDUCE BONDING. REJECT BARS WITH KINKS OR BENDS NOT SHOWN ON THE FOUNDATION DETAILS.
- 2) ALL REINFORCEMENT SHALL HAVE A MINIMUM OF 76mm CONCRETE COVER.
- 3) REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING WITH CSA STANDARD G30.18 (GRADE 600).

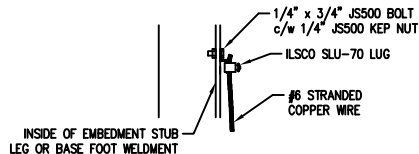
BACKFILLING:

- 1) BACKFILL SHALL BE PLACED IN THIN LIFTS (MAXIMUM 150mm) AND COMPACTED TO A MINIMUM OF 95 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY. IN THE EVENT THAT EXCAVATED MATERIALS ARE NOT SUITABLE FOR BACKFILL, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY AND COMPACT SUITABLE CLEAN MATERIAL TO MEET THAT REQUIREMENT.

STANDARDS:

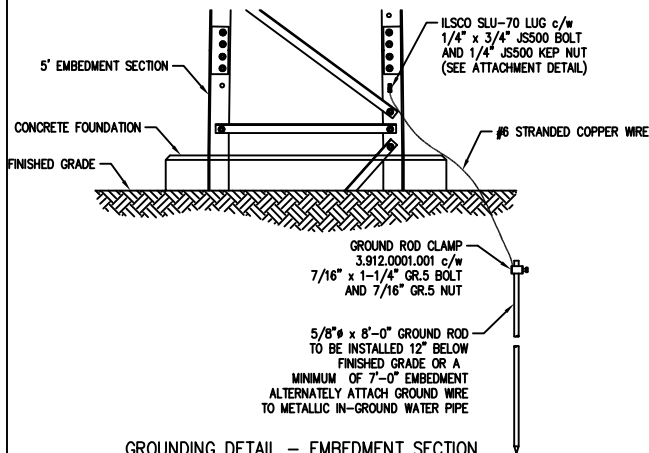
- 1) FOUNDATIONS ARE DESIGNED IN ACCORDANCE WITH CAN/CSA-S37-01.
- 2) CONCRETE WORK SHALL BE ACCORDANCE WITH CAN3-A23.3.
- 3) REINFORCEMENT FOR CONCRETE SHALL BE IN ACCORDANCE WITH CAN3-A23.1.

| REV. | BY: REV. | BY: CHK. | DESCRIPTION | DATE |
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| CUSTOMER: | | | SITE: | SCALE: |
| DATE: 24 APR 03 | | | MAW | 1,000 |
| BY: | | | CHK: | APP: |
| TITLE: | | | CSA FOUNDATION NOTES | |

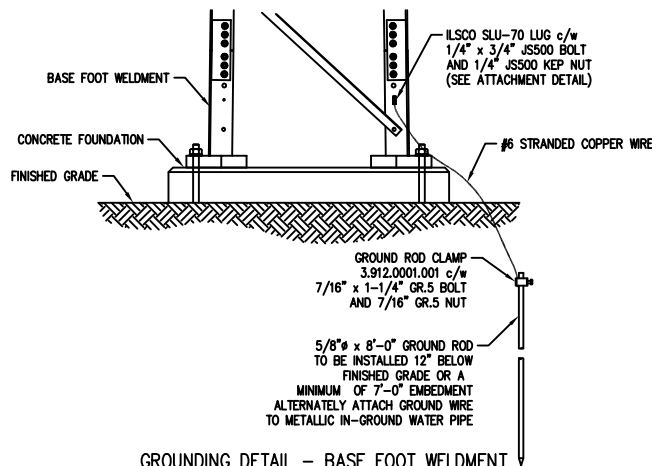


CLAMP ATTACHMENT

| SUPERTITAN BASIC GROUNDING KIT P/N 4.91.0103.000 | | |
|--------------------------------------------------|----------------|-----------------------------------|
| QUANTITY | PART NO. | DESCRIPTION |
| 1 | 3.912.0006.001 | 5/8" ϕ x 8' Lg. GROUND ROD |
| 3 | 1301404 | #6 B.S.C. WIRE |
| 1 | 1302090 | ILSCO SLU-70 LUG |
| 1 | 1205011 | 1/4" x 3/4" JS500 BOLT |
| 1 | 1205020 | 1/4" JS500 KEP NUT |
| 1 | 3.912.0001.001 | GROUND ROD CLAMP |
| 1 | 1201091 | 7/16" x 1-1/4" GR.5 HEX HEAD BOLT |
| 1 | 1201080 | 7/16" GR.5 HEX NUT |



GROUNDING DETAIL — EMBEDMENT SECTION




GROUNDING DETAIL — BASE FOOT WELDMENT

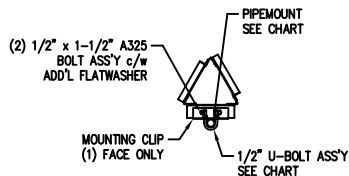
NOTES: 1) THERE ARE TWO TYPES OF SUPERTITAN ANCHOR DESIGNS. ONE IS A 5' EMBEDMENT SECTION WHICH IS THE DEFAULT FOR BOTTOM TOWER SECTIONS #2 THROUGH #12HD. THE OTHER IS A BASE FOOT WELDMENT KIT WITH ANCHOR RODS. THIS TYPE B IS THE DEFAULT WITH BOTTOM SECTIONS #13-21.

| REV. | BY: | BY: | DESCRIPTION | DATE |
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| | REV. | CHK. | | |
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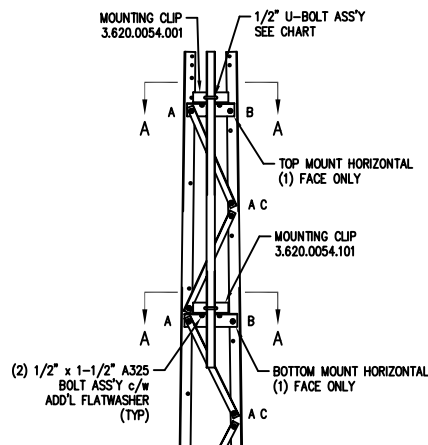
REFERENCE DRAWINGS:

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| DRAWING NO. 000001.620.0030 | | |
| CUSTOMER: | SITE: | SCALE: 15.000 |
| DATE: 10 APR 03 | BY: | CHK: |
| TITLE: GROUNDING DETAIL | | APP: |



SECTION A-A



| 1.9" OD PIPEMOUNT KITS | | | | | |
|------------------------|---------------|-----------------|------------------|----------------|----------------|
| SECT. No. | MOUNT KIT No. | TOP MNT. HORIZ. | BTM. MNT. HORIZ. | PEITEMOUNT | U-BOLT ASS'Y |
| 1 | 4.84.0001.001 | 3.620.0018.001 | 3.620.0018.002 | 3.960.0013.100 | 4.963.0001.006 |
| 2 | 4.84.0001.002 | 3.620.0018.003 | 3.620.0018.004 | 3.960.0013.100 | 4.963.0001.006 |
| 3 | 4.84.0001.003 | 3.620.0018.005 | 3.620.0018.006 | 3.960.0013.100 | 4.963.0001.006 |
| 4 | 4.84.0001.004 | 3.620.0018.007 | 3.620.0018.008 | 3.960.0013.100 | 4.963.0001.006 |
| 5 | 4.84.0001.005 | 3.620.0018.009 | 3.620.0018.010 | 3.960.0013.100 | 4.963.0001.006 |
| 6 | 4.84.0001.006 | 3.620.0018.011 | 3.620.0018.012 | 3.960.0013.100 | 4.963.0001.006 |
| 7 | 4.84.0001.007 | 3.620.0018.013 | 3.620.0018.014 | 3.960.0013.100 | 4.963.0001.006 |
| 8 | 4.84.0001.008 | 3.620.0018.015 | 3.620.0018.016 | 3.960.0013.100 | 4.963.0001.006 |
| 9 | 4.84.0001.009 | 3.620.0018.017 | 3.620.0018.018 | 3.960.0013.100 | 4.963.0001.006 |
| 10 | 4.84.0001.010 | 3.620.0018.019 | 3.620.0018.020 | 3.960.0013.100 | 4.963.0001.006 |
| 11 | 4.84.0001.011 | 3.620.0018.021 | 3.620.0018.022 | 3.960.0013.100 | 4.963.0001.006 |
| 12 | 4.84.0001.012 | 3.620.0018.023 | 3.620.0018.024 | 3.960.0013.100 | 4.963.0001.006 |

| 4.5" OD PIPEMOUNT KITS | | | | | |
|------------------------|---------------|-----------------|------------------|----------------|----------------|
| SECT. No. | MOUNT KIT No. | TOP MNT. HORIZ. | BTM. MNT. HORIZ. | PEITEMOUNT | U-BOLT ASS'Y |
| 1 | 4.84.0006.001 | 3.620.0018.001 | 3.620.0018.002 | 3.960.0011.103 | 4.963.0001.207 |
| 2 | 4.84.0006.002 | 3.620.0018.003 | 3.620.0018.004 | 3.960.0011.103 | 4.963.0001.207 |
| 3 | 4.84.0006.003 | 3.620.0018.005 | 3.620.0018.006 | 3.960.0011.103 | 4.963.0001.207 |
| 4 | 4.84.0006.004 | 3.620.0018.007 | 3.620.0018.008 | 3.960.0011.103 | 4.963.0001.207 |
| 5 | 4.84.0006.005 | 3.620.0018.009 | 3.620.0018.010 | 3.960.0011.103 | 4.963.0001.207 |
| 6 | 4.84.0006.006 | 3.620.0018.011 | 3.620.0018.012 | 3.960.0011.103 | 4.963.0001.207 |
| 7 | 4.84.0006.007 | 3.620.0018.013 | 3.620.0018.014 | 3.960.0011.103 | 4.963.0001.207 |
| 8 | 4.84.0006.008 | 3.620.0018.015 | 3.620.0018.016 | 3.960.0011.103 | 4.963.0001.207 |
| 9 | 4.84.0006.009 | 3.620.0018.017 | 3.620.0018.018 | 3.960.0011.103 | 4.963.0001.207 |
| 10 | 4.84.0006.010 | 3.620.0018.019 | 3.620.0018.020 | 3.960.0011.103 | 4.963.0001.207 |
| 11 | 4.84.0006.011 | 3.620.0018.021 | 3.620.0018.022 | 3.960.0011.103 | 4.963.0001.207 |
| 12 | 4.84.0006.012 | 3.620.0018.023 | 3.620.0018.024 | 3.960.0011.103 | 4.963.0001.207 |

| BOLT SCHEDULE (SECT. 1 TO 5) | | |
|------------------------------|-----------------------------------|-----|
| MARK | SIZE | QTY |
| A | 1/2" x 1-1/2" A325 | 4 |
| B | 1/2" x 1-1/2" A325 + FLATWASHER | 2 |
| C | 3/16"x2"x2" SPACER c/w 9/16" HOLE | 2 |

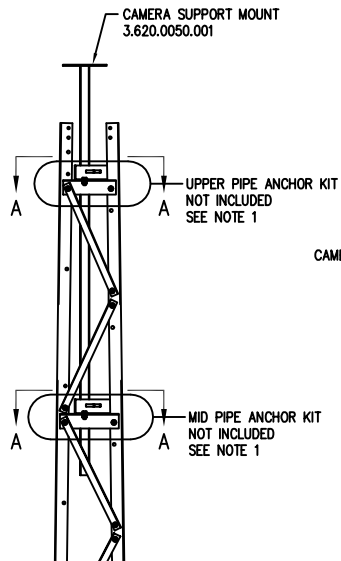
| BOLT SCHEDULE (SECT. 6 TO 12) | | |
|-------------------------------|-----------------------------------|-----|
| MARK | SIZE | QTY |
| A | 1/2" x 1-3/4" A325 + FLATWASHER | 4 |
| B | 1/2" x 1-1/2" A325 | 2 |
| C | 3/16"x2"x2" SPACER c/w 9/16" HOLE | 2 |

NOTES:

| REV. | BY: | CHK. | DESCRIPTION | DATE |
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| DRAWING NO. 000001.620.0033 | | |
| CUSTOMER: | SITE: | SCALE: 20.000 |
| DATE: 11 APR 03 | BY: | CHK: |
| TITLE: SIDE MOUNT DETAILS | APP: | |



CAMERA SUPPORT MOUNT
3.620.0050.001




SECTION A-A

CAMERA MOUNT
KIT No. 4.85.0102.000

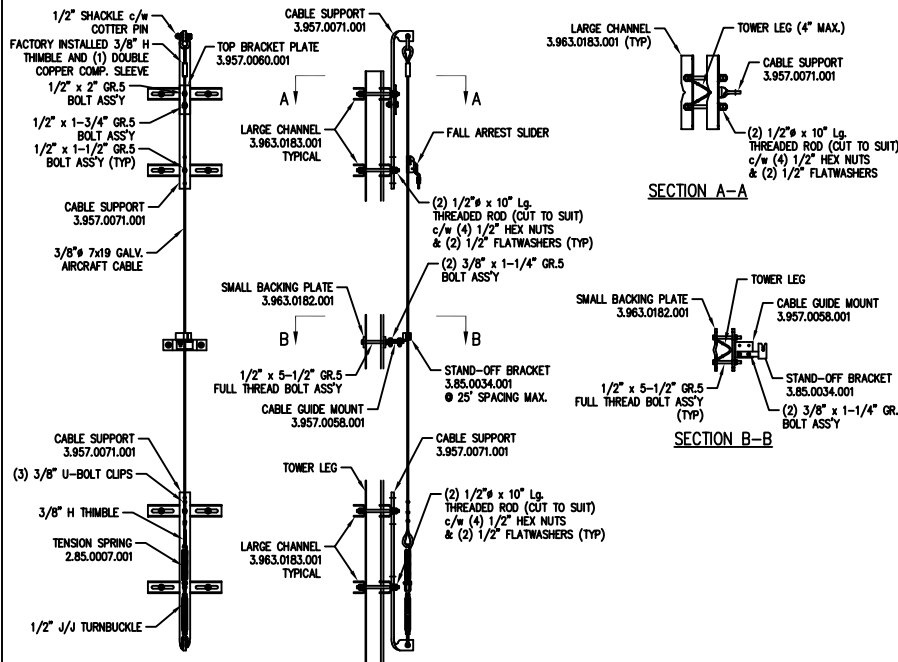
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| | REV. | CHK. | | |
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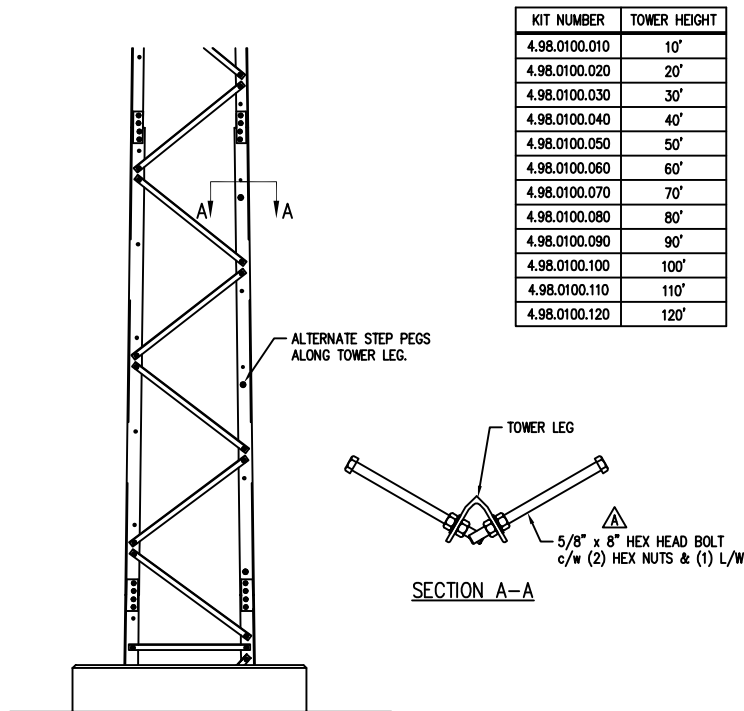
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| CUSTOMER: | | SITE: | |
| DATE: 11 APR 03 | | BY: | CHK: |
| TITLE: CAMERA MOUNT DETAILS | | SCALE: 20.000 | |

NOTES: 1) REFER TO DWG. 000001.620.0031 FOR MOUNT HORIZ. AND SUPPORT HORIZONTAL KITS.




INSTRUCTIONS

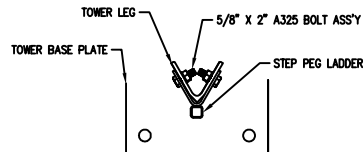
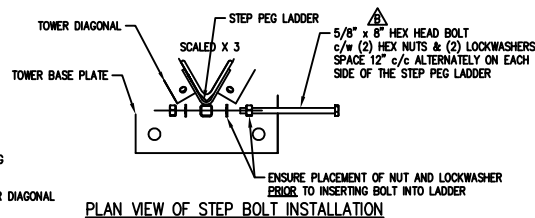
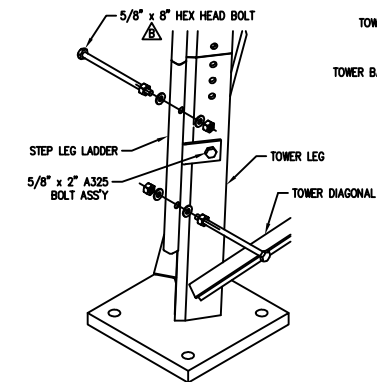
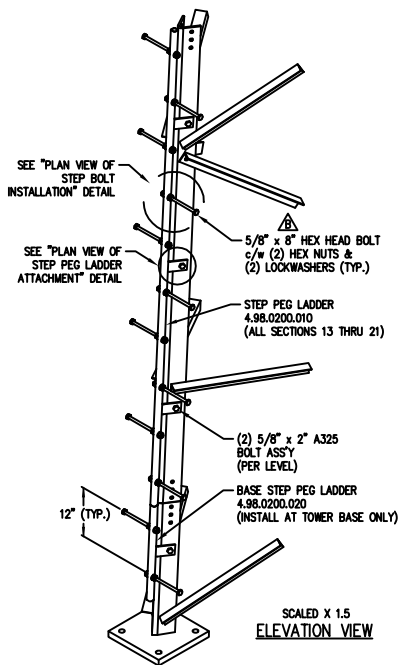


NOTES: 1) WHEN USING AN ANTI-CLIMB SHIELD START STEP PEGS IN FIRST HOLE ABOVE SHIELD.
2) STEP BOLTS ARE INSTALLED THIS WAY FOR SUPERTITAN SECTION #1 TO #12HD ONLY. SEE DWG #000001.620.0100 FOR STEPBOLT INSTALLATION OF SECTIONS #13 - #21.

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| CUSTOMER: | | |
| DATE: 25 APR 03 | | SITE: |
| BY: | | SCALE: 25.000 |
| CHK: | | APP: |
| TITLE: STEP PEG INSTALLATION | | |



| 4.98.0200.010 | | 4.98.0200.020 | |
|-------------------------|-----|-------------------------|-----|
| DESCRIPTION | QTY | DESCRIPTION | QTY |
| 3.620.0070.001 | 1 | 3.620.0071.001 | 1 |
| 5/8" x 2" A325 BOLT | 7 | 5/8" x 2" A325 BOLT | 3 |
| 5/8" x 8" HEX HEAD BOLT | 10 | 5/8" x 8" HEX HEAD BOLT | 2 |
| 5/8" HEX NUT | 20 | 5/8" HEX NUT | 4 |
| 5/8" LOCKWASHER | 20 | 5/8" LOCKWASHER | 4 |
| 3/4" SEALS ZINC COATED | 4 | 3/4" SEALS ZINC COATED | 2 |

KIT NUMBERS:


4.98.0200.010 - STANDARD 10' STEP PEG LADDER
4.98.0200.020 - BASE STEP PEG LADDER

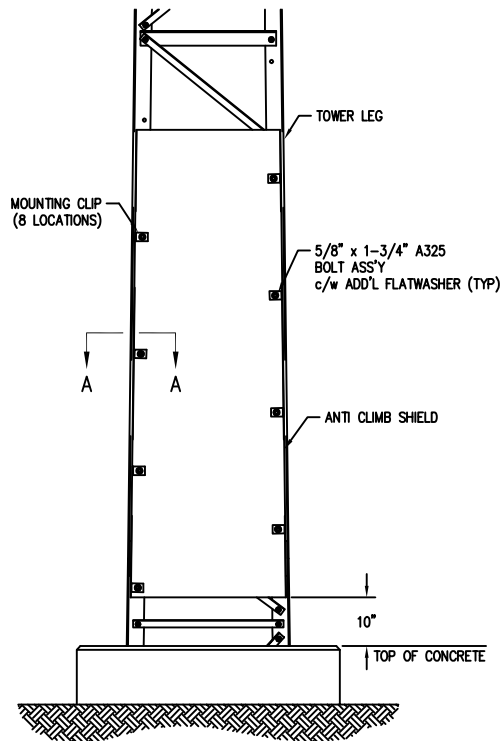
- NOTES: 1) A STEP PEG LADDER IS AN ALTERNATIVE CLIMBING OPTION TO A STANDARD APEX CLIMBING LADDER. THE ADVANTAGES ARE: REDUCED WIND LOAD AND LOWER COST.
2) USE THIS KIT ONLY FOR SUPER TITAN SECTIONS 13 THRU 21.
3) FOR INSTALLATION OF SECTION 1-12HD SEE DWG 000001.620.0041.

| REV. | BY: | BY: | DESCRIPTION | DATE |
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| REV. | REV. | CHK. | | |
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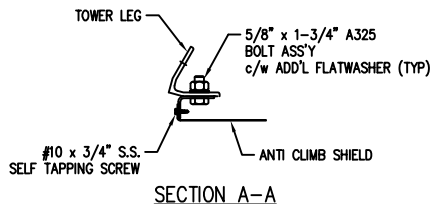
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| DRAWING NO. 000001.620.0100 | | |
| CUSTOMER: | SITE: | SCALE: 25.000 |
| DATE: 05 JUL 04 | BY: | CHK: |
| TITLE: STEP PEG LADDER ASSEMBLY | | |



| KIT NUMBER | SECTION NUMBER | ANTI CLIMB SHIELD | MOUNTING CLIP |
|---------------|----------------|-------------------|----------------|
| 4.92.0001.001 | 1 | 3.620.0053.001 | 3.620.0053.200 |
| 4.92.0001.002 | 2 | 3.620.0053.002 | 3.620.0053.200 |
| 4.92.0001.003 | 3 | 3.620.0053.003 | 3.620.0053.200 |
| 4.92.0001.004 | 4 | 3.620.0053.004 | 3.620.0053.200 |
| 4.92.0001.005 | 5 | 3.620.0053.005 | 3.620.0053.200 |
| 4.92.0001.006 | 6 | 3.620.0053.006 | 3.620.0053.200 |
| 4.92.0001.007 | 7 | 3.620.0053.007 | 3.620.0053.200 |
| 4.92.0001.008 | 8 | 3.620.0053.008 | 3.620.0053.200 |
| 4.92.0001.009 | 9 | 3.620.0053.009 | 3.620.0053.200 |
| 4.92.0001.010 | 10 | 3.620.0053.010 | 3.620.0053.200 |
| 4.92.0001.011 | 11 | 3.620.0053.011 | 3.620.0053.200 |
| 4.92.0001.012 | 12 | 3.620.0053.012 | 3.620.0053.200 |



NOTES:

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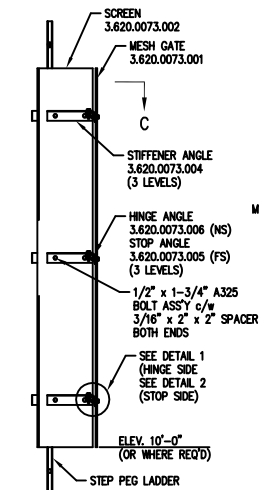
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DRAWING NO. 000001.620.0044

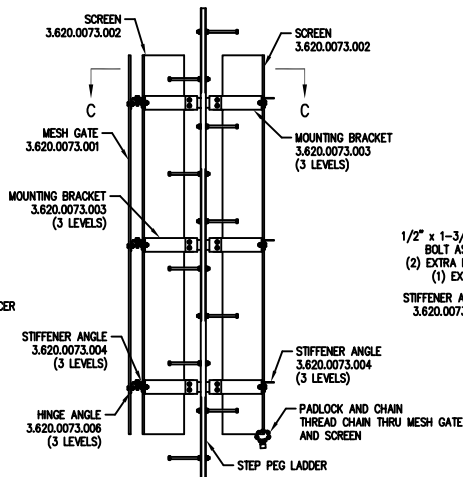
CUSTOMER: SITE: SCALE: 20.000

DATE: 29 APR 03 BY: CHK: APP:

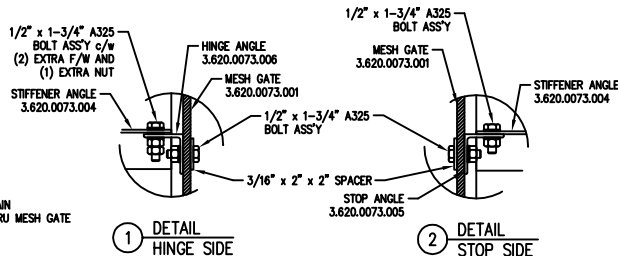
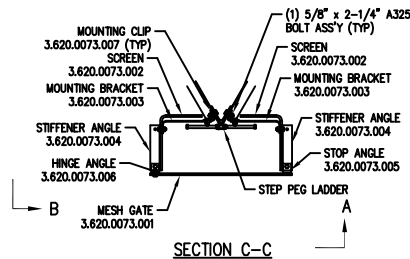
TITLE: ANTI CLIMB INSTALLATION



SECTION B-B



SECTION A-A
(MESH GATE SHOWN OPEN)



DETAIL 2
STOP SIDE


- NOTES:
- 1) ALL BOLTS ARE 1/2" x 1-1/2" A325 ASSEMBLIES UNLESS NOTED.
 - 2) THIS ANTI CLIMB KIT IS UTILIZED ONLY ON THE LEG WITH STEP PEG OR CLIMBING LADDER TO PREVENT UNAUTHORIZED CLIMBING.
 - 3) THIS KIT IS USED ONLY ON STSS SECTIONS 13 THRU 21.

KIT #4.92.0001.213

| REV. | BY: | CHK: | DESCRIPTION | DATE |
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| CUSTOMER: | | DRAWING NO. 000001.620.0099 | |
| DATE: 06 JUL 04 | | SCALE: 20.000 | |
| BY: | | APP: | |
| CHK: | | TITLE: ANTI CLIMB MESH ASSEMBLY | |



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21 SOUTH FIELD DRIVE
P.O. BOX 186
ELMIRA, ON
N3B 2Z6
CANADA

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FAX: (519) 669-4187
WEBSITE: www.trylon.com
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