PROJECT MANUAL

Bidding Requirements, Contract Conditions
of the Contract and Specifications

LAYTON CITY PROJECT 22-05:

COMMONS PARK IMPROVEMENTS

437 N. Wasatch Dr. Layton, Utah

Owner:
Layton City Corporation
465 North Wasatch Drive
Layton, Utah 84041

Blu Line Designs
Rob Donigan, PLA, ASLA
801-703-6383

May 11, 2023

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SECTION 00 010
INVITATION TO BIDDERS

Sealed bids will be accepted until 2:00 p.m. May 31, 2023, in the office of Layton City Parks and Recreation, 465 N Wasatch Drive, Layton, UT 84041 at which time they will be opened for the following project:

LAYTON CITY:

COMMONS PARK IMPROVEMENTS, Project 22-05

437 N. Wasatch Dr. Layton, Utah

Bids will be received for site improvements of Commons Park as delineated in the drawings. Major work items will include the following work: Installation of a new large pre-fabricated pavilion including electrical lighting and heating units; a new restroom facility; a new parking lot, and concrete pathways; relocate existing drinking fountain and street light poles; and the installation of new irrigation and landscaping improvements. Limit site work as shown in the drawings.

Project bidding documents are available at www.questcdn.com (Quest project #8522536) or https://qcpi.questcdn.com/cdn/posting/?group=3971843&provider=3971843. Documents may be viewed online until prequalification requirements are met after which the documents may be downloaded for $30.00. Please contact the Project Manager at 801-336-3926 if you have any questions.

Contractors shall submit the Contractor's Qualification Statement available at the questcdn.com website, under the Q & A section, to be reviewed by the OWNER prior to 12:00 p.m. May 24, 2023. Upon Layton City approval, contractors will be given a password to purchase and download the bid documents. Layton City reserves the right to approve or deny bidders based upon similar project experience. Contractor's Qualification Statements shall be emailed to jgrandy@laytoncity.org or received in writing by 12:00 p.m. on May 24, 2023 in the Layton City Parks and Recreation Department located at 465 North Wasatch Drive, Layton UT 84041.

Bidders will be required to furnish a 5% bid bond. Bids will be accepted until 2:00 p.m May 31, 2023. At which time they will be opened and read aloud.

The documents required at bid opening are as follows:

1) Bid forms provided.
2) Cashier or certified check or bid bond made payable to Layton City in an amount equal to at least five percent (5%) of the total bid.
3) Copy of state license.
4) Anticipated schedule (include start and finish dates)

The successful bidder will be required to submit to Layton City a Labor and Materials Payment Bond and a Performance Bond both in the amount of 100% of the total amount of the bid prior to the execution of any contract documents.

Layton City reserves the right to accept or reject any or all bids or any part of any bid and to waive any informalities in any bid as its best interest appear. A decision on the rejection of any or all bids, or Notice of Award will be made within (45) calendar days after the bid opening.

Layton City Corporation

END OF SECTION 00 010

SECTION 00 020
INSTRUCTIONS TO BIDDERS

DEFINITIONS

Addenda are written or graphic instructions issued by the Project Manager prior to the execution of the bid contracts, which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections. Addenda shall become part of the Contract Documents and shall be included in any bid proposal.

Bid is a complete and properly signed proposal to do the work, or designated portion thereof, for the sums stipulated therein, supported by data called for by the Bidding Documents, including the Addenda.

Unit Price, if required, is an amount stated in the bid (or Change Order) as a price per unit of measurement for materials and services.

Contractor is the bidder who enters into a prime contract with the City of Layton for the work described in the Contract Documents.

City, Owner, or Project Manager are terms synonymous with the City of Layton, Utah.

BIDDING DOCUMENTS

Complete sets of Bidding Documents shall be used in preparing bids; the Project Manager and the City of Layton assume no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents, or omissions resulting from bids prepared from partial sets based upon assumed trade jurisdiction. The Project Manager will not issue partial sets of Drawings and Specifications. Bidding Documents will be issued to each bidder at www.questcdn.com (Quest project #8522536) or https://qcpi.questcdn.com/cdn/posting/?group=3971843&provider=3971843.

EXAMINATION OF DOCUMENTS AND SITE

Each bidder, by making a bid, represents that s/he has read and understands the Bidding Documents and that s/he has visited the site to obtain first hand knowledge of existing local conditions under which the work is to be performed. Bidders will not be given extra payments for conditions which can be determined by examination of the Documents and the site. The submission of a bid shall be construed evidence that the bidder has made such examinations.

WITHDRAWAL OF BIDS

Any bidder may withdraw his/her bid, either personally or by written request, at any time prior to the scheduled time for opening of bids.

No bidder may withdraw his/her bid for a period of 45 days after the date set for the opening thereof, and all bids shall be subject to acceptance by Layton City during this period.

END OF SECTION 00 020

SECTION 00 030
ADDENDA AND MODIFICATIONS

Substitution of Products for Consideration During Bidding

Reference in the Specifications or on the Drawings to any material, product, article, or piece of equipment by manufacturer's name, model, catalog number, or the like, shall not be construed as limiting competition unless otherwise noted.

Bidders shall base their bids upon the use of the products, manufacturers, or methods specifically specified herein. Any requests for changes or substitutions will be considered no later than seven (7) days prior to bid date, and only written approvals received prior to bid date are acceptable. Any other changes or substitutions without prior written review shall be subject to rejection and no Contract Amount adjustments shall be warranted.

If a bid is based upon the use of substituted items other than those specifically named in the Bid Documents, it shall be the responsibility of the Bidder submitting the proposal to fully satisfy the Project Manager and the Owner that the items meet the requirements of the Contract Documents. Substituted items (not receiving prior favorable review) incorporated into the work shall be removed as directed by the owner and/or the Project Manager and the new work shall be installed using specified items.

Requests for substitutions shall be directed, in writing, to:

Layton City Parks and Recreation
JoEllen Grandy
465 N Wasatch Drive
Layton, UT 84041
jgrandy@laytoncity.org

Accompany requests for substitutions with complete data substantiating compliance of proposed substitution with contract Documents, including product identification and description, reference standards, performance and test data, and samples, where applicable and an itemized comparison on the proposed substitution with products and methods specified with data relation to changes in construction contracts. Include accurate cost data on proposed substitution designation of any known detrimental aspects of substitution such as danger to installer or user, if applicable.

All requests for substitutions shall be made through the Project Manager. Contractor shall stamp and sign request certifying substituted item is equal to specified item. Any request for a substitution must include all costs associated with related work (i.e. Structural, Architectural, Mechanical, and Electrical). This would include any design fees and all costs associated with work required by others to complete the substitution.

By making request for substitution, the Contractor represents that:

1. The Contractor has personally investigated proposed product or method and determined that it is equal or superior in all respects to that specified.

2. The Contractor will provide the same guarantee for the substitution as for the product or method specified.

3. The Contractor will coordinate installation of accepted substitution into the work, making such changes as required for work to be completed in all respects.

Interpretation or correction of Bidding Documents

Bidders shall promptly notify the Project Manager of any ambiguity, inconsistency, or error which they may discover upon examination of the Bidding Documents or of the site and local conditions. Bidders requiring a clarification or interpretation of the Bidding Documents shall make a written request to reach the Project Manager no later than seven (7) days prior to the bid date.

Any interpretation, correction, or change to the Bidding Documents will be made by Addendum. Interpretations, corrections, substitutions or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections, and changes, especially any verbal directives given by the City Engineer office personnel, or the Owner's personnel.

Addenda

If any Bidder is in doubt as to the true meaning of any part of the Drawings and Specifications, the Bidder shall submit to the Project Manager a written request for interpretation of correction of the Contract Documents. Such request shall be made no later than seven (7) days prior to bid. Any written interpretation or correction will be made by written addendum. All oral communication with the Project Manager, staff and consultants, and the Owner shall have no force to alter the Contract Documents.

Each Bidder shall look for Addenda prior to submitting a bid. The bid shall acknowledge the receipt of any Addenda.

Modifications

After execution of the Agreement Between Construction Manager and Contractor, no modification may be made to the Contract except in writing by Supplemental Instruction of Change Order. Verbal directive shall have no force except it they are followed up in writing.

END OF SECTION 00 030

SECTION 00 040
BID FORM

Project: Layton City Commons Park Improvements, Project 22-05
- Commons Park Improvements – 437 N. Wasatch Dr. Layton, UT – Improvements

Submitted to: Layton City Corporation
Parks and Recreation Department
465 N Wasatch Drive
Layton, UT 84041

PROPOSAL OF _____ (hereinafter called "BIDDER"), organized and existing under the laws of the STATE OF UTAH, doing business as _____.**(Insert "a corporation", "a partnership", "an individual") To the city of Layton (hereinafter called "OWNER").

In compliance with your advertisement for bids, the undersigned Bidder proposes and agrees to enter into an agreement with the City to perform and furnish all work as specified or indicated for the construction of the LAYTON CITY COMMONS PARK IMPROVEMENTS, Project 22-05 – 437 N. Wasatch Dr. in strict accordance with the contract documents, within time set forth therein, and at the prices stated below.

By submission of this bid, the bidder, including all bidders in a joint bid, certifies that this bid has been arrived at independently, without consultation, communication or agreement as to any matter relating to this bid with any other bidder or competitor.

Bidder accepts all of the terms and conditions of Invitation to Bid and Instructions to Bidder, including without limitation those dealing with the disposition of Bid Security. This bid will remain subject to acceptance for forty-five (45) consecutive calendar days after the day of Bid opening. Bidder will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements, within ten (10) days after the date of Owner's Notice of Award.

In submitting this Bid, Bidder represents that:

Bidder has examined and carefully studied the Bidding Documents and the following Addenda receipt of which is hereby acknowledged:

Addenda Number	Addendum Date

Bidder has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance and furnishing of the Work.

Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

Bidder is aware of the general nature of Work to be performed by Owner and others at the site that relates to Work for which this Bid is submitted as indicated in the Contract Documents.

Bidder acknowledges Layton City reserves the right to accept or reject any or all bids or any part of any bid and to waive any informalities in any bid as its best interest appear. A decision on the rejection of any or all bids or Notice of Award will be made within (45) calendar days after the bid opening.

Bidder has correlated the information known to Bidder, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

Bidder has given Project Manager written notice of all conflicts, errors, ambiguities or discrepancies that the Bidder has discovered in the Contract Documents and the written resolution thereof by Project Manager is acceptable to Bidder, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.

This bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid. Bidder has not solicited or induced any person, firm or corporation to refrain from bidding. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

BASE BID

For all work shown on the Drawings and described in the Specifications. I/We agree to perform the work for the sum of:

_____DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

ADDITIVE ALTERNATES:

For your consideration, we further propose the following ALTERNATES as listed in the drawings.

BID ALTERNATE #1: None

_____DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

BASE BID: Unit Price Breakdown PROJECT 22-05

Layton City Commons Park Improvements, Project 22-05:
Commons Park Improvements – 437 N. Wasatch Dr.

BASE BID					
Item No.	Items Written in Words	Qty	Unit	Amount	
				Dollars	Cents
1	Mobilization / General Conditions	1	LS		
2	Construction Surveying and Staking	1	LS		
3	Traffic Control / Construction Fencing	1	LS		
4	Testing (Concrete / Compaction)	1	LS		
5	Erosion Control Elements and Protection	1	LS		
6	Clear and Grub Remaining Areas of Site	1	LS		
7	Earthwork and Grading	1	LS		
8	Concrete Paving	1	LS		
9	Asphalt Parking Lot	1	LS		
10	Relocation of Small Pavilion	1	LS		
11	Large Pavilion (See Note #1 Below)	1	LS		
12	Pavilion Electrical and Related Appurtenances	1	LS		
13	Restroom and Related Appurtenances	1	LS		
14	Relocated Drinking Fountain	1	LS		
15	Landscape Irrigation System & Related Appurtenances	1	LS		
16	Fine Grading	1	LS		
17	Landscaping	1	LS		
Commons Park Improvements Total Base Bid:					

*** NOTE #1**: Pavilion as noted in plans is to be purchased by the City and installed by Contractor as noted in the plans.

Bidder guarantees to complete all other work within 330 calendar days after receipt of Notice to Proceed. Bidder accepts the provisions of the Agreement as to liquidated damages in the amount of $250 per calendar day.

Bidder further proposes to (1) execute a contract with Layton City Corporation promptly after request from the Project Manager, (2) begin the work within seventy-two hours after notified to do so by the Project Manager, and (3) complete the work in accordance with the provisions of said contract.

The undersigned also propose to furnish Performance and Labor and Material Payment Bonds with the contract, signed by a surety company, in amounts equal to the amount of the contract conditioned to insure that the terms of the contract and the requirements of the specifications will be fully complied with.

The following is the name and place of business of the surety company which the bidder proposes will sign the attached bonds as surety if said surety is acceptable to the Project Manager.

If the bidder is a corporation, the following information must be given:

State Chartered under_____ Name_____

_____
Name of President

_____
Name of Secretary

_____
Name of Treasurer

If the bidder is a partnership, the name of each partner must be listed below:

_____

_____

By:_____

Title:_____

END OF SECTION 00 040

SECTION 00 050
BID BOND

Know All Men by These Presents,

That_____as Principal, and _____ as_____, a corporation duly organized under the laws of the state of _____ and licensed to transact business in the State of Utah, as Surety, (hereinafter called the "surety") are held and firmly bound unto Layton City Corporation (hereinafter called "Project Manager") in the sum of:

_____Dollars,
(5% of the total amount of the bid)

for the payment sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly, and severally, firmly by these presents.

WHEREAS said Principal has submitted a bid to said Project Manager to perform all work required under the bidding schedule(s) of the Contract Documents entitled **Layton City Commons Park Improvements, Project 22-05 – 437 N. Wasatch Dr., Layton, Utah.**

NOW THEREFORE, if said Principal is awarded a contract by said Project Manager and, within the time and in a manner required in the Proposal enters into a written contract form attached to said Construction Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and materials furnished in the prosecution thereof, all within ten (10) calendar days after receipt of contract from said Project Manager, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said Project Manager and judgment is recovered, said Surety shall pay, in addition to the amount of this bond, all costs incurred by Said Project Manager in such suit, including a reasonable attorney's fee to be fixed by the Court.

SIGNED AND SEALED, this _____day of_____,20____

_____(Seal)_____
(Principal) (Surety)

By:_____By:_____
(Signature) (Signature)

(Seal and Notarial Acknowledgement of Surety)

END OF SECTION 00 050

SECTION 00 060
NOTICE OF AWARD

To: _____
_____
_____

PROJECT Description: Layton City Commons Park Improvements, Project 22-05 – 437 N. Wasatch Dr., Layton, Utah.

You are hereby notified that your bid has been reviewed by City Council and has been accepted for items in the amount of $_____.

You are required by the invitation for Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance BOND, Labor and Material Payment BOND and certificates of insurance within ten (10) calendar days from the date of this notice to you.

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

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

Dated this _____day of _____, 20___.

By: _____
Title: David R. Price, Parks & Recreation Director____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by:_____

this the _____ day of _____, 20_____

By: _____

Title: _____

END OF SECTION 00 060

SECTION 00 070

AGREEMENT

This AGREEMENT, made this _____day of _____, 20___, by and between LAYTON CITY CORPORATION, hereinafter called "OWNER" and _____, doing business as a CORPORATION hereinafter called "CONTRACTOR".

"WITNESSETH" That for and in consideration of the payments and agreements hereinafter mentioned.

1. The CONTRACTOR will commence and complete the CONSTRUCTION OF **: Layton City Commons Park Improvements, Project 22-05 – 437 N. Wasatch Dr. Layton, Utah.**
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 10 calendar days after the date of the NOTICE TO PROCEED and will complete the work within 330 calendar days, unless the period for beginning or completion is extended otherwise by the CONTRACT DOCUMENTS. Bidder further agrees to pay as liquidated damages, the sum of two hundred fifty dollars ($250) for each consecutive calendar day after the completion date unless the period for beginning or completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum shown in the bid schedule.
5. The term "CONTRACT DOCUMENTS" means and includes the following:
   - (A) INVITATION TO BIDDERS
   - (B) INSTRUCTIONS TO BIDDERS
   - (C) ADDENDA AND MODIFICATIONS
   - (D) BID FORM
   - (E) BID BOND
   - (F) NOTICE OF AWARD
   - (G) AGREEMENT
   - (H) LABOR AND MATERIAL PAYMENT BOND
   - (I) PERFORMANCE BOND
   - (J) NOTICE TO PROCEED
   - (K) CHANGE ORDER(S)
   - (L) GENERAL CONDITIONS AND SUPPLEMENTAL GENERAL CONDITIONS
   - (M) DRAWINGS
   - (N) SPECIFICATIONS
   - (O) ADDENDA

     No._____, dated _____,20___

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions and Contract Documents, such amounts as required by the CONTRACT DOCUMENTS.

7. These Agreements shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns. IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized official, this Agreement in four copies, each of which shall be deemed an original on the date first above written.

OWNER: LAYTON CITY CORPORATION

BY: _____

(SEAL) NAME: ALEX JENSEN

TITLE: CITY MANAGER

ATTEST:

BY: _____

NAME: KIMBERLY S READ

TITLE: CITY RECORDER

CONTRACTOR:

BY: _____

(SEAL) NAME: _____

TITLE: _____

ATTEST:

BY: _____

NAME: _____

TITLE: _____

STATE OF _____

COUNTY OF _____

On this _____ day of _____, 20___, personally appeared before me _____ _____, who is the _____ of _____, and that the document was signed in behalf of said corporation, and _____ acknowledged to me that said corporation executed the same.

_____

NOTARY PUBLIC

ATTEST:

BY: _____

NAME: _____

TITLE: _____

END OF SECTION 00 070

SECTION 00 080
LABOR AND MATERIAL PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS,

That _____as principal, hereinafter called the contractor, and _____a corporation organized under the laws of the State of _____ _____, and licensed to transact business in the State of Utah as surety, hereinafter called Surety, are held firmly bound unto Layton City (hereinafter called "Owner" and/or "Project Manager") and N/A (hereinafter called the Construction Manager) in the amount of _____dollars, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly, and severally, firmly by these presents.

WHEREAS, said Contractor has been awarded and is about to enter into the annexed contract (the "Contractor") to perform all work required under bidding schedule(s)_____of the **Layton City Commons Park Improvements, Project 22-05 – 437 N. Wasatch Dr. Layton, Utah** which contract is by this reference made part hereof.

NOW THEREFORE, if said Contractor, or subcontractor, failed 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 attorneys fees. This bond and any persons, companies, or corporations entitled to file claims under applicable State Law.

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, 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 release either said Contractor or said Surety, and notice of such alterations or extensions of the contract is hereby waived by said Surety.

SIGNED AND SEALED, this _____day of _____20____.

_____(Seal)_____(Seal)

By: _____ By: _____
(Signature) (Signature)

(Seal and Notarial Acknowledgement of Surety)

END OF SECTION 00 080

SECTION 00 090
PERFORMANCE BOND

Know all persons by these presents,

That _____ as Contractor and _____ a corporation duly organized under the laws of the State of _____ and licensed to transact business in the State of Utah as Surety, hereinafter called the Surety, are held firmly bound unto Layton City (hereinafter called "Owner") in the sum of _____ dollars, and their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Said Contractor has been awarded and is about to enter into the annexed contract with said Owner to perform all work required under the biding schedule(s)_____ of the **Layton City Commons Park Improvements, Project 22-05 – 437 N. Wasatch Dr. Layton, Utah** Contract is by reference made a part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE, if said Contractor shall perform all the requirements of said contract required to be performed on his 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 or completion, which may be made pursuant to the terms of said contractor, 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 release either said Contractor of said Surety and notice of such alterations or extension of the contract is waived by said Surety.

SIGNED AND SEALED, this _____ day of _____, 20__.

_____	_____
(Contractor)	(Surety)
By:_____	By:_____
(Signature)	(Signature)

(Seal and Notarial Acknowledgement of Surety)

END OF SECTION 00 090

SECTION 00 100
NOTICE TO PROCEED

To: _____
_____
_____

PROJECT Description: Site Development work for **Layton City Commons Park Improvements, Project 22-05 – 437 N. Wasatch Dr. Layton, Utah**

You are hereby notified to commence WORK in accordance with the agreement dated _____ _____, 20___ on or before _____, 20___, and you are to complete the WORK within ____ _____ consecutive days thereafter. The date of completion of all work is therefore _____ _____, 20___.

You are further notified that if the work does not begin within ten (10) days following the Notice to proceed date, the City will consider the contract breached and proceed with legal action against the Contractor and the bonding company OR the City will access the liquidated damages for each day until the project begins.

By: _____

Title: _____

_____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____ _____

This the _____day of _____, 20___.

By: _____

Title: _____

END OF SECTION 00 100

SECTION 00 110
CHANGE ORDER

Order No._____.

Date:_____.

Agreement Date:_____.

NAME OF PROJECT:____Layton City Commons Park Improvements, Project 22-05 – 437 N. Wasatch Dr._____, Layton UT

OWNER: LAYTON CITY CORPORATION

CONTRACTOR:_____

The Following changes are hereby made to the CONTRACT DOCUMENTS

Justification:_____

Change to CONTRACT PRICE:_____

Original CONTRACT PRICE: $_____

Current CONTRACT PRICE adjusted by previous CHANGE ORDER: $_____

The CONTRACT PRICE due to this CHANGE ORDER will be (increased)(decreased) by:
$_____

The new CONTRACT PRICE including this CHANGE ORDER will be: $_____

Change to CONTRACT TIME:_____

The CONTRACT TIME will be (increased)(decreased) by _____ calendar days.

The Date for completion of all work will be _____(date)

Approvals Required:

Approved by:_____ (Contractor)

Approved by:_____ Engineer/Project Manager)

Approved by:_____ (Owner)

Approved by:_____

END OF SECTION 00 110

Section 01 010
SUMMARY OF WORK

GENERAL – PART 1

1.1 SUMMARY

A. Project Identification:

Layton City Project:
Layton City Commons Park Improvements, Project 22-05 – 437 N. Wasatch Dr. Layton, Utah

B. Project summary:

- Major work items will include the following work: Installation of a new large pre-fabricated pavilion including electrical lighting and heating units; a new restroom facility; a new parking lot, and concrete pathways; relocate existing drinking fountain and street light poles; and the installation of new irrigation and landscaping improvements. Limit site work as shown in the drawings.

C. Permits:

Apply for, and obtain permits required for the work.

D. Codes:

Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices and similar communication to city.

E. Dimensions:

Verify dimensions indicated on drawings with field dimensions before fabrication or ordering of materials.

F. Existing Conditions:

Notify City of existing conditions differing from those indicated on the drawings. Do not remove or alter structural components without prior written approval.

G. Definition of terms used in specifications:

1. Provide: Furnish and install, complete with all necessary accessories, ready for intended use. Pay for all related costs.

H. Intent:

Drawing and specifications are intended to provide the basis for proper completion of the work suitable for the intended use of the City. Anything not expressly set forth by which is reasonably implied or necessary for proper performance of the project shall be included.

I. Writing style:

Specifications are written in the imperative mode. Except for where specifically intended otherwise, the subject of all imperative statements is the Contractor. For example, 'Provide sod' means 'Contractor shall provide sod'.

END OF SECTION 01 010

SECTION 01 025
MEASUREMENT & PAYMENT

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Administrative and procedural requirements governing Contractor's Application for Payment.

B. Related Sections
   1. Section 01 300, Submittals – Contractor's Construction Schedule and Submittal Schedule

1.2 SCHEDULE OF VALUES

A. Submit schedule of dollar values to Project Manager not less than 20 calendar days prior to first request for payment as a condition precedent to processing first payment. Coordinate preparation of Schedule of Values with preparation of Contractor's Construction Schedule. Correlate line items in Schedule of Values with other required administrative schedules and forms, including –
   1. Contractor's construction schedule.
   2. Payment Request forms.
   3. List of subcontractors and principal suppliers and fabricators.
   4. Schedule of allowances.
   5. Schedule of alternates.
   6. Schedule of submittals.

B. Format and Content – Submit Schedule of Values on owner's standard payment request form. The break down shall include pro rata part of overhead and profit for each line item so sum of items will equal contract price. Breakdown shall correspond to items in construction schedule including work of Subcontractors.

1.3 APPLICATION FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Project Manager and paid by Owner. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involves additional requirements specified below.

B. At least ten (10) days before each progress payment falls due (but not more often than once a month), the Contractor will submit to the City a partial payment estimate filled out and signed by the Contractor covering the Work performed during the period covered by the partial payment estimate and supported by such data as the City may reasonably require.

   .

   1. If payment is requested on the basis of materials and equipment not incorporated into the Work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the City, as will establish the City's title to the material and equipment and protect City's interest therein, including applicable insurance.
   2. The City will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing approval of payment, or return the partial payment estimate to the Contractor indicating in writing the City's reason for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment.

3. The City will within ten (10) days of presentation to the Owner of an approved partial payment estimate, pay the Contractor a progress payment on the basis of the approved partial payment estimate.
4. The City shall **retain 5%** (five percent) [Utah Law UCA 13-8-5 (3) (a) @ July 1, 1999] of the amount of each payment until final completion and acceptance of all Work covered by the Contract Documents.
5. When the Work is substantially complete (operational or beneficial occupancy), the retained amount may be further reduced below 5% (five percent) to only that amount to assure completion.

C. Upon completion and acceptance of the Work, the City shall issue a certificate attached to the final payment request that the Work has been accepted by the City under the conditions of the Contract Documents. The entire balance found to be due to the Contractor, including the retained percentages, but except such sums as may be lawfully retained by the City, shall be paid to the Contractor within thirty (30) days of completion and acceptance of the Work.

D. The Contractor will indemnify and hold the City or the City's agents and employees harmless from the claims growing out of the lawful demands of Subcontractors, laborers, workers, mechanics, materialism, and finisher (s) of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the Work.

E. The Contractor shall, at the City's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so, the City may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims, until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor may be resumed, in accordance with the Contract documents. But in no event shall the provisions of this section be construed to impose any obligations upon the City, to either the Contractor, contractor's Surety, or the third party. In paying any unpaid bills of the Contractor, any payment so made by the City shall be considered as a payment made under the Contract Documents by the City to the Contractor and the City shall not be liable to the Contractor for any such payments made in good faith.

F. Transmittal – Submit one executed original of each Payment request Form to Project Manager. Include waivers of lien and similar attachments, when required. Transmit each copy with transmittal form listing attachments, and recording appropriate information related to application in a manner acceptable to Project Manager.

G. Initial Application For Payment – Administrative actions and submittals that shall precede or coincide with submittal of first Application for Payment include the following –
1. List of subcontractors and principle suppliers and fabricators.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary in not final).
4. Schedule of unit prices.
5. Submittal Schedule (preliminary if not final).
6. Copies of building permits.
7. Copies of authorizations and licenses from governing authorities for performance of the Work.
8. Initial progress report.
9. Minutes of pre-construction meeting.

H. Payment Request At Substantial Completion – Following issuance of Certificate of Substantial Completion, submit a Payment Request. Administrative actions and submittals that shall precede or coincide with this application include (if applicable) –
1. Occupancy permit and similar approvals.
2. Meter readings.

3. Operation & Maintenance Manuals.
4. Change over information related to Owner's occupancy, use, operation and maintenance.
5. Final cleaning.
6. Application for reduction of retainage, and consent of surety.

I. Final Payment Request – Administrative actions and submittals that shall precede or coincide with Payment Request include the following (if applicable) –

1. Completion of Project closeout requirements.
2. Completion of items specified for completion after Substantial Completion.
3. Assurance that unsettled claims will be settled.
4. Assurance that Work not and accepted will be completed without undue delay.
5. Transmittal of required Project construction records to Owner.
6. Proof that taxes, fees and similar obligations have been paid.
7. Removal of temporary facilities and services.
8. Removal of surplus materials, rubbish, and similar elements.

1.4 ACCEPTANCE OF FINAL PAYMENT AS RELEASE

A. The acceptance by the Contractor of final payment shall be and shall operate as a release to the City of all claims and all liability to the Contactor other than claims in stated amounts as may be specifically accepted by the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the City and others relating to or arising out of this Work.

B. Any payment, however, final or otherwise, shall not release the Contractor or Contractor's Sureties from any obligations under the Contract Documents or the Performance Bond and Payment Bonds.

PART 2 PRODUCTS – Not used

PART 3 EXECUTION – Not used

END OF SECTION 01 025

SECTION 01 035
MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Administrative and procedural requirements for handling and processing Contract modifications.

B. Related Sections
   1. Section 01 020, Allowances – Procedural requirements governing handling and processing allowances.
   2. Section 01 025, Measurement & Payment –
      a. Administrative procedures governing application for payment.
      b. Administrative requirements governing use of unit prices.
   3. Section 01 300, Submittals – Requirements for Contractor's Construction Schedule.
   4. Section 01 600, Materials and Equipment – Administrative procedures for handling request for substitutions made after award of Contract.

1.2 MINOR CHANGES IN THE WORK

A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to Contract Sum or Contract Time, will be issued by Project Manager as Owner's Field Order.

1.3 CHANGE ORDER PROPOSAL REQUEST

A. Owner-Initiated Proposal Requests
   1. Proposal changes in the Work will be issued by Project Manager, with a detailed description of proposed change and supplemental or revised Drawings and specifications. Proposal requests issued by Project Manager are for information only. Do not consider them instruction either to stop work in progress or to execute proposed change.
   2. Unless otherwise indicated in proposal request, within 7 calendar days of receipt of proposal request, submit to Project Manager for Owner's review an estimate of costs as specifies in Conditions of the Contract.

B. Contractor-Initiated Change Order Proposal Requests
   1. When Contractor identifies conditions that require modifications to Contract Documents, Contractor may propose changes by submitting request for change to Project Manager.
      a. Outline reasons for change and effect of change on the Work. Provide complete description of proposed change including proposed modifications to Contract Documents. Indicate effect of proposed changes on Contract Sum and Contract Time.
      b. Estimate costs broken down as specified in General conditions.
      c. Comply with requirements in Section 01 600 if proposed change in the Work requires substitution of one product or system for product or system specified.
   2. Should Project Manager agree proposed modifications are necessary, Project Manager will issue a detailed description of proposed change and supplemental or revised Drawings and specifications. Proposal requests issued by Project Manager are for information only. Do not consider them instruction either to stop work in progress or to execute proposed change.
   3. Unless otherwise indicated in proposal request, within 7 calendar days of receipt of proposal request, submit final estimate of costs as specified in the Conditions of the Contract.

1.4 ALLOWANCES

A. Allowance adjustment – Base each Change Order Proposal Request for allowance cost adjustment solely on difference between actual purchase amount and allowance, multiplied by final measurement of work in place, with reasonable allowances, where applicable, for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
   1. Include installation costs in purchase amount only where indicated as part of allowance.
   2. When requested, prepare explanations and documentation to substantiate margins claimed.
   3. Submit substantiation of change in scope of work claimed in Modification related to unit-cost allowances.
   4. Owner reserves the rights to establish actual quantity of work in place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of change in scope or nature of allowance described in contract Documents, whether for purchase order amount or Contractor's handling, labor, installation, overhead, and profit, within 20 days of receipt of change order or construction change directive authorizing work to proceed. Claims submitted later than 20 days will be rejected.
   1. Change Order cost amount shall not include Contractor's or Subcontractor's indirect expense except when it is clearly demonstrated that either nature or scope of work required was changed from that which could have been foreseen from description of allowance and other information in Contract Documents.
   2. No change to Contractor's indirect expense is permitted for selection of higher or lower priced materials or system of same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. Upon Owner's approval of Change Order Proposal Request, Project Manager will issue a Change Order for signatures of Owner and Contractor, as provided in Conditions of the Contract.

PART 2 PRODUCTS – Not used

PART 3 EXECUTION – Not used

END OF SECTION 01 035

SECTION 01 040
COORDINATION

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Administrative and supervisory requirements necessary for Project coordination including –
   a. Coordinate.
   b. Administrative and supervisory personnel.
   c. General installation provisions.
   d. Cleaning and Protection.

B. Related Sections
   1. Section 01 200, Project Meetings – Progress meetings, coordination Meetings, and pre-installation conferences.
   2. Section 01 300, Submittals – Requirements for Contractor's Construction Schedule.

1.2 PROJECT COORDINATION

A. Coordinate construction activities included in Contract Documents to assure efficient and orderly installation of each part of the Work. Coordinate construction operations that are dependent upon each other for proper installation, connection and operation.
   1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in sequence required to obtain best results.
   2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports and attendance at meetings. Prepare similar memoranda for Owner and separate Contractors where coordination of their Work is required.

C. Administrative Procedures – Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following –
   1. Preparation of schedules.
   2. Installation and removal of temporary facilities.
   3. Delivery and processing of submittals.
   4. Progress meetings.
   5. Project Close-out activities.

D. Conservation – Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions – Require installer of each major component to inspect both substrate and conditions under which Work is to be performed. Notify Project Manager in writing of unsatisfactory conditions. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions – Comply with Manufacturer's installation instructions and recommendations, to extent that those instructions and recommendations are more explicit and stringent the requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work, Secure Work true to line and level. Allow for expansion and building movement.

E. Visual Effects – Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain best visual effect. Refer questionable choices to Project Manager for final decision.

F. Recheck measurements and dimensions before starting each installation.

G. Install each component during weather conditions and Project status that will ensure best possible results. Isolate each part of completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize necessity of uncovering completed construction for that purpose.

I. Mounting heights – Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry or local codes for particular application indicated. Refer questionable mounting height decisions to Project Manager for final decision.

3.2 CLEANING & PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration until Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary throughout construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures – Supervise construction activities to ensure that no part of construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

END OF SECTION 01 040

SECTION 01 090
REFERENCES

PART 1 GENERAL

1.1 REFERENCE STANDARDS

A. Industry standards

1. Except where Contract Documents include more stringent requirements, applicable construction industry standards have same force and effect as if bound or copied directly into Contract Documents to extent referenced. Such standards are made a part of Contract Documents by reference.
2. Comply with standard in effect as of date of Contract Documents, unless specific date is specified.
3. Where compliance with two or more standards is specified, and standards may establish different or conflicting requirements for minimum quantities or levels, refer requirements that are different, but apparently equal, and uncertainties to Project Manager for final decision before proceeding. Quantity or quality levels shown or specified shall be at minimum provided or performed. Actual installation may comply exactly with minimum quantity or quality specified, or it may exceed minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for context of requirements. Refer uncertainties to Project Manager for decision before proceeding.
4. Each entity engaged in construction on Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with Contract Documents. Where copies of standards are needed for performance of a required construction activity, Contractor shall obtain copies directly from publication source.
5. Trade association names and titles of general standards are frequently abbreviated. Following acronyms or abbreviations, as referenced in Contract Documents, are defined to mean associated names. Names and addresses are subject to change and are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents.

AABC	American Air Balance Council, 1518 K St NW, Suite 503, Washington, DC 20005 (202) 737-0202
AAMA	American Architectural Manufacturers Assoc, 1540 K Street NW, Palantine, IL 60067 (708) 202-1350
AAN	American Association of Nurserymen, 1250 Eye St NW, Suite 500, Washington, DC 20005 (202) 789-2900
AASHTO	American Association of State Highway & Transportation Officials, 444 North Capitol St, Suite 249, Washington, DC 20001 (202) 624-5800
ACI	American Concrete Institute, P.O. Box 19150, 22400 West 7 Mile Rd, Detroit, MI 48219 (313) 532-2600
AGA	American Gas Assoc, 1515 Wilson Blvd, Arlington VA 22209 (703) 841-8400
AIA	American Institute Of Architects, 1735 New York Ave NW, Washington, DC 20006 (202) 626-7300
AISC	American Institute of Steel Construction, One East Wacker Drive, Suite 3100, Chicago, IL 60601-2001 (312) 670-2400
AISI	American Iron & Steel Institute, 1101 17th St NW, Washington, DC 20036-4700 (202) 452-7100
AITC	American Institute of Timber Construction, 7012 South Revere Parkway #140, Englewood CO 80112 (303) 792-9559
AMCA	Air Movement & Control Assoc, 30 West University Dr, Arlington Heights, IL 60004 (312) 394-0150

ANSI	American National Standards Institute, 11 West 42nd St, New York NY 10036 (212) 642-4900
APA	American Plywood Assoc, P.O. Box 11700 (98411, 7011 South 19th St (98466), Tacoma, WA (206) 565-6600
ARI	Air Conditioning & Refrigeration Institute, 4301 Fairfax Drive, Suite 425, Arlington, VA 22203 (703)524-8800
ASHRAE	American Society of Heating, Refrigeration, & Air conditioning Engineers, 1791 Tullie Circle NE, Atlanta, GA 30329 (404) 636-8400
ASME	American Society of Mechanical Engineers, 345 East 47th St. New York, NY 10017 (212) 705-7722
ASTM	American Society for Testing & Materials, 1916 Race St, Philadelphia, PA 19103 (215) 299-5400
AWI	Architectural Woodwork Institute, 13924 Braddock Road, Suite 100, P O Box 1550, Centreville, VA 22020 (703) 222-1100
AWPA	American Wood Preservers' Assoc, P O Box 286, Woodstock MD 21163-0286 (410) 465-3169
AWS	American Welding Society, 550 LeJeune Road NW, P O Box 351040, Miami, FL 33135 (305) 443-9353
AWWA	American Water Works Assoc, 6666 West Quincy Ave, Denver, CO 80235 (303) 794-7711
BHMA	Builders' Hardware Manufacturers Assoc, 355 Lexington Ave, 17th Floor, New York NY 10017 (212) 661-4261
BIA	Brick Institute of America, 11490 Commerce Park Drive, Suite 300, Reston VA 22091 (703) 620-0010
CRI	Carpet & Rug Institute, P O Box 2084, Dalton, GA 30722 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute, 933 Plum Grove Rd, Schaumburg, IL 60173 (312) 517-1200
DHI	Door & Hardware Institute, 14170 Newbrook Drive, Chantilly, VA 22021 (703) 222-2010
EIMA	EIFS Industry Manufacturers Association, 2759 State Road 580, Suite 112, Clearwater FL 34621 (813) 726-6477
FM	Factory Mutual Research Organization, 1151 Boston-Providence Turnpike, Norwood, MA 02062 (617) 762-4300
GA	Gypsum Association, 810 First Street NE, Suite 510 Washington, DC 20002 (202) 289-5440
IEEE	Institute of Electrical & Electronic Engineers, 345 East 47th St, New York, NY 10017 (212) 705-7900
LPI	Lightning Protection Institute, 33365 North Arlington Heights Road, Arlington Heights, IL 60004 (800) 488-6864
MFMA	Maple Flooring Manufacturers' Assoc, 60 Revere Dr, Suite 500, Northbrook, IL 60062 (708) 480-9138
NAAMM	National Association of Architectural Metal Manufacturers, 600 South Federal St, Suite 400, Chicago, IL 60605 (312) 922-6222
NEC	National Electric Code (from NFPA)
NEMA	National Electrical Manufacturer's Association, 2101 'L' St, NW, Washington, DC 20037 (202) 457-8400
NFPA	National Fire Protection Assoc, One Batterymarch Park, P O Box 9101, Quincy, MA 02269-9101 (80) 344-3555
NFRC	National Fenestration Rating Council, 1300 Spring Street, Suite 120, Silver Spring, MD 20910 (301) 589-6372
NSF	National Sanitation Foundation, 3475 Plymouth Rd, P O Box 1468, Ann Arbor, MI 48106 (313) 769-8010
NWWDA	National Wood Window and Door Association, 1400 East Touhy Ave, #G54, Des Plaines, IL 60018 (213) 299-5200

PCA	Portland Cement Assoc, 5420 Old Orchard Road, Skokie, IL 60077 (312) 966-6200
PCI	Prestressed Concrete Institute, 175 West Jackson Blvd, Chicago, IL 60604 (312) 786-0300
PEI	Porcelain Enamel Institute, 102 Woodmont Boulevard, Suite 360, Nashville, TN 38205 (615) 385-0758
SDI	Steel Door Institute, 30200 Detroit Road, Cleveland OH 44145 (216) 899-0010
SIGMA	Sealed Insulating Glass Manufacturers Association, 401 North Michigan Avenue, Chicago IL 60611 (312) 644-6610
SJI	Steel Joist Institute, 1205 48th Avenue North, Suite A, Myrtle Beach, SC 29577 (803) 449-0487
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, 4201 Lafayette Center Drive, Chantilly, VA 22116 (703) 803-2980
SPIB	Southern Pine Inspection Bureau, 4709 Scenic Highway, Pensacola, FL 32504 (904) 434-2611
TCA	Tile Council of America, P O Box 326, Princeton, NJ 08542 (609) 921-7050
TPI	Truss Plate Institute, 583 D'Onofrio Drive, Suite 200, Madison, WI 53719 (608) 833-5900
UL	Underwriters Laboratories, 333 Pfingsten Rd, Northbrook, IL 60062 (708) 272-8800
WWPA	Western Wood Products Assoc, Yeon Building 522 SW 5th Avenue, Portland OR 97204-2122 (503) 224-3930

B. Federal Government agencies – Names and titles of federal government standard or specification producing agencies are often abbreviated. Following acronyms or abbreviations, as referenced in Contract Documents indicate names of standard or specification producing agencies of the federal government. . Names and addresses are subject to change and are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents.

CS	Commercial Standard (U>S> Department of Commerce), Government Printing Office, Washington, DC 20402 (202) 377-2000
DOT	Department of Transportation, 400 Seventh St SW, Washington, DC 20590 (202) 366-4000
EPA	Environmental Protection Agency, 401 'M' St SW, Washington, DC 20460 (202) 382-2090
FCC	Federal Communications Commission, 1919 'M' St NW, Washington, DC 20554 (202) 632-7000
FHA	Federal Housing Administration (U.S. Department of Housing and Urban Development), 451 Seventh ST SW, room 9158, Washington, DC 20201 (202) 708-1422
FS	Federal Specification (from GSA), Specification Unit (WFSIS), 7th & D St SW, Washington, DC 20406 (202) 708-9205
GSA	General Services Administration, F St & 18th St NW, Washington, DC 20405 (202) 472-1082
MIL	Military Standardization Documents (U.S. Department of Defense), Naval Publications & Forms Center, 5801 Tabor Ave, Philadelphia, PA 19120
OSHA	Occupational Safety & Heath Administration (U.S. Department of Labor), 200 Constitution Ave NW, Washington, DC 20410 (202) 219-6091
PS	Product Standards of NBS (U.S. Department of Commerce), Government Printing Office, Washington, DC 20402 (202) 783-3238
USDA	U.S. Department of Agriculture, Independence Ave between 12th and 14th Sts SW, Washington, DC 20250 (202) 447-8732

1.2 GOVERNING REGULATIONS/AUTHORITIES

A. Contact authorities having jurisdiction directly for information and decisions having bearing on the Work.

B. Obtain copies of regulations required to be retained at Project site, available for reference by parties who have a reasonable need for such reference.

1.3 SUBMITTALS

A. For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 PRODUCTS – Not used

PART 3 EXECUTION – Not used

END OF SECTION 01 090

SECTION 01 100
PROJECT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Provide coordination of Work
   1. Supervisory personnel.
   2. Pre-construction conference.
   3. Weekly On-Site Meetings.
   4. Other Meetings.

B. Submit daily and special reports.

C. Submit Progress Schedule, bar-chart type, updated monthly.

D. Prepare submittal schedule; coordinate with progress schedule.

E. Submit schedule of values.

F. Submit schedule of required tests including payment and responsibility.

G. Perform Construction Staking and Surveying:
   1. Laying out the work and verifying locations and elevations during construction.

H. Submit and post lists of emergency telephone numbers and addresses for individuals to be contacted in case of emergency.

I. Submit record drawings and specifications; to be maintained and annotated by Contractor as work progresses.

J. Submit payment request procedures.

K. Perform quality control during installation.

L. Clean and protect work.

PART 2 PRODUCTS – Not used

PART 3 EXECUTION – Not used

END OF SECTION 01 100

SECTION 01 200
PROJECT MEETINGS

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Administrative and procedural requirements for project meetings including
   2. Pre- Construction Conferences.
   3. Pre-installation Conferences.
   4. Progress Meetings.

B. Related Sections
   1. Section 01 300, Submittals – Construction Schedules

1.2 PRE-CONSTRUCTION CONFERENCE

A. Schedule pre-construction conference and organizational meeting at Project site or other convenient location no later than 15 days after issuance of Notice To Proceed and prior to commencement of construction activities. Conduct meeting to review responsibilities and personnel assignments.

B. Attendees – Owner, Project Manager, and their consultants, Contractor and Contractor's Superintendent, major Subcontractors and other concerned parties shall each be represented at conferences by persons familiar with and authorized to conclude matters relating to the Work.

C. Agenda – Discuss items of significance that could affect progress including such topics as
   1. Tentative construction schedule.
   2. Critical Work sequencing.
   3. Designation of responsible personnel.
   4. Procedures for processing interpretations and Modifications.
   5. Procedures for processing Payment Requests.
   6. Distribution of Contract Documents.
   7. Submittal of Product Data, Shop Drawings, Samples, Quality Assurance/Controls submittals.
   8. Preparation of record documents and O & M Manual.
   9. Use of the premises.
   10. Office, work, and storage areas.
   11. Equipment deliveries and priorities.
   12. Safety procedures.
   13. First Aid.
   14. Security.
   15. Housekeeping.
   16. Working hours.
   17. Resolving current problems.
   18. Further orientation as to requirements of Contract Documents.
   19. Project Manager's responsibility to Owner for inspection.
   20. Working out general schedule of Project Manager's inspection.

1.3 PROGRESS MEETINGS

A. Project Manager will conduct progress meetings at project site at regularly scheduled intervals, at least once a month.

B. Attendees – In addition to representatives of Owner and Project Manager, Contractor and each Subcontractor concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with Project and authorized to conclude matters relating to progress.

C. Agenda

1. Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to current status of Project.
2. Progress since last meeting will be reviewed. Where each activity is in relation to Contractor's Construction Schedule, whether on time ahead or behind schedule will be determined. How construction behind schedule is to be expedited will be determined and commitments secured from parties involved to do so. Schedule revisions required to ensure that current and subsequent activities will be completed within Contract Time will be discussed.
3. Present and future needs of each entity present will be discussed, including such items as-
   a. Interface requirements.
   b. Time.
   c. Sequences.
   d. Deliveries.
   e. Off-site fabrication problems.
   f. Access.
   g. Site utilization.
   h. Temporary facilities and services.
   i. Hours of Work.
   j. Hazards and risks.
   k. Housekeeping
   l. Quality and Work standards.
   m. Modifications.
   n. Documentation of information for Payment Requests.

D. Reporting

1. No later than 3 days after each progress meeting date, copies of minutes will be distributed to each party present and to other parties who should have been present. Included will be a brief summary, in narrative form, of progress since previous meeting and report.
2. Contractor shall revise construction schedule after each progress meeting where revisions to schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.

1.4 PRE-INSTALLATION MEETINGS

A. Conduct pre-installation meeting at site prior to commencement of work specified in trade Sections requiring such a meeting. Attendees shall be Project Manager, Contractor, applicable Subcontractors, item or system suppliers/installers, Manufacturer's representatives, and others as specified or invited. These meetings shall be scheduled by the Contractor to be held in conjunction with Project Manager's regularly scheduled inspection visits, if possible.

1. Review progress of other construction activities and preparations for particular activities under consideration at each pre-installation meeting, including requirements for –
   a. Reviewing and confirming requirements of Contract Documents including related Modifications.
   b. Verify that completed work is ready for installation of items or systems.
   c. Resolving conditions not in compliance with installation requirements.
   d. Establishing installation and inspection schedule.
   e. Coordinate between trades.
   f. Other trades which affect work of trade Section.

g. Other items specified in individual Sections.
h. Deliveries.
i. Product Data, Shop Drawings, Samples, Quality Assurance/Controls submittals.
j. Possible conflicts.
k. Compatibility problems.
l. Weather limitations.
m. Manufacturer's recommendations.
n. Compatibility of materials.
o. Temporary facilities.
p. Space and access limitations.
q. Governing regulations.
r. Safety.
s. Testing requirements.
t. Required performance results.
u. Recording requirements.
v. Protection.

2. Record significant discussions and agreements and disagreements of each meeting, along with approved schedule. Distribute record of meeting promptly to everyone concerned, including Owner and Project Manager.
3. Do not proceed with work of affected Section of conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene conference within one week.

PART 2 PRODUCTS – Not used

PART 3 EXECUTION – Not used

END OF SECTION 01 200

SECTION 01 300
SUBMITTALS

PART 1 GENERAL

1.1 SUMMARY

A. Comply with project formats for submittals.

B. Provide types of Submittals listed in individual sections and number copies required.
1. Shop drawings, reviewed and annotated by Contractor – three (3) blackline prints.
2. Product data – 3 copies
3. Inspection and test reports – 3 copies
4. Warranties – 3 copies
5. Survey data – 3 copies
6. Closeout submittals – 3 copies

C. Provide required resubmittals if original submittals are not approved. Provide distribution of approved copies including modifications after submittals have been approved.

D. Shop drawings shall be prepared specifically for this project. Shop drawings shall include dimensions and detail, including adjacent construction and related work. Note special coordination required. Note and deviation from requirements of the Contract Documents.

E. Provide warranties as specified; warrantees shall not limit length of time for remedy of damages Owner may have by legal statute. Warrantees shall be signed by Contractor, Supplier or Installer responsible for performance of warranty.

PART 2 PRODUCTS – Not used

PART 3 EXECUTION – Not used

END OF SECTION 01 300

SECTION 01 600
PRODUCTS AND SUBSTITUTIONS

PART 1 GENERAL

1.1 SUMMARY

A. Provide products from one manufacturer for each type or kind as applicable. Provide secondary materials as recommended by manufacturers of primary materials.

B. Provide products selected or equal which shall be reviewed by Project Manager prior to Bid. Products submitted for substitution shall be submitted with acceptable documentation, and include costs of substitution including related work.

C. Conditions for substitution include:
1. An 'or equal' phrase in the specifications.
2. Specified material cannot be coordinated with other work.
3. Specified material is not acceptable to authorities having jurisdiction.

D. Substitutions shall be submitted prior to award of contract, unless otherwise acceptable. Review of shop drawings, product data, or samples does not constitute substitution acceptance unless clearly presented as a substitution at the time of submittal.

PART 2 PRODUCTS – Not used

PART 3 EXECUTION – Not used

END OF SECTION 01 600

SECTION 01 700
CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SUMMARY

A. The following a prerequisites to substantial completion. Provide the following:
   1. Punch List
   2. Supporting documentation.
   3. Warranties.
   4. Certifications.

B. Provide the following prerequisites to final acceptance:
   1. Final Payment request with supporting affidavits.
   2. Completed punch list.

C. Provide a marked-up set of drawings including changes which occurred during construction.

D. Provide the following closeout procedures:
   1. Submission of record documents.
   2. Submission of maintenance manuals.
   3. Training and turnover to Owner's personnel.
   4. Final Cleaning and touch-up.

PART 2 PRODUCTS – Not used

PART 3 EXECUTION – Not used

END OF SECTION 01 700

SECTION 01 800
QUALITY CONTROL

PART 1– General

1.1 SUMMARY

This Section specifies requirements for quality control services. Quality control services include inspections and test performed by independent agencies, governing authorities, as well as the Contractor.

A. Testing Responsibilities: The Contractor shall provide inspections and tests specified or required by governing authorities. The Contractor shall engage and pay for services of an independent agency to perform inspections and test specified in the schedule attached herein.

B. Retesting: The Contractor is responsible for retesting costs where results prove unsatisfactory and do not indicate compliance with Contract Documents, regardless of whether the original test was the Contractor's responsibility.

1. Cost of retesting construction revised or replace by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

C. Associated Services: The Contractor shall cooperate with agencies performing inspections or tests and provide auxiliary services as requested. Notify the agency in advance of operations to permit assignment of personnel. Auxiliary services include but are not limited to:

1. Provide access to the Work and furnish incidental labor and facilities necessary to facilitate inspections and tests.
2. Take representative samples of materials that require testing or assist the agency in taking samples.
3. Provide facilities for storage and curing of samples, and deliver samples to testing laboratories.
4. Provide a preliminary design mix proposed for use for material mixes that require control by the testing agency.
5. Provide security and protection of samples and test equipment at the Project site.

D. Duties of the Testing Agency: The agency engaged to perform inspections and testing of materials and construction shall cooperate with the Architect and Contractor in performance of its duties, and provide qualified personnel to perform inspections and tests.

1. The agency shall notify Architect and Contractor promptly of deficiencies observed during performance of its services.
2. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.

E. Coordination: This Contractor and each agency engaged to perform inspections and tests shall coordinate the sequence of activities to avoid removing and replacing construction to accommodate inspections and tests.

1. The Contractor is responsible for scheduling inspections, tests, taking samples and similar activities.

F. Submittals: The testing agency shall submit a certified written report or each inspection and test to the Architect, in duplicate unless the Contractor is responsible for the service. If the Contractor is responsible, submit a certified written report of each inspection and test through the Contractor, in duplicate. Submit additional copies of each report to the governing authority, when the authority so directs.

G. Report Date: Written reports of each inspection or test shall include, but no be limited to:
Date of Issue
Project title and number

Name, address and telephone number of testing agency
Dates and locations of samples and test or inspections
Names of individuals making the inspection or test
Designation of the Work and test method
Identification of product and Specification Section
Complete inspection or test data
Test results and an interpretation of test results
Ambient conditions at the time of sample taking and testing
Comments or professional opinion as to whether inspected or tested work complies with Contract Document requirements
Name and signature of laboratory inspector
Recommendations or retesting

H. Qualifications for Service Agencies: Engage inspection and testing agencies which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and specialize in the types of inspections and tests to be performed. Each inspection and testing agency engaged shall be authorized to operate in the State in which the Project is located.

I. Repair and Protection: Upon completion of inspection and testing repair damaged construction and restore substrates and finishes to eliminate deficiencies. Comply with requirements for "Cutting and Patching". Protect construction exposed by or for quality control service activities and protect repaired construction. The Contractor is responsible for repair and protection regardless of the assignment of responsibility for inspection and testing.

PART 2 – SCHEDULE OF CONTRACTOR PROVIDED TESTING SERVICES

A. Earthwork: Allow testing service to inspect and approve each subgrade and fill layer before further backfill or construction work is performed. Perform field density tests in accordance with ASTM D 1556 (sand cone method) or ASTM D 2167 (rubber balloon method), as applicable.

1. Field density tests may also be performed by the nuclear method in accordance with ASTM D 2922, providing that the calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D 1556. In conjunction with each density calibration check, check the calibration curves furnished with the moisture gages in accordance with STM D 3017.
2. If field tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the Project Architect.

B. Footing Subgrade: For each strata of soil on which footings will be placed, perform at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata when acceptable to Project Architect.

C. Paved Areas: Perform at least one field density test of subgrade for every 2,000 sq. ft. of paved area of slab, but in no case fewer than three tests. In each compacted fill layer, perform one field density test for every 2,000 sq. ft. of overlaying building slab or paved area, but in no case fewer than three tests.

D. Asphalt Paving: Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness.

E. Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:
Base Course: 1/2", plus or minus
Surface Course: 1/4", plus or minus

F. Surface Smoothness: Test finished surface of each asphalt concrete course for smoothness, using 10' straightedge applied parallel with, and at right angles to centerline of paved area. Surface will not be acceptable if exceeding the following tolerances for smoothness:

Base Course Surface: 1/4"
Wearing Course Surface: 3/16"

Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template; 1/4". Check surface areas at intervals as directed by Architect.

G. Portland Cement Concrete (Paving & Structural): Sampling and testing for quality control during placement of concrete may include the following, as direct by Architect.

H. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C94.

1. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
2. Air Content: ASTM C 173, volumetric method for lightweight of normal weight concrete; ASTM D 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entranced concrete.
3. Compression Test Specimen: ASTM C 31; one set of 3 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
4. Compressive Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yds. plus additional sets for each 50 cu. yds. over and above the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at 7 days, one specimen tested at 28 days, and one specimen retained in reserve for later testing if required. When total quantity of a given class of concrete is less than 50 cu. yds, strength test may be waived by Architect, if, in the Architect's judgment, adequate evidence of satisfactory strength is provided. When strength of field-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.

END OF SECTION 01 800

GENERAL CONDITIONS

1. DEFINITIONS

1.1 Wherever used in the Contract documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof.

1.2 ADDENDA - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the Contract Documents, Drawings and Specifications, by additions, deletions, clarifications or corrections.

1.3 BID - The offer or proposal of the Bidder submitted on the prescribed forms setting forth the prices for the Work to be preformed.

1.4 BIDDER - Any person, firm or corporation submitting a Bid for the Work.

1.5 BONDS - Bid, Performance and Payment Bonds and other instruments of security, furnished by the Contractor and the Contractor's surety in accordance with the Contract Documents.

1.6 CHANGE ORDER - A written order to the Contractor authorizing an addition, deletion or revision in the work within the general scope of the Contract Documents or authorizing an adjustment in the Contract Price or Contract time.

1.7 CONTRACT DOCUMENTS - The contract, including Advertisement for Bids, Information for bidders, Additional information for bidders, Bid Bond, Payment Bond, Performance Bond, Notice of Award, Notice to Proceed, Change Order, Drawings, Specifications, and Addenda.

1.8 CONTRACT PRICE - The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

1.9 CONTRACT TIME - The number of calendar days stated in the Contract Documents for the completion of the Work.

1.10 CONTRACTOR - The person, firm or corporation with whom the Owner has executed the agreement.

1.11 DRAWINGS - The part of the Contract Documents which show the characteristics and scope of the Work to be performed and which have been prepared by the Engineer.

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

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

1.14 NOTICE OF AWARD - The written notice of the acceptance of the Bid from the Owner to the successful bidder.

1.15 NOTICE TO PROCEED - The written communication issued by the Owner to the Contractor authorizing the Contractor to proceed with the work and establishing the date of commencement of the work.

1.16 OWNER - Layton City Corporation, and Political subdivision of the State of Utah.

1.17 PROJECT - The undertaking to be performed as provided in the Contract Documents.

1.18 RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the Owner who is assigned to the Project site or any part thereof.

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

1.20 SPECIFICATIONS - A part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, constructions systems, standards and workmanship.

1.21 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 at the site.

1.22 SUBSTANTIAL COMPLETION - That date as certified by the Engineer when the construction of the Project or a specified part thereof is sufficiently completed, in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purpose for which it is intended.

1.23 SUPPLEMENTAL GENERAL CONDITIONS - Modifications to the General Conditions required by the Owner amending or expanding the General Conditions.

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

1.25 WORK - All labor necessary to produce the construction required by the Contract documents, and all materials and equipment incorporated or to be incorporated in the project.

1.26 WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at the last given address or delivered in person to said party or an authorized representative on the Work.

2. ADDITIONAL INSTRUCTIONS AND DETAILS DRAWINGS

2.1 The Contractor may be furnished additional instructions and detail drawings, by the Engineer, as necessary to carry out the Work required by the Contracts Documents.

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

3. SCHEDULES, REPORTS AND RECORDS

3.1 The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the Contract Documents for the Work to be preformed.

3.2 Prior to the first partial payment estimate the Contractor shall submit construction progress schedules showing the order in which he proposes to carry on the Work, including dates at which he will start various parts of the Work, estimated date of completion of each part and as applicable:

3.2.1 The dates at which special detail drawings will be required; and

3.2.2 Respective dates for submission of Shop Drawings, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The Contractor shall also submit a schedule of payments that he anticipates he will earn during the course of the Work.

4. DRAWINGS AND SPECIFICATIONS

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

4.2 In case of conflict between the Drawings and the Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scale

dimensions, and detailed drawings shall govern over general drawings.

4.3 Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported to the Engineer, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's Risk.

5. SHOP DRAWINGS

5.1 The Contractor shall provide Shop Drawings as may be necessary for the prosecution of the work as required by the Contract Documents. The engineer shall promptly review all shop drawings. The engineer's approval of any shop drawing shall not release the Contractor from responsibility for deviations from the Contract Documents. The approval of any shop drawing which substantially deviates from the requirement of the Contract Documents shall be evidenced by a Change Order.

5.2 When submitted for the Engineer's review, shop drawings shall bear the Contractor's certification that he has reviewed, checked and approved the shop drawings and that they are in conformance with the requirements of the Contract Documents.

5.3 Portions of the work requiring a shop drawing or sample submission shall not begin until the shop drawing or submission has been approved by the Engineer. A copy of each approved Shop drawing and each approved sample shall be kept in good order by the contractor at the site and shall be available to the Engineer.

6. MATERIALS, SERVICES AND FACILITIES

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

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

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

6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the Contractor and approved by the Engineer.

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

7. INSPECTIONS AND TESTING

7.1 All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the Contract Documents.

7.2 The Owner shall provide all inspections and testing services not required by the Contract Documents.

7.3 The Contractor shall provide at the Contractor’s expense the testing and inspection services required by the Contract Documents.

7.4 If the Contractor Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested or approved, by someone other that the Contractor, the Contractor will give the Engineer timely notice of readiness. The Contractor will then furnish the Engineer the required certificates of inspection, testing or approval.

7.5 Inspections, test or approvals by the engineer or others shall relieve the Contractor from obligations to perform the work in accordance with the requirements of the Contract Documents.

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

7.7 If any work is covered contrary to the written instruction of the Engineer, it must, if requested by the

Engineer, be uncovered for observation and replaced at the Contractor's expense.

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

8. SUBSTITUTION

8.1 Whenever a material, article or piece of equipment is identified on the Drawings or Specifications by reference to a brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The Contractor may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the Contract Documents by reference to brand name or catalogue number and if, in the opinion of the Engineer, such material, article, or piece of equipment is of equal substance and function to that specified, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract price and the Contract Documents shall be appropriately modified by Change Order. No Contract price increase will be allowed for substitutions recommended by the Contractor. The Contractor warrants that if substitutes are approved, no mayor changes in the function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitute will be may by the Contractor without a change in the Contract Price or the Contract Time.

9. PATENTS

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

10. SURVEYS, PERMITS, REGULATIONS

10.1 The Owner shall furnish all boundary surveys and establish all base lines for locating the principal components parts of the work together with a suitable number of bench marks adjacent to the Work as shown in the Contract Documents. From the information provided by the Owner, unless otherwise specified in the Contract Documents, the Contractor shall develop and make all detail surveys needed for construction such as slope staked, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

10.2 The Contractor shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3 Permit and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor unless otherwise stated in the Supplemental General Conditions. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified. If the Contractor observes that the Contract Documents are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in Section 13, Changes in the Work.

11. PROTECTION OF WORK, PROPERTY, AND PERSONS

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

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

11.3 In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization form the Engineer or Owner, shall act to prevent threatened damage, injury or loss. The Contractor will give the Engineer prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY THE CONTRACTOR

12.1 The Contractor will supervise and direct the Work. The Contractor will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the Work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work.

13. CHANGES IN THE WORK

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

13.2 The Engineer, also, may at any time, by issuing a Field Order, make changes in the details of the work. The contractor shall proceed with the performance of any changes in the Work so ordered by the Engineer unless the Contractor believes that such Field Order necessitates a change in Contract Price or Time, or both, in which event he shall give the Engineer written notice thereof within seven (7) days after the receipt of the ordered change. Thereafter the Contractor shall document the basis for the change in Contract Price or Time within thirty (30) days. The Contractor shall not execute such changes pending the receipt of an executed Change Order or further instructions from the Owner.

14. CHANGES IN CONTRACT PRICE

14.1 The Contract Price may be changed only by a Change Order. The value of any Work covered by a Change Order or of any claim for increase or decrease in the Contract Price shall be determined by one or more of the following methods in the order of precedence listed below:

a. Unit price previously approved.

b. An agreed lump sum.

c. The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the Work to cover the cost of general overhead and profit.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

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

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

15.3 If the Contractor shall fail to complete the Work within the Contract Time, or extension of time granted by the Owner, then the Contractor will pay to the Owner the amount for liquidated damages as specified in the Bid for each calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents.

15.4 The Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the Work is due to the following, and the Contractor has promptly given Written Notice of such delays to the Owner or Engineer.

15.4.1 To any preference, priority or allocation order duly issued by the Owner.

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

15.4.3 To any delays of subcontractors occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. CORRECTION OF WORK

16.1 The contractor shall promptly remove from the premises all Work rejected by the Engineer for failure to comply with the Contract Documents, whether incorporated in the construction or not, and the Contractor shall promptly replace and re-execute the Work in accordance with the Contract Documents and without expense to the Owner and shall bear the expense of making good all work of other Contractors destroyed by such removal or replacement.

16.2 All removal and replacement Work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected Work within ten (10) days after receipt of Written Notice, the Owner may remove such Work and store the materials at the expense of the Contractor.

17. SUBSURFACE CONDITIONS

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

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the Contract documents: r

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

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

18. SUSPENSION OF WORK, TERMINATION AND DELAY

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

18.2 If the Contractor is adjudged a bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor’s property, or if the Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if the Contractor repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if the Contractor repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment or if the Contractor disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the Work or if the Contractor disregards the authority of the Engineer, or if the Contractor otherwise violates any provision of the Contract Documents, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and the Contractor’s surety a minimum of ten (10) days from delivery of a Written Notice, terminate the services of the Contractor and take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor, and finish the work by whatever method deemed expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional service, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the Contractor WILL PAY THE DIFFERENCE TO THE OWNER.

Such costs incurred by the Owner will be determined by the Engineer and incorporated in a Change Order.

18.3 Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any right of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies by the Owner due the Contractor will not release the Contractor from compliance with the Contract Documents.

18.4 After ten (10) days from delivery of a Written Notice to the Contractor, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Contract. In such case, the Contractor shall be paid for all Work executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the Contractor, the Work is suspended for a period of more than ninety (90) days by the Owner or under an order of court or other public authority, or the Engineer fails to act on any request for payment within thirty (30) days after it is submitted, or the Owner fails to pay the Contractor substantially the sum approved by the Engineer or awarded by arbitrators within thirty (30) days of its approval and presentation, then the Contractor may, after ten (10) days from delivery of a Written Notice to the Owner, terminate the Contract and recover from the Owner payment for all Work executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT. if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days written notice to the OWNER and the ENGINEER stop the WORK until the Contractor has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified. within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME. or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19. PAYMENTS TO CONTRACTOR

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), The CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by, such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER's title to the material and equipment and protect any interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing any reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) days of presentation of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all work covered by the CONTRACT DOCUMENTS. The OWNER at any time, however, after fifty (50) percent of the WORK has been completed, if he finds that satisfactory progress is being made, shall reduce retainage to five (5%) percent on the current and remaining estimates. When the WORK is substantially complete (operational or beneficial occupancy), the retained amount may be further reduced below five (5) percent to only that amount necessary to assure completion. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS. payment may be made in full, including retained percentages, less authorized deductions.

19.2 The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

19.3 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

19.4 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the

CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility, for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.

19.5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.

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

19.7 If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

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

21. INSURANCE

21.1 The Contractor shall purchase and maintain such insurance as will protect the Contractor, the Owner and the Engineer from claims set forth below which may arise out of or result from the Contractor's execution of the Work, whether such execution be by the Contractor or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

21.1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts;

21.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of any employees;

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than employees;

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person; and

21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2 Certificates of Insurance acceptable to the Owner shall be filled with the Owner prior to commencement of the Work. These Certificates shall contain a provision that coverage afforded under the policies will not be cancelled unless at least fifteen (15) days prior Written Notice has been given to the Owner.

21.3 The Contractor shall procure and maintain, at the Contractor's own expense, during the Contract time, liability insurance as hereinafter specified;

21.3.1 Contractor's General Public Liability and Property Damage Insurance including vehicle coverage issued to the Contractor and protecting from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the Contract Documents, whether such operations are performed by the Contractor or by any Subcontractor, or anyone directly or indirectly employed by the Contractor or by a Subcontractor under him. Insurance shall be written with a limit of liability of not less than $1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than $2,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $1,000,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $2,000,000 aggregate for any such damage sustained by two or more persons in any one accident.

21.3.1.a The Contractor's General Public Liability and Property Damage Insurance shall include the Owner and the Engineer as additional insured during the Contract time and shall be provided at no expense to the Owner or Engineer.

21.3.2 The Contractor shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the Project to the full insurable value thereof for the benefit of the Owner, the Contractor, and Subcontractors as their interest may appear. This provision shall in no way release the Contractor or Contractor's surety from obligations under the Contract Documents to fully complete the Project.

21.4 The Contractor shall procure and maintain, at the Contractor’s own expense, during the Contract Time, in accordance with the provisions of the laws of the State in which the work is performed, Workman's Compensation Insurance, including occupational disease provisions, for all of the Contractor’s employees at the site of the Project and in case any work is sublet, the Contractor shall require such Subcontractor similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in hazardous work under this contract at the site of the Project is not protected under Workmen's Compensation statute, the Contractor shall provide, and shall cause each Subcontractor to provide, adequate and suitable insurance for the protection of all employees not otherwise protected.

21.5 The Contractor shall secure, if applicable, "All Risk" type Builder's Risk Insurance for Work to be preformed. Unless specifically authorized by the Owner, the amount of such insurance shall not be less than the Contract Price totaled in the Bid. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft and smoke during the Contract Time, and until the Work is accepted by the Owner. The policy shall name as the insured the Contractor, the Engineer and the Owner.

22. CONTRACT SECURITY

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

23. SECTION DELETED

24. INDEMNIFICATION

24.1 The Contractor will indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use

resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the Contractor, and Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the Owner or the Engineer, or any of their agents or employees, by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the Contractor under this paragraph shall not extend to the liability of the Engineer, or the Engineer's agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications.

25. SEPARATE CONTRACTS

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

25.2 The Owner may perform additional Work related to the Project, or may let other contracts containing provisions similar to these. The Contractor will afford the other Contractors who are parties to such Contracts (or the Owner, if performing the additional Work), reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work and shall properly connect and coordinate the Work of all Contractors.

25.3 If the performance of additional Work by other Contractors or the Owner is not noted in the Contract Documents prior to the execution of the Contract, written notice thereof shall be given to the Contractor prior to starting any such additional Work. If the Contractor believes that the performance of such additional Work by the Owner or others involves an additional expense or requires an extension of the Contract Time, the Contractor may make a claim therefor as provided in Sections 14 and 15.

26. SUBCONTRACTING

26.1 The Contractor may utilize the services of specialty Subcontractors on those parts of the Work which, under normal contracting practices, are performed by specialty Subcontractors.

26.2 The Contractor shall not award Work to Subcontractor(s), in excess of fifty (50%) percent of the Contract Price, without prior written approval of the Owner.

26.3 The Contractor shall be fully responsible to the Owner for the acts and omissions of the Subcontractors, and of persons either directly or indirectly employed by them, as well as for the acts and omissions of the Contractors direct employees.

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

27. ENGINEER'S AUTHORITY

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

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

27.3 The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

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

28. LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of Notice to Proceed, the Owner shall obtain all land and rights-of-way necessary for

carrying out and for the completion of the Work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.

28.2 The Owner shall provide to the Contractor information which delineates and describes the lands owned and rights-of-way acquired.

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

29. GUARANTY

29.1 The Contractor shall guarantee all materials and equipment furnished and Work performed for a period of one (1) year from the date of Substantial Completion. The Contractor warrants and guarantees for a period of one (1) year from the date of Substantial Completion of the system that the completed system is free from all defects due to faulty materials or workmanship and the Contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments, or other Work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The performance Bond shall remain in full force and effect through the guarantee period.

30. ARBITRATION

30.1 All claims, disputes and other matters in question arising out or, or relating to the Contract Documents or the breach thereof, except for claims which have been waived by the making and acceptance of final payment as provided by Section 20, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgement may be entered upon it in any court having jurisdiction thereof.

30.2 Notice of the demand for arbitration shall be filed in writing with the other party to the Contract Documents and with the American Arbitration Association. Demand for arbitration shall in no event be made on any claim, dispute or other matter in question which would be barred by the applicable statute of limitations.

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

31. TAXES

31.1 The Contractor will pay all sales, consumer-use and other similar taxes required by the law of the place where the Work is performed.

SUPPLEMENTAL GENERAL CONDITIONS

CONTENTS

1. **ENUMERATION OF DRAWINGS**

The drawings for this project are as follows:

NAME	DRAWING NUMBER
COMMONS PARK IMPROVEMENTS	**CONSTRUCTION BID SET**
ICON SHELTERS SYSTEMS – OCTAGON PAVILION	

2. **INSURANCE REQUIREMENTS FOR CONTRACTORS**

Contractors shall procure and maintain for the duration of the contract, insurance against claims for injuries to persons or damages to property which may arise from, or in connection with the performance of the work hereunder by the Contractor, and the Contractor's agents, representatives, employees or subcontractors. The cost of such insurance shall be included in the Contractor's bid or proposal.

A. MINIMUM SCOPE OF INSURANCE

Coverage shall be at least as broad as:

1. Insurance Services Office Commercial General Liability coverage (occurrence form CG 0001, Ed. 01-96).

2. Insurance Services Office form number CA 0001 (Ed 06-92) covering Automobile Liability, code 1 "any auto."

3. Workers' Compensation insurance as required by the State of Utah including Employers Liability insurance.

B. MINIMUM LIMITS OF INSURANCE

Contractor shall maintain limits no less than:

1. General Liability: $1,000,000 combined single limit per occurrence for bodily injury, property damage, and contractual liability. The Commercial General Liability Insurance general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be three times the required occurrence limit.

2. Automobile Liability: $1,000,000 combined single limit per accident for bodily injury and property damage. "Any Auto" coverage is required.

3. The General Aggregate Limit shall be amended to apply separately to each of the Contractor's projects away from premises owned by or rented by the Contractor.

4. Worker's compensation and Employer's Liability: Worker's compensation limits as required by the State of Utah and Employer's Liability Limits of $1,000,000 per accident.

C. DEDUCTIBLES AND SELF-INSURED RETENTION

Any deductibles or self-insured retention must be declared to and approved by the City. At the option of the City, either: the insurer shall reduce or eliminate such deductibles or self-insured retention as respects the City, its officers, officials, employees, volunteers and agents; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. NOTICE OF INCIDENT OR ACCIDENT

Contractor shall agree to disclose to City all incidents or occurrences of accident, injury, and/or property damage covered by the insurance policy or policies.

E. OTHER INSURANCE PROVISIONS

The policies are to contain, or be endorsed to contain the following provisions:

1. Commercial General liability and Automobile Liability Coverage

a. The City, its officers, officials, employees, volunteers and agents are to be covered as additional insured with respects to liability arising out of:

(i) Work or operations performed by or on behalf of the Contractor, including materials, parts or equipment furnished in connection with such work or operations;

(ii) The insured's general supervision of the Contractor or subcontractor;

(iii) Products and completed operations of the Contractor;

(iv) Premises owned, occupied or used by or on behalf of the Contractor;

(v) Automobiles owned, leased, hired or borrowed by or on behalf of the Contractor.

The coverage shall contain no special limitations on the scope of the protection afforded to the City, its officers, officials, employees or volunteers. Endorsement Form CG 20-09
(Ed. 03-97), Additional Insured – Owners, Lessees or Contractors (Form A) shall be used.

b. The Contractor's insurance coverage shall be primary insurance as respects the City, its officers, officials, employees and volunteers. Any insurance of self-insurance maintained by the City, its officers, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

c. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the City, its officers, officials, employees, volunteers or agents.

d. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

2. Worker's Compensation and Employer's Liability Coverage

The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, employees, volunteers and agents for losses arising form work performed by the Contractor for the City.

3. All Coverage

Each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the City.

F. ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers with a current A.M. Best & Company rating of no less than A: VII, or equivalent, to be acceptable to the City.

G. VERIFICATION OF COVERAGE

Contractor shall furnish the City with certificates of insurance and with original endorsements effecting coverage required by this clause. The endorsements should be on forms provided by the City or other than City forms or a separate owner's policy, provided these forms or policies are approved by the City and amended to conform with the City's requirements. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. Where by statute, the City's Insurance commissioner is to be substituted. All certificates and endorsements are to be received and approved by the City before work commences. The City reserves the rights to require complete, certified copies of all required insurance policies, with all endorsements, at any time.

H. SUBCONTRACTORS

Contractors shall include all subcontractors as insured under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

I. CONTRIBUTION NOT REQUIRED

As respects: (a) wok performed y the Named Insured for or on behalf of the City; or (b) products sold by the Named Insured to the City; or (c) premises leased by the Named Insured from the City, the insurance afforded by this policy shall be primary insurance as respects the city, its elected or appointed officers, officials, employees, volunteer, or agents; or stand in an unbroken chain of coverage excess of the Names Insured's scheduled primary coverage. In either event, any other insurance maintained by the city, its elected or appointed officers, officials, employees, volunteers, or agents shall be in excess of this insurance and shall not contribute with it.

J. INSURANCE

1.0 The Contractor shall purchase and maintain such insurance as will protect the Contractor, the Owner, its officers, employees, volunteers, agents, and the Engineer from claims set forth below which may arise out of or result from the Contractor's execution of the work, whether such execution by the Contractor or by an Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1.1 Claims under worker's compensation, disability benefit and other employee benefit acts;

1.2 Claims for damages because of bodily injury, occupational sickness or death of the Contractor's employees;

1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;

1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person; and

1.5 Claims for damages because of injury to or destruction of tangible property including loss of use resulting therefrom.

2. Certificates of insurance, with attached endorsements, amendments, and/or additions reflecting levels, types and amounts of insurance, acceptable to the Owner shall be filed with the Owner

prior to commencement of the Work. The Owner expressly reserves the right to receive a copy of applicable insurance policy or policies, upon request. These Certificates and endorsements shall contain a provision that coverage afforded under the policies will not be canceled unless at least thirty (30) days prior Written Notice (certified mail) has been provided to the Owner.

2.1 All required insurance must be in effect prior to awarding this contract and during the entire duration of the contract term. Contractor shall not commence work under this contract until it has obtained the insurance required herein and further specified in the Supplemental Conditions.

3. The Contractor shall procure and maintain, at the Contractor's own expense, during the Contract time, liability insurance as hereinafter specified.

3.1 Contractor's Commercial General Liability insurance, including vehicle coverage, issued to the Contractor and protecting the Contractor from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the Contract Documents, whether such operations be by the Contractor or by any Subcontractor under the Contractor, or anyone directly or indirectly employed by the Contractor or by a Subcontractor under the Contractor. Insurance coverage shall be "occurrence" based unless specifically waived by the Owner. Insurance shall be written with a limit of liability of not less than $1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than $1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $1,000,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $1,000,000 aggregate for any such damage sustained by two or more persons in any one accident. Said amount of coverage shall be for this specific project. Any aggregation may require additional coverage.

3.1.a The Contractor's Commercial General Liability Insurance shall include the Owner, its officers, officials, employees volunteers, agents and the Engineer as additional insured's during the Contract time and shall be provided at no additional expense. The insurance coverage for the additional insured's shall pay for all damages attributed to them and shall pay for the costs of defending any action filed hereunder when the additional insured's are made parties to that action.

3.1.b Minimum liability levels may be increased in the Supplemental General Conditions section of the contract if activity has a severe loss potential. Total aggregate liability levels for personal injury including death, and all claims for destruction of property arising out of or in connection with any operations under the contract Documents, will be a multiple of the occurrence limit and must equal or exceed the aggregate level set in the Supplemental General Conditions section of the Contract.

3.2 The Contractor shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the Project to the full insurable value thereof for the benefit of the Owner, the Contractor, and Subcontractors as their interest may appear. This provision shall in no way release the Contractor's surety from obligations under the Contract Documents to fully complete the Project. Otherwise each subcontractor shall each meet the insurance requirement as set forth in this agreement.

4. The Contractor shall procure and maintain, at Contractor's expense, during the Contract Time, in accordance with the provisions of the laws of the State in which the work is performed. Worker's Compensation Insurance, including occupational disease provisions, for all the Contractor's employees at the site of the Project and in the case of any work is sublet, the Contractor shall require such Subcontractor similarly to provide Worker's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor. In case any class of

employees engaged in hazardous work under this contract at the site of the Project is not protected under Worker's compensation statue, the Contractor shall provide, and shall cause each Subcontractor to provide, adequate and suitable insurance for the protection of employees not otherwise protected.

5. The Contractor shall secure, if applicable, "All Risk" type Builder's Risk Insurance for Work to be performed. Unless specifically authorized by the Owner, the amount of such insurance shall not be less than the Contract Price totaled in the Bid. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft and smoke during the Contract time, and until the Work is accepted by the Owner. The policy shall name as the insured the Contractor, the Engineer and the Owner.

6. The Contractor's policy or policy endorsement must state the Contractor's insurance is primary protection, and Owner's insurance will not be called upon to contribute to a loss that should otherwise be paid by the Contractor's insurer.

7. Contractor's insurer or insurance underwriter must have at minimum an A.M. Best & Company rating of "A.VII" or equivalent. Coverages shall be with insurance carriers licensed and admitted to do business in the State o Utah.

8. Contractor shall disclose all deductibles or self-insured retentions (SIR). At Owner's option, all deductibles and SIRs shall be covered by an endorsement eliminating them, or a bond shall be posted covering them and any defenses required thereby.

3. COORDINATION OF DRAWINGS AND SPECIFICATIONS

Any part of the work which is not mentioned in these specifications, but is shown on the drawings, or any part not shown on the drawings but described in the specifications, shall be furnished and installed by the Contractor as if fully described in the specifications and shown on the drawings.

4. INCIDENTAL WORK

All minor details of work and materials which are not shown on the drawings, as well as such items which are not specifically mentioned in the specifications, but are obviously necessary for the proper completion of the work, shall be considered as incidental, and as being a part of and included with the work for which prices are given in the proposal, and no extra compensation shall be allowed the Contractor for the performance thereof.

5. COMPETENT PERSONNEL AND EQUIPMENT TO BE EMPLOYED

A. The Contractor shall employ suitable and competent mechanics for every kind of work. If any person employed by the Contractor is incompetent, disorderly or disobedient to the Engineer or the Engineer's inspectors, or rude or abusive to any of the general public the person shall be removed from the work and not again be employed upon the work without the consent of the Engineer.

B. The Contractor shall provide needed and approved equipment in good repair, to do any and all work specified and required as well as sufficient qualified workmen, as required and he shall prosecute the work diligently at all times and shall maintain the workspace in a clean and safe condition during the entire performance of this contract.

C. The Contractor shall and will perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this contract, within the time herein specified, in accordance with the provisions of this contract and said specifications and in accordance with the plans and drawings covered by this contract any and all supplemental plans and drawings, and in accordance with the directions of the Engineer as given from time to time during the progress of this work. The Contractor shall furnish, erect, maintain, and remove such construction plant and such temporary works as may be required.

D. The Contractor shall observe, comply with and be subject to all terms, conditions, requirements, and limitations of the contract and specifications, and shall do, carry on, and complete the entire work to the satisfaction of the Engineer and the Owner.

6. CODES AND STANDARDS

A. All materials and workmanship shall comply with all applicable codes, specifications, local ordinances, industry standards and utility company regulations.

In case of difference between building codes, specifications, state laws, local ordinances, industry standards and utility company regulations and the contract documents, the most stringent shall govern. The Contractor shall promptly notify the Engineer in writing of any such differences. If extra compensation is claimed because of such differences it shall be negotiated and resolved before the work is done.

When applicable regulations, codes and standards have been revised or superseded, the revision, edition or expression in effect at date of advertisement for bids shall govern the work.

B. NON-COMPLIANCE. Should the Contractor perform any work that does not comply with the requirements of applicable building codes, state laws, local ordinances, industry standards, and utility company regulations, the Contractor shall bear all costs arising in correcting the deficiencies.

C. APPLICABLE CODES AND STANDARDS. Applicable codes and standards shall include all state laws, local ordinances, utility company regulations, and the applicable requirements of national and state-accepted codes and standards; including, but not limited to the following:

1. Building Codes
   UBC - Uniform Building Code
   UPC - Utah Plumbing Code
   UOSHA - Utah Occupational Safety and Health Rules and Regulations - General Standard

2. Industry Standards, Codes and Specifications
   AASHTO - American Association of State Highway and Transportation Officials
   ACI - American Concrete Institute
   AGA - American Gas Association
   AISC - American Institute of Steel Construction
   AISI - American Iron and Steel Institute
   AMCA - Air Moving & Conditioning Association
   ANSI - American National Standards Institute
   ASHRAE - American Society of Heating, Refrigeration & Air Conditioning Engineers
   ASME - American Society of Mechanical Engineers
   ASTM - American Society of Testing and Materials
   AWWA - American Water Works Association
   AWS - American Welding Society
   CRSI - Concrete Reinforcing Steel Institute
   NBS - National Bureau of Standards
   NEC - National Electrical Code
   NEMA - National Electrical Manufacturers Association
   NEPA - National Fire Protection Association
   PCA - Portland Cement Association
   SMACNA - Sheet Metal & Air Conditioning Contractors National Association
   UL - Underwriters Laboratories, Inc.

7. INSPECTION AND TESTS

A. All work and materials, and the manufacture and preparation of such materials from the beginning of the construction until the final completion and acceptance of the herein proposed work shall be subject to the inspection and rejection of the Engineer or the Engineer's representative at such times as may suit the Engineer's convenience and no material shall be used until proper tests and approvals have been given. As soon as the materials have been inspected and tested, the Contractor shall immediately remove all rejected materials from the work, and to such a point distant therefrom as the Engineer may require. The Contractor shall furnish, at the Contractor's own expense, such labor as may be required to enable a thorough inspection and culling of all materials, as proposed to be used, in sufficient amounts as required to make proper tests.

B. The Contractor shall make application for an inspector at least twenty-four (24) hours before the Contractor's services are required.

C. All inferior or imperfect work or materials that may be discovered before the completion and acceptance of the herein proposed work shall be corrected immediately upon the order of the Engineer, notwithstanding that it may have been overlooked by the Engineer or the Engineer's representative, and it are hereby expressly agreed that the inspection by the Engineer shall not relieve the Contractor of the Engineer's liability to furnish materials and workmanship in accordance with the specifications.

D. The Contractor and the Contractor's Superintendent and foreman shall promptly obey and follow every order or direction which shall be given by the Engineer in accordance with the terms of the contract.

E. Inspectors shall at all times be free to perform their duties, and any intimidation of any inspector on the part of the Contractor or the Contractor's employees shall be sufficient reason, if the Engineer desires, to annul the contract or remove the employee.

F. No materials shall be used before being inspected and approved by the Engineer, but the failure or neglect on the part of said Engineer to condemn or reject inferior materials or work shall not be construed to imply an acceptance of the same should their inferiority become evident at any time prior to the final acceptance of the work.

G. The Engineer and Owner, by reserving the right to inspect the doing of any work shall not have control of the Contractor's workers, methods of doing the work, or safety of the work or workers, but such inspection shall be limited to the control necessary to assure that the final results will fully comply with the Engineer or the Owner shall in no way excuse the Contractor from fully complying with the contract documents, drawings and specifications.

H. Test shall be required to determine suitability of materials, equipment and workmanship.

The Contractor shall provide certificates showing that items of equipment and materials have been sampled, inspected and tested when the product is completed off the site.

The Owner shall provide for sampling and testing of materials and workmanship performed on the site.

As examples of the division of responsibility, the following table may be used as a guide.

CONTRACTOR	OWNER
Concrete aggregates	Concrete slump
Concrete water	Concrete strength
Concrete cement	Soil density
Reinforcing steel	Pipe alignment
Pipe-strength	Paint thickness
Pipe leakage	Soil gradation (local material)
Machinery	
Paint content	
Electrical materials	
Soil gradation (imported or offsite borrow)	

These examples shall serve as a guide to the division of responsibilities for sampling and testing, and shall govern unless specific responsibilities are given elsewhere in these specifications.

8. SUBMITTAL OF SHOP DRAWINGS AND RELATED DATA

A. Prior to fabrication and in ample time to permit satisfactory progress of the work, the Contractor shall submit shop drawings and related data covering equipment and fabricated materials to the Engineer for review. Submittal shall be in such detail as the Engineer may require for informing himself in regards to design, installation and operation of the items covered. Two copies shall be submitted for preliminary review, and six copies for final review.

B. Submittal not bearing Contractor's certification that he has reviewed, checked and approved the drawings and that they are in conformance with the requirements of the Contract Documents will not be reviewed by the Engineer.

C. Corrections or comments made on shop drawings during Engineer's review shall not relieve the Contractor from compliance with requirements of the Contract Documents. The Engineer will check and review only for general conformance with the design concept of the project and general compliance with information given in the Contract Documents. The Contractor shall be responsible for: conforming and correlating a;; quantities and dimensions; fabrication processes and techniques of construction; coordination of work with that of all other trades; and the safe and satisfactory performance of his work.

D. The Contractor shall require all suppliers of materials and equipment to include with their submittal a written statement that the materials and equipment being furnished are suitable and proper for intended installation, that the supplier has investigated the intended use, and that the items will satisfactorily perform an operate in the installation.

E. Drawings if minor manufactured items may not be required by the Engineer; however, the Contractor shall furnish to the Engineer tabulated lists of such items, showing manufacturer's catalog data, together with samples or general data, as may be required to permit determination as to their acceptability for incorporation in the work.

F. The Contractor, at the Contractor’s own expense, shall make such changes in the fabrication and equipment drawings as may be found necessary by the Engineer to make the same conform to the Contract Documents. Prior to review and acceptance of such drawings by the Engineer, any work which the Contractor may do on that portion of the work is at the Contractor’s own risk; the Owner will not be responsible for any expense incurred by the Contractor for changes to make work conform to the drawings as finally accepted.

G. The Contractor shall furnish complete operation, maintenance and lubrication instructions in triplicate covering all equipment, materials and supplies used in the work. Installation of equipment shall not begin until these instructions have been supplied to the Engineer.

9. SELECTION OF MATERIAL

A. Materials or equipment noted on the drawings and in specifications by the trade or manufacturer's name are so designated primarily to establish standards of quality, finish, appearance, ruggedness of construction, and performance. It is not the intent to limit the choice of materials and equipment to the specific product designated.

B. The Contractor will be allowed to submit requests to substitute equal items of equipment and material for those items which the Owner has not expressed a designated type and manufacturer in the award of the contract.

C. Such requests shall be made in writing, and shall be accompanied by complete data on which the Engineer may make determination on the merits of the proposed substitution. The written request shall state how the product proposed for substitution compares with or differs from designated product in composition, size, arrangement, performance, etc., and shall show conclusively that the proposed substitute is equal in all respects to that which is shown on the drawings or specified. If, in the opinion of the Engineer, the proposed product is equal to or better than the designated product, it may be approved for use, subject, however, to all applicable provisions of the specifications. Such opinions and approval must be in writing.

D. When the bidder is required to submit alternate bids on items of equipment as manufactured by three different manufacturers, he shall submit bids on equipment manufactured by at least two of the manufacturers listed and may submit a bid on equipment made by a third manufacturer selected by the Contractor. The final selection of equipment for the work will be based on quality, conformity to the specifications, efficiency, past experience, maintenance and cost. The Owner on recommendation of the Engineer will select the item and manufacturer and award the contract based on this selection.

E. Where alternate bids are required for equipment or materials manufactured from different materials or by different processes, the bidder shall submit bids on a minimum of three of the alternates except where less than three alternates are requested.

F. Selection will be based on the bid price of the alternate as well as an analysis of total contract cost, quality, efficiency maintenance and other features of the work which may be affected by the selection of that alternate.

G. The bidder shall submit bids on all alternates so that the Engineer can make a complete analysis of the bid.

H. All requirements of the specifications must be adhered to and all modifications shall be made in the article specified by trade name, type or model of manufacturer's equipment to make it conform to the specific requirement of the specifications.

I. Materials of a general description shall be the best of there several kinds, free from defects and adapted to the use for which provided.

J. The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the American Society for Testing and Materials, or other recognized standards where applicable.

K. On all questions concerning acceptability of materials, classification of materials, execution of the work, and the determination of costs, the decision of the Engineer shall be final and binding upon all parties.

10. SURVEYS

A. General. The Engineer, at the Owner's expense, will establish alignment and grade data in the minimum amount described herein, as applicable to a given project, for execution of the work.

The Engineer's survey crews will not be available at all times for the work. The Contractor shall notify the Engineer at least 48 hours ahead of the time surveys will be required. The contractor shall keep the engineer advised on a current basis of construction survey requirements so that survey work may be coordinated with the Contractor's sequence of operations.

It is the intent of the Owner and the Engineer to check alignment and grade of the various parts of the project from time to time.

The contractor shall without additional costs, give such assistance and provide such ladders, lights or other equipment as may be required in establishing and checking lines and grades.

B. CONTRACTOR'S RESPONSIBILITY. Prior to commencement of work under this project, the subdivider shall establish lot corner stakes showing plan and elevation reference to curb and gutter, and sidewalks.

C. Location and Quantity of Alignment and Grade Data to be Provided by the Engineer. Additional stakes shall be provided by the engineer where the engineer determines that lot corner stakes established by the subdivider are insufficient to adequately define line and grade, such as at intersections, and beyond the limits of the subdivision. More particularly, alignment and grade data shall be provided to include the following:

(1) Sanitary Sewer / Storm drain lines. Offset and depth of cut measurements for sewer lines will be provided for laser instrument setting at manholes, 50-feet therefrom, at the midpoint of the span between manholes, and at the next manhole. If laser instruments are not used, see subparagraph "Contractor's Responsibility".

(2) Waterlines. Offsets to waterlines and appurtenances in subdivisions will be referenced from lot corner or curb and gutter stakes. For waterline extensions beyond subdivision boundaries, line stakes shall be provided at valves, bends, hydrants, specials and at not to exceed 100-feet.

(3) Curb & gutter / Sidewalk. Offsets to the curb & gutter will be provided at 25 foot intervals and at all radius points, change in grade and termination points.

D. Contractor's Responsibility.

(1) The Contractor shall transfer line and grade from the stakes or marks referred to above, to the work, and shall be responsible for the accuracy of the measurements from the stakes or marks to the work.

(2) Where laser instruments are not used to maintain alignment and grade stakes as required for proper execution of the work. These additional stakes shall be established from the control stakes provided by the Engineer. When the Engineer is requested to provide this additional staking for the Contractor, the Engineer shall be reimbursed and the extra cost shall be paid by the Contractor.

Also, where string line is used to maintain grade instead of laser equipment, the Contractor shall at all times have a minimum of 150-feet of string line stretched ahead of the work and 100-feet behind.

(3) The Contractor shall be responsible for the accuracy of all stakes for alignment and grade established by the Contractor.

(4) The Contractor shall be responsible for the protection of all control stakes established by the Engineer. The Engineer shall be reimbursed for re-establishing stakes or bench marks that have been disturbed or destroyed for any reason and the extra cost shall be paid by the Contractor.

(5) The Contractor shall not disturb any survey monuments found in the line of the work unless written authority to do so is given by the Engineer. Cost incurred by the Engineer in replacing monuments that have been disturbed by the Contractor without written approval shall be paid by the Contractor.

(6) Finish grade elevations for manholes, inlet and clean out boxes, fire hydrants, etc. will be transferred from property corners and curb elevations, or as directed by the Engineer.

11. PROPERTY LIABLE TO DAMAGE

A. The Contractor shall be liable for all damage, caused by the Contractor's own negligence to water, gas, steam or other pipes, ducts, cables, flumes, poles, or conduits, or other property owned by any person, corporation or the Owner. The Contractor shall repair or replace, as directed by and to the satisfaction of the Owner and Engineer, all water, sewer, irrigation, drainage or other pipes, flumes, conduits, hydrants, poles, or other property of the Owner or others which may be injured or damaged by reason of the negligence or carelessness of the Contractor or any of the Contractor's agents, servants, employees or subcontractors. If the Contractor shall fail or neglect to make such repairs or replacements within ten days after being notified by the Engineer so to do, then the Owner may make repairs or replacement of property so injured or damaged, and the cost of so doing may be deducted from any sum due or to become due the said Contractor under this contract. If the repairs are determined by the Engineer to be of an emergency nature, the Contractor shall not be allowed ten days to complete repairs or replacements but rather shall immediately make necessary repair or replacement.

B. The Contractor shall take all possible care to avoid grass or forest fires and shall assume responsibility for damage caused by any fire caused by the Contractor's construction operations.

C. When excavating in the vicinity of buried utilities, the Contractor shall take special precautions, including but not necessarily limited to using metal detectors and hand excavation to minimize damage to such utilities.

12. MOVING PROPERTY OF PUBLIC UTILITY

In case the Engineer, acting on application by the Contractor, determines that it is necessary to move the property of any public utility or franchise, the public utility or franchise will be notified by the Engineer to move the property within a specified reasonable time, and the Contractor shall not interfere with the property until after the expiration of the time specified, and then only as approved by the Engineer.

13. DAMAGE TO UTILITIES

The Contractor shall immediately notify the utility company, department or person involved and satisfactorily repair or replace any utility which is damaged or broken due to the execution of the work under this contract or arrange for the utility to perform the work. If the Contractor fails or neglects to make, or replacements immediately, then the Owner may make the necessary repairs and the cost of so doing will be deducted from the sum due or to become due the said Contractor under this contract.

14. CLAIM FOR DAMAGE

The Contractor shall not be entitled to any claim for damage on account of hindrance or delay from any cause whatever, but if occasioned by an act or omission on the part of the Owner, such hindrance or delay may entitle the Contractor to an extension of time in which to complete the work, which shall be determined by Owner, provided, that the Contractor shall give notice in writing of the cause of such delay. No extra time will be given for time elapsing before such notice is given.

15. PROPERTY REMOVED UNDER THE CONTRACT TO REMAIN THE PROPERTY OF ITS OWNER

All castings, grates, special fittings, hydrants, valves, valve boxes, pipe, poles, wire, building material, or other items removed during progress of the work, which in the Engineer's opinion have value to its Owner shall remain the property of its Owner and must be delivered to its Owner at such point on or near the site of the work as the Engineer may direct.

16. SAFETY STANDARDS AND ACCIDENT PREVENTION

A. With respect to all work performed under this contract the Contractor shall:

(1) Comply with the safety standards provisions of applicable laws, building and construction codes, the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America and State Safety Regulations, the General Safety Orders Covering Utah Industries as published by Industrial Commission of Utah, the OSHA standards as they apply, safety standards as required by the Department of Transportation and City or County Highway Department.

(2) The Contractor shall exercise every precaution at all times for the protection of persons (including employees) and property which shall include, as needed, the use of shoring, bracing, barricades, guards, night watchmen, red lighting and the elimination of hazardous conditions.

(3) The Contractor shall maintain at the Contractor’s office or other well-known place at the job site, all articles necessary for giving first aid to the injured; and shall have an employee who has completed the American Red Cross Standard First Aid Course or its equivalent, and standing arrangements for the immediate removal to a hospital for a doctor's care of persons (including employees) who may be injured on the job site. On job sites on which less than 10 employees are working, a standard first aid kit equipped to serve 10 to 25 people, may be substituted for the above requirements. However, in no case, shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or doctor's care.

17. OBSTRUCTION AND GUARDS

A. The Contractor shall erect and maintain good and sufficient guards, barricades, light and signals at all unsafe places at or near the work, and shall in all cases maintain a safe passageway.

B. In the event the work under this contract may become hazardous to traffic or pedestrians, then the Contractor shall furnish, without added cost to the Owner, such flagmen as required to direct and control traffic during such emergencies and until such hazards have been corrected.

18. CLEANING UP AND JOB SHUT-DOWN

A. Immediately upon the completion of the work on each section of the work as determined by the Engineer, the Contractor shall, at the Contractor's own expense, clean up and remove all refuse materials of every kind resulting from the work, and upon failure to do so within twenty-four (24) hours after having been notified by the Engineer, the work may be done by the Owner and the cost thereof deducted from the amount of the Contractor's final payment. The Engineer will not make the final inspection until all of the work contemplated by the contact has been completed and the final cleaning up performed.

B. If in the judgment of the Engineer, it is necessary to close down the work due to inclement weather or due to circumstances arising during the progress of the work that may be construed to be dangerous or due to non-compliance with the specifications, the Contractor shall comply and stop all operations upon written notice from the engineer to do so and the work shall remain closed down until further orders in writing are given by said Engineer to the Contractor to proceed with the work of the project, and there shall be no claim against the Owner or Engineer for such action on the part of the Engineer.

C. If, for any reason whatsoever the work is closed down temporarily, then the Contractor shall clean up all of the finished work and shall provide protection as provided in Paragraph "Protection of Work During Shut-Down," and all other work under construction shall be cleaned up, material on hand shall be properly stored and made safe from damage or loss and to the satisfaction of the Engineer.

(1) The Contractor shall be responsible to see that the job is kept and maintained in a satisfactory condition during the entire time the work is closed own, roadways shall be made passable for local and emergency traffic at all times, and the Contractor shall be responsible for all materials, tools, and equipment entrusted to the Contractor's care from damage, or theft, and for its safety during the time the work is closed down, as well as throughout the entire performance of the work under this contract.

(2) Failure of the Contractor to comply with the above provisions during temporary shutdown of the work will be just cause for the Owner to do the required work, and the cost deducted form the final amount due the Contractor.

19. PREFERENCE TO LOCALLY PRODUCED MATERIALS

The Contractor agrees that preference shall be given to locally produced materials and that foreign made items or items made using foreign materials shall not be used unless no source for items made in the U.S.A. exists.

20. EMERGENCIES

Emergencies may arise during the progress of the work which may require special effort or require extra shifts or men to continue the work beyond normal working hours. The Contractor shall be prepared in case of such emergencies from whatever cause to do all necessary work promptly, and at no additional cost to the Owner.

21. PROTECTION OF WORK DURING SHUT-DOWN

The Contractor shall be responsible at all times during the construction period, or during the time the work is closed down for any reason, for the safety of all persons, materials, tools, equipment, etc. from theft, damage or injury to any of them or for damage done to the work that may be caused by the Contractor's neglect or the neglect of the Contractor's agents or employees, or by not keeping proper watch. The responsibility for the above, as well as providing competent watchmen at the job site, remains with the Contractor until such time as the work is completed, accepted by and turned over to the Owner for operation.

22. EQUIPMENT AND MATERIALS

All materials and equipment for installation shall be new and shall bear the manufacturer's name, trade name and the UL label, ASME stamp or other symbols of approval in every case where a standard has been established for the particular material. The equipment and material to be furnished under each Section of the specification shall be essentially the standard product of a manufacturer regularly engaged in the production of the required type of equipment or material, and shall be the manufacturer's latest approved design.

A. Equipment and Materials of the Same General Type. Equipment and materials of the same general type shall be of the same make throughout the work to provide uniform appearance, operation and maintenance.

B. Protection. Equipment shall be tightly covered and protected against dirt, water and chemical or mechanical injury or theft. At the completion of the work, fixtures, equipment and materials shall be cleaned and polished thoroughly and turned over to the Owner in a condition satisfactory to the Engineer. Damage or defects developing before acceptance of the work shall be made good at the Contractor's expense.

C. Dimensions. It shall be the responsibility of the Contractor to insure that items to be furnished fit the space available and shall make necessary field measurements to ascertain space requirements, including those for connections, and shall furnish and install such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the drawings and specifications.

23. SANITATION

A. The Contractor shall be fully responsible for the conduct of workers and the workers of all Subcontractors on the project. The Contractor will see that proper sanitary facilities are available and that all workers are notified of the location of said facilities. Any worker committing any nuisance outside proper facilities will be cause for suspension of the whole work until the situation has been corrected to the complete satisfaction of the Engineer.

B. On projects where facilities are not readily available the Contractor shall provide and erect a chemical or marine type toilet at a point to be approved by the Engineer, for the use of Contractor's employees and other personnel on the construction. No use shall be made of dug hole privies. Following the period of necessity for such toilet, it shall be removed completely.

C. Chemical toilet shall be of the approved type. The Contractor shall furnish all materials for said toilet and erect same at the Contractor’s sole cost and expense, and he shall maintain and remove the same upon completion of the need for its use wherever it is located.

24. COORDINATION OF WORK

A. The Contractor shall review the drawings and specifications and shall report any discrepancies to the Engineer and get written instructions for changes necessary to avoid interference. Before installation, the Con-tractor shall make proper provision to avoid interference in a manner approved by the Engineer. All changes required in the work of the Contractor caused by the Contractor’s neglect to do so shall be rectified by the Contractor at the Contractor’s own expense.

B. If, through acts of neglect on the part of the Contractor, any other Contractor or any Subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or Subcontractor by agreement or arbitration if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against the Owner on account of any damage alleged to have been sustained, the Owner shall notify the Contractor, who shall indemnify and safe harmless the Owner against any such claim.

25. QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished under this contract are shown in any of the documents including the proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this contract, and such increase or diminution shall in no way vitiate this contract, nor shall any such increase or diminution give cause for claims or liability for damages.

26. COMPLIANCE WITH LAWS AND REGULATIONS

The Contractor shall comply, and require any subcontractors to comply, with the current provisions of Utah Code Ann. Sec. 34-30-1 et seq.; specifically but not limited to provisions of Utah law relating to hiring practices, payment for overtime, and preparation and preservation of payroll records.

Failure by the Contractor to comply with these requirements will be considered as a breach of this contract, in addition to other penalties provided by Utah law. If the provisions of Utah Code Ann. Sec. 34-30-1 are not complied with, this contract shall be void.

27. PARTIAL PAYMENTS AND ESCROW ACCOUNTS

A. Partial Payments. Payment of monthly partial payment estimates submitted by the Contractor as described in the GENERAL CONDITIONS must, in most instances, be approved by the Owner at a regularly scheduled monthly meeting. The payment submittal schedule for 2023 is as follows:

Submittal date	Payment date	Submittal date	Payment date
January 6	January 27	February 3	February 24
March 3	March 24	April 7	April 28
May 5	May 26	June 2	June 23
July 7	July 28	August 4	August 25
September 1	September 29	October 6	October 27
November 3	November 24	December 1	December 29

B. Retainage Escrow. The provisions of Article 19 of the GENERAL CONDITIONS with respect to retainage on partial payments are hereby modified for public projects. In order to comply with the Utah State law enacted in 1983 requiring escrow account in a manner acceptable to the Owner for the purpose of holding the Contractor's retainage. The Owner will issue two checks for each partial payment; one check to the Contractor for work completed less retainage, and the second check for retainage to the Escrow Account.

The Owner will make arrangements with the successful Bidder with respect to either the establishment of the Escrow Account or Waiver of the requirement by the Contractor, prior to giving "Notice to Proceed."

The Owner reserves the right to alter this procedure in any manner in accordance with the Utah State legislation governing escrow accounts.

C. Final Payment. As a condition for completion and final acceptance of the work by the Engineer and the Owner, the Contractor and the Contractor’s surety shall certify that the final payment request submitted by the Contractor is correct and will constitute payment in full when paid, that the Contractor waives the right to make any additional claims, and that all work has been performed in accordance with the contract documents.

28. PAYMENTS BY CONTRACTOR

The Contractor shall pay (a) for all transportation and utility services not later than the 20th day of the calendar months following that in which services are rendered; (b) for all materials, tools, and other expendable equipment to the extent of ninety percent (90%) of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools and equipment are delivered at the site of the project, and the balance of the cost thereof, not later than the 30th day following the completion of that part of the work in or on which such materials, tools and equipment are incorporated or used; and (c) to each of the subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by the Subcontractors to the extent of each Subcontractor's interest therein.

29. "AS-CONSTRUCTED' DRAWINGS

Before final acceptance, the Contractor shall provide the Engineer with a set of full size prints which have been marked to show the location of concealed portions of the project including: manholes, Y’s, tees, laterals, clean outs on sewer pipelines;

manholes, valves, tees, crosses, elbows, meters and laterals on water pipelines; electric wire cable conduit location shall be properly plotted to scale and noted by station, offset and elevation.

These "As-Constructed" prints shall also show all elevations of buried or concealed features from the Engineer's datum as shown on the "Construction" drawings.

Contractor shall maintain these drawings on an up-to-date basis. The Engineer may call for "As-Constructed" drawings when a phase of the project is complete.

30. PRE-CONSTRUCTION CONFERENCE

Within ten (10) days after notification of contract award, the successful bidder together with any known principal subcontractors, will be required to attend a pre-construction conference at a time and place designated by the Owner. Subcontractors shall include, but not be limited to, major items of work, such as heating, electrical, plumbing and so forth.
The purpose of the pre-construction conference is to discuss, among other considerations, the responsibilities of the successful bidder and any Subcontractors.

31. GUARANTEE

A. The Contractor shall warrant and guarantee that the improvements provided and every part thereof will remain in good condition for a period of one year after the date of completion and conditional acceptance by the Owner. The guarantee period for road surfaces, asphalt trails and street improvements such as curb and gutter and sidewalk shall be three years. The date of Conditional acceptance shall be the date of approval, by the Owner, of the final estimate for the work as prepared by the Engineer. The Contractor agrees to make all repairs and/or replacements, for all defects in workmanship, materials and equipment during the guarantee period, ordinary wear and tear and acts of God accepted, without additional charge or cost to the Owner.

The Contractor shall maintain all equipment until the date of conditional acceptance, at which time the Owner will assume normal maintenance. It shall be the Contractor's responsibility to instruct the Owner in all correct maintenance procedures for all items requiring maintenance.

The Contractor also agrees that the performance and payment bond hereto attached shall remain in force until the conditions of this guarantee are fulfilled.

B. The determination of the necessity for repairs above mentioned rests entirely with the Owner, whose decision shall be final and obligatory upon the Contractor. If the termination of the said period of one or three years shall fall within the months of November, December, January, February or March, said months shall not be included in the computation of the said period of one or three years, but said period shall be held and understood to terminate on the 15th day of April next thereafter, unless otherwise permitted by the Owner. It is hereby expressly understood and agreed that the Owner shall not finally accept the work before the date specified above, and then only in the case that all necessary repairs have been made according to standard methods approved by the Engineer.

32. PHOTOGRAPHS

The contractor shall provide photographs of the work site including preconstruction photographs and periodic construction photographs. Submit a key plan of the construction area with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation. Submit unaltered, original, full-size images files within seven days of taking photographs. The digital camera shall have a minimum sensor resolution of 8 megapixels. Provide the following information for identification with each image description in file metadata tag: 1) Name of Project, 2) Name and contact information for photographer, 3) Date photograph was taken, and 4) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction. All digital images shall be provided in JPG format, with minimum size of 8 megapixels. Preconstruction photographs shall be taken before commencement of demolition. Take photographs of project area, including existing items to remain during construction, from different vantage points. Periodic construction photographs shall be taken weekly, with timing each month adjusted to coincide with the cutoff date associated with each application for payment. Select vantage points to show status of construction and progress since last photographs were taken.

33. MATERIALS FURNISHED BY THE OWNER

The following items shall be furnished by the Owner:
Pavilion

34. BUILDING PERMITS

Contractor to obtain any necessary permits

SECTION 01 5639
TEMPORARY TREE AND PLANT PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

B. Related Requirements:

1. Section 311000 “Site Clearing” for removing existing trees and shrubs.

1.2 DEFINITIONS

A. Caliper: Diameter of a trunk measured by a diameter tape or the average of the smallest and largest diameters at a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size.

B. Caliper (DBH): Diameter breast height; diameter of a trunk as measured by a diameter tape or the average of the smallest and largest diameters at a height 54 inches above the ground line for trees with caliper of 8 inches or greater as measured at a height of 12 inches above the ground.

C. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and as indicated on Drawings.

D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.

E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:

a. City responsibilities.
b. Contractor responsibilities.
c. Coordination of Work and equipment movement with the locations of protection zones.
d. Trenching by hand or with air spade within protection zones.
e. Field quality control.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each type of the following:

1. Organic Mulch: Sealed plastic bags labeled with composition of materials by percentage

of weight and source of mulch.
2. Protection-Zone Fencing: Materials Samples.
3. Protection-Zone Signage: Full-size Samples.

C. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.

1.5 INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.

1.6 FIELD CONDITIONS

A. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Moving or parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

B. Do not direct vehicle or equipment exhaust toward protection zones.

C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Backfill Soil: Stockpiled soil mixed with planting soil of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.

1. Mixture: Well-blended mix of two parts stockpiled soil to one part planting soil.
2. Planting Soil: Planting soil as specified in Section 329115 "Soil Preparation (Performance Specification)."

B. Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:

1. Type: Soil pep mulch.

C. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements:

1. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch (50-mm) maximum opening in pattern and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches (2400 mm) apart. High-visibility orange color.

a. Height: 48 inches.

2. Gates: Swing access gates matching material and appearance of fencing, to allow for maintenance activities within protection zones.

D. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes prepunched and reinforced; legibly printed with nonfading lettering.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

3.2 PREPARATION

A. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

B. Tree-Protection Zones: Maintain existing ground plane surface material (i.e. turfgrass or organic mulch) under trees indicated to be preserved on Drawings. If ground plane surface is to be modified in any way, install organic mulch inside tree-protection zones and other areas indicated. Do not exceed indicated thickness of mulch.

1. Apply 3-inch (50-mm) uniform thickness of organic mulch unless otherwise indicated. Do not place mulch within 6 inches of tree trunks.

3.3 PROTECTION ZONES

A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones in a manner that will prevent people from easily entering protected areas except by entrance gates.

1. Construction Zone Fencing: Install to comply with manufacturer's written instructions and as specified in this section.
2. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Owner and Landscape Architect. Avoid damage to existing tree roots when installing posts.
3. Access Gates: Install one access gate per tree, or grouping of trees, to be preserved.

B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Owner and Landscape Architect.

C. Maintain protection zones free of weeds and trash.

D. Maintain protection-zone fencing and signage in good condition as acceptable to Owner and Landscape Architect and remove when construction operations are complete and equipment has been removed from the site.

3.4 EXCAVATION

A. General: Excavate at the edges of protection zones and for trenches indicated within protection zones according to requirements in Section 312000 "Earth Moving" unless otherwise indicated.

B. Trenching within Protection Zones: Where utility trenches are required within protection zones,

excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning.

C. Do not allow exposed roots to dry out before placing permanent backfill.

3.5 ROOT PRUNING

A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil backfill.
3. Cover exposed roots with burlap and water regularly.
4. Backfill as soon as possible according to requirements in Section 312000 "Earth Moving."

B. Root Pruning at Edge of Protection Zone: Prune tree roots by cleanly cutting all roots to the depth of the required excavation.

C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.6 CROWN PRUNING

A. Prune branches that are affected by temporary and permanent construction. Prune branches as directed by Owner and/or Landscape Architect.

1. Prune to remove only injured, broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated by Owner and/or Landscape Architect.
2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
3. Pruning Standards: Prune trees according to ANSI A300 (Part 1).

B. Cut branches with sharp pruning instruments; do not break or chop.

C. Do not paint or apply sealants to wounds.

D. Chip removed branches and dispose of off-site.

3.7 REGRADING

A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

B. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

C. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

D. All regrading within tree protection zones shall be coordinated with Owner and Landscape Architect prior to any work being performed. No exceptions.

3.8 REPAIR AND REPLACEMENT

A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Owner and Landscape Architect.

1. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions, if required.
2. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Owner and Landscape Architect.

B. Excess Mulch: Rake mulched area within protection zones, being careful not to injure roots. Rake to loosen and remove mulch that exceeds a 2-inch uniform thickness to remain.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 01 5639

SECTION 02 4119
SELECTIVE SITE AND STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected site elements.
2. Salvage of existing items to be reused or recycled.

B. Related Sections include the following:

1. Division 01 Section "Summary" for use of premises**,** and phasing**,** and Owner-occupancy requirements.
2. Division 01 Section "Photographic Documentation" for preconstruction photographs taken before selective demolition operations.
3. Division 01 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
4. Division 01 Section "Cutting and Patching" for cutting and patching procedures.
5. Division 01 Section "Construction Waste Management and Disposal" for disposal of demolished materials.
6. Division 02 Section "Structure Demolition" for demolition of entire buildings, structures, and site improvements.
7. Division 31 Section "Site Clearing" for site clearing and removal of above- and belowgrade improvements.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

1. Coordinate with Owner who will establish special procedures for removal and salvage.

1.5 SUBMITTALS

A. Qualification Data: For demolition firm.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's other tenants' on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Locations of proposed dust and noise control, temporary partitions and means of egress**,** including for other tenants affected by selective demolition operations.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
6. Means of protection for items to remain and items in path of waste removal from building.

C. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.

D. Pre-demolition Photographs or Videotapes: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Comply with Division 01 Section "Photographic Documentation." Submit before Work begins.

E. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1. Comply with submittal requirements in Division 01 Section "Construction Waste Management and Disposal."

1.6 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

E. Pre-demolition Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

4. Review areas where existing construction is to remain and requires protection.
5. Review shoring plans and methods of shoring placement.

1.7 PROJECT CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before selective demolition, Owner will remove the items to be salvaged by the owner. Coordinate other items with the architect.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work or have been removed by Owner under a separate contract.
2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Survey of Existing Conditions: Record existing conditions by use of measured drawings, preconstruction photographs, preconstruction videotapes, and templates.

1. Comply with requirements specified in Division 01 Section "Photographic Documentation."
2. Before selective demolition make permanent record of measurements, materials, and construction details required to make exact reproduction.

F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off indicated utilities with utility companies.
3. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems.
4. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

    a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes

to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly. Comply with requirements in Division 01 Section "Construction Waste Management and Disposal."

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area on-site.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their

original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.

B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.8 SELECTIVE DEMOLITION SCHEDULE

A. Coordinate with architect’s plans.

END OF SECTION 02 4119

SECTION 31 0700
GENERAL SITE CONSTRUCTION REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited to

1. General procedures and requirements for Site Work.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 PREPARATION

A. Site Verification Of Conditions

1. 48 hours minimum prior to performing any work on site, contact Blue Stakes to arrange for utility location services.
2. Perform minor, investigative excavations to verify location of various existing underground facilities at sufficient locations to assure that no conflict with the proposed work exists and sufficient clearance is available to avoid damage to existing facilities.
3. Perform investigative excavating 5 days minimum in advance of performing any excavation or underground work.
4. Upon discovery of conflicts or problems with existing facilities, notify Architect by phone or fax within 24 hours. Follow telephone or fax notification with letter and diagrams indicating conflict or problem and sufficient measurements and details to evaluate problem.
5. Notify Owner of utilities a minimum of 48 hours prior to an work taking place.

3.2 PREPARATION

A. Protection

1. Spillage -

a. Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways.
b. Remove spillage and sweep, wash, or otherwise clean project, streets, and highways.

2. Dust Control -

a. Take precautions necessary to prevent dust nuisance, both on-site and adjacent to public and private properties.
b. Correct or repair damage caused by dust.

3. Erosion Control -

a. Take precautions necessary to prevent erosion and transportation of soil downstream, to adjacent properties, and into on-site or offsite drainage systems.
b. Develop, install, and maintain an erosion control plan if required by law.
c. Repair and correct damage caused by erosion.

4. Protect site from fire caused by welding, cutting, smoking, or other sources of ignition.

B. If specified precautions are not taken or corrections and repairs made promptly, Owner may take such steps as may be deemed necessary and deduct costs of such from monies due to Contractor. Such action or lack of action on Owner's part does not relieve Contractor from responsibility for proper protection of the Work.

C. Fees

1. Contractor shall be responsible for all off site street cut fees, encroachment permit fees, and bonding associated with the construction of the proposed facility.

3.3 REPAIR / RESTORATION

A. Adjust existing covers, boxes, and vaults to grade.

B. Replace broken or damaged covers, boxes, and vaults.

C. Independently confirm size, location, and number of covers, boxes, and vaults which require adjustment.

3.4 FIELD QUALITY CONTROL

A. Notify Architect 48 hours prior to performing excavation or fill work.

B. If work has been interrupted by weather, scheduling, or other reason, notify Architect 24 hours minimum prior to intended resumption of grading or compacting.

C. Owner reserves right to require additional testing to re-affirm suitability of completed work including compacted soils which have been exposed to adverse weather conditions.

END OF SECTION 31 0700

SECTION 31 1000
SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Removing concrete, asphalt and fencing as indicated on demolition plan.
2. Removing above- and below-grade site improvements.
3. Temporary erosion and sedimentation control measures.

B. Related Sections include the following:

1. Division 01 Section "Temporary Facilities and Controls" for temporary utilities, temporary construction and support facilities, temporary security, protection facilities, and temporary erosion and sedimentation control procedures.

2. Division 02 Section "Structure Demolition" for demolition of structures, and site improvements.

3. Division 31 Section "Earth Moving" for soil materials, excavating, backfilling, and site grading.

1.3 MATERIAL OWNERSHIP

A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.4 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

B. Record drawings, according to Division 01 Section "Project Record Documents," identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.5 QUALITY ASSURANCE

A. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.6 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Architect.

C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

D. Utility Locator Service: Contractor is to notify and pay for utility locator service for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 31 Section "Earth Moving."

1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction, sediment and erosion control Drawings, a sediment and erosion control plan, specific to the site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent**.**

B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed

during removal.

3.3 UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.

1. Arrange with utility companies to shut off indicated utilities.
2. Owner will arrange to shut off indicated utilities when requested by Contractor.

C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

D. Excavate for and remove underground utilities indicated to be removed.

E. Removal of underground utilities is included in Division 21, Division 22, Division 26, Division 27, and Division 28 Sections covering site utilities.

3.4 SITE IMPROVEMENTS

A. Remove existing above-grade and below-grade improvements as indicated and as necessary to facilitate new construction. Refer to project plans for improvements to be abandoned in place.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Sawcut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

3.5 DISPOSAL

A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

1. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 31 1000

SECTION 31 2000
EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Refer to the Geotechnical Report titled for additional grading requirements. There is not a current geotechnical report available.

1.2 SUMMARY

A. This Section includes the following:

1. Preparing sub-grades for retaining walls, stairs and landscaping.
2. Excavating and backfilling trenches for buried electrical utilities and pits for buried utility structures.

B. Related Sections include the following:

1. Division 01 Section Construction Progress Documentation and Photographic Documentation for recording pre-excavation and earthwork progress.
2. Division 01 Section “Temporary Facilities and Controls" for temporary controls, utilities, and support facilities.
3. Divisions 26 and 27 Sections for installing underground electrical utilities and buried electrical structures.
4. Division 31 Section "Site Clearing" for temporary erosion and sedimentation control measures, site stripping, grubbing, stripping and stockpiling topsoil, and removal of above-grade and below-grade improvements and utilities.
5. Division 32 Section for finish grading, including placing retaining walls and concrete for stairs and mow strip.
6. Division 33 Section for installing underground utilities.

1.3 UNIT PRICES

A. Unit prices for earthwork are included in Division 01 Section "Unit Prices."

B. Quantity allowances for earthwork are included in Division 01 Section "Allowances."

1.4 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving and post tension concrete tennis courts..

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: 1-1/2-inch minus washed gravel or crushed stone course around perforated collector pipe.

F. Drain Rock: Clean washed gravel, ¾-inch minis placed on top of geofabic, PVC liner and compacted road base and under crusher course. This part of drainage layer that removes water from "future" artificial turf.

G. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices and changes in the work.
2. Bulk Excavation: Excavation more than 10-feet in width and more than 30-feet in length.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

H. Fill: Soil materials used to raise existing grades.

I. Structures: Slabs, curbs, and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

K. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.5 SUBMITTALS

A. Product Data: For the following:

1. Each type of plastic warning tape.
2. Controlled low-strength material, including design mixture.

B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

1. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
2. Laboratory compaction curve according to ASTM D698 or ASTM D1557 for each on-site and borrow soil material proposed for fill and backfill.

C. Blasting Plan: Not Allowed

D. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.

1.6 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

B. Pre-excavation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.7 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.
3. Contact utility-locator service for area where Project is located before excavating.

B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM or AASHTO M 145 Soil Classification Groups A-1, A-2-4, A-2-5, and A-3, or a combination of these groups; free of rock or gravel larger than 3-inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter. Native rock crushed to meet the above requirements and free from significant porosity may also be used as satisfactory soils.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 or A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

E. Aggregate Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed concrete and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-inch sieve and not more than 15 percent passing a

No. 200 sieve. Sand Equivalent of no less than 35.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve. (Cannot be straight sand).

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 3/4-inch sieve and not more than 8 percent passing a No. 200 sieve.

H. Drainage Course (around perforated pipe): Narrowly graded mixture of washed or crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.2 CONTROLLED LOW-STRENGTH MATERIAL

A. Controlled Low-Strength Material: Low-density, self-compacting, flowable concrete material as follows:

1. Portland Cement: ASTM C 150, Type II.
2. Fly Ash: ASTM C 618, Class C or F.
3. Normal-Weight Aggregate: ASTM C 33, 3/4-inch to 3/8-inch nominal maximum aggregate size.
4. Foaming Agent: ASTM C 869.
5. Water: ASTM C 94/C 94M.
6. Air-Entraining Admixture: ASTM C 260.

B. Produce low-density, controlled low-strength material with the following physical properties:

1. As-Cast Unit Weight: 30 to 36 lb/cu. ft. at point of placement, when tested according to ASTM C 138/C 138M.
2. Compressive Strength: 80 psi , when tested according to ASTM C 495.

2.3 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows when required by utility purveyor:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing," during earthwork operations.

D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES – Not Allowed

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:

    a. 24 inches outside of concrete forms other than at footings.
    b. 12 inches outside of concrete forms at footings.
    c. 6 inches outside of minimum required dimensions of concrete cast against grade.
    d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
    e. 6 inches beneath bottom of concrete slabs on grade.
    f. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Excavation for Underground Basins, Vaults or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit less than 6 inches in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
3. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.8 SUBGRADE INSPECTION

A. Notify Architect when excavations have reached required subgrade.

B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with heavy pneumatictired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons or vehicle with similar unit axel weight.
3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices and changes in the Work.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable subdrainage.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.12 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section "Cast-in-Place Concrete."

D. Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 12 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase.

F. Place and compact initial backfill of subbase material or satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the utility pipe or conduit.

G. Backfill voids with satisfactory soil while installing and removing shoring and bracing.

H. Place and compact final backfill of satisfactory soil to final subgrade elevation.

I. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

J. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.13 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under walks and pavements, use satisfactory soil material.
2. Under steps and ramps, use engineered fill.
3. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.14 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 12-inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers. Reduce loose depths as needed to achieve required compactions.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698 or ASTM D 1557:

1. Paved Areas: Compact top 12" of subgrade and each layer of backfill or fill material at 95% maximum dry density for cohesive material or 92% relative dry density for cohesionless material. Scarify and moisture condition to within 2% of optimum moisture and recompact subgrade.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
3. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent if in landscaping areas or 95 percent if under structures, pavements, or walks.

3.16 GRADING

A. General: Uniformly laser grade areas within contract limits under this section, including adjacent transition areas, free of irregular surface changes. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Walks: Plus or minus 1 inch
2. Pavements: Plus or minus 1/2 inch

C. Finish surfaces free from irregular surface changes, and as follows:

1. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 1/4" above or below required subgrade elevation.
2. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 1/4" above or below required subgrade elevation. Provide final grades within a tolerance of 1/4" when tested with a 10' straightedge.
3. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

3.17 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks

as follows:

1. Place base course material over subbase course under hot-mix asphalt pavement and post tension concrete..
2. Shape subbase and base course to required crown elevations and cross-slope grades.
3. Place subbase and base course 6 inches or less in compacted thickness in a single layer.
4. Place subbase and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
5. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698 or ASTM D 1557.

3.18 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.
2. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.19 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

B. Disposal: Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Architect.

1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 31 2000

SECTION 31 5000
EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes temporary excavation support and protection systems.

B. Related Sections:

1. Division 01 Section "Construction Progress Documentation and Photographic Documentation" for recording preexisting conditions and excavation support and protection system progress.
2. Division 01 Section "Temporary Facilities and Controls" for temporary utilities and support facilities.
3. Division 31 Section "Dewatering" for dewatering system for excavations.

1.3 PERFORMANCE REQUIREMENTS

A. Design, furnish, install, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting soil and hydrostatic pressure and superimposed and construction loads, as needed.

1. Delegated Design: Design excavation support and protection system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
2. Prevent surface water from entering excavations by grading, dikes, or other means.
3. Install excavation support and protection systems without damaging existing buildings, structures, and site improvements adjacent to excavation.
4. Monitor vibrations, settlements, and movements.

1.4 SUBMITTALS

A. Shop Drawings: For excavation support and protection system.

B. Delegated-Design Submittal: For excavation support and protection system indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

C. Coordinate first paragraph below with qualification requirements in Division 01 Section "Quality Requirements" Qualification Data: For qualified professional engineer.

D. Other Informational Submittals:

1. Photographs or Videotape: Show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by the

absence of, the installation of, or the performance of excavation support and protection systems. Submit before Work begins.

2. Record Drawings: Identifying and locating capped utilities and other subsurface structural, electrical, or mechanical conditions.

    a. Note locations and capping depth of wells and well points.

1.5 QUALITY ASSURANCE

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to excavation support and protection system including, but not limited to, the following:

    a. Existing utilities and subsurface conditions.
    b. Proposed excavations.
    c. Proposed equipment.
    d. Monitoring of excavation support and protection system.
    e. Working area location and stability.
    f. Coordination with waterproofing.
    g. Abandonment or removal of excavation support and protection system.

1.6 PROJECT CONDITIONS

A. Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:

1. Notify Architect no fewer than two days in advance of proposed interruption of utility.
2. Do not proceed with interruption of utility without Architect's, Construction Manager's, and Owner's written permission.

B. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

1. During installation of excavation support and protection systems, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Architect if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that are either new or in serviceable condition.

B. Cast-in-Place Concrete: ACI 301, of compressive strength required for application.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

D. Tiebacks: Steel bars, ASTM A 722/A 722M.

E. Tiebacks: Steel strand, ASTM A 416/A 416M.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.

1. Shore, support, and protect utilities encountered.

B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

C. Locate excavation support and protection systems clear of permanent construction so that forming and finishing of concrete surfaces are not impeded.

D. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protection systems remain stable.

E. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

3.2 REMOVAL AND REPAIRS

A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging structures, pavements, facilities, and utilities.

1. Remove excavation support and protection systems to a minimum depth of 48 inches below overlaying construction and abandon remainder.

2. Fill voids immediately with approved backfill compacted to density specified in Division 31 Section "Earth Moving."

3. Repair or replace, as approved by Architect, adjacent work damaged or displaced by removing excavation support and protection systems.

B. Leave excavation support and protection systems permanently in place.

END OF SECTION 31 5000

SECTION 02 700
CURB AND GUTTER, SIDEWALKS, DRIVEWAYS AND WATERWAYS

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Furnish all materials, equipment, miscellaneous tools, and labor to construct concrete curb and gutter, sidewalks, driveways and waterways as shown on the drawings, as described herein and as directed by the City.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Concrete - The concrete used in the construction of these structures shall be as specified in Section 03, using 1-inch maximum aggregate.

B. Reinforcement - Reinforcement shall be as shown on the drawings, and as specified in Section 03 210.

C. Joint Filler - Expansion joint filler shall be pre-molded bituminous impregnated fiber type, 1/2-inch thick, conforming to AASHTO Designation M-153 or AASHTO Designation M-213.

PART 3 EXECUTION

3.1 INSTALLATION

A. Concrete work shall be constructed and located as shown on the drawings and as described herein and as directed by the City.

B. Excavation and Backfill - Excavation and backfill for these structures shall be in accordance with applicable portions of Section 02 220.
   1. Where the subgrade material is unsatisfactory it shall be removed as directed by the City and replaced with "Borrow for Bedding".
   2. The Contractor as directed by the City shall dispose of all excavated material in excess of that required for backfill.

C. Curb and Gutter
   1. Description - This item shall consist of constructing monolithic concrete curb and gutter, both straight and radius sections conforming to the typical sections, line and grade shown on the drawings; and at the indicated locations, and as directed by the City, on a thoroughly compacted sub-base. The base shall be compacted as specified in Section 02 220.
   2. Joints, Finishing, and Ruling - Curb and gutter shall be constructed in sections ten (10) feet in length, except as otherwise provided, and each section shall be made in one continuous pour. The different sections shall separated from each other by a metal "half plate" not less than one-eighth (1/8) inch thick and cut to the true cross sectional dimension of curb and gutter. The plate shall not extend into the bottom 4 1/2" of the curb and gutter.
      a. The plates shall not be removed until after the concrete has taken its initial set. An expansion joint, filled with pre-molded joint filler 1/2-inch thick, shall be provided every 40 feet, and where new paving joins existing paving.
      b. Where length of the block or portion thereof, where curb and gutter is not divisible by 10 then the final section or sections shall be of such length as the City may direct. A joint shall always be installed between the regular section and the warped section at the ends of culverts.

c. The gutter shall be trowel finished. A tool shall be used for compression of the coarse aggregate about 3/8-inch into the concrete, thereby leaving the mortar of the concrete on the surface for towel finishing.

d. The face of the curb shall be given a smooth finish, true to line. Forms shall be stoutly constructed so as to permit spading of the concrete and still remain true to line and grade. The face form shall be removed as soon as the concrete has taken its initial set and the curb face shall be smooth trowel finished.

e. After finishing, the curb and gutter shall be ruled. The ruling shall be brought directly over the joint made by the plate.

3. Radius Sections - Curb and gutter radius sections shall be constructed where shown on the drawings and as directed by the City. The back of curb radius shall be as designated on the drawings and as directed by the City. The construction of radius sections shall be as specified herein.

D. Sidewalks

1. Description - This item shall consist of the construction of Portland cement concrete sidewalks, on a compacted base at the locations, to the line and grade and in conformity with the typical sections shown on the drawings, in conformity with these specifications and as directed by the City.

2. The base shall be compacted as specified in Section 02 220.

3. Construction - The sidewalks shall be constructed in one course of the thickness shown on the drawings. Forms shall be set true to line and grade and braced properly to resist movement during pouring operation. Forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping and vibration without deflection from the prescribed lines. The surfaces of all forms to be in contact with the concrete shall be clean, rigid, tight, and smooth.
4. Joints, Ruling, and Finishing - Expansion joints, filled with pre-molded joint filler one-half inch thick shall be provided at approximately 40-foot intervals. Expansion joins shall also be placed where new paving joins existing paving, and at other places as indicated on the drawings.
5. Groove approximately one-quarter inch wide with neatly tooled edges and extending to at least one-quarter the depth of the slabs, shall be provided at intervals not exceeding five (5) feet. The top surface of the sidewalks shall receive a wood-float and broom finish. All longitudinal edges shall be neatly finished with an edging tool.

E. Concrete Waterways

1. Description - This item shall consist of the construction of Portland cement concrete waterway five feet wide on compacted base, at the locations, to the line and grade, and in conformity with the typical sections shown on the drawings; in accordance with these specifications, and as directed by the City.
2. Compacted base and earthwork shall be as specified in Section 02 220.
3. Construction - The waterways shall be constructed in one course of the thickness shown on the drawings and shall be reinforced with five #5 reinforcing bars installed as shown. Forms shall be set true to line and grade and braced properly to resist movement during pouring operation. Forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping and vibration without deflection from the prescribed lines. The surfaces of all forms to be in contact with the concrete shall be clean, rigid, tight and smooth.
4. Joints, Ruling and Finishing - Construction joints, formed with metal plates cut to the cross-section shown on the drawing, shall be made at approximately 10-foot intervals. Waterways shall be smooth trowel finished as specified for curb and gutter and warped to match the flow lines of the gutters as shown on the drawings and as directed by the City.

F. Driveways

1. Description - This item shall consist of the construction of driveways with driveway paving and round corner curbs, or curb-cut type driveways, to the width shown on the drawings, in conformity with the typical details shown; in accordance with these specifications and as directed by the City. Driveways shall be constructed on thoroughly compacted base; compacted as specified in Section 02 220.
2. Construction –
    a. Where driveways with round corner curbs are to be constructed, the entire area between the back of the gutter and the sidewalk line and to the width directed shall be paved in one course with concrete of the thickness shown. A curb conforming to that shown on the drawings shall be on each side of the driveway pavement. The radius of the back of curb shall be as shown.
    b. Forms shall be as described under "Sidewalks". Driveway pavement shall be rough float finished. Driveway curbs shall be finished in the manner described under "Curb and Gutter".
    c. Where curb-cut type driveways are to be constructed, the curb of the curb & gutter shall be cut down to the limits shown on the drawings or as directed, and driveway pavement shall be placed between back of curb and the sidewalk line, or the surface of the sidewalk shall be warped if adjacent to back of curb, for the width and configuration as shown on the drawings and as described herein and as directed by the City.

3.2 REPAIRS AND MAINTENANCE

A. All repairs of curb and gutter, sidewalks, waterways, and driveways required to be made by the Contractor during the guarantee period shall be made with mixtures similar and equal to, and laid in the manner of those described in these specifications.

B. In addition to the proper maintenance of the pavement and other structures built under this contract during the period of guarantee, the Contractor shall, at the Contractor's own expense, just before the expiration of the guarantee period, make such repairs as may be necessary to produce pavements which shall:
    1. Conform substantially in contour to the pavements as first laid.
    2. Be free from cracks or depressions showing disintegration of the concrete mixture of the concrete pavement.
    3. Be free from all surface settlements holding water or other settlements showing a variation of three-eighths (3/8) inch or more from the edge of a four-foot straight edge.
    4. Whenever the repairs necessary to be made prior to expiration of the guarantee period in accordance with this section shall amount to more than fifty (50) percent of the surface of curb & gutter and sidewalk of any one block, the entire curb & gutter and sidewalk on that block shall be taken up and re-laid in accordance with these specifications.
    5. If more than fifty (50) percent of any driveway or waterway requires repairs, the entire structure shall be taken up, as directed by the City, and re-constructed in accordance with these specifications.

END OF SECTION 02 700

SECTION 32 1313
CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:

1. Stairs.
2. Mow strips
3. Walkways.
4. Tactile Walkway surfaces

B. Related Sections include the following:

1. Division 03 Section "Cast-in-Place Concrete" for general building applications of concrete.
2. Division 31 Section "Earth Moving" for subgrade preparation, grading, and subbase course.
3. Division 32 Section "Concrete Paving Joint Sealants" for joint sealants of joints in concrete pavement and at isolation joints of concrete pavement with adjacent construction.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.

1.4 SUBMITTALS

A. Product Data: For each type of manufactured material and product indicated.

B. Design Mixtures: For each concrete pavement mixture. Include alternate mixture designs when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Samples: 10-lb sample of exposed aggregate.

D. Qualification Data: For manufacturer and testing agency.

E. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:

1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.

F. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements:

1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Fiber reinforcement.
4. Admixtures.
5. Curing compounds.
6. Applied finish materials.
7. Bonding agent or epoxy adhesive.
8. Joint fillers.

G. Field quality-control test reports.

H. Minutes of preinstallation conference.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.

C. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

D. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1. Before submitting design mixtures, review concrete pavement mixture design and examine procedures for ensuring quality of concrete materials and concrete pavement construction practices. Require representatives, including the following, of each entity directly concerned with concrete pavement, to attend conference:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete producer.
d. Concrete pavement subcontractor.

1.6 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.
3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.

1. Use flexible or curved forms for curves with a radius 100 feet or less.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT (NO REINFORCEMENT USED FOR FLATWORK)

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60, deformed bars; assembled with clips.

E. Plain Steel Wire: ASTM A 82.

F. Deformed-Steel Wire: ASTM A 496.

G. Joint Dowel Bars: Plain steel bars, ASTM A 615/A 615M, Grade 60. Cut bars true to length with ends square and free of burrs.

H. Tie Bars: ASTM A 615/A 615M, Grade 60, deformed.

I. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against pavement form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

J. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing,

supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectricpolymer-coated wire bar supports.

2.4 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:

1. Portland Cement and as specified in Division 3 except that for exterior concrete, the minimum compressive strength is 5000 psi at 28 days.

B. Normal-Weight Aggregates: ASTM C 33, coarse aggregate, uniformly graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar pavement applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 1 inch nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Exposed Aggregate: Selected, hard, and durable; washed; free of materials with deleterious reactivity to cement or that cause staining; from a single source, with gap-graded coarse aggregate as follows:

1. Aggregate Sizes: 3/4 to 1 inch nominal.
2. Aggregate Source, Shape, and Color and as required by the architect.

D. Water: ASTM C 94/C 94M.

E. Air-Entraining Admixture: ASTM C 260.

F. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.5 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlappolyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

1. Products:

a. Axim Concrete Technologies; Cimfilm.
b. Burke by Edeco; BurkeFilm.
c. ChemMasters; Spray-Film.
d. Conspec Marketing & Manufacturing Co., Inc.; Aquafilm.
e. Dayton Superior Corporation; Sure Film.
f. Euclid Chemical Company (The); Eucobar.
g. Kaufman Products, Inc.; Vapor Aid.
h. Lambert Corporation; Lambco Skin.
i. L&M Construction Chemicals, Inc.; E-Con.
j. MBT Protection and Repair, ChemRex Inc.; Confilm.
k. Meadows, W. R., Inc.; Sealtight Evapre.
l. Metalcrete Industries; Waterhold.
m. Nox-Crete Products Group, Kinsman Corporation; Monofilm.
n. Sika Corporation, Inc.; SikaFilm.
o. Symons Corporation; Finishing Aid.
p. Vexcon Chemicals, Inc.; Certi-Vex EnvioAssist.

E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

1. Products:

a. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
b. Burke by Edoko; Aqua Resin Cure.
c. ChemMasters; Safe-Cure Clear.
d. Conspec Marketing & Manufacturing Co., Inc.; W.B. Resin Cure.
e. Dayton Superior Corporation; Day Chem Rez Cure (J-11-W).
f. Euclid Chemical Company (The); Kurez DR VOX.
g. Kaufman Products, Inc.; Thinfilm 420.
h. Lambert Corporation; Aqua Kure-Clear.
i. L&M Construction Chemicals, Inc.; L&M Cure R.
j. Meadows, W. R., Inc.; 1100 Clear.
k. Nox-Crete Products Group, Kinsman Corporation; Resin Cure E.
l. Symons Corporation; Resi-Chem Clear.
m. Tamms Industries Inc.; Horncure WB 30.
n. Unitex; Hydro Cure 309.
o. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.

F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

1. Products:

a. Anti-Hydro International, Inc.; AH Curing Compound #2 WP WB.
b. Burke by Edoco; Resin Emulsion White.
c. ChemMasters; Safe-Cure 2000.

d. Conspec Marketing & Manufacturing Co., Inc.; W.B. Resin Cure.
e. Dayton Superior Corporation; Day-Chem White Pigmented Cure (J-10-W).
f. Euclid Chemical Company (The); Kurez VOX White Pigmented.
g. Kaufman Products, Inc.; Thinfilm 450.
h. Lambert Corporation; Aqua Kure-White.
i. L&M Construction Chemicals, Inc.; L&M Cure R-2.
j. Meadows, W. R., Inc.; 1200-White.
k. Symons Corporation; Resi-Chem White.
l. Tamms Industries, Inc.; Horncure 200-W.
m. Unitex; Hydro White.
n. Vexcon Chemicals, Inc.; Certi-Vex Enviocure White 100.

2.6 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

B. Color stain: Match Architect's sample or as selected by Architect from manufacturer's full range of stains.

C. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery with emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

D. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

E. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to requirements, and as follows:

1. Types I and II, non-load bearing and types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

F. Chemical Surface Retarder: Water-soluble, liquid-set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.

1. Products:

a. Burke by Edeco; True Etch Surface Retarder.
b. ChemMasters; Exposee.
c. Conspec Marketing & Manufacturing Co., Inc.; Delay S.
d. Euclid Chemical Company (The); Surface Retarder S.
e. Kaufman Products, Inc.; Expose.
f. Metalcrete Industries; Surftard.
g. Nox-Crete Products Group, Kinsman Corporation; Crete-Nox TA.
h. Scofield, L. M. Company; Lithotex.
i. Sika Corporation, Inc.; Rugasol-S.
j. Vexcon Chemicals, Inc.; Certi-Vex Envioset.

G. Pigmented Mineral Dry-Shake Hardener: Factory-packaged dry combination of portland cement, graded quartz aggregate, color pigments, and plasticizing admixture. Use color pigments that are finely ground, nonfading mineral oxides interground with cement.

1. Products:

    a. Conspec Marketing & Manufacturing Co., Inc.; Conshake 600 Colortone.
    b. Dayton Superior Corporation; Quartz Tuff.
    c. Euclid Chemical Company (The); Surflex.
    d. Lambert Corporation; Colorhard.
    e. L&M Construction Chemicals, Inc.; Quartz Plate FF.
    f. MBT Protection and Repair, ChemRex Inc.; Mastercron.
    g. Metalcrete Industries; Floor Quartz.
    h. Scofield, L. M. Company; Lithochrome Color Hardener.
    i. Symons Corporation; Hard Top.

2. Color: Match Architect's sample or as selected by Architect from manufacturer's full range.

2.7 PAVEMENT MARKINGS

A. Pavement-Marking Paint: Alkyd-resin type, lead and chromate free, ready mixed, complying with FS TT-P-115, Type I or II or AASHTO M 248, Type N or F.

1. Color: White, Yellow, Blue. See Section 321216 for color locations.

B. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952, with drying time of less than 45 minutes.

1. Color: White, Yellow, Blue. See Section 321216 for color locations.

C. Glass Beads: AASHTO M 247, Type 1.

2.8 DETECTABLE WARNING TILES

A. Cast-in-Place Detectable Warning Tiles: Accessible truncated-dome detectable warning tiles configured for setting flush in new concrete walkway surfaces, with slipresistant surface treatment on domes and field of tile.

B. Manufacturers :
Cast Iron Panels as manufactured by
Duralast EJCo
Neenah Foundry
US Foundry

1. Color: Natural.
2. Shapes and Sizes:
    a. Rectangular panel, 24 by 24 inches, 24 by 30 inches and 24 by 36 inches . to suit conditions
3. Dome Spacing and Configuration: Manufacturer's standard compliant spacing
4. Mounting:
    a. Permanently embedded detectable warning tile

2.9 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete mixture designs for the trial batch method.

B. Proportion mixtures to provide normal-weight concrete with the following properties:

1. Compressive Strength (28 Days): 5000 psi
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45
3. Select slump limit from options in subparagraph below or revise to suit Project.
4. Slump Limit: 4 inches, plus or minus 1 inch.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in normalweight concrete at point of placement having an air content as follows:

1. Air Content: 5-8 percent nominal maximum aggregate size.

D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture, high-range, water-reducing admixture, high-range, water-reducing and retarding admixture, plasticizing, and retarding admixture in concrete, as required, for placement and workability.
2. Specify admixtures as part of submittal. Verify that admixtures proposed do not adversely effect stained concrete and will not modify colors of stain.
3. Coordinate acceptability of admixtures with architect.

F. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements as follows:

1. Fly Ash or Pozzolan: 25 percent.
2. Ground Granulated Blast-Furnace Slag: 50 percent.
3. Combined Fly Ash or Pozzolan, and Ground Granulated Blast-Furnace Slag: 50 percent, with fly ash or pozzolan not exceeding 25 percent.

G. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd. where specified and approved in mix submittal.

H. Color Stain: Add stain to concrete per manufacturers recommendations and to meet color required by architect and owner on areas of stained concrete.

2.10 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.

1. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For concrete mixes of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For concrete mixes larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatictired equipment to identify soft pockets and areas of excess yielding.

1. Completely proof-roll subbase in one direction. Limit vehicle speed to 3 mph.
2. Proof-roll with a loaded 10-wheel tandem-axle dump truck weighing not less than 15 tons or similar axel weight vehicle.
3. Subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch require correction according to requirements in Division 31 Section "Earth Moving."

C. Proceed with concrete pavement operations only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

E. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap of adjacent mats.

3.5 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

1. Continue steel reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
2. Provide tie bars at sides of pavement strips where indicated.
3. Butt Joints: Use bonding agent at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

1. Locate expansion joints at intervals of 50 feet, unless otherwise indicated.
2. Extend joint fillers full width and depth of joint.
3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
6. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into

areas as indicated. Construct contraction joints for a depth equal to at least onefourth of the concrete thickness, as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery or at Project site.

F. Do not add water to fresh concrete after testing.

G. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

H. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.

I. Place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay welded wire fabric or fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed.

1. Remove and replace concrete that has been placed for more than 15 minutes without being covered by top layer, or use bonding agent if approved by Architect.

J. Screed pavement surfaces with a straightedge and strike off.

K. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

L. Curbs and Gutters: When automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not approved, remove and replace with formed concrete.

M. Slip-Form Pavers: When automatic machine placement is used for pavement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce pavement to required thickness, lines, grades, finish, and jointing as required for formed pavement.

1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of paver machine during operations.

N. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength.

O. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mix designs.

P. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiffbristled broom, perpendicular to line of traffic.
4. Coordinate with architect the locations of each type of finish.

3.8 SPECIAL FINISHES

A. Pigmented Mineral Dry-Shake Hardener Finish: After initial floating, apply dryshake materials to pavement surface according to manufacturer's written instructions and as follows:

1. Uniformly spread dry-shake hardener at a rate of 100 lb/100 sq. ft. unless greater amount is recommended by manufacturer to match pavement color required.
2. Uniformly distribute approximately two-thirds of dry-shake hardener over pavement surface with mechanical spreader, allow to absorb moisture, and embed by power floating. Follow power floating with a second dryshake hardener application, uniformly distributing remainder of material at right angles to first application to ensure uniform color, and embed by power floating.
3. After final floating, apply a hand-trowel finish followed by a broom finish to concrete.
4. Cure concrete with curing compound recommended by dry-shake hardener manufacturer. Apply curing compound immediately after final finishing.

3.9 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:

1. Moist Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

    a. Water.
    b. Continuous water-fog spray.
    c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.10 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-foot-long, unleveled straightedge not to exceed 1/4 inch.
4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch.
5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch.
6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.
8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.11 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

B. Allow concrete pavement to cure for 14 days and be dry before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

1. Spread glass beads uniformly into wet pavement markings at a rate of 6 lb/gal.

3.12 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain at least 1 composite sample for each 100 cu. yd. or 5000 sq. ft. or fraction thereof of each concrete mix placed each day.

    a. When frequency of testing will provide fewer than five compressive strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
6. Compressive-Strength Tests: ASTM C 39/C 39M; test 1 specimen at 7 days and 2 specimens at 28 days.

    a. A compressive-strength test shall be the average compressive strength from 2 specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mix will be satisfactory if average of any 3 consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

G. Remove and replace concrete pavement where test results indicate that it does not comply with specified requirements.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.13 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.

C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 32 1313

SECTION 32 1373
CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Expansion and contraction joints within cement concrete pavement.
2. Joints between cement concrete and asphalt pavement.

B. Related Sections include the following:

1. Division 07 Section "Joint Sealants" for sealing nontraffic and traffic joints in locations not specified in this Section.
2. Division 32 Section "Asphalt Paving" for constructing joints between concrete and asphalt pavement.
3. Division 32 Section "Concrete Paving" for constructing joints in concrete pavement.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Verification: For each type and color of joint sealant required. Install joint-sealant samples in 1/2-inch wide joints formed between two 6-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.

D. Qualification Data: For installer and testing agency.

E. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for sealants.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for

testing indicated below, samples of materials that will contact or affect joint sealants.

1. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Submit not fewer than six (6) pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing of current sealant products within a 36-month period preceding the commencement of the Work.

1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 for testing indicated, as documented according to ASTM E 548.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F.
3. When joint substrates are wet or covered with frost.
4. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
5. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 COLD-APPLIED JOINT SEALANTS

A. Multi-component Jet-Fuel-Resistant Sealant for Concrete: Pourable, chemically curing elastomeric formulation complying with the following requirements for formulation and with ASTM C 920 for type, grade, class, and uses indicated:

1. Urethane Formulation: Type M; Grade P; Class 12-1/2; Uses T, M, and, as applicable to joint substrates indicated, O.

a. Available Products:

1) Pecora Corporation; Urexpan NR-300.
2) Engineer approved equal.

2. Coal-Tar-Modified Polymer Formulation: Type M; Grade P; Class 25; Uses T and, as applicable to joint substrates indicated, O.

a. Available Products:

1) Meadows, W. R., Inc.; Sealtight Gardox.
2) Engineer Approved Equal.

3. Bitumen-Modified Urethane Formulation: Type M; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.

a. Available Products:

1) Tremco Sealant/Waterproofing Division; Vulkem 202.
2) Engineer approved Equal.

B. Single-Component Jet-Fuel-Resistant Urethane Sealant for Concrete: Single-component, pourable, coal-tar-modified, urethane formulation complying with ASTM C 920 for Type S; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.

1. Available Products:

a. Sonneborn, Div. of ChemRex, Inc.; Sonomeric 1.
b. Engineer Approved Equal.

C. Type NS Silicone Sealant for Concrete: Single-component, low-modulus, neutral-curing, nonsag silicone sealant complying with ASTM D 5893 for Type NS.

1. Available Products:

a. Crafco Inc.; RoadSaver Silicone.
b. Dow Corning Corporation; 888.
c. Engineer Approved Equal.

D. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutralcuring,

self-leveling silicone sealant complying with ASTM D 5893 for Type SL.

1. Available Products:

a. Crafco Inc.; RoadSaver Silicone SL.
b. Dow Corning Corporation; 890-SL.
c. Engineer Approved Equal.

E. Multi-component Low-Modulus Sealant for Concrete and Asphalt: Proprietary formulation consisting of reactive petropolymer and activator components producing a pourable, selfleveling sealant.

1. Available Products:

a. Meadows, W. R., Inc.; Sof-Seal.
b. Engineer Approved Equal.

2.4 HOT-APPLIED JOINT SEALANTS

A. Jet-Fuel-Resistant Elastomeric Sealant for Concrete: Single-component formulation complying with ASTM D 3569.

1. Available Products:

a. Crafco Inc.; Superseal 444/777.
b. Meadows, W. R., Inc.; Poly-Jet 3569.
c. Engineer Approved Equal.

B. Jet-Fuel-Resistant Sealant for Concrete and Tar Concrete: Single-component formulation complying with ASTM D 3581.

1. Available Products:

a. Crafco Inc.; Superseal 1614A.
b. Meadows, W. R., Inc.; Poly-Jet 1614.
c. Meadows, W. R., Inc.; Poly-Jet 3406.
d. Meadows, W. R., Inc.; Poly-Jet 3569.
e. Engineer Approved Equal.

C. Elastomeric Sealant for Concrete: Single-component formulation complying with ASTM D 3406.

1. Available Products:
a. Crafco Inc.; Superseal 444/777.
b. Meadows, W. R., Inc.; Poly-Jet 3406.
c. Engineer Approved Equal.

D. Sealant for Concrete and Asphalt: Single-component formulation complying with ASTM D 3405.

1. Available Products:

a. Koch Materials Company; Product No. 9005.
b. Koch Materials Company; Product No. 9030.
c. Meadows, W. R., Inc.; Sealtight Hi-Spec.
d. Engineer Approved Equal.

2.5 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

2.6 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting jointsealant performance.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by jointsealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install backer materials of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of backer materials.

2. Do not stretch, twist, puncture, or tear backer materials.
3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses provided for each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealants from surfaces adjacent to joint.
2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.

G. Provide recessed joint configuration for silicone sealants of recess depth and at locations indicated.

3.4 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 32 1373

SECTION 32 9115
SOIL PREPARATION (PERFORMANCE SPECIFICATION)

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes planting soils specified according to performance requirements of the mixes.

B. Related Requirements:

1. Section 311000 "Site Clearing" for topsoil stripping and stockpiling.
2. Section 329200 "Turf and Grasses" additional planting soil and fertilization.
3. Section 329300 "Plants" for placing planting soil for plantings.
4. Section 015639 "Temporary Tree and Plant Protection" for protection of existing trees to remain.

1.2 DEFINITIONS

A. AAPFCO: Association of American Plant Food Control Officials.

B. Backfill: The earth used to replace or the act of replacing earth in an excavation. This can be amended or unamended soil as indicated.

C. CEC: Cation exchange capacity.

D. Compost: The product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth.

E. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.

F. Imported Soil: Soil that is transported to Project site for use.

G. Layered Soil Assembly: A designed series of planting soils, layered on each other, that together produce an environment for plant growth.

H. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.

I. NAPT: North American Proficiency Testing Program. An SSSA program to assist soil-, plant-, and water-testing laboratories through interlaboratory sample exchanges and statistical evaluation of analytical data.

K. Organic Matter: The total of organic materials in soil exclusive of undecayed plant and animal tissues, their partial decomposition products, and the soil biomass; also called "humus" or "soil organic matter."

K. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

L. RCRA Metals: Hazardous metals identified by the EPA under the Resource Conservation and Recovery Act.

M. SSSA: Soil Science Society of America.

N. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

O. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

P. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.

Q. USCC: U.S. Composting Council.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Test Results: On laboratory letterhead, submit soil analysis test results for each source of onsite soil or imported planting soil. Submit results for each source prior to adding amendments and include laboratory recommendations for bringing soils into compliance with the requirements of this section. Also submit results for each source after adding amendments to confirm compliance with requirements of this section.

B. Product Data: For each type of product.

C. Soil Source: For imported soils, submit a report stating the location of the source and an account of recent use.

D. Samples: For each bulk-supplied material in sealed containers labeled with content, source, and date obtained; providing an accurate representation of composition, color, and texture.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in the types of tests to be performed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The full topsoil volume required to meet the project need shall be provided as part of the contract, regardless of whether on-site or imported soils are used.

2.2 PLANTING SOILS SPECIFIED ACCORDING TO PERFORMANCE REQUIREMENTS

A. Planting-Soil Type: Existing, on-site surface soil, with the duff layer, if any, retained and stockpiled on-site; or imported, naturally formed soil from off-site sources; modified to produce viable planting soil. Using preconstruction soil analyses and materials specified in other articles of this Section, amend soils to become planting soil complying with the following requirements:

1. Chemical Characteristics:

a. pH 5.5 to 8.0.
b. Soluble Salts: less than 3.0 dS/m.
c. Sodium Absorption Ratio (SAR): less than 6.0.
d. Organic Matter: not less than 5 percent.

2. Physical Characteristics: Gradation as defined by USDA triangle of physical characteristics as measured by hydrometer.

a. Sand: 15 to 60 percent.
b. Silt: 10 to 60 percent.
c. Clay: 5 to 30 percent.

3. Fragment Size Distribution: Soil shall not contain more than 2 percent by dry weight of rocks measuring over 3/32 inch in largest size.

4. Materials to be Removed:

a. Unacceptable Materials: Concrete, slurry, concrete layers or chunks, cement, plaster building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of course sand that exceed a combined maximum of 5 percent by dry weight of the soil.
c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding 1 inches in any dimension.

5. Soil Amendments: Incorporate soil amendments listed below as recommended in the results of the soils analysis report.

2.3 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent.

B. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent elemental sulfur, with a minimum of 99 percent passing through a No. 6 sieve and a maximum of 10 percent passing through a No. 40 sieve.

C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

D. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through a No. 50 sieve.

E. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C 33/C 33M.

2.4 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:

1. Feedstock: Limited to leaves.
2. Reaction: pH of 5.5 to 8.
3. Soluble-Salt Concentration: Less than 4 dS/m.

4. Moisture Content: 35 to 55 percent by weight.
5. Organic-Matter Content: 30 to 40 percent of dry weight.
6. Particle Size: Minimum of 98 percent passing through a 1-inch sieve.

B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture, a pH of 3.4 to 4.8, and a soluble-salt content measured by electrical conductivity of maximum 5 dS/m.

C. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture, a pH of 6 to 7.5, a soluble-salt content measured by electrical conductivity of maximum 5 dS/m, having a water-absorbing capacity of 1100 to 2000 percent, and containing no sand.

D. Wood Derivatives: Shredded and composted, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.

E. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, debris, and material harmful to plant growth.

2.5 FERTILIZERS

A. Superphosphate: Commercial, phosphate mixture, soluble.

B. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium.

C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

PART 3 - EXECUTION

3.1 GENERAL

A. Place planting soil and fertilizers according to requirements in other Specification Sections.

B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

C. Planting soil shall be placed at a depth of 6 inches in areas to receive turfgrass sod and a depth of 12 inches in all shrub, perennial, and groundcover planting beds.

D. Compaction: Compact each blended lift of planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D 698.

E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.2 PREPARATION OF ON-SITE OR IMPORTED SOILS

A. General: Do not blend amendments if on-site or imported soils are frozen, muddy, or excessively wet.

B. Cleaning: Remove all unacceptable, unsuitable, and large materials defined in “Part 2-

Products".

C. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.

D. Amending: Add amendments to on-site or imported soils as recommended in soil analysis results. Thoroughly blend amendments throughout to produce the required planting soil.

1. If required, mix lime and sulfur with dry soil before mixing fertilizer.
2. As required, mix fertilizer with planting soil no more than seven days before planting.
3. 3 PLACING AMENDED PLANTING SOIL OVER EXPOSED SUBGRADE

A. General: Do not till exposed subgrade or apply planting soil if subgrade or soils area frozen, muddy, or excessively wet.

B. Excavation: If rough grade elevations do not allow for required planting soil depth, excavate additional subgrade soils from designated planter areas and lawn areas to meet the depth required for each area, and legally dispose of excavated soil off Owner's Property at no additional cost to the owner. Do not reduce the planting soil depth required for planter areas and lawn areas to meet adjacent finish elevations.

C. Subgrade Preparation: Till excavated subgrade to a minimum depth of 6 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

D. Placing Planting Soil: Spread amended soil to the total depth required for the planting area, but not less than required to meet finish grades after natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.

E. Lifts: Apply amended planting soil in lifts not exceeding 8 inches in loose depth for material compacted by compaction equipment, and not more than 6 inches in loose depth for material compacted by hand-operated tampers.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Perform the following tests:

1. Compaction: Test planting-soil compaction after placing each lift and at completion using a densitometer or soil-compaction meter calibrated to a reference test value based on laboratory testing according to ASTM D 698. Space tests at no less than one for each 1000 sq. ft. of in-place soil or part thereof.
2. Performance Testing: For each amended planting-soil type, demonstrating compliance with specified performance requirements.

C. Soil will be considered defective if it does not pass tests.

D. Label each sample and test report with the date, location keyed to a site plan or other location system, and sampling depth.

3.5 PROTECTION AND CLEANING

A. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting

operations:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Vehicle traffic.
4. Foot traffic.
5. Erection of sheds or structures.
6. Impoundment of water.
7. Excavation or other digging unless otherwise indicated.

B. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.

C. If planting soil or subgrade is overcompacted, disturbed, or contaminated by foreign or deleterious materials or liquids, remove the planting soil and contamination; restore the subgrade as directed by the Landscape Architect and replace contaminated planting soil with new planting soil.

END OF SECTION 32 9115

SECTION 03 007
LIGHTING

3.7.1. GENERAL. The Contractor shall furnish materials and construct walkway lighting as indicated on the drawings and as described herein.

A. WORK INCLUDED

1. Concrete base installation
2. Light Pole installation
3. Light fixture installation
4. Conduit
5. Wire installation
6. Fuse installation
7. Grounding and bonding
8. Junction Boxes
9. Meter Housing

B. QUALITY ASSURANCE

1. Comply with federal, state, and local electrical codes and regulations.
2. Materials and workmanship for street light construction shall be in accordance with applicable governing authority.
3. Only workers commercially licensed as Electrical Contractors shall be used in performing the work.

3.7.2. MATERIALS

A. LIGHT POLES

1. Shall be as noted in the design details. The poles shall be installed per the design details.

B. LIGHT FIXTURES

1. Shall be as noted in the design details.

C. CONDUIT

Shall be a minimum 1½ inch schedule 40 electrical PVC conduit for all installations with 90 degree sweeps for all bends and for all junction boxes. For any installation under roadways, prior approval shall be obtained from the city, and conduit shall be schedule 80. All joints shall be glued and all open end conduit shall have Duck Seal or approved equivalent.

D. #6 TC DIRECT BURIAL COPPER CABLE

1. Furnish and install #6 TC direct burial copper cable as indicated on the design drawings and design details. Provide all labor and materials to connect the conduit and cable to each junction box, splice box, and/or light pole; removal and legal disposal of waste materials, and associated work items to complete the bid.

2. Locate, mark and protect all existing structures and utilities, both buried and above grade (i.e., manholes, valves, cleanout boxes, water lines, gas lines, oil and petroleum pipe lines, telephone cables, etc.) and coordinate with the utility companies for the relocation of any line if necessary or the support of the facility.

E. WIRE CONNECTIONS

1. All lights shall be wired with minimum 6 gauge TC copper wire direct burial cable inside a minimum of 1½" Schedule 40 conduit 24" deep.

2. No more than 6 street lights shall be daisy chained together with a 240 Volt 30 amp breaker.

3. All splices shall be wire crimped and heat fused with covering and terminated in a junction box Carson L 1419-12.

4. Any junction within 150' of any intersection shall be Carson H 1324.

5. All junction boxes between walkway light and system shall use a Multi-Seal RAB 350 Series connector for all hot phases of power.

6. All poles shall be wired with a 120 volt plug in receptacle.

F. FUSE

All fuse holders shall be in-line water tight LED-AA for light poles.

G. GROUNDING AND BONDING

1. Each meter housing shall have a 10-foot long 5/8-inch diameter copper grounding rod provided for each street light pole that is over 120 volts, or if more than one street light is connected to any power source.

2. Each splice box and junction box with fuses shall have a 10-foot long 3/4"-inch diameter copper grounding rod provided and installed.

H. JUNCTION BOXES

1. Shall be Carson L 1419-12 box with "STREET LIGHTING" marked on the lid.

I. FURNISH AND INSTALL SPLICE BOXES

1. Provide all materials, labor to furnish and install any splice boxes, grey non-conductive schedule 40 PVC conduits, ground rods, wires, connectors, all as directed by the City and per the design drawings and details. Provide all labor and equipment to place the material, backfill and compaction, testing, removal and legal disposal of waste materials, and associated work items to complete the bid.

2. Locate, mark and protect the existing structures and utilities, both buried and above grade (i.e., manholes, valves, cleanout boxes, water lines, gas lines, oil and petroleum pipe lines, telephone cables, etc.) and coordinate with the utility companies for the relocation of any line if necessary or the support of the facility.

J. METER HOUSING

1. Shall be V.I.T Strong box #MPE-B16-10K and shall be installed on a poured concrete base with a minimum 6-inch thickness.

2. Provide all materials, labor to furnish and install the V.I.T. Strongbox #MPE-B16-10K,strongbox with breaker panel, grey non-conductive schedule 40 PVC conduits, ground rods, wires, connectors, all as directed by the design drawings and details. Include all materials and labor to construct a concrete base for the housing. Provide all labor and equipment to place the material, backfill and compaction, testing, removal and legal disposal of waste materials, and associated work items to complete the bid.

3. Includes the necessary costs to locate, mark and protect the existing structures and utilities, both buried and above grade (i.e., manholes, valves, cleanout boxes, water lines, gas lines, oil and petroleum pipe lines, telephone cables, etc.) and coordinate with the utility companies for the relocation of any line if necessary or for the support of any facility.

3.7.3. EXECUTION

A. COORDINATION

1. Rocky Mountain Power will make the final connection of walkway lights. Contractor shall comply with all Rocky Mountain Power requirements.

2. Layton City will notify Rocky Mountain Power and request the lights be energized upon approval from the City.

B. INSTALLATION

1. Light poles shall not be within four (4) feet of water valve and 10 (10) feet of fire hydrants.

2. Installation of light poles within close proximity of trees shall be avoided unless approved by the City.

3. Light poles shall be set plumb. The pole shall be installed within ¼ degree of vertical.

4. On all lights, a minimum of two (2) bags of 80 pound concrete mix shall be used. A minimum of twenty-four (24) inch diameter hole for sidewalk pole and thirty (30) inch diameter hole for arterial pole shall be provided for the installation of the street light pole. Pole shall be centered in hole and plumb. Fill hole with concrete to within two (2) inches of wire hole, but not above. Post mix is not acceptable. Concrete form shall be Sono Tube.

END OF SECTION 03 007

SECTION 32 9200
TURF, GRASSES AND WILDFLOWERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Seeding.
2. Sodding

1.2 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation and drawing designations for planting soils.

E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

F. Substantial Completion: The point in time when the Work is sufficiently complete, in accordance with the Contract Documents, that the Owner can occupy or use the Work for its intended purpose.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Certification of Turf, Grass and Wildflower Seed: From seed vendor for each turfgrass sod, grass and wildflower seed mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1. Certification of each seed mixture for grass and wildflowers. Include identification of source and name and telephone number of supplier.

B. Product Certificates: For fertilizers, from manufacturer.

C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful grass and wildflower seeding.
   1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.

   2. Pesticide Applicator: State licensed, commercial.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.

C. Bulk Materials:

   1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
   2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
   3. Accompany each delivery of bulk materials with appropriate certificates.

1.7 FIELD CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial establishment periods to provide required maintenance from date of planting completion.

   1. Spring Planting: on or near 15 March.
   2. Fall Planting: on or near 15 October.
   3. Days considered for the establishment period must be conducive to the growth and establishment of the sod and not non-growing seasonal months.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

1.9 CLEANUP

A. Upon completion of all seeding operations, the portion of the project site used for a work or storage area by the CONTRACTOR shall be cleaned of all debris, superfluous materials, and equipment. All such materials and equipment shall be entirely removed from the project site.

B. All walks or pavement shall be swept or washed clean upon completion of the WORK of this Section.

PART 2 - PRODUCTS

2.1 TURF, GRASS AND WILDFLOWER SEED

A. Grass and Wildflower Seed:
   1. Fresh, clean and dry seed species as indicated on Landscape Plan, "REVEGETATION SEED MIX".

B. The grass seed mixture shall meet the minimum tested requirements of ANA. The grass seed mix shall be the current year's crop, guaranteed by the supplier as follows:
   80% Germination Rate
   72% Purity and 80% pure live seed
   No more than 2% inert matter
   No noxious weeds and no weed seed

C. Turfgrass Sod: Certified, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.

D. Turfgrass Species: Sod of grass species as follows:

   1. Full Sun: Poa pratensis ‘Kentucky Bluegrass’or as specified on plans

2.2 FERTILIZERS AND SOIL AMENDMENTS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

   1. Composition: 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
   2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

   1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
   2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.3 MULCH

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

B. Sphagnum Peat Mulch: Partially decomposed sphagnum peat moss, finely divided or of granular texture, and with a pH range of 3.4 to 4.8.

C. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

D. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

2.4 TOPSOIL

A. All topsoil to be free of any subsoil earth clods, sods and stones over 1 inch in any dimension, sticks, toots, weeds, litter and other deleterious material. Topsoil shall be uniform in quality and texture and contain organic matter and mineral elements necessary for sustaining healthy plant growth. Contractor shall strip, stockpile and screen a sufficient amount of existing and amended topsoil to place 4-inch thick to all seed areas.

2.5 PESTICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Project Manager and replace with new planting soil.

3.2 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 SEED AREA PREPARATION

A. All areas of fill, i.e., trenches, mounds, etc., shall be compacted and settled as specified in the Grading and excavation of sprinkler irrigation sections of this project before any topsoil is placed on areas to be seeded.

B. Any existing topsoil used in seed areas shall be loosened and pulverized to a depth of four (4) inches and all stones over one (1) inch in any dimension, sticks, roots, rubbish, or other extraneous matter, shall be removed from the premises. The surface will be fine graded so that when settled, the surface is free from depressions or ridges and will conform to the required grades indicated. The surface shall be smooth, loose, and of uniformly fine texture at the time of installation.

C. Any areas containing new topsoil shall be rolled by a hand roller on small areas. After rolling at a weight of 150-200 pounds per linear foot of roller, the bed shall again be graded to the specified grade with a smooth surface. Large areas shall be final graded by passing a land plane in three different directions over the entire area to be planted.

D. The Contractor shall prepare no more ground than can be seeded in a twenty-four (24) hour period. Seed shall be placed within 24 hours of ground preparation. The ground shall be re-prepared if weather or traffic has compromised the friability of the prepared area.

E. No seeding shall be done immediately after a rain storm of if a prepared surface has been compacted without first loosening the surface to a smooth, loose, uniformly fine texture just prior to sodding.

F. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

G. The specified fertilizer shall be applied and incorporated into the upper four (4) inches of topsoil.

H. Before planting, obtain Project Manger's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

A. Prepare area as specified in "Preparation" Article.

B. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.

C. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.5 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h).
   1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
   2. Do not use wet seed or seed that is moldy or otherwise damaged.
   3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed at a total rate as indicated on Landscape Plan.

C. Rake seed lightly into top 1/8 inch (3 mm) of soil, roll lightly, and water with fine spray.

D. Protect seeded areas with erosion-control mats as required; install and anchor according to manufacturer's written instructions.

E. Protect seeded areas from hot, dry weather or drying winds by applying mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch (4.8 mm), and roll surface smooth.

3.6 SEEDED AREA MAINTENANCE

A. Maintain and establish seeded area by watering, weeding, replanting, and performing other operations as required to establish a healthy, viable meadow. Roll, regrade, and replant bare or eroded areas and remulch. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials damaged or lost in areas of subsidence.
2. Apply treatments as required to keep revegetated area and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

B. Watering:

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch.
2. Water revegetated area with fine spray at a minimum rate of 1/2 inch (13 mm) per week for four weeks after planting unless rainfall precipitation is adequate.

3.10 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Section 329115 "Soil Preparation (Performance Specification)."

B. Reduce elevation of planting soil to allow for soil thickness of sod.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.

B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

1. Lay sod across slopes exceeding 1:3.
2. Anchor sod on slopes exceeding 1:6 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.

C. Saturate sod with fine water spray within two hours of planting. During first week after planting,

water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.3 TURF MAINTENANCE

A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings.

3.4 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by the Landscape Architect:

1. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, evencolored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities, and which blends naturally with undisturbed adjacent turf areas.

B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.7 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner’s operations and others in proximity to the Work. Notify Project Manager before each application is performed.

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.8 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by seeding work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner’s property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

D. Remove non-degradable erosion-control measures after grass establishment period.

3.9 FINAL INSPECTION

A. Inspection of work of seeded areas will be made at conclusion of maintenance.

B. Within 10 days of the end of the establishment period written notice requesting an inspection shall be submitted to the Landscape Architect by the Contractor. All areas designated for seed shall be covered with a reasonable stand of grass acceptable to the Landscape Architect. All areas found not to be acceptable shall be re-seeded in accordance with the above re-seeding specifications. Such areas shall be maintained and guaranteed as stated above.

C. Final acceptance of the WORK prior to guarantee period of the contract will be accepted upon written approval by the Landscape Architect, on the satisfactory completion of all work, including maintenance, but exclusive of the replacement of plant material.

D. Any delay in the completion of any item of work in the seeding operation which extends the seeding into more than one season shall extend the maintenance in accordance with the date of completion.

E. The CONTRACTOR shall re-seed as soon as weather conditions permit, all bare areas or areas where the stand of grass is thin or not healthy.

F. All work done under this contract shall be left in good order to the satisfaction of the OWNER and the Landscape Architect and the CONTRACTOR shall, without additional expense to the OWNER.

FINAL ACCEPTANCE

A. Maintenance by the Contractor shall cease upon his receipt of written notice from the Landscape Architect and or Owner indicating final acceptance of the grass seed mix areas.

END OF SECTION 32 9200

SECTION 32 84 23
UNDERGROUND IRRIGATION SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Supplemental General Conditions and Special Provisions, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Trenching and stockpiling excavation materials and refilling trenches.
2. Installation of complete irrigation system including but not limited to point of connection, meter, filters, piping, valves, fittings, emitters, controllers, and wiring and final adjustments to insure complete coverage.
3. Water connections.
4. Clean up, inspection, and approval.
5. Testing.

B. Related Sections include the following:

1. Section 32 92 00 Turf and Grasses
2. Section 32 93 00 Exterior Plants

1.3 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

C. Mainline: The system of pipes that carry water from the Point of Connection (POC) to the valves.

D. Lateral Lines: The system of pipes that carry the water from the valves to the sprinkler heads or emitters.

E. Point of Connection (POC): The point at which the Contractor will tie into the water supply.

F. Water Supply: Culinary or secondary piping and components furnished and installed by others to provide irrigation water to the Project.

1.4 SUBMITTALS

A. Product Data: Manufacturer's cut sheets for each type of product indicated.

B. As-Built Drawings: Red-lined plan layout and details illustrating mainline and lateral lines location, size, and assembly. Include type and coverage of heads, type of valves, controllers, fittings and accessories.

C. Operation and Maintenance Data:

1. Instructions covering full operation, care, and maintenance of system and controls and manufacturer's printed literature on operation and of system. Include winterizing, controller program worksheet, and annual service and scheduling calendar based on local site specific conditions.

2. Instruct maintenance personnel in proper adjustment of sprinkler heads and use of special tools for adjustments.

3. Provide one controller chart for each automatic controller installed.
   a. Show area covered by each controller on print of "as-built" system.
   b. Identify area of coverage of each remote control valve, using a distinctively different color, drawing over the entire area of coverage.
   c. Hermetically seal charts between two layers of 20 mm thick plastic.
   d. Complete charts and review prior to final review of irrigation system.

D. Keys:
1. Quick Coupler Key: Quick Coupler Key with Swivel Head for operation of quick couplers.
2. Stop and Waste Valve Key: "T" handle, rigid steel, 5 ft long minimum, key end to fit the stop and waste valve nut.
3. Gate Valve Key: "T" handle, rigid steel, 5 ft long minimum, key end to fit the isolation valve square nut.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, unload, store, and handle materials, packaging, bundling, and products in dry, weatherproof, waterproof condition in manner to prevent damage, breakage, deterioration, intrusion, ignition and vandalism. Deliver in original unopened packaging containers prominently displaying manufacturer name, volume, quantity, contents, instructions and conformance to local, state and federal law. Remove and replace cracked, broken or contaminated items or elements

prematurely exposed to moisture, inclement weather, temperature extremes, fire and/or jobsite damage.

B. Storage:

1. Protect materials from damage and prolonged exposure to sunlight. Materials shall be stored in areas designated by the Owner.

C. Handling:

1. Materials: Except for bulk deliveries, materials shall not be dropped or dumped from vehicles. All material shall be handled by Contractor with care to avoid breakage or damage. Damaged materials attributed to the Contractor shall be replaced with new material at the Contractor's expense.
2. Handling of PVC Pipe - Exercise care in handling, loading and storing of PVC pipe. Transport all PVC pipe in a vehicle that allows length of pipe to lie flat so as not to subject it to undue bending or concentrated external loads. Discard all sections of pipe that have been dented or damaged and, if installed, replace with new piping at the Contractor's expense.

1.6 SCHEDULING

A. The Contractor shall familiarize himself with all hazards and utilities prior to work commencement. Install sleeving prior to installation of concrete, paving or other permanent site elements. Irrigation system Point of Connection components, backflow prevention or filtration, and pressure regulation devices shall be installed and operational prior to all downstream components. All main lines shall be thoroughly flushed of all debris prior to installation of Remote Control Valves. All lateral lines shall be thoroughly flushed of all debris prior to installation of any sprinkler heads. Irrigation Contractor shall be required to submit detailed Construction Schedule to Owner prior to commencement. Schedule shall be updated weekly.

B. Contractor shall schedule and organize work to minimize impact on project usage during public hours. Contractor shall confine work efforts to areas or zones which he can reasonably fence or protect, rather than spreading out trenching or other tasks across large areas of the site. Contractor shall schedule his work to reduce or eliminate open trenches at the end of each work day.

C. Weather Limitations: Proceed with irrigation installation only when existing and forecasted weather conditions permit.

PART 2 - PRODUCTS

2.1 PIPES AND FITTINGS

A. Types of Pipes:

1. Supply Line – from Point of Connection through backflow preventer or filter – galvanized pipe as detailed.
2. Mainline 3” or smaller – downstream of POC – Schedule 40 PVC.
3. Mainline 4” or larger – downstream of POC - Class 200 PVC
4. Lateral – Schedule 40 PVC.
5. Drip Tubing – Rain Bird XT-700 (where required).
6. Inline Drip – Per plans (where required).
7. Emitter Tubing – Per plans (where required).

B. Pipe

1. Plastic Pipe Schedule 40 and Class 200 PVC – Identify all pipes with following indelible markings:
   a. Manufacturer’s name.
   b. Nominal pipe size.
   c. Schedule of class.
   d. Pressure rating psi.
   e. National Sanitation Foundation (NSF) seal of approval.
   f. Date of extrusion.

2. Drip Tubing – Manufactured of flexible polyvinyl chloride compound conforming to ASTM D1248, Type 1, Class C, Category 4, P14 and ASTM D3350 for PE 122111C.

C. Types of Fittings:

1. Mainline Fittings smaller than 3” – Schedule 80 PVC.
2. Mainline Fittings 3” or larger – Harco ductile iron (restrain per manufacturer’s recommendations).
3. Lateral Fittings – Schedule 40 PVC.
4. Drip Fittings – Barbed insert type fittings

2.2 VALVES

A. Stop & Waste Valve – Per Plans.

B. Mainline Isolation Valve – Per Plans.

C. Master Valve – Per Plans.

D. Manifold Isolation Valve – Per Plans.

E. Remote Control Valve(s) – Per Plans.

F. Manual Drain Valve – Per Plans.

2.3 BACKFLOW PREVENTER (where required)

A. Backflow Preventer – Per Plans.

B. Install in Insulated Aluminum VIT StrongBox Enclosure.

2.4 AUTOMATIC FILTER (where required)

A. Automatic Flushing Filter – Per Plans

B. Install in Insulated Aluminum VIT StrongBox Enclosure

2.5 AUTOMATIC CONTROLLER

A. Irrigation Controller with Flow Sensing – Per Plans.

2.6 DRIPLINE

A. Per Plans.

2.7 DRIP FLUSH VALVE

A. Netafim TLFV-1.

2.8 VALVE BOX

A. Install control valves in manifolds/boxes per drawings.

B. Use round valve box for quick coupler. All boxes and lids in lawn and bark mulch beds shall be **GREEN** in color. All boxes and lids in rock mulch beds shall be **TAN** in color.

2.9 WIRE

A. Wire runs shall be 14 AWG color coded wire for direct burial.
   1. Wires shall be colored as follows:
      a. Common wires shall be white in color.
      b. Hot wires shall be red in color.
      c. Spare wires shall be yellow in color.

2. Use 12 AWG wire for control wire runs exceeding 3,000 feet or common wire runs exceeding 1,500.
3. Contractor shall run 1 dedicated spare wire 'homerun' from controller to terminus of EACH wire leg.
4. All wire splices shall be located in a valve box.
5. All wire connections shall be 3M DBR/Y.

2.10 QUICK COUPLER

A. Rainbird 44-LRC

2.11 WASHED AGGREGATE

A. 1-1/2" maximum with 100 percent retained on a No. 4 sieve.

2.12 JOINT AND SOLVENT CEMENT

A. Primer: Weld-On P-70 Primer

B. PVC Solvent Cement: Weld-On 711 Low VOC Cement

2.13 TEFLON TAPE

A. Use quality grade, domestically made 0.004 inch ($\pm$ 0.001) on threaded joints.

2.14 SLEEVES

A. Class 200 PVC.

B. Install one pipe per sleeve. Sleeve diameter shall be two (2) times larger than pipe installed in sleeve. Minimum 4" for all sleeves.

C. Install wiring in separate sleeve from irrigation pipe.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive irrigation to ensure areas are ready and properly prepared. Complete demolition and grading operations, with the exception of final grading, and receive approval by Owner before staking or installation of any irrigation system begins.

3.2 EXCAVATION

A. Stake pipe and equipment locations as follows:
   1. Mark routing of pressure supply line and flag remote control valves for first few zones. Contact Owner's Representative a minimum of 48 hours in advance and request review of staking. Owner's Representative will review staking and direct changes if required.
   2. If Project has significant topography, free-form planting beds, or other amenities that could require alteration of irrigation equipment layout as deemed necessary by Owner, do not install irrigation equipment in these areas until Owner's Representative has reviewed equipment staking.
   3. Trenching - Dig trenches straight and support pipe continuously on bottom of trench. Clean trench bottom and smooth by removing all rock and organic debris. Remove rocks larger than 1-1/2" in any direction from bottom of trench.
      a. Clearances:
         1) Piping Smaller than 3 Inches - Minimum width of 7 inches for trenches.
         2) Line Clearance - Provide not less than 6 inches of clearance between each line.
      b. Pipe and Wire Depth:
         1) Mainline Piping – 18 inches from top of pipe.
         2) Lateral Piping – 12 inches from top of pipe.
         3) Control Wiring – Side of mainline piping (in conduit).

B. Excavate trenches for sprinkler system pipe to provide 18 inches of cover over mainlines and 12 inches over lateral lines.
   1. Do not damage roots where trenching is required in proximity to trees that are to remain.

C. Appropriately cover, protect, and mark trenches along pedestrian routes that are left open overnight.

3.3 INSTALLATION

A. General: Plans are diagrammatic. Proceed with installation in accordance with the following:
   1. Install stop and waste valve and other equipment required by local authorities according to Utah Laws and Regulations to make system complete.
   2. Install main line, automatic control valves, lateral lines, fittings, and heads/drip line as specified.

3. Thoroughly flush main lines before installing automatic control valves, and laterals before installing sprinklers. Flush supply lines thoroughly before installing backflow preventers or other regulating devices.

B. Piping: Assemble all mainline and lateral lines in accordance with manufacturer's recommendations.
   1. Install PVC pipe in dry weather above 40 degrees F as specified by manufacturer's recommendations. Allow joints to cure a minimum of 8 hours before testing.
   2. Snake pipe in trench as much as possible to allow for expansion and contraction. When pipe laying is not in progress, or at end of each day, close pipe ends with tight plug or cap. Perform work in accordance with good practices prevailing in irrigation industry.

C. Sleeving:
   1. Contractor to directionally bore sleeves per as needed.
   2. Coordinate location of all sleeving prior to installation.
   3. For sleeving under roadways install sleeving below the depth of the aggregate sub-base.
   4. Install sleeving under asphalt paving and concrete walks to accommodate piping and wiring. Compact backfill around sleeves to prevent settling.

D. Control Valves:
   1. Install at plan locations and according to detail. Use Schedule 80 PVC pipe for nipples on valve header, length as necessary. Install valves, one maximum per box, plastic valve box and provide 12 inches of expansion loop slack wire at all connections inside valve box.

E. Quick Coupling Valves: Install using 1 inch Schedule 80 PVC nipples and street ells as detailed. Locations as indicated on plans.

F. Valve Access Boxes:
   1. Install over all automatic control valves, manual control valves, pressure regulators or zone shutoff valves and sized to provide adequate room for maintenance.
   2. Install valve boxes 1" above finish grade and place parallel or perpendicular to adjacent curbs, sidewalks, or driveways.
   3. Imprint a valve control number on each valve box cover that corresponds to the valve controller clock. Imprint the valve box number a minimum of one inch high in a permanent and legible manner.
   4. Place washed aggregate in sump as shown on plans.

G. Automatic Controller:
   1. Mount the panel enclosure so the operator can conveniently make adjustments.

2. Properly ground controller in accordance with Utah Laws and Regulations and per manufacturer's requirements. Make all control wire connections to automatic controllers. Coordinate controller installation with electrical work.
3. Provide a laminated copy of the irrigation plan indicating valve station numbers and field locations and attach it inside the controller.
4. Program the controller to provide the appropriate amount of water for each station.
5. Supply the Owner with manufacturer's warranties and operating instructions for the controller.
6. Connect remote control valves to controller in numerical sequence as shown on Drawings.

H. Solvent Weld PVC Pipe - Lay pipe and make all plastic to plastic joints in accordance with solvent manufacturer's recommendations.

I. Drip Laterals:
1. Install all drip laterals per the plans before installation of mulch.
2. Install drip line blowout stubs at all dead ends of emitter laterals.

J. Control Wiring:
1. Low Voltage Wiring:
a. Bury control wiring between controller and electric valves in mainline trenches, strung as close as possible to main pipe lines with such wires to be consistently located below and to one side of pipe, or in separate trenches.
b. Install wiring in 1” conduit.
c. Provide an expansion loop at sleeve crossings for future phases and at every electric control valve location (in valve box). Expansion loop to have a minimum 3’ spare wire.
d. Make control wire connections and splices with 3M direct bury splice connectors, or approved equal.
e. Install all control wire splices not occurring at control valve in a separate splice valve box.
f. See additional wire information in Supplemental 2-Wire Irrigation Notes included on plans.

K. Dripline - Install all surface emitters as detailed and stake with acceptable tubing stakes.

L. Valves - Install where shown on Drawings as detailed.

3.4 TESTING

A. Notify the Owner a minimum of 48 hours in advance of pressure testing the main line.

B. Hydrostatic pressure test all supply and pressure irrigation lines by maintaining full supply line water pressure for three consecutive hours before backfilling and after air pockets have been vented from the lines.

C. Test connections for leaks prior to backfilling and repair all leaks. Lateral lines may be tested in sections to expedite backfilling work.

3.5 BACKFILL OPERATION

A. Bed all pipe a minimum of 2 inches, surrounding the pipe with native material excavated from the trench and passing through a ½ inch sieve.

B. Prevent soil, rocks, or debris from entering pipes or sleeves.

C. Compact backfilled trenches thoroughly to prevent settling damage to grades or plant materials. Repair irrigation system and plants at no additional cost to Owner.

D. Do not begin backfilling operations until required system tests have been completed. Leave trenches slightly mounded to allow for settlement after backfilling is completed. Finish grade trenches prior to walk-through of system by Owner.
   1. Materials - Excavated material is generally considered satisfactory for backfill purposes. Remove from backfill material all rubbish, organic matter, and stone larger than 2 inches in maximum dimension. Do not mix subsoil with topsoil. Haul away all material not suitable for backfill. If excavated material is unacceptable or not sufficient to meet backfill, compaction and final grade requirements Contractor is responsible for providing suitable backfill.
   2. Do not leave trenches open for a period of more than 48 hours. Protect open excavations in accordance with OSHA regulations.

3.6 IRRIGATION INSTALLATION INSPECTION

A. Examine areas and conditions under which Work of this Section is to be performed. Do not proceed with inspection walk-through until unsatisfactory conditions have been corrected.

B. Completely install entire system and ensure proper operation prior to scheduling of walk-through.

C. Notify Owner a minimum of 48 hours prior to walk-through.

D. Remotely operate each zone in for Owner's Representative at time of walk-through.

E. Contractor to generate a list of items to be corrected.

F. Furnish materials and perform Work required to correct all inadequacies at no additional cost to Owner.

G. During walk-through, expose all drip emitters outlets for observation by Owner's Representative to demonstrate that they are performing and installed as designed. Schedule separate walk-through if necessary.

H. Adjusting
   1. Upon completion of installation, "fine-tune" entire system to provide optimum and efficient coverage. Adjustments to be performed prior at no additional cost to Owner.
   2. Immediately correct areas that do not conform to designated operation requirements due to unauthorized changes or poor installation practices at no additional cost to the Owner.

3.7 CLEANUP

A. Promptly remove soil and debris created by any work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

END OF SECTION

SECTION 32 93 01
EXTERIOR PLANTS

LAYTON STANDARD SPECIFICATIONS ARE HEREBY AMENDED TO INCLUDE THE FOLLOWING:

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Supplemental General Conditions and Special Provisions, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Trees.
   2. Shrubs.
   3. Ground cover.
   4. Plants.
   5. Mulch.
   6. Boulder.

B. Related Sections include the following:
   1. Section 32 84 00 Underground Irrigation Systems
   2. Section 02912 Topsoil
   3. Section 02922 Seed, Turf Seed, and Turf Sod

1.3 DEFINITIONS

A. Balled and Burlapped Stock: Exterior plants dug with firm, natural balls of earth in which they are grown, with ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of tree or shrub required; wrapped, tied, rigidly supported, and drum-laced as recommended by ANSI Z60.1.

B. Container-Grown Stock: Healthy, vigorous, well-rooted exterior plants grown in a container with well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for kind, type, and size of exterior plant required.

C. Finish Grade: Elevation of finished surface of planting soil.

D. Planting Soil: Native soil or surface soil modified to become topsoil; mixed with soil amendments.

E. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Verification: For each of the following:
   1. 1 lb of rock mulch for each color and texture of mulch required, in labeled plastic bags.

C. Product Certificates: For each type of manufactured product, signed by product manufacturer, and complying with the following:
   1. Manufacturer's certified analysis for standard products.
   2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.

D. Qualification Data: For landscape Installer.

E. Material Test Reports: For existing surface soil and imported materials.

F. Planting Schedule: Indicating anticipated planting dates for exterior plants.

G. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of exterior plants during a calendar year. Submit before expiration of required maintenance periods upon substantial completion and prior to final acceptance and beginning of maintenance contract.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of exterior plants.
   1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when exterior planting is in progress.

B. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to

conduct the testing indicated and that specializes in types of tests to be performed.

C. Organic Compost Material and Native Soil Analysis: Furnish test analysis of each by a qualified soil-testing laboratory or supplier stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of both items above.
   1. Report suitability of native soil for plant growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce a satisfactory amended soil if different from what is called for in these specifications.

D. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."
   1. Selection of exterior plants purchased may be made by the City who will tag plants at their place of growth before they are prepared for transplanting.

E. Tree and Shrub Measurements: Measure according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.

F. Observation: The City's Representative may observe trees and shrubs either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size, and quality. The City retains right to observe trees and shrubs further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.
   1. Notify the City's representative of sources of planting materials 30 days in advance of delivery to site.

G. Preinstallation Conference: Conduct conference at Project site as requested by the City.

1.6 COORDINATION

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance

from date of installation through final acceptance and beginning of maintenance contract.

B. No planting shall take place if ground is muddy, standing water is present, frozen or snow covered.
   1. Spring Planting: April 15- June 15
   2. Fall Planting: August 15- October 15
   3. It should be noted that these are considered to be ideal planting periods, however, installer will be permitted to plant year round as long as none of the above conditions exist and that precautions are taken to avoid any negative effects on plantings due to any adverse seasonal weather or climate conditions that may exist.

C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

D. Coordination with Sodded/Seeded Areas: Plant trees and shrubs after finish grades are established and before sodding/seeding areas, unless otherwise acceptable to the City.
   1. When planting trees and shrubs after sodded/seeded areas, protect these areas and promptly repair damage caused by planting operations.

1.7 WARRANTY

A. Special Warranty: Warrant the following exterior plants, for the warranty period indicated, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by Owner, or incidents that are beyond Contractor's control.
   1. Warranty Period for Trees and Shrubs: One year from date of Final Acceptance.
   2. Warranty Period for Ground Cover and Perennial Plants: One year from date of Final Acceptance.
   3. Remove dead exterior plants immediately. Replace immediately unless required to plant in the succeeding planting season.
   4. Replace exterior plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
   5. A limit of one replacement of each exterior plant will be required, except for losses or replacements due to failure to comply with requirements.

PART 2 - PRODUCTS

2.1 TREE AND SHRUB MATERIAL

A. General: Furnish nursery-grown trees and shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

B. Grade: Provide trees and shrubs of sizes and grades complying with ANSI Z60.1 for type of trees and shrubs required. Trees and shrubs of a larger size may be used if acceptable to the City's representative, with a proportionate increase in size of roots or balls.

C. Label each tree and shrub with securely attached, waterproof tag bearing legible designation of botanical and common name.

D. Label at least one tree and one shrub of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.

E. If formal arrangements or consecutive order of trees or shrubs is shown, select stock for uniform height and spread, and number label to assure symmetry in planting.

2.2 DECIDUOUS AND ORNAMENTAL TREES

A. Deciduous Trees: Single-stem trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, complying with ANSI Z60.1 for type of trees required.
   1. Provide balled and burlapped trees.
   2. Branching Height: One-third to one-half of tree height.

B. Ornamental Trees: Branched or pruned naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1; stem form as follows:
   1. Stem Form: Single stem and Multistem, clump, with two or more main stems according to the natural form of species and type.
   2. Provide balled and burlapped trees.

2.3 DECIDUOUS SHRUBS

A. Form and Size: Deciduous shrubs with not less than the minimum number of canes required by and measured according to ANSI Z60.1 for type, shape, and height of shrub.
   1. Provide container-grown shrubs.

2.4 CONIFEROUS EVERGREENS

A. Form and Size: Normal-quality, well-balanced, coniferous evergreens, of type, height, spread, and shape required, complying with ANSI Z60.1.

B. Form and Size: Specimen-quality, exceptionally heavy, tightly knit, symmetrically shaped coniferous evergreens and the following grade:
   1. Heavy Grade
   2. Provide balled and burlapped trees.

2.5 BROADLEAF EVERGREENS

A. Form and Size: Normal-quality, well-balanced, broadleaf evergreens, of type, height, spread, and shape required, complying with ANSI Z60.1.
   1. Provide container-grown shrubs.

2.6 GROUND COVER and 1 GAL. SHRUBS/ GRASSES

A. Ground Cover: Provide ground cover of species indicated on the plans, established and well rooted in pots or similar containers, and complying with ANSI Z60.1.

2.7 SEASONAL PLANTS

A. Perennials: Provide healthy, field-grown plants from a commercial nursery, of size, species and variety shown or listed.

B. Vines: Provide vines of species indicated complying with requirements in ANSI Z60.1 as follows:
   1. Two-year plants with heavy, well-branched tops, with not less than 3 runners 18 inches or more in length, and with a vigorous well-developed root system.
   2. Provide field-grown vines. Vines grown in pots or other containers of adequate size and acclimated to outside conditions will also be acceptable.

2.8 ORGANIC SOIL AMENDMENTS

A. Planting soil backfilll for trees, shrubs, perennials and grasses to be 30% native soil, 30% imported loamy topsoil, 20% coarse sand, and 20% peat moss or organic mulch.

2.9 FERTILIZER

A. Slow-Release Fertilizer: Trees, Shrubs, Groundcovers- Granular or pelleted fertilizer Biosol Mix 7-2-3 consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
   1. Apply at rate of 44lbs./ 1000 SF for groundcover and perennial areas, and 12 oz./ tree pit, 4oz./ 5 gal shrub pit: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
   2. Composition: 7-2-3 Nitrogen, phosphorous, and potassium or in amounts recommended in soil reports from a qualified soil-testing agency.

2.10 MULCHES

A. Rock Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:
   1. Type: Crushed angular rock.
   2. Size Range: Screen size 4” to 6”.
   3. Color: As selected by Owner.

2.11 LANDSCAPE BOULDERS

A. Boulder: Hard, durable stone, washed free of loam, sand, clay and other foreign substances, of the following type, size range, and color:
   1. Type: Browns Canyon Quartzitic Sandstone boulder provided from Mountain Valley Stone or approved equal.
   2. Landscape Boulder Size Range: 3’-5’ each way. Sizes shall vary.
   3. Color: Buff as acceptable by Owner. Majority of boulders shall have natural varnish.

2.12 STAKES AND GUYS

A. Upright and Guy Stakes: 2” dia. Lodgepole pine stakes.

B. Guy and Tie: Chainlock or approved equal tree ties (1” width). Nail or staple to stake to hold vertically. Loop each tie around tree loosely to provide 1” slack on trunk for growth.

2.13 MISCELLANEOUS PRODUCTS

A. Anti-dessicant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.

2.14 PLANTING SOIL MIX- TREE, SHRUB, PERENNIAL, AND GRASS PLANT BACKFILL

A. Planting Soil Mix: Mix installed topsoil and native soil with the following in the specified quantities:
   1. 30% native soil, 30% imported topsoil, 20% coarse clean sand, and 20% peat moss or organic mulch.
   2. Weight of Slow-Release Biosol Mix 7-2-3 Fertilizer per 1000 Sq. Ft. of groundcover/ perennial areas: 44 lbs.
   3. Weight of Slow-Release Biosol Mix 7-2-3 Fertilizer in tree pits: 12 oz.
   4. Weight of Slow-Release Biosol Mix 7-2-3 Fertilizer in shrub pits: 4 oz.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive exterior plants for compliance with requirements and conditions affecting installation and performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing exterior plants from damage caused by planting operations.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

C. Lay out individual tree and shrub locations and areas for multiple exterior plantings. Stake locations, outline areas, adjust locations when requested, and obtain City Representative's acceptance of layout before planting. Make minor adjustments as required.

D. Lay out exterior plants at locations directed by the City's representative. Stake locations of individual trees and shrubs and outline areas for multiple plantings.

E. Grower shall apply anti-desiccant to all trees and shrubs using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
   1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

3.3 PLANTING BED ESTABLISHMENT

A. Loosen subgrade of planting beds to a minimum depth of 12 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
   1. Install 12" of premium topsoil in planting beds.

B. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

C. Restore planting beds if eroded or otherwise disturbed after finish grading and before planting.

3.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver exterior plants freshly dug.

B. Do not prune trees and shrubs before delivery, except as approved by the City's representative. Protect bark, branches, and root systems from sunscald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of exterior plants during delivery. Do not drop exterior plants during delivery.

C. Handle planting stock by root ball.

D. Deliver exterior plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set exterior plants trees in shade, protect from weather and mechanical damage, and keep roots moist.

E.

1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material. Do not set root ball on concrete or lean trunks or canopy against fence or wall.
2. Do not remove container-grown stock from containers before time of planting.
3. Water root systems of exterior plants stored on-site with a fine-mist spray; temporary irrigation system or manually with hose. Water as often as necessary to maintain root systems in a moist condition.

3.5 TREE AND SHRUB EXCAVATION

A. Pits and Trenches: Excavate circular pits with sides sloped inward. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation.

1. Excavate approximately two times as wide as ball diameter for balled and burlapped and container-grown stock.

B. Native soil above 36" depth removed from excavations may be used in planting backfill. Subsoil below 36" depth removed from excavations may not be used in planting backfill.

C. Obstructions: Notify the City's representative if unexpected rock or any other obstructions detrimental to trees or shrubs are encountered in excavations.
   1. Hardpan Layer: Drill 6-inch- diameter holes into free-draining strata or to a depth of 10 feet, whichever is less, and backfill with free-draining material.

D. Drainage: Notify the City's representative if subsoil conditions evidence unexpected water seepage or retention in tree or shrub pits.

E. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

3.6 TREE AND SHRUB PLANTING

A. Set balled and burlapped stock plumb and in center of pit or trench with top of root ball 2" inches above adjacent finish grades. Trees shall be planted such that trunk flare is visible at the top of the rootball. Do not cover the top of the root ball with soil.
   1. Remove all wire, entire wire basket, nylon ties, twine, rope and 2/3 burlap from root ball. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
   2. Place planting soil around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.
   3. Backfill tree pits within plaza with Utelite Tree Pit Backfill Planting Mix.

B. Set container-grown stock plumb and in center of pit or trench with top of root ball 1 inch above adjacent finish grades.
   1. Carefully remove root ball from container without damaging root ball or plant.
   2. Place planting soil around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.

C. Shredded Wood Mulching: Apply 4-inch average thickness of organic mulch after planting for trees in sod areas, providing a min. 18 inch radius collar of mulch. Do not place mulch within 3 inches of trunks or stems.

3.7 GROUND COVER AND PERENNIAL PLANTING

A. Set out and space ground cover and plants as indicated.

B. Dig holes large enough to allow spreading of roots, and backfill with planting soil.

C. Work planting soil around roots to eliminate air pockets.

D. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

E. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.8 TREE AND SHRUB PRUNING

A. Prune, thin, and shape trees and shrubs as directed by the City's representative.

B. Prune, thin, and shape trees and shrubs according to standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise indicated by the City, do not cut tree leaders; remove only injured or dead branches from flowering trees. Prune shrubs to retain natural character. Shrub sizes indicated are sizes after pruning.

3.9 GUYING AND STAKING

A. Guy all trees according to planting detail on plans.

B. Guy and stake all deciduous and evergreen trees.

C. For deciduous trees; use a minimum of 2 stakes for trees, 2 ½" cal. and smaller, and a minimum of 3 stakes for trees greater than 2 ½" cal. Stakes shall be of a length required to penetrate a min. of 48" above grade; for evergreen, use a minimum of 3 stakes (up to 5 stakes may be required for 14' ht. And larger evergreens). Stakes shall be of a length required to penetrate a minimum of 24" below grade and to extend a maximum of 6" above grade.

D. Set all stakes and space to avoid any penetration of the rootball or any portion thereof.

E. Remove entire wire basket on each rootball along with any other twine around trunk and packaging materials, etc.

F. Support trees @ each guywire with two strands twisted galvanized wire and 2" nylon tree straps at contact points with tree trunks. Allow enough slack to avoid rigid restraint of tree. Continuous treestraps shall be of appropriate length so that grommets are 4"-6" away from the tree trunk. Treestraps shall not be linked together to achieve the required length.

G. No poly PVC or garden hose and wire shall be accepted as a guying method.

3.10 PLANTING BED MULCHING

A. Mulch backfilled surfaces of planting beds and other areas indicated.
   1. Rock Mulch: Apply 6-inch average thickness of rock mulch and finish level with adjacent finish grades. Do not place mulch against plant stems.

3.11 MAINTENANCE

A. Trees and Shrubs: Maintain by pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, tightening and repairing stakes and guy supports, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray as required keeping trees and shrubs free of insects and disease.

B. Ground Cover and Perennial Plants: Maintain by watering, weeding, fertilizing, and other operations as required to establish healthy, viable plantings.

3.12 ANTI-DESSICANT SPRAY

A. Apply 2 applications of anti-dessicant spray for all evergreen trees and shrubs.

3.13 CLEANUP AND PROTECTION

A. During exterior planting, keep adjacent pavings and construction clean and work area in an orderly condition.

B. Protect exterior plants from any damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting.

3.14 DISPOSAL

A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION

SECTION 32 40 01
SITE FURNISHINGS

LAYTON STANDARD SPECIFICATIONS ARE HEREBY AMENDED TO INCLUDE THE FOLLOWING:

PART 1 - GENERAL

1.1 SCOPE OF WORK

The work under this Section shall consist of furnishing all labor, materials and incidentals to install the following site furnishings complete in place and ready for intended use in accordance with the manufacturer's specifications, these specifications and the project plans. All site furnishings listed below are to be "or approved equal" unless otherwise noted. Exact models and suppliers represent the desired quality, look, and character of the individual elements included in this specification.

A. 72' Octagonal Pavilion (supplied by Owner, installed by Contractor)

1.2 SUBMITTALS

A. Submit full product data and technical information on all furnishings to be installed.

PART 2 - PRODUCTS

2.1 GENERAL

The materials specifications are based on the proprietary products in order to establish a standard of quality and installation procedures. Other manufacturers meeting or exceeding the quality standards of the specified product may be submitted for approval unless otherwise noted. All shop drawings, material samples, and color samples shall be submitted for review and approval.

A. Icon Shelter Systems 72’ Octagonal Pavilion, model #OC72S2C-P6.
   1. Supplied by City, installed by Contractor.
   2. Colors: As Selected by Owner.
   3. Posts to include I-Roc column bases.

PART 3- EXECUTION

3.1 INSTALLATION

A. Install all components at locations shown on Drawings properly aligned and spaced, plumbed vertically, complete and ready for use.

B. Install all components in accordance with manufacturer's instructions.

C. If the manufacturer recommends anchoring or footing details, submit copies of the details to the City for review and approval prior to construction.

3.2 SELECTED MANUFACTURERS

A. Icon Shelter Systems
1455 Lincoln Avenue
Holland, MI 49423
Phone: (800) 748-0985
Contact: Big T Recreation | Taft Egan, (801) 808-5006

END OF SECTION

SECTION 3

SURFACING AND SURFACE RESTORATION – PG 58-28

3.1. GENERAL.

a. Scope. This section defines the requirements for construction of and restoration of improved surfaces.

b. Special Requirements. Road construction shall conform to applicable requirements of State of Utah Standard Specifications for Road and Bridge Construction, 1979 Edition; restoration shall conform to applicable requirements of State of Utah Specifications for Excavation on State Highways, latest revision; and the work shall meet the Standards of the City.

c. General Construction Operations.

(1) Protection of Surfaces. In order to avoid unnecessary damage to existing paved surfaces, tracked equipment shall use rubber cleats when operating on or crossing paved surfaces, and shall follow requirements of the jurisdiction having control over the surface. The Contractor shall be responsible for damage done due to construction operations occurring to improved surfaces outside the limits of surface restoration as defined herein. Damaged surface outside these limits shall be repaired or replaced by and at the expense of the Contractor in a manner satisfactory to the City.

(2) Time. The Contractor shall provide temporary surfaces in good condition within one (1) day after backfill over pipe has been placed and shall complete repairs on street, sidewalk, curb, gutter, and other surfaces within seven (7) days from the date backfill over the pipe has been placed.

Restoration of any surfaces damaged by the Contractor's operations, but not within the area described in the specifications as being inside the limits of trench excavation and backfill, shall be completed within seven (7) days of surface damage.

(3) Cutting, Removing. The pavement, sidewalk, curb and gutter, etc., shall be sawcut vertically along the limits forming the trench, in such a manner as to not damage the adjoining pavement.

The portion of pavement to be removed shall be sawed or cut by equipment approved by the City, along straight lines designated by the City, or shall be broken back to the nearest construction joint or sawed crack. The portion of concrete sidewalk, or curb and gutter, to be removed shall be broken back to the nearest construction joint or formed crack in such a manner as not to damage the adjoining concrete.

Street surface other than concrete shall be sawcut in straight vertical lines parallel to the trench and the portion over the trench shall be removed in a manner that will not cause damage to the paved surface outside the limits of the vertical cut lines. Bituminous material shall be removed and wasted as directed by the City.

All pavement removed or damaged by the Contractor's operations outside the limits of the trench shall be replaced by the Contractor. All waste material resulting from the above operation shall be removed immediately from the site of the work.

3.2. THIS SECTION DELETED.

3.3. RESTORATION OF GRAVEL ROAD BASE.

a. General. Trenches or foundations excavated in bituminous or concrete surfaced areas such as road or parking areas, shall have the bituminous or concrete surface restored as specified in Paragraph "Restoration of Bituminous Surface Courses" or "Restore Concrete Surface" and the gravel road base restored as specified herein.

b. Materials. Gavel road base material shall meet the following gradation requirements.

Passing	1-inch Sieve	100%
Passing	1/2-inch Sieve	70%-100%
Passing No.	4 Sieve	41%-68%
Passing No.	16 Sieve	21%-41%
Passing No.	50 Sieve	10%-27%
Passing No.	200 Sieve	4%-13%

c. Placing. After the trench or foundation pit has been backfilled and approved by the City, gravel road base shall be placed in the trench or foundation pit to provide the minimum thickness specified after compaction.

Gravel road base shall be restored to the thickness of the original road base or to the thickness specified under the type of 6-inches, after compaction, below the bottom of the surface course to be restored.

Material for gravel road base shall be at near optimum moisture, spread in uniform layers across the entire width of the area, and compacted to 96% of maximum density as determined by AASHTO T-180, Method D.

3.4. TEMPORARY GRAVEL SURFACES.

a. General. Where pipe trenches or foundations are excavated in paved areas, the bituminous or concrete surface shall be replaced with a temporary gravel surface. The temporary gravel surface shall extend down to the bottom face of the original surface course and shall be graded flush with the top of adjacent surfaces to provide a hard, smooth surface.

b. Materials. Temporary gravel surface material shall meet the following gradation requirements:

Passing	1-inch Sieve	100%
Passing	1/2-inch Sieve	70%-100%
Passing No.	4 Sieve	41%-68%

Passing No.	16	Sieve	21%-41%
Passing No.	50	Sieve	10%-27%
Passing No.	200	Sieve	4%-13%

c. Placing. The temporary gravel surface material shall be placed in the trench or foundation pit after it has been backfilled, and after the gravel base has been placed and compacted. The temporary gravel shall be maintained by blading, sprinkling, rolling, adding gravel, etc., to maintain a safe uniform surface satisfactory to the City, until the final surface is to be placed. Excess material shall be removed as directed by the City. The temporary surface shall be restored every 7 days until the final surface is placed. The surface shall be sprinkled with water at least once each day (weekends and holidays included, unless directed otherwise by the City).

Upon completion of satisfactory tests of the installed pipelines, laterals, service connections, and appurtenances, the City shall direct the Contractor to restore the final surface on all or any part of the work, at which time, Contractor shall remove the temporary gravel surface to the bottom of the surface to be restored. After removing temporary gravel, the gravel base course shall be graded and rolled to provide a compact, smooth base for placement of final surfacing.

3.5. RESTORATION OF BITUMINOUS SURFACE COURSE.

a. General. Trenches or foundations excavated in bituminous surfaced areas such as roads or parking areas, etc., shall have the bituminous surface restored as specified herein.

Where bituminous surfaces are to be restored, gravel road base shall be placed and restored as specified in paragraph Restoration of Gravel Road Base. Temporary gravel surfaces shall be placed and maintained as specified in paragraph Temporary Gravel Surfaces and shall be removed prior to placing the final bituminous surface course.

b. Plant Mixed Bituminous Surface Course. Bituminous surface course shall consist of a mixture of mineral aggregate and bituminous binder mixed at a thickness of paving adjacent to the trench area but not less than 2 1/2"; all in accordance with the 1979 issue of the Utah Department of Highway Standard Specifications for Road and Bridge Construction, Paragraphs 402.2 to and including 402.14, unless specified otherwise herein.

(1) Materials. Bituminous material shall be AC-10 grade.

Mineral aggregate shall meet the following gradation requirements.

Passing 1/2-inch sieve	100%
Passing No. 4 sieve	55% - 85%
Passing No. 16 sieve	24% - 38%
Passing No. 50 sieve	9% - 21%
Passing No. 200 sieve	4% - 8%

(2) Mix. The asphalt content of the mix shall be 4% minimum, by weight. The final mix shall meet the following requirements:

Marshall stability	1200/lbs. minimum
Flow (0.01 inch)	10 - 18
Voids content	2% to 4%

As specified in the latest edition of the Asphalt Institute Manual Series No. 2, the supplier shall submit a mix design showing the aggregate gradation, the asphalt grade and content, the Marshall stability, flow and voids content for the mix as well as the maximum density that could be obtained with the mix.

(3) Testing. Random samples of the surface course shall be selected by the Engineer (one sample shall be taken for each 100 square yards placed) and shall be tested for density by an independent testing laboratory at the Contractor's expense. If the density is less than 95% of maximum density as shown in the mix design, the surface shall be recompacted and retested until 95% of maximum density is achieved.

(4) Placing. Where directed by the City, the gravel road base shall be treated with a prime coat consisting of a medium curing, cut back asphalt, MC-70 conforming to the requirements of AASHTO Specification M-82, shall be uniformly applied by approved spraying equipment to the gravel base surface in the amount of 0.15 gallons per square yard of surface. The edges of existing pavement shall be sprayed with a tack coat consisting if a rapid-setting, emulsified asphalt grade CRS-1. The bituminous surface course shall be placed and compacted thereon to the depth of the bituminous material removed but not less than 2 1/2 inches thick.

Before placing any bituminous surface course, the Contractor shall submit, for approval, to the City, his proposed methods for placing and compacting the bituminous surface course.

The bituminous surface course shall be placed by methods approved by the City.

In the event a dryer-drum mixing process is used, the temperature of the bituminous mixture at discharge from the mixer, shall be not less than 220^ F. no more than 260^ F. Overheated materials shall not be used in the pavement.

Unless otherwise accepted by the Engineer, compaction of the mixture shall be completed before the temperature of the mixture drops below 180^ F.

Contact surface of curbing, gutter manholes and other structures shall be painted with tack coat consisting of a cut back asphalt grade RC-250 immediately before the paving materials are placed against them. Care should be taken during application to prevent the tack coat from being applied to exposed concrete above the contact surfaces.

Immediately adjacent to gutters, manholes and other structures, the bituminous surface course shall be spread uniformly high, so that after compaction it will be slightly above the edges of such structures.

Along curbs, gutters, manholes and other places inaccessible to the roller, the materials

shall be thoroughly compacted with hand tampers, but extreme care shall be exercised to prevent damaging the adjacent surfaces.

Should the surface pavement show oil rich patches after rolling, then the materials shall be removed from such areas and replaced with suitable materials.

Should the surface or pavement after rolling or while being rolled become cracked or appear to be loose or broken up, then all the material covering such area shall be removed and shall be removed and shall be replaced with suitable material.

(5) Compacting. After the material for the layer or course has been uniformly spread a above described, it shall be compacted by rolling with self-propelled rollers. The rollers shall be operated at a speed of between one hundred and hundred fifty feet per minute. All rollers shall be in first class mechanical condition, smooth running, and shall start and stop evenly and without jerking. Gasoline motored rollers shall have at least four (4) cylinders. The rolls shall be true cylinders, and any rolls showing bulges or depressions under a straight edge applied anywhere across the face shall not be used on the pavement.

Rolling of the bituminous surface course shall begin as soon after spreading as it will bear the roller without undue displacement or hair checking.

Rolling shall continue until all roller marks are eliminated, until the surface is of uniform texture and true to grade and cross-section, and until the density of at least ninety-fine (95) percent of the theoretical density is obtained.

To prevent adhesion of the mixture to the rollers, the wheels of the rollers shall be kept properly moistened, but no excess of either water or oil will be permitted.

3.6. GRAVEL BASE COURSE.

a. General. Gravel base course shall consist of construction of a base course placed on a prepared subgrade in reasonably close conformance with the lines, grades and dimensions shown on the drawings or established by the developer's Engineer; and in accordance with these specifications.

b. Materials. Gravel base course material shall meet the following gradation requirements, and shall be in accordance with the State of Utah Standard Specifications for Road Bridge Construction, 1979 Edition, Section 301; Paragraphs 301.01 through 301.06; except as modified herein.

1 inch gradation

Sieve Size	% Passing	Tolerance
1 inch	100	+-0%
1/2 inch	85	+-6%
No. 4	55	+-6%
No. 16	31	+-4%

No. 200	9	+-2%

3/4 inch gradation

Sieve Size	% Passing	Tolerance
3/4 inch	100	+-0%
1/2 inch	83	+-8%
No. 4	54	+-8%
No. 16	28	+-6%
No. 50	17	+-6%
No. 200	7	+-2%

1/2 inch gradation

Sieve Size	% Passing	Tolerance
1/2 inch	100	+-0%
No. 4	70	+-10%
No. 16	35	+-7%
No. 50	17	+-6%
No. 200	7	+-2%

c. Placing. The gravel base shall be placed to provide a minimum thickness of 8-inches after compaction. Material shall be placed ar near optimum moisture, spread in uniform layers across the entire area, over previously compacted sub-base. The material shall be compacted to 95% of maximum density as determined by AASHTO T-180, Method D.

3.7. BITUMINOUS SURFACE COURSE.

Bituminous surface course shall consist of a mixture of mineral aggregate and bituminous binder mixed at a central mixing plant, and spread and compacted on a prepared base to the thickness shown on the drawings, and all in accordance with the 2017 Edition of the State of Utah Standard Specifications for Road and Bridge Construction, sections 02721, 02741, and 02745, unless otherwise specified herein.

Bituminous Concrete Mix

a) Submittals.
   1) General.
      i) Pre-approved mix design: submit name and address of supplier
      ii) Allow engineer 10 days to evaluate mixing equipment and mix design submittals
      iii) Once a mix design is accepted, a new mix design submittal is required if the following occurs.
         (1) Asphalt binder grade is changed.
         (2) Aggregate source is changed. When this occurs, submit a physical properties report on the proposed aggregates.
   2) Mix Design. Submit the following.
      i) Date of mix design.
      ii) Binder source, type, and grade. Disclose if RAP or ROSP is used the mix.
      iii) Optimum compaction temperature at the project site.

iv) Theoretical maximum specific gravity.

v) Compaction density at design target air voids.

vi) Target Grading Curve for aggregate.

vii) Binder target percentage, dust to binder ratio, and the following as applicable.

(1) For Superpave mix design provide 1) voids in the mineral aggregate, and 2) voids fill with bituminous binder also known as VFA, and 3) Hamburg Wheel Tracker results.

(2) For Marshall mix design provide 1) tensile strength ratio, 2) voids in the mineral aggregate, 3) stability, 4) flow, 5) voids in the bituminous mix, and 6) voids filled with bituminous binder known as VFA.

viii) Percentages of 1) mineral filler, 2) anti-strip, 3) reclaimed bituminous pavement (RAP or ROSP), 4) recycle agent in the mix, and 5) virgin aggregate.

ix) Aggregate physical properties. The information is for suitability of source and not for project control. A new report may be required if aggregate source is changed. Test results shall not be older than 2 calendar years from the date of submission.

b) Quality Assurance

1) Do not change aggregate source or binder source until engineer accepts new sources and mix design.

c) Acceptance.

1) General

i) Acceptance is by lot. One lot is one days' production.

ii) If non-complying material has been installed and no price for the material is specified, the acceptance shall be at the discretion of the Engineer.

iii) If test results are not within this section's limits, options include correction of production procedures or production of an alternate mix design acceptable to the engineer.

iv) Observation of contractor's field quality control testing does not constitute acceptance. Such testing, however, may be used by the engineer for acceptance if requirements in APWA Section 01 35 10 are met.

d) Binder

1) Performance Grade Asphalt Binder

i) Blending with polymers is allowed

ii) Do not use acid blends without documentation supporting need.

iii) Adjust binder grade according to AASHTO M323 to account for any binder stiffness caused by adding RAP or ROSP to the mix.

2) Bitumen Binder.

i) Oil sand source is contractor's choice

3) Blended binder

i) Contractor's choice. A blended ratio of asphalt binder to bitumen binder in the range of about 1:4 to about 4:1 may require patent licensure. Contractor to verify.

e) Aggregate

1) Crushed stone, crushed gravel, slag, sand, or combination.

2) Use Table 1 to determine suitability of aggregate source.

Table 1 - Aggregate Physical Properties				
		Standard	Road Class	
			I&II	III
Coarse Aggregate				
Angularity, percent, minimum	One fractured face	D5821	90	95
	Two fractured faces		90	90
Wear, percent, maximum		C131	35	35
Flats or elongates, percent, maximum		D4791	--	20
Fine Aggregate				
Angularity, percent, minimum		T304	40	45
Sand equivalent, percent, minimum		D2419	45	60
Plastic limit, maximum		D4318	0	0
Blended Physical Properties				
Dry-rodded unit weight, lb/ft3, minimum		C29	75	75
Weight loss, percent, maximum		C88	16	16
Friable particles, percent, maximum		C142	2	2

Notes

a) Road class is defined in APWA Section 32 01 31.

b) Course aggregate does not pass No. 4 sieve. Fine aggregate does pass.

c) Angularity is determined by weight.

d) Wear of aggregate may have higher values if aggregate source is known to have higher values.

e) Sand equivalent is waived for RAP aggregate but applies to the remainder of the aggregate blend

f)Plastic limit, passing No. 40 sieve. Aggregate is non-plastic even when filler material is added to the aggregate.

g) Weight loss, using sodium sulfate.

h) Friable particles are clay lumps, shale, wood, mica, coal passing No. 4 sieve, and other deleterious materials.

f) Additives

1) Mineral Filler: ASTM D242
2) Recycle Agent: ASTM D4552
3) Anti-strip Agent: Heat stable cement slurry, lime slurry, or chemical liquid.
4) RAP or ROSP: Free of detrimental quantities of deleterious materials.
   i) Allowed up to 15 percent by weight of RAP or binder, whichever is lesser, with no change in specified binder grade.
   ii) Determine RAP binder content by chemical extraction.

g) Mix Design

1) Preparation
   i) Get the mix designator and the road class from Layton City Engineering or engineer, or bid documents.

ii) Use section a)2) to determine submittal requirements.

iii) Aggregate Gradation – Marshall Mix Design

(1) See Table 2. The target gradation curve for the specified aggregate grade must lie within the master grading band limits. The target grading band limits for the target grading curve are the appropriate grading limits for acceptance. The target grading band limits are allowed to extend outside of the master grading band limits.

Table 2 - Master Grading Band Limits

Sieve	Aggregate Grades		
	DM-1	DM-3/4	DM-1/2
1 inch	100		
3/4 inch		100	
1/2 inch	75-91		100
3/8 inch		75-91	
No. 4	47-61	46-62	60-80
No. 8			
No. 16	23-33	22-34	28-42
No. 50	12-22	11-23	11-23
No.200	3-7	3-7	3-7

h) Source Quality Control

1) Collect samples randomly. Do not change sampling points

i) Sampling aggregate, ASTM D75. Collect samples before the drum mixer.

ii) Sampling binder, ASTM D140.

iii) Sampling bituminous paving mixture, ASTM D979.

2) Validate binder grade received from supplier, see APWA Section 32 12 03.

3) Test mix every production day for the following:

i) Combined aggregate gradation in the mix, ASTM D5444.

ii) Binder content in the mix, ASTM D6307.

iii) Temperature of mix placed in the transport vehicle at the production plant.

(1) Asphalt Binder mixes.

(a) Hot Mix: 325 deg F maximum

(b) Warm Mix: 325 deg F maximum.

(2) Bitumen Binder mixes or Blended Binder mixes.

(a) Hot Mix: Not Allowed

(b) Warm Mix: 230 degrees maximum.

4) Warm Mix Testing: When rutting or moisture susceptibility tests are required on plant produced warm mix, condition the warm mix material before testing for two hours at 275 plus or minus five deg F per AASHTO R30. The material may be cooled to room temperature before conditioning.

i) Construction Equipment

1) Mixing Plant

i) Positive means to determine the moisture content of aggregate.

ii) Positive means to sample all material components.
iii) Sensors to measure the temperature of the mix at discharge.
iv) Ability to maintain discharge temperature of mix.
v) Capability of maintaining plus or minus five percent tolerance on component percentages in final mix.

Plant–Mix Bituminous Paving Section

j) Submittals
1) Before Delivery: Submit 48 hours before delivery:
i) Location and name of bituminous concrete production facility.
ii) Mix design and method.
iii) Mix identification number or code.
iv) Type, grade, and weight of binder.
v) Type, grade, and weight of aggregate.
vi) Traffic control plan.
vii) Type and number of rollers.
viii) Manufacturer's certificate of compliance for paving geotextiles.
ix) Certification of profilograph and profilograph operator.
x) Cold weather paving plan
2) At Delivery: For each batch delivered to site identify:
i) Date and project description.
ii) Producer and plant.
iii) Name of contractor.
iv) Serial number of ticket.
v) Mix identification number or code.
vi) Truck number and time dispatched.
vii) Volume of mix delivered.
3) After Placement: Before final payment submit summary report describing profile deviation and profile roughness.

k) Quality Assurance
1) Do not change aggregate source or binder grade until Engineer accepts new source and new mix design.
2) Reject product and work that does not meet requirements of this section.
3) Remove product found defective after installation and install acceptable product at no additional cost to City.
4) Foreman of paving crew has completed at least three projects of similar size and nature.
5) Submit a quality control and testing report describing source and field quality assurance activities performed by Contractor and Suppliers.

l) Weather
1) Temperature:
i) April 15 to October 15: Place pavement when air temperature in the shade and the roadway surface temperature are above 50 deg F. The Engineer may provide written approval if it is

acceptable to place outside of this temperature limit.

ii) Before April 15 and After October 15: Provide a Cold Weather Paving Plan. Engineer must accept the plan before proceeding.

(1) Include the following details:

(a) Haul details.

(b) Placement details.

(c) Compaction aids used in production.

(d) Coordination procedure for acceptance testing.

2) Moisture: Do not place on frozen base, during adverse climatic conditions such as precipitation, or when roadway surface is wet or icy.

m) Notice

1) Follow Laws and Regulations concerning when and to whom notices are to be given. Send written notice at least three days before start of paving.

2) Indicate paving time and when new surface can be used.

3) Warn of potential vehicle tow away and other construction issues affecting neighborhood.

4) Should work not occur on specified day, send a new notice.

n) Acceptance

1) General:

i) Acceptance is by Lot.

ii) If non-complying material has been installed and no price for the material is specified, the acceptance shall be at the discretion of the Engineer.

iii) Dispute resolution, see APWA 2017 Section 01 35 10.

iv) Opening a paved surface to traffic does not constitute acceptance.

v) Observation of Contractor's field quality control testing does not constitute acceptance. Such testing; however, may be used by Engineer for acceptance at the Engineers discretion.

2) Mix Material: Accepted as specified for bituminous concrete, See Bituminous Concrete, above.

3) Mix temperature at Site:

i) Reject mixes in the transport material exceeding 425 deg F.

ii) Dispose of cold mix in paver hopper as thin spread underlay.

4) Grade, Cross Slope: Verify tolerances are not exceeded.

5) Compaction: Options for acceptance are 1) core density, 2) non-destructive test density, or 3) control strip density with visual observation. Use core density unless specified elsewhere. A Lot is acceptable if density tests are within the specified limits:

Table 1 - Compaction Acceptance

	Density, in Percent Relative to ASTM D2041	
Status	**Average**	**Lowest Test**
Accept	94	92
Reject	Less than 94	Less than 92

i) Core Density: This method compares the average density of cores extracted from a pavement surface to maximum theoretical density:

(1) Lot size: One day production with 1,000 square yard sub-lots or part thereof.
(2) Sampling protocol: Use ASTM D3665 to randomly select in each sub-lot at least one surface test location and one longitudinal joint test location. Collect at least two test samples at each test location, ASTM D5361. Samples are full depth or overlay depth in overlay construction.
(3) Testing protocol: ASTM D2725 for core density and ASTM D2041 for maximum theoretical density.

ii) Non-Destructive Density Testing by Gage:
(1) Lot size: One day production with 1,000 square yard sub-lots or part thereof.
(2) Sampling protocol: Use ASTM D3665 to randomly select in each sub-lot at least one surface test location and one longitudinal joint test location.
(3) Testing protocol: ASTM D2950 or AASHTO TP68 and ASTM D2041 for maximum theoretical density.

iii) Control Strip Density with Visual Observation:
(1) Lot: One day production.
(2) Sampling Protocol: Not required after rolling pattern is determined.
(3) Testing protocol: ASTM D6927 and D2041 to determine rolling patter for 94 percent compaction, thereafter visual examination.

iv) Compaction Dispute Resolution:
(1) Contractor:
(a) Provide and independent testing agency, see APWA 2017 Section 01 45 00.
(b) Take two supplement cores midway between deficient acceptance test locations, and midway between a deficient test location and an adjacent acceptable test location.
(c) Patch core holes.
(d) Conduct testing at no additional cost to Owner.
(2) Engineer:
(a) Accept Lot at full pay if new information shows compliance, or
(b) Reject Lot.

2) Thickness: A Lot is acceptable if test deficiencies are within specified limits: 0.00 to 0.375 inches.

i) Lot Size: One day production with 1,000 square yard sub-lots or part thereof.

ii) Sampling Protocol: Use ASTM D3665 to randomly select at least one surface test location and one longitudinal joint test location in each sub-lot. Collect at least two core samples at each test location, ASTM D5361. Samples are full depth. Overlay construction measured only on overlay portion of core sample.

iii) Testing Protocol: ASTM D3549:
(1) Minimum specified thickness: A Lot specified to have minimum thickness will be accepted if all sub-lot measurements meet or exceed minimum. If thickness is deficient, the Engineer will determine how to meet the standard.
(2) Actual Specified Thickness: A Lot specified to have actual thickness is acceptable if any sub-lot measurement does not exceed deficiency limits for acceptable thickness.

iv) Thickness Dispute Resolution:
(1) Contractor:
(a) Provide and independent testing agency, see APWA 2017 Section 01 45 00.

(b) Take two supplement cores midway between deficient acceptance test locations, and midway between a deficient test location and an adjacent acceptable test location.

(c) Patch core holes.

(d) Conduct testing at no additional cost to Owner.

(2) Engineer:

(a) Graph deficient areas by plotting new cores and original cores to define deficient areas assuming the following.

(i) The graph represents the thickness of the pavement.

(ii) Thicknesses vary linearly along the pavement length from core depth to core depth.

(iii) The pavement is a constant depth in the transverse direction.

(b) Accept Lot at full pay if new information shows compliance, or

(c) Reject Lot.

3) Profile Roughness and Profile Deviation: See APWA 2017 Section 32 01 31.

o) Warranty

1) Joints at street fixtures and Portland cement flat work: If wider than ½ inch before end of the correction period seal joints with asphalt rubber or rubberized asphalt; See APWA Section 32 01 17.

p) Construction Equipment

1) Paver machine: Use track equipment when operating on fabrics, geogrids or pavement mats hotter than 180 deg F.

2) Compactors: Steel wheel static or vibratory. Use pneumatic tire roller for intermediate rolling only.

q) Preparation

1) General:

i) Locate and preserve utilities. Contact utility companies and other agencies, for dangerous concentration of combustible, flammable, or explosive matter.

ii) Lower street fixtures if paving machine is not capable of passing over the fixtures.

iii) Remove vegetation from cracks, edges and joints. Sweep surface clean. Blow cracks clean. Remove leaves.

iv) Fill cracks and fix potholes.

v) Stabilize Portland cement concrete subgrade slabs.

2) Traffic Control:

i) Implement notification and traffic control plan requirements. Do not proceed without certified flaggers.

ii) Apply temporary lane marking tape or paint after layout has been verified with Engineer.

3) Aggregate Base Course:

i) Verify base course is placed to grade, compacted and dampened.

ii) If indicated, follow APWA Section 31 31 19 requirements for herbicide treatment or Section 32 12 13.19 for prime coat applications.

r) Protection

1) Trees, Plants, Ground Cover:

i) Protect trees, plants and other ground cover from damage.

ii) Prune trees to allow equipment passage underneath, See APWA Section 32 01 93. Repair tree damage at no additional cost to City.

2) Protect all structures, including curb, gutter, sidewalks, guard rails, and guide posts from physical

damage. Remove spatter, over-coat, or mar.

3) Do not discharge bituminous materials into borrow pits or gutters.
4) Protect hot pavement from traffic until cool enough not to become marred.
5) Remove saw-cut dust immediately. Protect neighborhood, storm drains and down-stream drainage.

s) Temporary Surfacing

1) Place, roll, maintain, remove and dispose of temporary pavement surfaces.
2) In sidewalk areas construct temporary pavements at least 1 inch thick and in all other areas at least 2 inches thick. At major intersections and other critical locations a greater thickness may be required.

t) Line and Grade Control

1) Provide necessary survey stakes for horizontal and vertical control.
2) Furnish, place, and maintain supports, wire devices, and materials as required to provide continuous line and grade reference controls for placing pavement, matching existing pavement surfaces, etc.

u) Fabric Placement

1) See APWA Section 31 05 19.

v) Pavement Placement

1) General:
   i) Barricade off or eliminate fall off edges.
   ii) Provide continuous forward paver movement so temperature 10 feet behind paver is as follows:

Table 2 - Minimum Pavement Temperature in Degrees F.

	Compacted Mat Thickness					
Air Temperature Deg F	**3/4"**	**1"**	**1-1/2"**	**2"**	**3"**	**4"**
45-50	-	-	-	-	280	265
50-59	-	-	-	280	270	255
60-69	-	-	285	275	265	250
70-79	285	285	280	270	265	250
80-89	280	275	270	265	260	250
90+	275	270	265	260	250	250

1) Overlays or Subsequent Lifts:
   i) Allow new base pavement or new inlay pavement to cure before placing overlays.
   ii) Apply tack coat per APWA Section 32 12 13.13 if inlay or sub-base pavement surface is dirty or older than 24 hours.
2) Irregular Areas: Handwork is acceptable if specified grade, slope, compaction and smoothness are achieved.
3) Compaction:
   i) Test mix placement until a compaction pattern is acceptable to Contractor. Continue random quality control testing.
   ii) Do not over compact or under compact.
   iii) Complete compaction before the following temperature is reached: 180 deg F.
4) Joints:
   i) Construct joints to industry standards for texture, density, and smoothness.

ii) Clean contact surfaces and apply tack coat. Ensure continuous bond between old and new pavement, or between successive day's work.

iii) Offset longitudinal joints a minimum of 12 inches in succeeding courses and at least 6 feet transversely to avoid a vertical joint through more than one course. In the top course restrict longitudinal joint to 1 foot either side of lane lines.

iv) Prevent traffic, including construction traffic, from crossing vertical edges. Apply tack coat to vertical edges before making another pass with paver if mix has cooled to 90 deg F.

w) Tolerances

1) Compaction: Target is 94 percent of ASTM D2041 plus or minus 2 percent.
2) Lift Thickness: If not indicated, meet the following tolerances: Minimum is 2 times maximum aggregate size; maximum is not more than limits established by manufacturer of compactor equipment. Thickness is measured after compaction.
3) Smoothness:
   i) Parallel to Centerline: See APWA Section 32 01 31.
   ii) Cross Slope: ¼ inch in 10 feet except at cross section grade breaks.

x) Repair

1) Repair ride disturbing or unsafe butt joints. Repair expense is at no additional cost to City.
2) If pavement smoothness is deficient, follow APWA Section 32 01 31 repair requirements.
3) Corrective action for profile deviations: Grinding is acceptable. See APWA Section 32 01 26. Apply a fog seal over grind areas. See APWA Section 32 01 13.50. If depressions cannot be corrected by grinding, remove and replace.
4) Corrective action for profile roughness index: Grinding is acceptable. Re-profile corrected segments to verify ride index meets tolerance. Apply a fog seal over grind areas.
5) When thickness is deficient, place additional material over deficient areas. DO NOT skin patch. Mill for inlay if necessary.
6) Defective joints, seams, edges: repair.
7) Unacceptable paving: remove and replace.

y) Opening to Traffic

1) Temperature of pavement surface is not more than 180 deg F.

3.8. SUB-GRADE COURSE.

a. General. The sub-grade material course shall consist of granular material course placed on a prepared and proof-rolled native material grade in reasonably close conformance with the lines, grades and dimensions shown on the drawings or established by the developer's Engineer; and in accordance with these specifications.

b. Materials. The sub-grade material course shall consist of select manufactured granular material of well-graded sand, gravel, crushed gravel, or crushed stone composed of hard, tough and durable particles, and shall be free from vegetative matter, lumps or balls of clay, or other deleterious matter. The sub-grade material course shall contain not more than 10 percent by weight of material passing a No. 200 mesh sieve and no less than 95 percent by weight passing the 2-inch sieve. The maximum allowable aggregate size shall be 3 inches. The sub-grade material course

material shall meet the following gradation requirements, and shall be in accordance with the State of Utah Standard Specifications for Road Bridge Construction, 1979 Edition, Section 301; Paragraphs 301.01 through 301.06; except as modified herein.

3-inch gradation

Sieve Size	% Passing	Tolerance
3 inch	100	+-0%
2 inch	93	+-2%
1 1/2	85	+-4%
1 inch	80	+-4%
3/4 inch	75	+-4%
1/2 inch	60	+-4%
3/8 inch	55	+-4%
No. 4	40	+-4%
No. 16	35	+-4%
No. 200	8	+-2%

c. Placing. The sub-grade material course shall be placed to provide a minimum thickness of 8-inches after compaction. Material shall be placed at near optimum moisture, spread in uniform layers across the entire area, over previously compacted material. The material shall be compacted to 95% of maximum density as determined by AASHTO T-180, Method D.

SECTION 1

MEASUREMENT AND PAYMENT DIVISION

General and supplemental general conditions. Applicable provisions of the GENERAL CONDITIONS and SUPPLEMENTAL GENERAL CONDITIONS apply to and are made a part of this Division.

Measurement and Payment: Measurement shall be made in the units or lump sums shown on the bid schedule. Payment shall be made at the unit price or lump sum price bid in the bid schedule for the items described below, which shall be payment in full for all costs of furnishing labor, tools, equipment, materials, testing, and etc., to complete the items of work as specified and as shown on the drawing(s).

LAYTON CITY COMMONS PARK IMPROVEMENTS - PROJECT 22-05

COMMONS PARK IMPROVEMENTS

CONSTRUCTION SURVEYING & STAKING… **(Base Bid Item 2)**

Measurement shall be lump sum of construction surveying and staking required to prepare the site for accurate construction and completion of the project.

Payment shall be at the lump sum price bid and shall include all costs and materials required to accomplish the surveying and staking.

TRAFFIC CONTROL / CONSTRUCTION FENCING… **(Base Bid Item 3)**

Measurement shall be lump sum of traffic control and construction fencing required to manage the safety of the site and surroundings during the duration of the construction project.

Payment shall be at the lump sum price bid and shall include all costs and materials required to accomplish the traffic control and construction fencing.

TESTING… **(Base Bid Item 4)**

Measurement shall be lump sum of testing required to ensure the concrete passes strength and resilience of built structures constructed.

Payment shall be at the lump sum price bid and shall include all costs and materials required to accomplish the testing.

EROSION CONTROL… **(Base Bid Item 5)**

Measurement shall be lump sum of erosion control required to prepare the site for the project.

Payment shall be at the lump sum price bid and shall include all costs and materials required to control erosion including the tasks of placing straw waddles near storm drains, and furnishing all labor, equipment, materials and tools needed to implement the erosion control.

DEMOLITION/SITE CLEARING & SITE GRADING… **(Base Bid Item 6)**

Measurement shall be per lump sum of site clearing and site grading required to prepare the site for rough grading.

Payment shall be at the lump sum price bid and shall include all costs and materials required to site grade in preparation for rough grading including the tasks of clearing, grubbing and removal; providing necessary subgrade preparation including shaping and compaction; restoring any damaged property items resulting from site grading including sod, fences, sprinkling systems, asphalt, sidewalk, landscaping, and associated property items; and removing and legally disposing all waste materials.

EARTHWORK & GRADING… **(Base Bid Item 7)**

Measurement shall be lump sum of rough grading required to prepare the site for road base and asphalt (or concrete).

Payment shall be at the lump sum price bid and shall include all costs and materials required to rough grade the site in preparation for installing road base and asphalt (or concrete) including the tasks of clearing, grubbing and removal; providing necessary subgrade preparation including shaping and compaction; restoring any damaged property items resulting from rough grading including sod, fences, sprinkling systems, asphalt, sidewalk, landscaping, and associated property items; and removing and legally disposing all waste materials.

FURNISH AND INSTALL 6" DEPTH ROADBASE…. **(Base Bid Item 8)**

Measurement shall be per ton of gravel roadbase installed on the project. The weight factor for gravel roadbase shall be assumed not to exceed 136 pounds per cubic foot. Copies of original weight tickets with summary sheet showing the job description are required for measurement verification. All tickets must identify the project name, project number and section, and intended use (street construction) of the roadbase material.

Payment shall be at the unit price bid. If the weight described in the measurement section above exceeds the assumed amount, the bid price will be adjusted using the following formula: (Quantity delivered*136/proctor weight*unit bid=payment amount). The bid price shall include all costs to furnish, place, shape, grade, compact, and test the gravel roadbase (6 inches below trails, sidewalks and curb & gutter); provide dust control and associated work items. Payment also includes the placement, shaping, grading, compaction and testing of the material at the curb & gutter, trail, and sidewalk locations.

FURNISH AND INSTALL 4" DEPTH CONCRETE…. **(Base Bid Item 8)**

Measurement shall be made per square feet of concrete. Public Works Inspector must verify measurement in the field or no compensation will be given.

Payment shall be at the unit price bid and shall include all costs and materials required to restore damaged property items resulting from construction including sod, fences, sprinkling systems, asphalt, sidewalk, landscaping, and associated property items; remove and legally dispose of all waste material; furnish and install the 4-inch thick (or 6-inch thick) concrete on the 6-inch thick roadbase (or 10" roadbase respectively) provide subgrade preparation including shaping and compaction; provide forming, concrete, finishing, expansion materials, and curing compound; provide watchmen to protect the concrete from vandalism; restore damaged property items resulting from construction including sod, fences, sprinkling systems, asphalt, sidewalk, landscaping, and associated property items; remove and

legally dispose of all waste material. Payment also includes costs to form and construct the thickened sidewalk for the support in all areas requiring the supported sidewalk as indicated on the drawings.

FURNISH AND INSTALL 8" ROADBASE…. **(Base Bid Item 9)**

Measurement shall be per ton of gravel roadbase installed on the project. The weight factor for gravel roadbase shall be assumed not to exceed 136 pounds per cubic foot. Copies of original weight tickets with summary sheet showing the job description are required for measurement verification. All tickets must identify the project name, project number and section, and intended use (street construction) of the roadbase material.

Payment shall be at the unit price bid. If the weight described in the measurement section above exceeds the assumed amount, the bid price will be adjusted using the following formula: (Quantity delivered*136/proctor weight*unit bid=payment amount). The bid price shall include all costs to furnish, place, shape, grade, compact, and test the gravel roadbase (8 inches below the parking lot); provide dust control and associated work items. Payment also includes the placement, shaping, grading, compaction and testing of the material at the curb & gutter, trail, and sidewalk locations.

FURNISH AND INSTALL 3" ASPHALT…. **(Base Bid Item 9)**

Measurement shall be per ton of PG 58-28 asphalt surface course installed on the project. The weight factor for asphalt mix shall be assumed not to exceed 148 pounds per cubic foot for the 1/2-inch mix design. Copies of original weight tickets with summary sheet showing the job description are required for measurement verification. All tickets must identify the project name, project number and section, and intended use (street construction) of the asphalt surface course.

Payment shall be at the unit price bid. If the asphalt weight described in the measurement section above exceeds the assumed amount, the bid price will be adjusted using the following formula: (Quantity delivered*148/marshal weight*unit bid=payment amount). The bid price shall include all costs to furnish, place, and compact the 5-inch-thick 1/2-inch asphalt surface course. Payment includes all costs to complete asphalt compaction tests on each finish surface course conforming to Layton City frequency. Maximum lift depth shall be limited to 3-inches. Payment includes the placement of the asphalt tack coat material between each lift of asphalt pavement.

RELOCATION OF SMALL PAVILION… **(Base Bid Item 10)**

Measurement shall be lump sum to relocate the small pavilion as shown on plans.

Payment shall be made at the lump sum price bid and shall include all costs, materials, and labor to relocate the small pavilion; over-excavation; shape, compact, prepare and place the material as indicated on the drawings.

LARGE PAVILION… **(Base Bid Item 11)**

Measurement shall be lump sum to prepare the site for the pavilion as shown on plans.

Payment shall be made at the lump sum price bid and shall include all costs, materials, and labor to prepare the site for the pavilion; over-excavation; shape, compact, prepare and place the material as indicated on the drawings.

PAVILON ELECTRICAL… **(Base Bid Item 12)**

Measurement shall be lump sum to install the electrical as shown on plans.

Payment shall be made at the lump sum price bid and shall include all costs, materials, and labor to furnish and install the material; over-excavation; shape, compact, prepare and place the material as indicated on the drawings.

RESTROOM… **(Base Bid Item 13)**

Measurement shall be lump sum to install the restroom and related appurtenances as shown on plans.

Payment shall be made at the lump sum price bid and shall include all costs, materials, and labor to install the restroom and related appurtenances; over-excavation; shape, compact, prepare and place the material as indicated on the drawings.

RELOCATED DRINKING FOUNTAIN… **(Base Bid Item 14)**

Measurement shall be lump sum to relocate the existing drinking fountain and install as shown on plans.

Payment shall be made at the lump sum price bid and shall include all costs, materials, and labor to furnish and install the material; over-excavation; shape, compact, prepare and place the material as indicated on the drawings.

FURNISH AND INSTALL LANDSCAPE IRRIGATION… **(Base Bid Items 15)**

Measurement shall be lump sum to furnish and install the landscape irrigation as specified in the drawings.

Payment shall be at the lump sum price bid and shall include all materials, costs, and labor to furnish and install all landscape irrigation specified in the drawings. Payment includes furnishing and installing all pipes, fittings, valves, backflow preventers, automatic controllers, pedestals, sprinkler heads, plastic nozzles, drip tubings, filters, valve boxes, and/or all other associated items to install the sprinkling system. Payment also includes flushing the main lines before installing automatic control valves, laterals before installing sprinklers, and supply lines before installing backflow preventers or other regulating devices. Payment includes all materials and costs associated with connecting the sprinkler system to the electrical system (or battery controller).

Payment also includes restoration of damaged property items resulting from construction including fences, sprinkling systems, asphalt, sidewalk, landscaping, and associated property items; and removal and legal disposal of all waste material.

FURNISH AND INSTALL LANDSCAPING… **(Base Bid Items 16-17)**

Measurement shall be per lump sum to furnish and install landscaping as specified in the drawings.

Payment shall be at the lump sum price bid and shall include all materials, costs, and labor to furnish and install all landscaping specified in the drawings. Payment includes furnishing and installing all pipes, fittings, valves, backflow preventers, automatic controllers, pedestals, sprinkler heads, plastic nozzles, drip tubings, filters, valve boxes, and/or all other associated items to install the sprinkling system. Payment also includes flushing the main lines before installing automatic control valves, laterals before installing sprinklers, and supply lines before installing backflow preventers or other regulating devices. Payment includes all materials and costs associated with connecting the sprinkler system to the electrical system.

Payment shall also include all costs, materials and labor to furnish and install all sod, and/or seeds, as specified in the drawings. Payment includes restoration of damaged property items resulting from construction including fences, sprinkling systems, asphalt, sidewalk, landscaping, and associated property items; and removal and legal disposal of all waste material.

1. ENUMERATION OF DRAWINGS

The drawings for this project are as follows:

NAME	DRAWING NUMBER
Layton Commons Park Improvements Icon Shelter Systems: Octagon Pavilion	CONSTRUCTION DOCUMENTS

STANDARD DRAWINGS

Layton Commons Park Improvements

437 N Wasatch Dr, Layton, UT 84041

Layton City

blu

construction documents

Bid Set

April 28, 2023

sheet index

project team

OWNER
Layton City
437 N Wasatch Dr,
Layton, UT 84041
P:801.336.3926 CONTACT: JoEllen Grandy
F: E-MAIL: jgrandy@laytoncity.org

LANDSCAPE ARCHITECT
blu line designs
8719 S. Sandy Parkway
Sandy, Utah 84070
P: 801.703.6383 CONTACT: Rob Donigan
F: -- E-MAIL: rob@bluline designs.com

SURVEY/ CIVIL
Ensign Engineering & Land Surveying
919 N 400 W
Layton, UT 84041
P: 801.643.0527 CONTACT: Cam Preston
F: E-MAIL: cpreston@ensignengutah.com

ELECTRICAL ENGINEER
Spectrum Engineers
324 S. State St., Suite 400
Salt Lake City, UT 84111
P: 801.328.5151 CONTACT: Spencer Little
F: 801.328.5155 E-MAIL: spencer.little@speceng.com

General Notes

1. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST AMERICAN PUBLIC WORKS ASSOCIATION (APWA) AND LAYTON CITY STANDARDS, SPECIFICATIONS, AND DETAILS. ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THESE ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

2. EXISTING UTILITIES, EASEMENTS, AND STRUCTURES SHOWN ON THE DRAWINGS ARE IN ACCORDANCE WITH AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, SIZE, TYPE, AND STRUCTURES TO BE ENCOUNTERED ON THE PROJECT PRIOR TO ANY EXCAVATION AND CONSTRUCTION IN THE VICINITY OF THE EXISTING UTILITIES AND STRUCTURES.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL REQUIRED PERMITS, LICENSES, AND APPROVALS REQUIRED TO LEGALLY AND RESPONSIBLY COMPLETE THE WORK.

4. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL, DISPOSAL, OR RELOCATION OF ALL OBSTRUCTIONS AND DEBRIS WITHIN THE DELINEATED CONSTRUCTION AREA PRIOR TO STARTING NEW CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ANY DEBRIS RESULTING FROM NEW CONSTRUCTION.

5. DAMAGE TO ANY EXISTING IMPROVEMENTS OR TO ANY PORTION OF THE PROJECT'S SURROUNDING AREA DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

6. THE CONTRACTOR SHALL BE RESPONSIBLE TO ADJUST THE TOPS OF ALL EXISTING MANHOLES, CATCH BASINS, INLETS, COVERS, AND SIMILAR STRUCTURES TO FINISH GRADE.

7. THE CONTRACTOR SHALL CALL BLUE STAKES AT 1-800-662-4111 FOR UNDERGROUND UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION.

8. THE PROJECT SHALL NOT BE CONSIDERED COMPLETE UNTIL ALL CURBS, PAVEMENT, AND SIDEWALKS HAVE BEEN SWEPT CLEAN OF ALL DIRT AND DEBRIS.

9. CONTRACTOR SHALL ROUGH GRADE TO WITHIN +/- A TENTH OF A FOOT FROM FINISH GRADE.

10. ALL SPOT ELEVATIONS ARE FINISH GRADE UNLESS OTHERWISE NOTED.

11. ALL CLARIFICATIONS OF DISCREPANCIES BETWEEN THE DRAWINGS AND THE SITE SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING OF WORK.

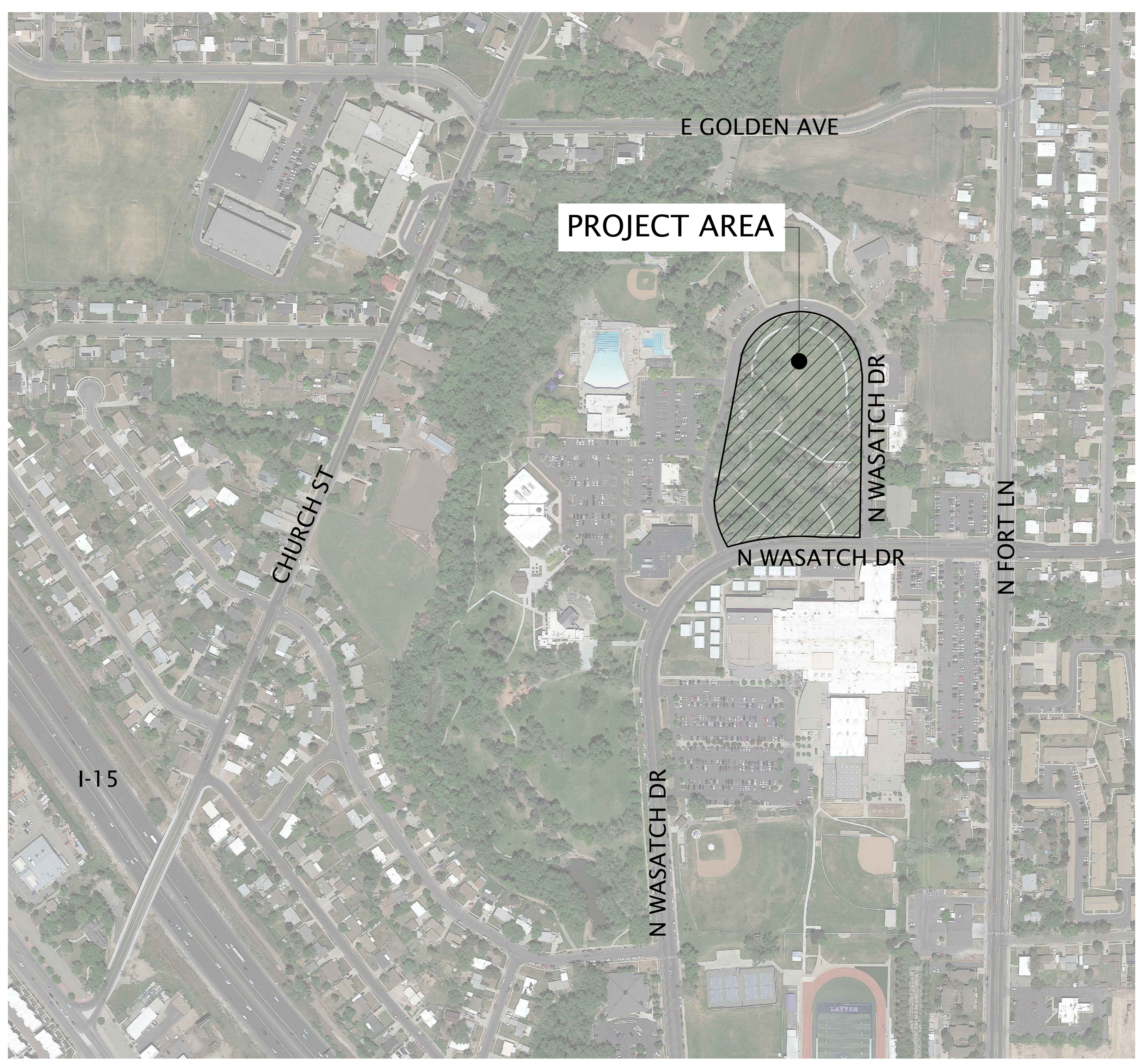
12. CROSS SLOPES ON ALL NEW HARDSCAPE AND PAVEMENT SHALL NOT EXCEED 2% UNLESS OTHERWISE SHOWN.

13. ALL AREAS WITHIN AND AFFECTED BY THIS PROJECT SHALL HAVE POSITIVE DRAINAGE. POSITIVE DRAINAGE SHALL BE PROVIDED TO DIRECT STORMWATER AWAY FROM ALL STRUCTURES.

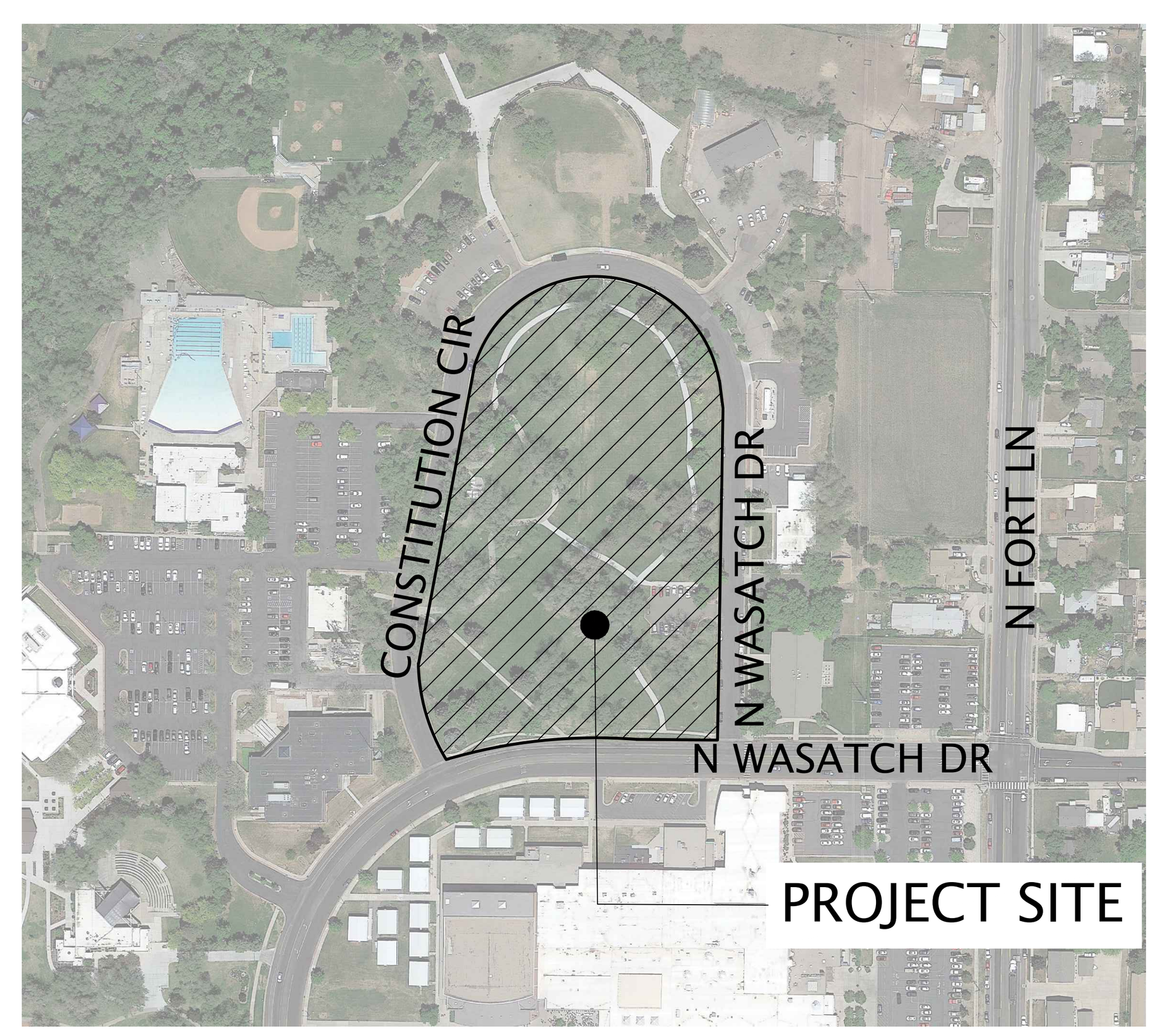
14. CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID DAMAGE TO EXISTING FEATURES AND FACILITIES SCHEDULED TO REMAIN AS PART OF THE FINISHED CONSTRUCTION. REPAIR, REPLACEMENT, AND/OR REMOVAL AS DETERMINED BY OWNER SHALL BE AT THE CONTRACTOR'S EXPENSE.

15. CONTRACTOR SHALL PROVIDE AND MAINTAIN A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AS REQUIRED BY LAYTON CITY AND THE STATE OF UTAH.

project location



project area



project site n

blu line designs
planning | landscape architecture | design
8719 S. Sandy Parkway
Sandy, UT 84070
p 801.913.7994

OWNER:
LAYTON CITY
437 N WASATCH DR, LAYTON, UT 84041

CONTACT:
JOELLEN GRANDY
801-336-3926

LAYTON COMMONS PARK IMPROVEMENTS
437 N WASATCH DR, LAYTON, UT 84041

BID SET

REVISIONS

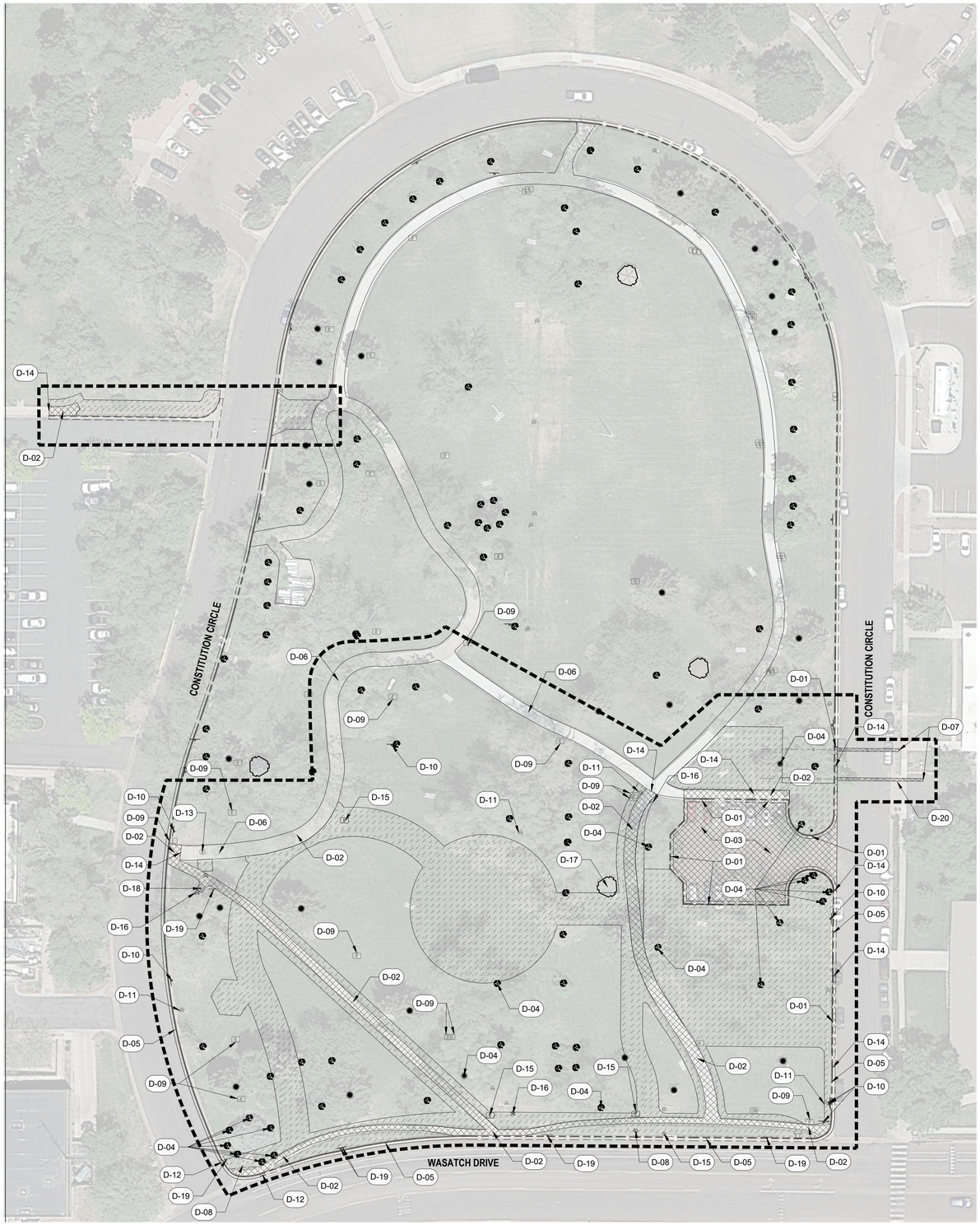
N0.	yy/mm/day	DESCRIPTION

Stamp
STATE OF UTAH
CORY A. [illegible]
No. [illegible]410044-5301
Licensed Landscape Architect
04/28/2023

Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title
PROJECT NOTES & SHEET INDEX

Drawing number
L001



DEMO

SYMBOL	DESCRIPTION
D-01	EXISTING CURB AND GUTTER TO BE REMOVED
D-02	EXISTING SIDEWALK TO BE REMOVED
D-03	EXISTING ASPHALT TO BE REMOVED
D-04	EXISTING TREE TO BE REMOVED
D-05	EXISTING CURB AND GUTTER TO REMAIN
D-06	EXISTING SIDEWALK TO REMAIN
D-07	SAW CUT, REMOVE AND REPLACE EXISTING ASPHALT FOR CURB, GUTTER AND UTILITY INSTALLATION. PROVIDE A SMOOTH, CLEAN EDGE. MATCH EXISTING CROSS SECTION. PATCH LOW POINTS IN ROAD BASE AS NEEDED.
D-08	EXISTING LIGHT TO BE RELOCATED
D-09	EXISTING ELECTRICAL BOX TO REMAIN
D-10	EXISTING SIGN TO REMAIN
D-11	EXISTING IRRIGATION VALVE TO REMAIN
D-12	EXISTING STORM DRAIN INLET BOX TO REMAIN
D-13	EXISTING SANITARY SEWER MANHOLE TO REMAIN
D-14	SAW CUT EXISTING CONCRETE AT CLOSEST EXPANSION JOINT
D-15	EXISTING ELECTRICAL BOX TO BE RELOCATED
D-16	EXISTING IRRIGATION VALVE TO BE RELOCATED
D-17	EXISTING PAVILION TO BE RELOCATED
D-18	DRINKING FOUNTAIN AND WATER SERVICE TO BE RELOCATED
D-19	EXISTING SIGN TO BE RELOCATED - COORDINATE WITH OWNER FOR RELOCATION
D-20	SAW CUT, REMOVE AND REPLACE EXISTING DRIVE APPROACH AND SIDEWALK FOR UTILITY INSTALLATION

SYMBOL	DESCRIPTION
	AREA TO BE CLEARED AND GRUBBED. EXISTING TREES TO BE PRESERVED AND PROTECTED UNLESS OTHERWISE NOTED.
	HARDSCAPE TO BE SAWCUT AND REMOVED.
	CONSTRUCTION LIMIT LINE

GENERAL NOTES:

1. ALL WORK TO COMPLY WITH LAYTON CITY STANDARDS AND SPECIFICATIONS.
2. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NOT GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY THE LOCATIONS OF EXISTING UTILITIES PRIOR TO TO THE BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED IN THE CONTRACT. THE CONTRACTOR IS TO VERIFY ALL CONNECTION POINTS WITH THE EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE EXISTING UTILITIES AND UTILITY STRUCTURES THAT SHALL REMAIN. IF CONFLICTS WITH EXISTING UTILITIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT/ENGINEER PRIOR TO CONSTRUCTION TO DETERMINE IF ANY FIELD ADJUSTMENTS SHOULD BE MADE.
3. ALL SURFACE IMPROVEMENTS DISTURBED BY CONSTRUCTION SHALL BE RESTORED OR REPLACED, INCLUDING TREES AND DECORATIVE SHRUBS, SOD, FENCES, WALLS AND STRUCTURES, WHETHER OR NOT THEY ARE SPECIFICALLY SHOWN ON THE CONTRACT DOCUMENTS.
4. ALL CONSTRUCTION SIGNAGE, BARRICADES, TRAFFIC CONTROL DEVICES, ECT. SHALL CONFORM TO THE LATEST EDITION OF TH E.M.U.T.C.D. THE CONTRACTOR WILL MAINTAIN SUCH SO THAT THEY ARE PROPERLY PLACED AND VISIBLE AT ALL TIMES.
5. SIDEWALKS AND CURBS DESIGNATED TO BE DEMOLISHED SHALL BE DEMOLISHED TO THE NEAREST EXPANSION JOINT, MATCHING THESE PLANS AS CLOSELY AS POSSIBLE.
6. THE CONTRACTOR IS TO PROTECT AND PRESERVE ALL EXISTING IMPROVEMENTS, UTILITIES, AND SIGNS, ETC. UNLESS OTHERWISE NOTED ON THESE PLANS.
7. ALL DETERIORATED, DAMAGED OR MISSING SURFACE IMPROVEMENTS (I.E. CURB, GUTTER, SIDEWALKS, LANDSCAPING, PARKSTRIP IMPROVEMENTS, ASPHALT PATCHING, ETC.) SURROUNDING THE PERIMETER OF THE DEVELOPMENT AND ON-SITE, SHALL BE REPLACED OR INSTALLED.
8. ALL TREES TO REMAIN UNLESS NOTED OTHERWISE. ALL TREES SHOWN TO BE REMOVED SHALL BE VERIFIED AND FLAGGED IN FIELD WITH OWNER PRIOR TO REMOVAL. ALL TREES TO REMAIN SHALL BE PROTECTED. CONTRACTOR SHALL INSTALL PROTECTIVE FENCING AROUND THE DRIPLINE OF ALL TREES TO REMAIN WITHIN CONSTRUCTION AREAS. VERIFY IN FIELD WITH OWNER.
9. WHERE TREES ARE REMOVED THE CONTRACTOR SHALL STUMP GRIND THE REMAINING STUMP BELOW GRADE AND INSTALL NEW SOD IN DISTURBED AREA.

BID SET

Scale: 1" = 40'-0"

0 20 40 80 120

blu line designs
planning | landscape architecture | design

8719 S. Sandy Parkway
Sandy, UT 84070
p 801.913.7994

OWNER:

LAYTON CITY
437 N WASATCH DR, LAYTON, UT 84041

CONTACT:

JOELLEN GRANDY
801-336-3926

LAYTON COMMONS PARK IMPROVEMENTS

437 N WASATCH DR, LAYTON, UT 84041

REVISIONS

NO.	symmetry	DESCRIPTION

Stamp

STATE OF UTAH
CORY A. [illegible]
[illegible]5301
Licensed Landscape Architect

04/28/2023

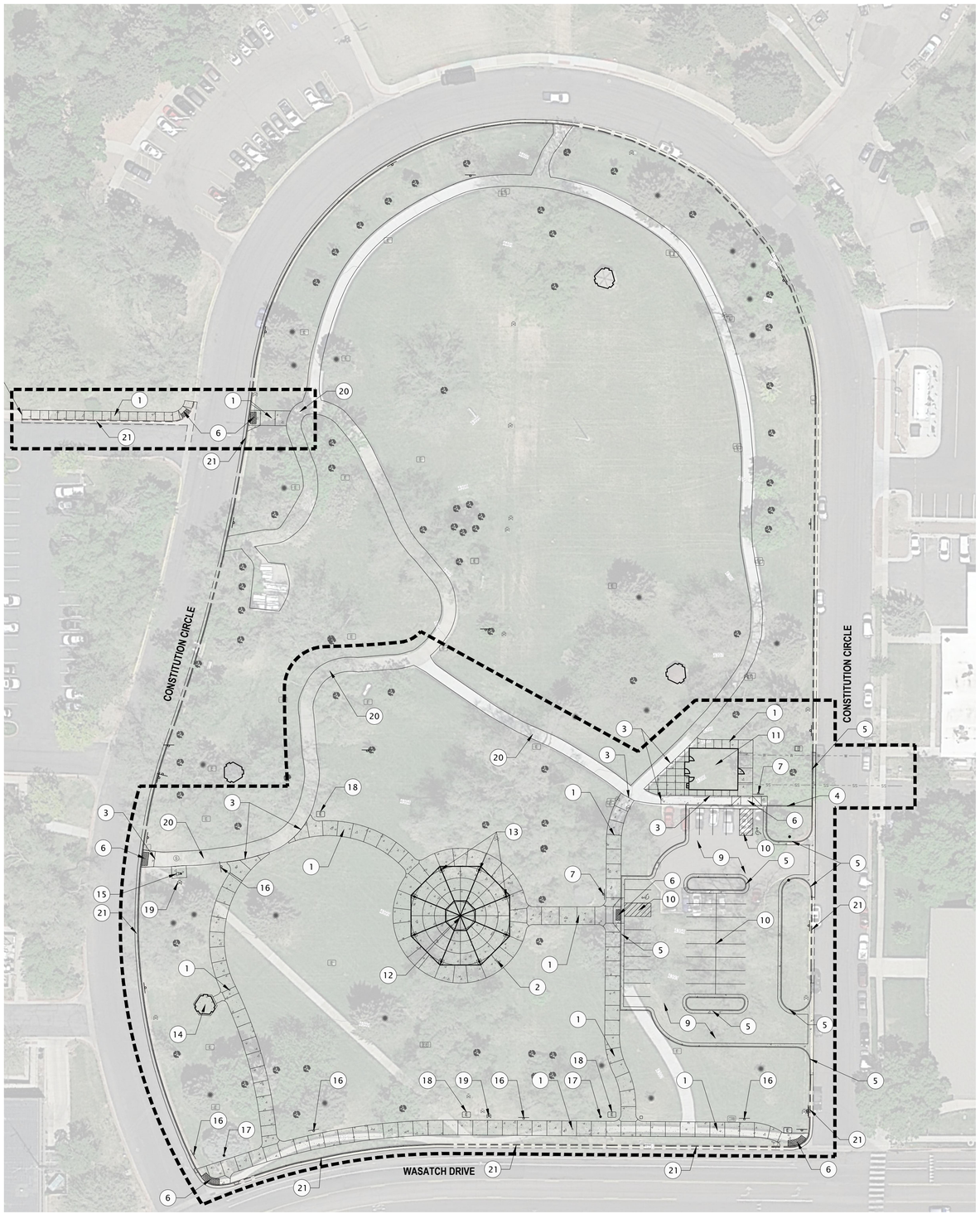
Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title

DEMO PLAN

Drawing number

LD101



REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	DETAIL
1	CONCRETE SIDEWALK	1/LS501
2	CONCRETE PAVILION PAD	1/LS501
3	EXPANSION JOINT	
4	6" CONCRETE EDGER	2/LS501
5	CURB AND GUTTER - SEE CIVIL DRAWINGS	
6	ADA CURB CUT AND RAMP - SEE CIVIL DRAWINGS	
7	ADA PARKING SIGN - SEE CIVIL DRAWINGS	
9	PARKING LOT - SEE CIVIL DRAWINGS	
10	PARKING LOT STRIPING - SEE CIVIL DRAWINGS	
11	RESTROOM - SEE ARCHITECTURAL DRAWINGS	
12	72` PAVILION - SEE ARCHITECTURAL DRAWINGS	
13	PAVILION COLUMN BASE	
14	RELOCATED SMALL PAVILION WITH NEW CONCRETE PAD	
15	RELOCATED DRINKING FOUNTAIN, EXTEND SERVICE LINE AND DRAIN LINE AS REQUIRED	
16	RELOCATED SIGN	
17	RELOCATED LIGHT	
18	RELOCATED ELECTRICAL BOX	
19	RELOCATED IRRIGATION VALVE	
20	EXISTING CONCRETE PATHS	
21	EXISTING CURB AND GUTTER	

CONSTRUCTION LIMIT LINE

NOTES:
1. CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING ITEMS THAT ARE TO REMAIN. ANY DAMAGE CAUSED TO EXISTING ITEMS TO REMAIN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
2. 72' PAVILION TO BE PURCHASED BY CITY AND INSTALLED BY CONTRACTOR..

BID SET

Scale: 1" = 40'-0"

0 20 40 80 120

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8719 S. Sandy Parkway
Sandy, UT 84070
p 801.913.7994

OWNER:

LAYTON CITY
437 N WASATCH DR, LAYTON, UT 84041

CONTACT:

JOELLEN GRANDY
801-336-3926

LAYTON COMMONS PARK IMPROVEMENTS

437 N WASATCH DR, LAYTON, UT 84041

REVISIONS

NO.	symmday	DESCRIPTION

Stamp

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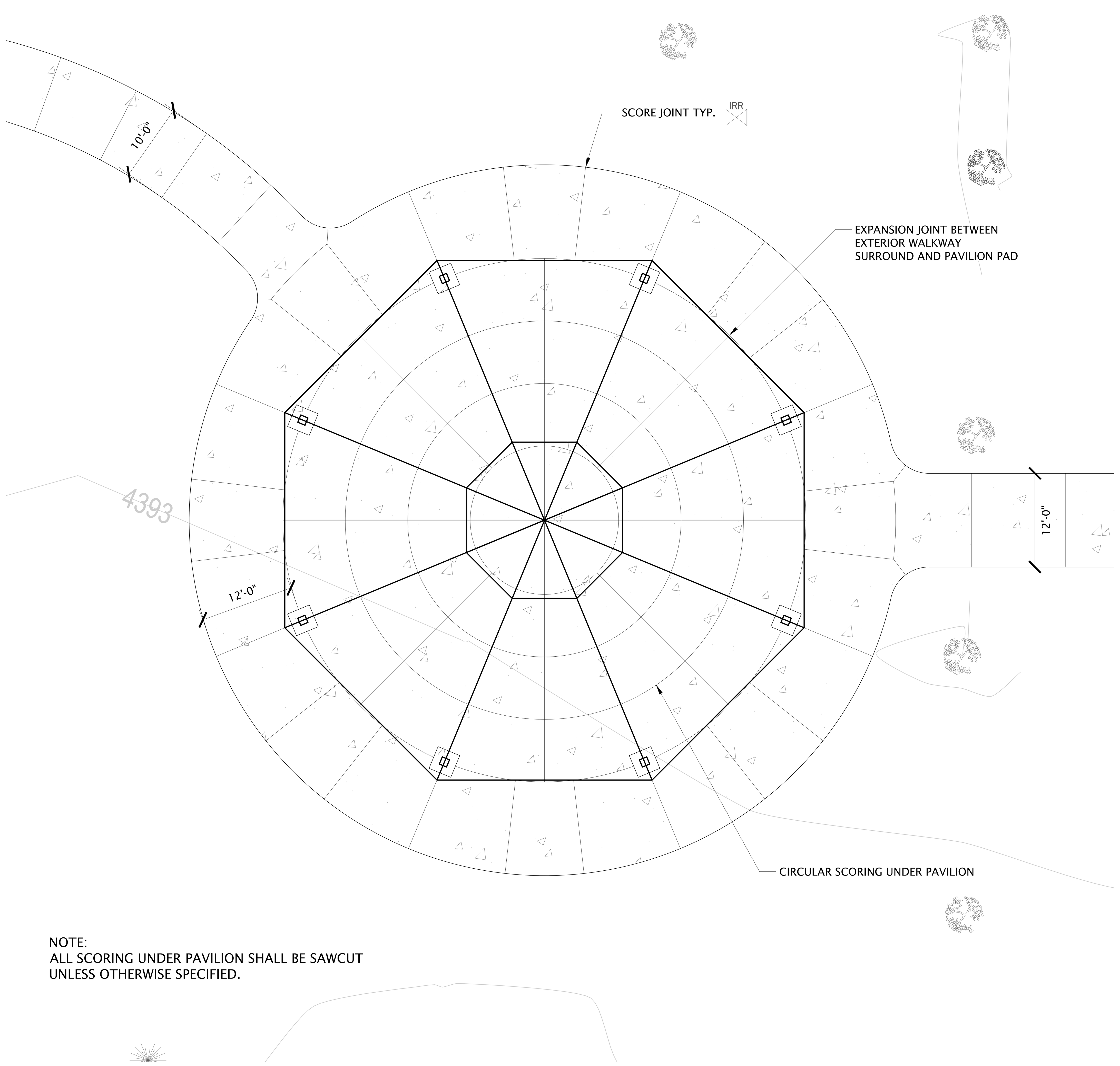
Drawing Title

OVERALL SITE PLAN

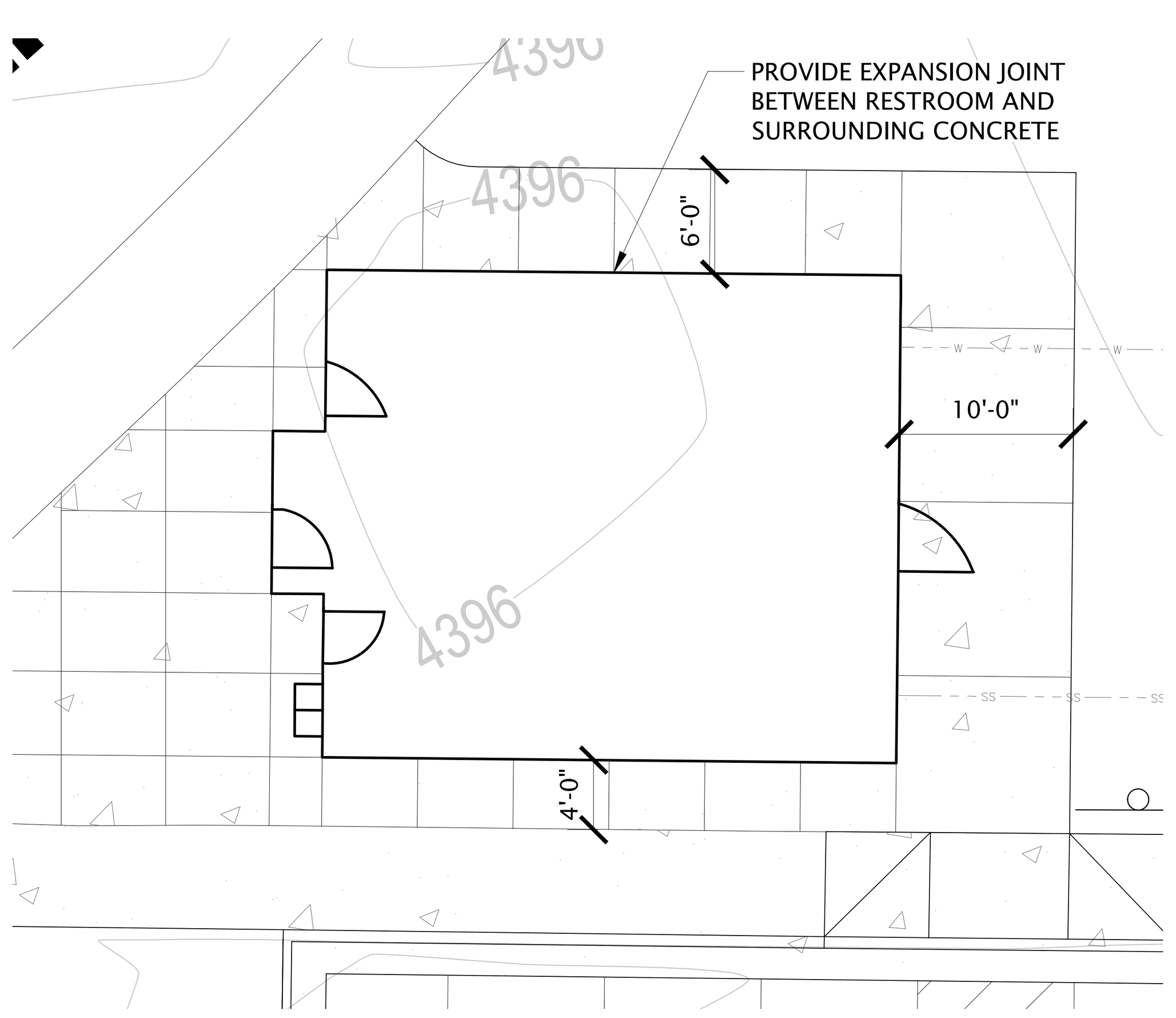
Drawing number

LS101

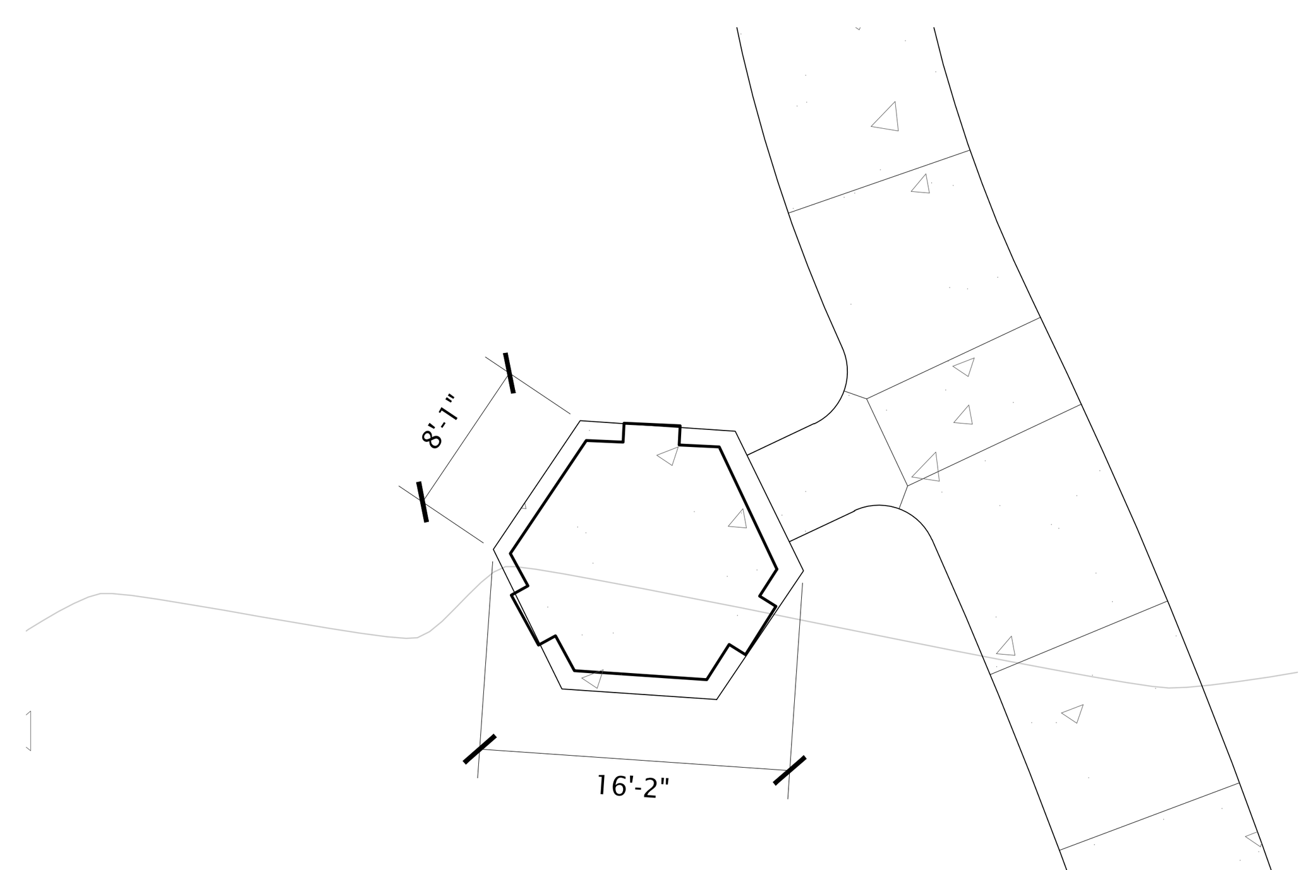


NOTE:
ALL SCORING UNDER PAVILION SHALL BE SAWCUT
UNLESS OTHERWISE SPECIFIED.

1 PAVILION ENLARGEMENT
SCALE: 1"=10'-0"

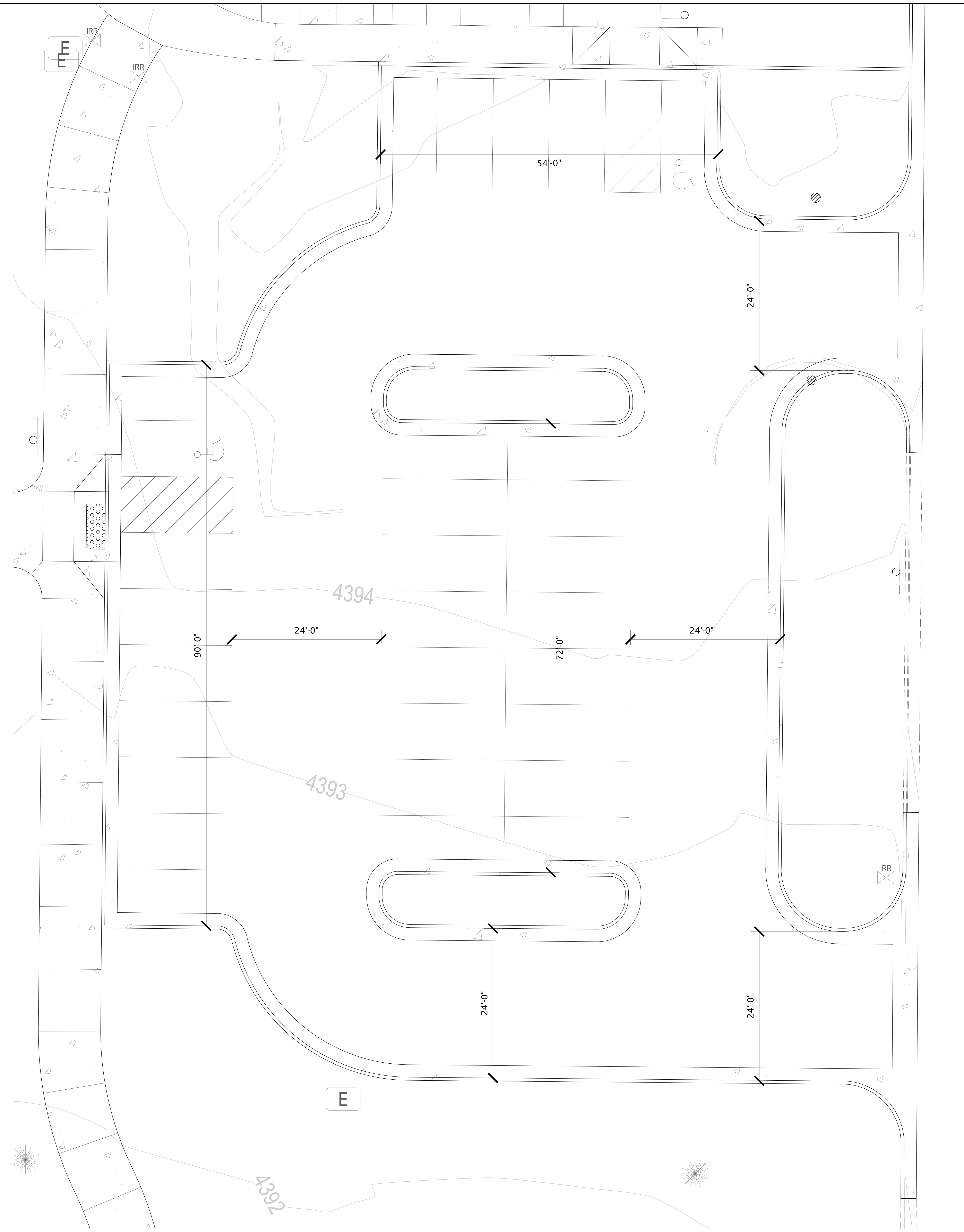


2 RESTROOM ENLARGEMENT
SCALE: 1"=10'-0"



NOTE:
1. EXACT SIZE OF PAVILION CONCRETE SLAB TO BE VERIFIED WITH OWNER PRIOR TO INSTALLATION.
2. NEW CONCRETE FOOTINGS FOR RELOCATED PAVILION SHALL BE PROVIDED BY CONTRACTOR, INCLUDING STAMPED STRUCTURAL DRAWINGS.

3 RELOCATED SMALL PAVILION ENLARGEMENT
SCALE: 1"=10'-0"



4 PARKING LOT ENLARGEMENT
SCALE: 1"=10'-0"

BID SET

Scale: 1" = 10'-0"
0 5 10 20 30

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LAYTON COMMONS PARK IMPROVEMENTS
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REVISIONS

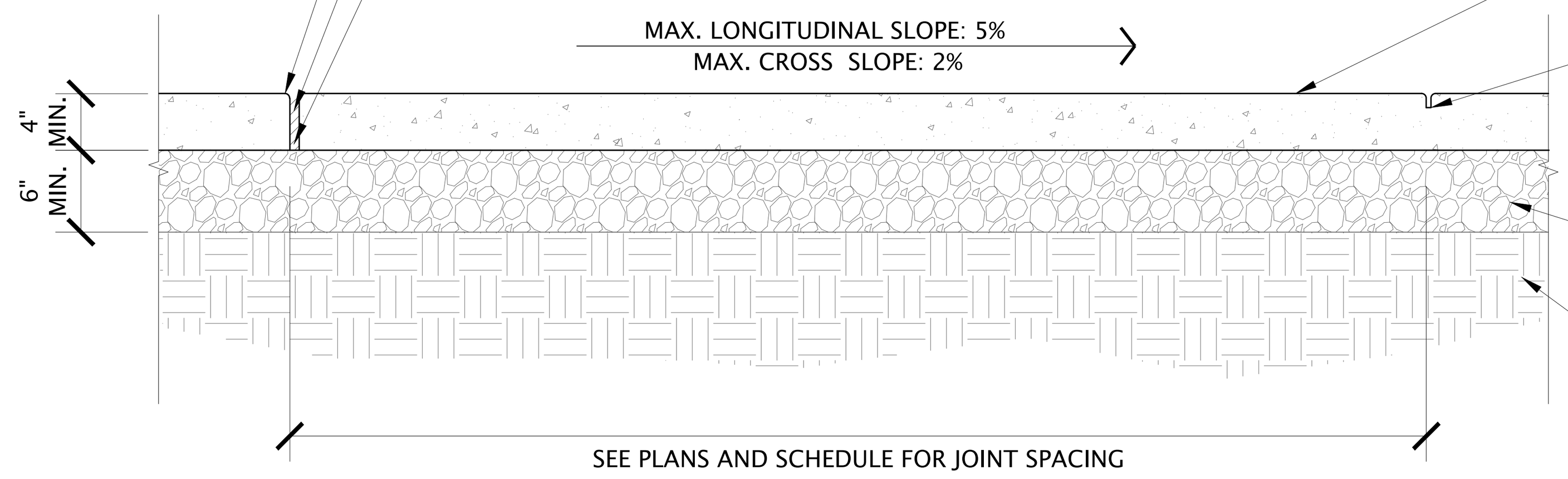
NO.	DATE	DESCRIPTION

Stamp
STATE OF UTAH
Licensed Landscape Architect
04/28/2023

Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title
SITE PLAN ENLARGEMENT

Drawing number
LS401



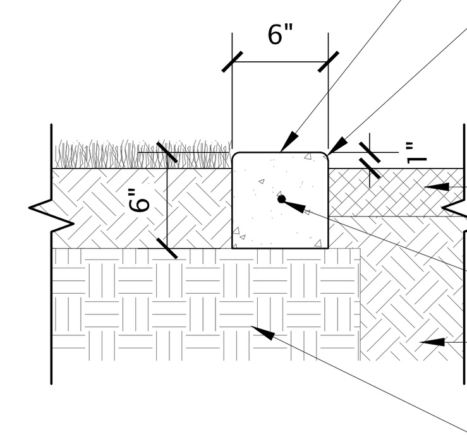
NOTES:
1. JOINT SPACING TO BE AS SHOWN IN SCHEDULE UNLESS OTHERWISE INDICATED ON PLANS.
2. MAX. SLOPES TO BE PER DETAIL UNLESS OTHERWISE SHOWN ON PLAN.
3. IF CONCRETE IS TO BE POURED NEXT TO A CURB, #4 REBAR TO BE DOWELED 3" INTO CURB AND 4" INTO ADJACENT CONCRETE. REBAR TO BE DOWELED A MINIMUM OF 2" FROM TOP OF CONCRETE AND CURB 24" O.C.
4. INSTALL EXPANSION JOINTS ALONG SIDEWALK WHERE EXISTING CONCRETE/ASPHALT ABUTS UP TO NEW CONCRETE.
5. SCORE JOINTS UNDER PAVILION SHALL BE SAWCUT.

JOINT SPACING SCHEDULE

WALK WIDTH	EXPANSION JT.	CONTROL JT.
10'	50' O.C.	10' O.C.
8'	50' O.C.	8' O.C.
6'	50' O.C.	6' O.C.
5'	50' O.C.	5' O.C.

1 CONCRETE SIDEWALK/PLAZA WITH TOOLED JOINTS

NOT TO SCALE



NOTES:
1. EDGER TO BE FLUSH WITH ADJACENT WALK, PATH, PAVEMENT OR CURB.
2. ALL LAYOUT AND FORM WORK TO BE APPROVED BY OWNER PRIOR TO PLACING CONCRETE.
3. CONCRETE TO MEET ALL CITY SPECIFICATIONS.
4. PLACE EXPANSION JOINTS @ 30' O.C., CONTROL JOINTS @ 10' O.C. UNLESS OTHERWISE SHOWN ON PLAN.
5. ALL CURVES IN EDGER TO BE TANGENT TO EACH OTHER AND STRAIGHT SECTIONS OF CURB.
6. CONCRETE EDGER TO BE FORMED AND CAST IN PLACE, NOT PRE-CAST OR EXTRUDED.

2 6" CONCRETE EDGER

NOT TO SCALE

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REVISIONS

NO.	yy/mm/dd	DESCRIPTION

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CORY A.
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04/28/2023

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Date:	04/28/2023
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Project No:	22-198

Drawing Title

SITE PLAN DETAILS

Drawing number

LS501

GENERAL NOTES

1. ALL CONSTRUCTION MUST STRICTLY FOLLOW THE STANDARDS AND SPECIFICATIONS SET FORTH BY: THE DESIGN ENGINEER, LOCAL AGENCY JURISDICTION, APWA (CURRENT EDITION), AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.). THE ORDER LISTED ABOVE IS ARRANGED BY SENIORITY. THE LATEST EDITION OF ALL STANDARDS AND SPECIFICATIONS MUST BE ADHERED TO. IF A CONSTRUCTION PRACTICE IS NOT SPECIFIED BY ANY OF THE LISTED SOURCES, CONTRACTOR MUST CONTACT DESIGN ENGINEER FOR DIRECTION.
2. CONTRACTOR TO STRICTLY FOLLOW THE MOST CURRENT COPY OF THE SOILS REPORT FOR THIS PROJECT. ALL GRADING INCLUDING BUT NOT LIMITED TO CUT, FILL, COMPACTION, ASPHALT SECTION, SUBBASE, TRENCH EXCAVATION/BACKFILL, SITE GRUBBING, AND FOOTINGS MUST BE COORDINATED DIRECTLY WITH SOILS REPORT.
3. CONTRACTOR MUST VERIFY ALL EXISTING CONDITIONS BEFORE BIDDING, AND BRING UP ANY QUESTIONS BEFORE SUBMITTING BID.
4. CONTRACTOR SHALL PROVIDE A CONSTRUCTION SCHEDULE IN ACCORDANCE WITH THE CITY, STATE, OR COUNTY REGULATIONS FOR WORKING IN THE PUBLIC WAY.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL ACCORDING TO GOVERNING AGENCY STANDARDS. WET DOWN DRY MATERIALS AND RUBBISH TO PREVENT BLOWING.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ADJACENT SURFACE IMPROVEMENTS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY SETTLEMENT OF OR DAMAGE TO EXISTING UTILITIES.
8. THE CONTRACTOR IS RESPONSIBLE TO FURNISH ALL MATERIALS TO COMPLETE THE PROJECT.
9. ALL EXPOSED SURFACES WILL HAVE A TEXTURED FINISH, RUBBED, OR BROOMED. ANY "PLASTERING" OF NEW CONCRETE WILL BE DONE WHILE IT IS STILL "GREEN".
10. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES.
11. THE LOCATIONS OF UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE BASED ON FIELD SURVEYS AND LOCAL UTILITY COMPANY RECORDS. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR FACILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE. CONTRACTOR SHALL START INSTALLATION AT LOW POINT OF ALL NEW GRAVITY UTILITY LINES.
12. ALL DIMENSIONS, GRADES, AND UTILITY DESIGN SHOWN ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES EXIST, PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO THE DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS, IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
13. NO CHANGE IN DESIGN LOCATION OR GRADE WILL BE MADE BY THE CONTRACTOR WITHOUT THE WRITTEN APPROVAL OF THE PROJECT ENGINEER.
14. NATURAL VEGETATION AND SOIL COVER SHALL NOT BE DISTURBED PRIOR TO ACTUAL CONSTRUCTION OF A REQUIRED FACILITY OR IMPROVEMENT. MASS CLEARING OF THE SITE IN ANTICIPATION OF CONSTRUCTION SHALL BE AVOIDED.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, MAINTAINING, OR RESTORING ALL MONUMENTS AND MONUMENT REFERENCE MARKS WITHIN THE PROJECT SITE. CONTACT THE CITY OR COUNTY SURVEYOR FOR MONUMENT LOCATIONS AND CONSTRUCTION DETAILS.
16. EXISTING UTILITY INFORMATION SHOWN IS FOR INFORMATIONAL PURPOSES ONLY. IT IS DERIVED FROM ON-SITE SURVEY AND/OR UTILITY MAPPING PROVIDED TO THE ENGINEER, AND THEREFORE UTILITIES MAY NOT BE LOCATED CORRECTLY, EITHER HORIZONTALLY OR VERTICALLY, AND MAY NOT BE ALL INCLUSIVE. CONTRACTOR IS REQUIRED TO FOLLOW THE PROCEDURE OUTLINED BELOW:
    - 16.1. CONTRACTOR IS REQUIRED TO LOCATE AND POTHOLE ALL EXISTING UTILITY LINES (BOTH HORIZONTALLY AND VERTICALLY) THAT AFFECT THE PROJECT CONSTRUCTION, EITHER ON-SITE OR OFF-SITE, AND DETERMINE IF THERE ARE ANY CONFLICTS WITH THE DESIGN OF THE SITE AS SHOWN ON THE APPROVED PLANS PRIOR TO ANY CONSTRUCTION. IF IT IS DETERMINED THAT CONFLICTS EXIST BETWEEN EXISTING UTILITIES AND DESIGN UTILITIES (OR ANOTHER ASPECT OF PROPOSED CONSTRUCTION) THE ENGINEER MUST BE NOTIFIED IMMEDIATELY TO CORRECT THE CONFLICTS BEFORE ANY WORK CAN BEGIN. IF THE CONTRACTOR FAILS TO FOLLOW THIS ABSOLUTE REQUIREMENT AND CONFLICTS ARISE DURING CONSTRUCTION THE CONTRACTOR WILL BEAR THE SOLE RESPONSIBILITY TO FIX THE CONFLICTS.
    - 16.2. CONTRACTOR IS REQUIRED TO VERIFY THAT PROPER COVER AND PROTECTION OF EXISTING UTILITY LINES IS MAINTAINED OR ATTAINED WITHIN THE DESIGN ONCE VERIFICATION OF THE EXISTING UTILITIES IS COMPLETED AS OUTLINED IN 16.1 ABOVE.
    - 16.3. IN ADDITION TO 16.1 AND 16.2 ABOVE THE CONTRACTOR WILL VERIFY DEPTHS OF UTILITIES IN THE FIELD BY "POTHOLING" A MINIMUM OF 300 FEET AHEAD OF PROPOSED PIPELINE CONSTRUCTION TO AVOID POTENTIAL CONFLICTS WITH DESIGNED PIPELINE ALIGNMENT AND GRADE AND EXISTING UTILITIES.
    - 16.4. IF A CONFLICT ARISES BETWEEN EXISTING UTILITIES AND DESIGN UTILITIES (OR ANOTHER ASPECT OF PROPOSED CONSTRUCTION) AS DETERMINED UNDER 16.1, 16.2 OR 16.3 THE CONTRACTOR WILL NOTIFY THE ENGINEER IMMEDIATELY TO RESOLVE THE CONFLICT.
    - 16.5. IF A CONFLICT ARISES BETWEEN EXISTING UTILITIES AND DESIGN UTILITIES (OR ANOTHER ASPECT OF PROPOSED CONSTRUCTION) RESULTING FROM THE CONTRACTOR'S NEGLIGENCE TO IDENTIFY AND/OR “POTHOLE” EXISTING UTILITIES AS REQUIRED IN 16.1, 16.2 AND 16.3 ABOVE, THE CONTRACTOR WILL BE REQUIRED TO RESOLVE THE CONFLICT WITHOUT ADDITIONAL COST OR CLAIM TO THE OWNER OR ENGINEER.
17. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO OWNER.
18. CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING CONSTRUCTION.
19. AT ALL LOCATIONS WHERE EXISTING PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE.
20. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT, ADOPTED EDITION OF ADA ACCESSIBILITY GUIDELINES.
21. CONTRACTOR SHALL, AT THE TIME OF BIDDING AND THROUGHOUT THE PERIOD OF THE CONTRACT, BE LICENSED IN THE STATE OF UTAH AND SHALL BE BONDABLE FOR AN AMOUNT REQUIRED BY THE OWNER.
22. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL WATER, POWER, SANITARY FACILITIES AND TELEPHONE SERVICES AS REQUIRED FOR THE CONTRACTOR'S USE DURING CONSTRUCTION.
23. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY SCHEDULING INSPECTION AND TESTING OF ALL FACILITIES CONSTRUCTED UNDER THIS CONTRACT. ALL TESTING SHALL CONFORM TO THE REGULATORY AGENCY'S STANDARD SPECIFICATIONS. ALL RE-TESTING AND/OR RE-INSPECTION SHALL BE PAID FOR BY THE CONTRACTOR.
24. IF EXISTING IMPROVEMENTS NEED TO BE DISTURBED AND/OR REMOVED FOR THE PROPER PLACEMENT OF IMPROVEMENTS TO BE CONSTRUCTED BY THESE PLANS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING IMPROVEMENTS FROM DAMAGE. COST OF REPLACING OR REPAIRING EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS REQUIRING REMOVAL AND/OR REPLACEMENT. THERE WILL BE NO EXTRA COST DUE TO THE CONTRACTOR FOR REPLACING OR REPAIRING EXISTING IMPROVEMENTS.
25. WHENEVER EXISTING FACILITIES ARE REMOVED, DAMAGED, BROKEN, OR CUT IN THE INSTALLATION OF THE WORK COVERED BY THESE PLANS OR SPECIFICATIONS, SAID FACILITIES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE WITH MATERIALS EQUAL TO OR BETTER THAN THE MATERIALS USED IN THE ORIGINAL EXISTING FACILITIES. THE FINISHED PRODUCT SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER, THE ENGINEER, AND THE RESPECTIVE REGULATORY AGENCY.
26. CONTRACTOR SHALL MAINTAIN A NEATLY MARKED SET OF FULL-SIZE RECORD DRAWINGS SHOWING THE FINAL LOCATION AND LAYOUT OF ALL STRUCTURES AND OTHER FACILITIES. RECORD DRAWINGS SHALL REFLECT CHANGE ORDERS, ACCOMMODATIONS, AND ADJUSTMENTS TO ALL IMPROVEMENTS CONSTRUCTED. WHERE NECESSARY, SUPPLEMENTAL DRAWINGS SHALL BE PREPARED AND SUBMITTED BY THE CONTRACTOR. PRIOR TO ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL DELIVER TO THE ENGINEER ONE SET OF NEATLY MARKED RECORD DRAWINGS SHOWING THE INFORMATION REQUIRED ABOVE. RECORD DRAWINGS SHALL BE REVIEWED AND THE COMPLETE RECORD DRAWING SET SHALL BE CURRENT WITH ALL CHANGES AND DEVIATIONS REDLINED AS A PRECONDITION TO THE FINAL PROGRESS PAYMENT APPROVAL AND/OR FINAL ACCEPTANCE.
27. WHERE THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.
28. ALL EXISTING GATES AND FENCES TO REMAIN UNLESS OTHERWISE NOTED ON PLANS. PROTECT ALL GATES AND FENCES FROM DAMAGE.
29. ALL EXISTING TREES ARE TO REMAIN UNLESS OTHERWISE NOTED ON PLANS. PROTECT ALL TREES FROM DAMAGE.
30. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE GOVERNING AGENCY PRIOR TO THE PLACEMENT.
31. CONTRACTORS ARE RESPONSIBLE FOR ALL OSHA REQUIREMENTS ON THE PROJECT SITE.
32. A UPDES (UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM) PERMIT IS REQUIRED FOR ALL CONSTRUCTION ACTIVITIES 1 ACRE OR MORE AS WELL AS A STORM WATER POLLUTION PREVENTION PLAN.

UTILITY NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS, CITY AND STATE REQUIREMENTS AND THE MOST RECENT EDITIONS OF THE FOLLOWING: THE INTERNATIONAL PLUMBING CODE, UTAH DRINKING WATER REGULATIONS, APWA MANUAL OF STANDARD PLANS AND SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO ADHERE TO ALL OF THE ABOVE-MENTIONED DOCUMENTS UNLESS OTHERWISE NOTED AND APPROVED BY THE ENGINEER.
2. CONTRACTOR SHALL COORDINATE LOCATION OF NEW "DRY UTILITIES" WITH THE APPROPRIATE UTILITY COMPANY, INCLUDING BUT NOT LIMITED TO: TELEPHONE & INTERNET SERVICE, GAS SERVICE, CABLE, AND POWER.
3. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS BASED ON ON-SITE SURVEY. PRIOR TO COMMENCING ANY WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE EACH UTILITY COMPANY LOCATE, IN THE FIELD, THEIR MAIN AND SERVICE LINES. THE CONTRACTOR SHALL NOTIFY BLUE STAKES AT 1-800-662-4111 48 HOURS IN ADVANCE OF PERFORMING ANY EXCAVATION WORK. THE CONTRACTOR SHALL RECORD THE BLUE STAKES ORDER NUMBER AND FURNISH ORDER NUMBER TO OWNER AND ENGINEER PRIOR TO ANY EXCAVATION. IT WILL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO DIRECTLY CONTACT ANY OTHER UTILITY COMPANIES THAT ARE NOT MEMBERS OF BLUE STAKES. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROTECT ALL EXISTING UTILITIES SO THAT NO DAMAGE RESULTS TO THEM DURING THE PERFORMANCE OF THIS CONTRACT. ANY REPAIRS NECESSARY TO DAMAGED UTILITIES SHALL BE PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL BE REQUIRED TO COOPERATE WITH OTHER CONTRACTORS AND UTILITY COMPANIES INSTALLING NEW STRUCTURES, UTILITIES AND SERVICE TO THE PROJECT.
4. CARE SHOULD BE TAKEN IN ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES. EXCAVATION REQUIRED WITHIN PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT CONTRACTOR'S EXPENSE.
5. TRENCH BACKFILL MATERIAL AND COMPACTION TESTS ARE TO BE TAKEN PER APWA STANDARD SPECIFICATIONS (CURRENT EDITION), SECTION 33 05 20 - BACKFILLING TRENCHES, OR AS REQUIRED BY THE GEOTECHNICAL REPORT IF NATIVE MATERIALS ARE USED. NO NATIVE MATERIALS ARE ALLOWED IN THE PIPE ZONE. THE MAXIMUM LIFT FOR BACKFILLING EXCAVATIONS IS DETERMINED BY THE GEOTECHNICAL RECOMMENDATIONS.
6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFORMING TO LOCAL AND FEDERAL CODES GOVERNING SHORING AND BRACING OF EXCAVATIONS AND TRENCHES AND FOR THE PROTECTION OF WORKERS.
7. THE CONTRACTOR IS REQUIRED TO KEEP ALL CONSTRUCTION ACTIVITIES WITHIN THE APPROVED PROJECT LIMITS. THIS INCLUDES, BUT IS NOT LIMITED TO VEHICLE AND EQUIPMENT STAGING, MATERIAL STORAGE AND LIMITS OF TRENCH EXCAVATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN PERMISSION AND/OR EASEMENTS FROM THE APPROPRIATE GOVERNING ENTITY AND/OR INDIVIDUAL PROPERTY OWNER(S) FOR WORK OR STAGING OUTSIDE OF THE PROJECT LIMITS.
8. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE, CAUSED BY ANY CONDITION INCLUDING SETTLEMENT, TO EXISTING UTILITIES FROM WORK PERFORMED AT OR NEAR EXISTING UTILITIES. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROTECT ALL EXISTING PUBLIC AND PRIVATE ROADWAY AND UTILITY FACILITIES. DAMAGE TO EXISTING FACILITIES CAUSED BY THE CONTRACTOR MUST BE REPAIRED BY THE CONTRACTOR AT HIS/HER EXPENSE TO THE SATISFACTION OF THE OWNER OF SAID FACILITIES.
9. ALL WATER LINE AND SEWER LINE INSTALLATION AND TESTING TO BE IN ACCORDANCE WITH LOCAL GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
10. ALL MANHOLES, HYDRANTS, VALVES, CLEANOUT BOXES, CATCH BASINS, METERS, ETC. MUST BE RAISED OR LOWERED TO FINAL GRADE PER APWA (CURRENT EDITION) STANDARDS AND INSPECTOR REQUIREMENTS. CONCRETE COLLARS MUST BE CONSTRUCTED ON ALL MANHOLES, CLEANOUT BOXES, CATCH BASINS, AND VALVES PER APWA STANDARDS. ALL MANHOLE, CATCH BASIN, OR CLEANOUT BOX CONNECTIONS MUST BE MADE WITH THE PIPE CUT FLUSH WITH THE INSIDE OF THE BOX AND GROUTED OR SEALED.
11. CONTRACTOR SHALL NOT ALLOW ANY GROUNDWATER OR DEBRIS TO ENTER THE NEW OR EXISTING PIPE DURING CONSTRUCTION.
12. SILT AND DEBRIS ARE TO BE CLEANED OUT OF ALL STORM DRAIN BOXES. CATCH BASINS ARE TO BE MAINTAINED IN A CLEANED CONDITION AS NEEDED UNTIL AFTER THE FINAL BOND RELEASE INSPECTION.
13. CONTRACTOR SHALL CLEAN ASPHALT, TAR OR OTHER ADHESIVES OFF OF ALL MANHOLE LIDS AND INLET GRATES TO ALLOW ACCESS.
14. EACH TRENCH SHALL BE EXCAVATED SO THAT THE PIPE CAN BE LAID TO THE ALIGNMENT AND GRADE AS REQUIRED. THE TRENCH WALL SHALL BE SO BRACED THAT THE WORKMEN MAY WORK SAFELY AND EFFICIENTLY. ALL TRENCHES SHALL BE DRAINED SO THE PIPE LAYING MAY TAKE PLACE IN DEWATERED CONDITIONS.
15. CONTRACTOR SHALL PROVIDE AND MAINTAIN AT ALL TIMES AMPLE MEANS AND DEVICES WITH WHICH TO REMOVE PROMPTLY AND TO PROPERLY DISPOSE OF ALL WATER ENTERING THE TRENCH EXCAVATION.
16. ALL SEWER LINES AND SEWER SERVICES SHALL HAVE A MINIMUM SEPARATION OF 10 FEET, EDGE TO EDGE, FROM THE WATER LINES. IF A 10 FOOT SEPARATION CAN NOT BE MAINTAINED, CONSTRUCT PER GOVERNING AGENCY'S MINIMUM SEPARATION STANDARDS.
17. CONTRACTOR SHALL INSTALL THRUST BLOCKING AT ALL WATERLINE ANGLE POINTS AND TEES.
18. ALL UNDERGROUND UTILITIES SHALL BE IN PLACE PRIOR TO INSTALLATION OF CURB, GUTTER, SIDEWALK AND STREET PAVING.
19. CONTRACTOR SHALL INSTALL MAGNETIC LOCATING TAPE CONTINUOUSLY OVER ALL NONMETALLIC PIPE.

TRAFFIC CONTROL AND SAFETY NOTES

1. TRAFFIC CONTROL AND STRIPING TO CONFORM TO THE CURRENT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
2. BARRICADING AND DETOURING SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE CURRENT M.U.T.C.D.
3. NO STREET SHALL BE CLOSED TO TRAFFIC WITHOUT WRITTEN PERMISSION FROM THE APPROPRIATE AGENCY, EXCEPT WHEN DIRECTED BY LAW ENFORCEMENT OR FIRE OFFICIALS.
4. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROVIDE FOR SMOOTH TRAFFIC FLOW AND SAFETY. ACCESS SHALL BE MAINTAINED FOR ALL PROPERTIES ADJACENT TO THE WORK.
5. DETOURING OPERATIONS FOR A PERIOD OF SIX CONSECUTIVE CALENDAR DAYS, OR MORE, REQUIRE THE INSTALLATION OF TEMPORARY STREET STRIPING AND REMOVAL OF INTERFERING STRIPING BY SANDBLASTING. THE DETOURING STRIPING PLAN OR CONSTRUCTION TRAFFIC CONTROL PLAN MUST BE SUBMITTED TO THE GOVERNING AGENCY FOR REVIEW AND APPROVAL.
6. ALL TRAFFIC CONTROL DEVICES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE END OF THE WORK TO THE SATISFACTION OF THE GOVERNING AGENCY.
7. TRAFFIC CONTROL DEVICES (TCDs) SHALL REMAIN VISIBLE AND OPERATIONAL AT ALL TIMES.
8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HEREUNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. THE CONTRACTOR SHALL PROVIDE BARRICADES, SIGNS, FLASHERS, OTHER EQUIPMENT AND FLAG PERSONS NECESSARY TO INSURE THE SAFETY OF WORKERS AND VISITORS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UTAH TRANSIT AUTHORITY (UTA) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.

DEMOLITION NOTES

1. EXISTING UTILITY INFORMATION SHOWN IS FOR INFORMATIONAL PURPOSES ONLY. IT IS DERIVED FROM ON-SITE SURVEY AND MAY NOT BE LOCATED CORRECTLY AND IS NOT ALL INCLUSIVE. CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES WITHIN THE PROJECT LIMITS BEFORE BEGINNING DEMOLITION/CONSTRUCTION.
2. THERE MAY BE BURIED UTILITIES WITHIN THE LIMITS OF DISTURBANCE THAT ARE NOT SHOWN ON THE PLANS DUE TO LACK OF MAPPING OR RECORD INFORMATION. CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN UNEXPECTED UTILITIES ARE DISCOVERED.
3. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR LOCATING AND PROTECTING FROM DAMAGE ALL EXISTING UTILITIES AND IMPROVEMENTS WHETHER OR NOT SHOWN ON THESE PLANS. THE FACILITIES AND IMPROVEMENTS ARE BELIEVED TO BE CORRECTLY SHOWN BUT THE CONTRACTOR IS REQUIRED TO SATISFY HIMSELF AS TO THE COMPLETENESS AND ACCURACY OF THE LOCATIONS. ANY CONTRACTOR PERFORMING WORK ON THIS PROJECT SHALL FAMILIARIZE HIMSELF WITH THE SITE AND SHALL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY, OR INDIRECTLY, FROM HIS OPERATIONS, WHETHER OR NOT SAID FACILITIES ARE SHOWN ON THESE PLANS.

GRADING AND DRAINAGE NOTES

1. SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT AND ALL RELATED ADDENDUMS.
2. THE CONTRACTOR SHALL STRIP AND CLEAR THE TOPSOIL, MAJOR ROOTS AND ORGANIC MATERIAL FROM ALL PROPOSED BUILDING AND PAVEMENT AREAS PRIOR TO SITE GRADING. (THE TOPSOIL MAY BE STOCKPILED FOR LATER USE IN LANDSCAPED AREAS.)
3. THE CONTRACTOR SHALL REMOVE ALL ORGANIC MATERIAL AND OTHER DELETERIOUS MATERIALS PRIOR TO PLACING GRADING FILL OR BASE COURSE. THE AREA SHOULD BE PROOF-ROLLED TO IDENTIFY ANY SOFT AREAS. WHERE SOFT AREAS ARE ENCOUNTERED, THE CONTRACTOR SHALL REMOVE THE SOIL AND REPLACE WITH COMPACTED FILL.
4. ALL DEBRIS PILES AND BERMS SHOULD BE REMOVED AND HAULED AWAY FROM SITE OR USED AS GENERAL FILL IN LANDSCAPED AREAS.
5. THE CONTRACTOR SHALL CONSTRUCT THE BUILDING PAD TO THESE DESIGN PLANS AS PART OF THE SITE GRADING CONTRACT, AND STRICTLY ADHERE TO THE SITE PREPARATION AND GRADING REQUIREMENTS OUTLINED IN THE GEOTECHNICAL REPORT.
6. THE CONTRACTOR SHALL GRADE THE PROJECT SITE TO PROVIDE A SMOOTH TRANSITION BETWEEN NEW AND EXISTING ASPHALT, CURB AND GUTTER, AND ADJOINING SITE IMPROVEMENTS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE AND DEBRIS ON ADJACENT STREETS WHEN EQUIPMENT IS TRAVELING THOSE STREETS.
8. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL CONDITIONS AND RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT AND TAKE ALL NECESSARY PRECAUTIONS AND RECOMMENDED PROCEDURES TO ASSURE SOUND GRADING PRACTICES.
9. THE CONTRACTOR SHALL TAKE APPROPRIATE GRADING MEASURES TO DIRECT STORM SURFACE RUNOFF TOWARDS CATCH BASINS.
10. THE LOCATIONS OF UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE BASED ON ON-SITE SURVEY. IT SHALL BE THE CONTRACTORS' FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR FACILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES, AND SLOPES SHOWN.
12. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
13. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT. ALL CONTRACTOR ACTIVITIES 1 ACRE OR MORE IN SIZE ARE REQUIRED TO PROVIDE A STORM WATER POLLUTION PREVENTION PLAN.
14. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
15. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER FROM GOVERNING AGENCY.
16. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS, AND ALL OTHER PUBLIC RIGHT-OF-WAYS IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY-OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC, SHALL BE MAINTAINED IN A CLEAN, SAFE, AND USABLE CONDITION.

ABBREVIATIONS

APWA	AMERICAN PUBLIC WORKS ASSOCIATION
AR	ACCESSIBLE ROUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
BOS	BOTTOM OF STEP
BVC	BEGIN VERTICAL CURVE
C	CURVE
CB	CATCH BASIN
CF	CURB FACE OR CUBIC FEET
CL	CENTER LINE
CO	CLEAN OUT
COMM	COMMUNICATION
CONC	CONCRETE
CONT	CONTINUOUS
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
ELEC	ELECTRICAL
ELEV	ELEVATION
EOA	EDGE OF ASPHALT
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EXIST	EXISTING
FF	FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE OR FLANGE
GB	GRADE BREAK
GF	GARAGE FLOOR
GV	GATE VALVE
HC	HANDICAP
HP	HIGH POINT
IRR	IRRIGATION
K	RATE OF VERTICAL CURVATURE
LD	LAND DRAIN
LF	LINEAR FEET
LP	LOW POINT
MEX	MATCH EXISTING
MH	MANHOLE
MJ	MECHANICAL JOINT
NG	NATURAL GROUND
NIC	NOT IN CONTRACT
NO	NUMBER
OC	ON CENTER
OCEW	ON CENTER EACH WAY
OHP	OVERHEAD POWER
PC	POINT OF CURVATURE OR PRESSURE CLASS
PCC	POINT OF COMPOUND CURVATURE
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
PL	PROPERTY LINE
PRC	POINT OF REVERSE CURVATURE
PRO	PROPOSED
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
R	RADIUS
RD	ROOF DRAIN
ROW	RIGHT OF WAY
S	SLOPE
SAN SWR	SANITARY SEWER
SD	STORM DRAIN
SEC	SECONDARY
SS	SANITARY SEWER
STA	STATION
SW	SECONDARY WATER LINE
TBC	TOP BACK OF CURB
TOG	TOP OF GRATE
TOA	TOP OF ASPHALT
TOC	TOP OF CONCRETE
TOF	TOP OF FOUNDATION
TOW	TOP OF WALL
TOS	TOP OF STEP
TYP	TYPICAL
VC	VERTICAL CURVE
WIV	WALL INDICATOR VALVE
W	WATER LINE

NOTE: MAY CONTAIN ABBREVIATIONS THAT ARE NOT USED IN THIS PLAN SET.

LEGEND

SECTION CORNER
EXISTING MONUMENT
PROPOSED MONUMENT
EXISTING REBAR AND CAP
SET ENSIGN REBAR AND CAP
EXISTING WATER METER
PROPOSED WATER METER
EXISTING WATER MANHOLE
PROPOSED WATER MANHOLE
EXISTING WATER BOX
EXISTING WATER VALVE
PROPOSED WATER VALVE
EXISTING FIRE HYDRANT
PROPOSED FIRE HYDRANT
PROPOSED FIRE DEPARTMENT CONNECTION
EXISTING SECONDARY WATER VALVE
PROPOSED SECONDARY WATER VALVE
EXISTING IRRIGATION BOX
EXISTING IRRIGATION VALVE
PROPOSED IRRIGATION VALVE
EXISTING SANITARY SEWER MANHOLE
PROPOSED SANITARY SEWER MANHOLE
EXISTING SANITARY CLEAN OUT
EXISTING STORM DRAIN CLEAN OUT BOX
PROPOSED STORM DRAIN CLEAN OUT BOX
EXISTING STORM DRAIN INLET BOX
EXISTING STORM DRAIN CATCH BASIN
PROPOSED STORM DRAIN CATCH BASIN
EXISTING STORM DRAIN COMBO BOX
PROPOSED STORM DRAIN COMBO BOX
EXISTING STORM DRAIN CLEAN OUT
EXISTING STORM DRAIN CULVERT
PROPOSED STORM DRAIN CULVERT
TEMPORARY SAG INLET PROTECTION
TEMPORARY IN-LINE INLET PROTECTION
ROOF DRAIN
EXISTING ELECTRICAL MANHOLE
EXISTING ELECTRICAL BOX
EXISTING TRANSFORMER
EXISTING UTILITY POLE
EXISTING LIGHT
PROPOSED LIGHT
EXISTING GAS METER
EXISTING GAS MANHOLE
EXISTING GAS VALVE
EXISTING TELEPHONE MANHOLE
EXISTING TELEPHONE BOX
EXISTING TRAFFIC SIGNAL BOX
EXISTING CABLE BOX
EXISTING BOLLARD
PROPOSED BOLLARD
EXISTING SIGN
PROPOSED SIGN
EXISTING SPOT ELEVATION
PROPOSED SPOT ELEVATION
EXISTING FLOW DIRECTION
EXISTING TREE
DENSE VEGETATION

EXISTING EDGE OF ASPHALT
PROPOSED EDGE OF ASPHALT
EXISTING STRIPING
PROPOSED STRIPING
EXISTING FENCE
PROPOSED FENCE
EXISTING FLOW LINE
PROPOSED FLOW LINE
GRADE BREAK
EXISTING STORM DRAIN LINE
PROPOSED STORM DRAIN LINE
ROOF DRAIN LINE
CATCHMENTS
HIGHWATER LINE
EXISTING SANITARY SEWER
PROPOSED SANITARY SEWER LINE
PROPOSED SAN. SWR. SERVICE LINE
EXISTING LAND DRAIN LINE
PROPOSED LAND DRAIN LINE
PROPOSED LAND DRAIN SERVICE LINE
EXISTING CULINARY WATER LINE
PROPOSED CULINARY WATER LINE
PROPOSED CULINARY WATER SERVICE LINE
EXISTING SECONDARY WATER LINE
PROPOSED SECONDARY WATER LINE
PROPOSED SEC. WATER SERVICE LINE
EXISTING IRRIGATION LINE
PROPOSED IRRIGATION LINE
EXISTING OVERHEAD POWER LINE
EXISTING ELECTRICAL LINE
EXISTING GAS LINE
EXISTING TELEPHONE LINE
ACCESSIBLE ROUTE
SAW CUT LINE
STRAW WATTLE
TEMPORARY BERM
TEMPORARY SILT FENCE
LIMITS OF DISTURBANCE
EXISTING WALL
PROPOSED WALL
EXISTING CONTOURS
PROPOSED CONTOURS
BUILDABLE AREA WITHIN SETBACKS
PUBLIC DRAINAGE EASEMENT
EXISTING ASPHALT TO BE REMOVED
PROPOSED ASPHALT
EXISTING CURB AND GUTTER
PROPOSED CURB AND GUTTER
PROPOSED REVERSE PAN CURB AND GUTTER
TRANSITION TO REVERSE PAN CURB
CONCRETE TO BE REMOVED
EXISTING CONCRETE
PROPOSED CONCRETE
BUILDING TO BE REMOVED
EXISTING BUILDING
PROPOSED BUILDING

NOTE: MAY CONTAIN SYMBOLS THAT ARE NOT USED IN THIS PLAN SET.

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CONTACT:

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Phone: 801.547.1100
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LAYTON COMMONS PARK IMPROVEMENTS

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BID SET

REVISIONS

N0.	yy/mm/day	DESCRIPTION

Stamp
No. 5049039
4-28-23
CAMERON HESS PRESTON

Designed By: M.ELMER
Drawn By: M.ELMER
Date: 5/1/23
Checked By: C.PRESTON
Project No: 22-198

Drawing Title
GENERAL NOTES

Drawing number
C-001

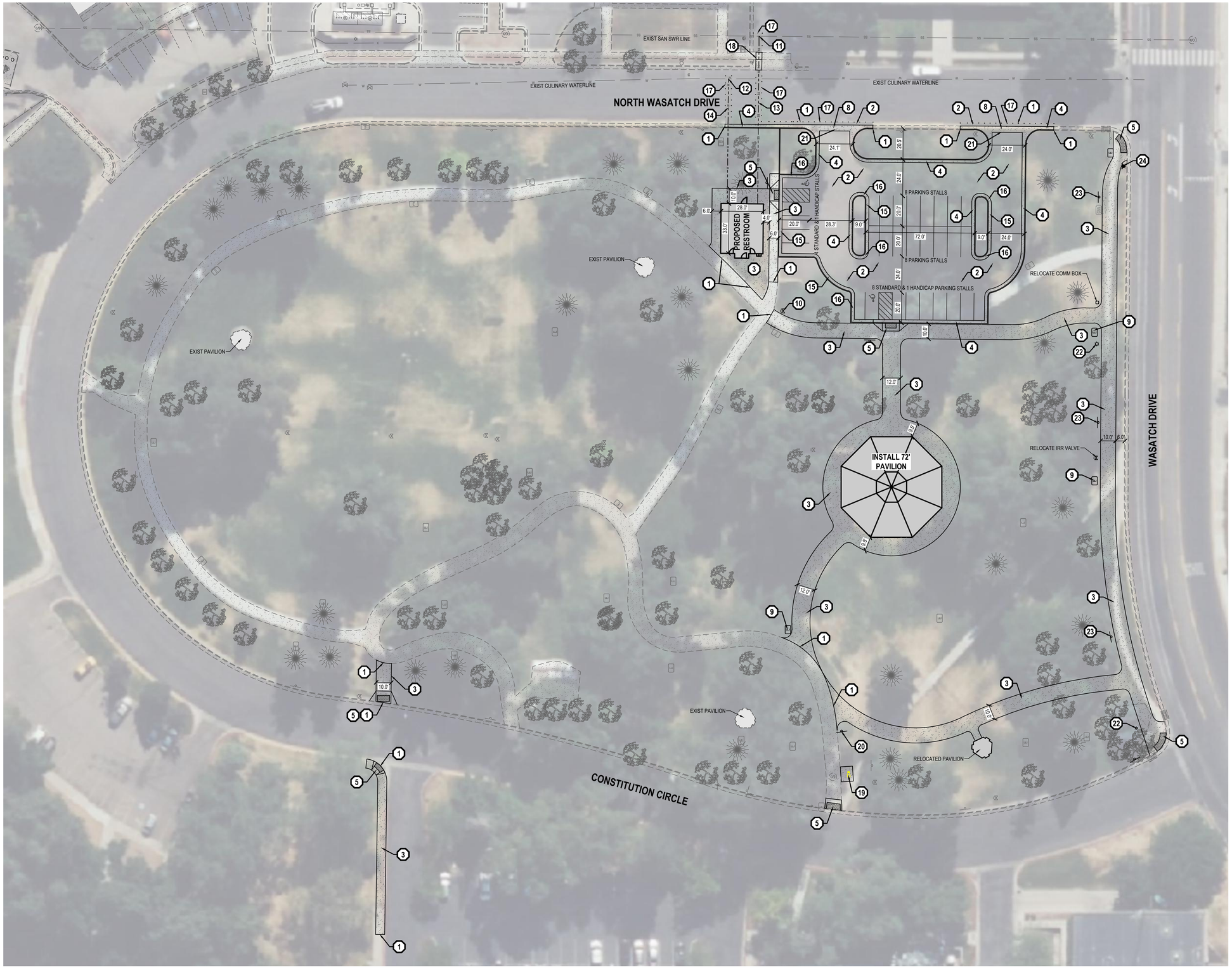
811 Know what's below. Call before you dig.

CALL BLUESTAKES @ 811 AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

BENCHMARK

BENCHMARK IS A MAG NAIL FOUND IN THE SURF AND SWIM PARKING LOT

ELEV.= 4396.26



GENERAL NOTES

1. ALL WORK TO COMPLY WITH THE GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
2. ALL IMPROVEMENTS MUST COMPLY WITH ADA STANDARDS AND RECOMMENDATIONS.
3. SEE LANDSCAPE/ARCHITECTURAL PLANS FOR CONCRETE MATERIAL, COLOR, FINISH, AND SCORE PATTERNS THROUGHOUT SITE.
4. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST EDITION OF THE M.U.T.C.D. (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES).
5. ALL SURFACE IMPROVEMENTS DISTURBED BY CONSTRUCTION SHALL BE RESTORED OR REPLACED, INCLUDING TREES AND DECORATIVE SHRUBS, SOD, FENCES, WALLS AND STRUCTURES, WHETHER OR NOT THEY ARE SPECIFICALLY SHOWN ON THE CONTRACT DOCUMENTS.
6. NOTIFY ENGINEER OF ANY DISCREPANCIES IN DESIGN OR STAKING BEFORE PLACING CONCRETE OR ASPHALT.
7. THE CONTRACTOR IS TO PROTECT AND PRESERVE ALL EXISTING IMPROVEMENTS, UTILITIES, AND SIGNS, ETC. UNLESS OTHERWISE NOTED ON THESE PLANS.
8. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY THE LOCATIONS OF EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED IN THE CONTRACT. THE CONTRACTOR IS TO VERIFY ALL CONNECTION POINTS WITH THE EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE EXISTING UTILITIES AND UTILITY STRUCTURES THAT ARE TO REMAIN. IF CONFLICTS WITH EXISTING UTILITIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONSTRUCTION TO DETERMINE IF ANY FIELD ADJUSTMENTS SHOULD BE MADE
9. DEFLECT OR LOOP ALL WATERLINES TO AVOID CONFLICTS WITH OTHER UTILITIES PER GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
10. PROJECT SHALL COMPLY WITH ALL UTAH DIVISION OF DRINKING WATER RULES AND REGULATIONS INCLUDING, BUT NOT LIMITED TO, THOSE PERTAINING TO BACKFLOW PROTECTION AND CROSS CONNECTION PREVENTION.
11. THE CONTRACTOR IS TO COORDINATE ALL UTILITIES WITH MECHANICAL/PLUMBING PLANS.
12. NOTIFY ENGINEER OF ANY DISCREPANCIES IN DESIGN OR STAKING BEFORE PLACING UTILITY STRUCTURES OR PIPES.
13. THE CONTRACTOR SHALL ADJUST TO GRADE ALL EXISTING UTILITIES AS NEEDED PER LOCAL GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
14. THE CONTRACTOR IS TO PROTECT AND PRESERVE ALL EXISTING IMPROVEMENTS, UTILITIES, AND SIGNS, ETC. UNLESS OTHERWISE NOTED ON THESE PLANS.

SCOPE OF WORK:

PROVIDE, INSTALL AND/OR CONSTRUCT THE FOLLOWING PER THE SPECIFICATIONS GIVEN OR REFERENCED, THE DETAILS NOTED, AND/OR AS SHOWN ON THE CONSTRUCTION DRAWINGS:

1. MATCH EXISTING IMPROVEMENTS
2. ASPHALT PAVEMENT PER LAYTON CITY STANDARD AND SPECIFICATIONS.
3. INSTALL CONCRETE SIDEWALK PER LAYTON CITY STANDARD DRAWING ST-ST-10.
4. INSTALL 30" TYPE "A" CURB AND GUTTER PER LAYTON CITY STANDARD DRAWING ST-ST-09.
5. HANDICAP ACCESS RAMP AND DETECTABLE WARNING SURFACE PER LAYTON CITY STANDARD DRAWING ST-ST-11.
6. NOT USED
7. NOT USED
8. INSTALL 3' WATERWAY PER LAYTON CITY STANDARDS AND SPECIFICATIONS
9. RELOCATED ELECTRICAL BOX
10. RELOCATED IRRIGATION VALVE
11. FIELD LOCATE AND CONNECT TO EXIST SANITARY SEWER LINE
12. FIELD LOCATE AND CONNECT TO EXIST CULINARY WATERLINE
13. INSTALL 4" C900 PVC SANITARY SEWER SERVICE LINE @ 2.0% MINIMUM SLOPE
14. INSTALL 1" HDPE OR COPPER CULINARY WATER SERVICE LINE AND 1" METER.
15. INSTALL 30" REVERSE PAN CURB AND GUTTER PER LAYTON CITY STANDARDS
16. TRANSITION FROM STANDARD PAN TO REVERSE PAN CURB AND GUTTER
17. SAW CUT LINE. PROVIDE A SMOOTH, CLEAN EDGE
18. REMOVE AND REPLACE EXISTING DRIVE APPROACH AND SIDEWALK FOR SANITARY SEWER INSTALLATION
19. RELOCATED DRINKING FOUNTAIN
20. RELOCATED "NO DOGS ALLOWED" SIGN
21. INSTALL COMMERCIAL DRIVE APPROACH PER LAYTON CITY STANDARD DRAWING ST-ST-06B.
22. RELOCATE LIGHT
23. RELOCATE SIGN
24. RELOCATE FIRE HYDRANT

BID SET

NORTH

HORIZONTAL GRAPHIC SCALE

30 0 15 30 60

(IN FEET)

HORZ: 1 inch = 30 ft.

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Ensign Project # 10363A

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LAYTON COMMONS PARK IMPROVEMENTS

437 N WASATCH DR, LAYTON, UT 84041

REVISIONS

NO.	APPROVAL	DESCRIPTION

Stamp

PROFESSIONAL ENGINEER — STATE OF UTAH — CAMERON NESS PRESTON — No. 5049039 — 4-26-23

Designed By:	M.ELMER
Drawn By:	M.ELMER
Date:	5/1/23
Checked By:	C.PRESTON
Project No:	22-198

Drawing Title

SITE AND UTILITY PLAN

Drawing number

C-100

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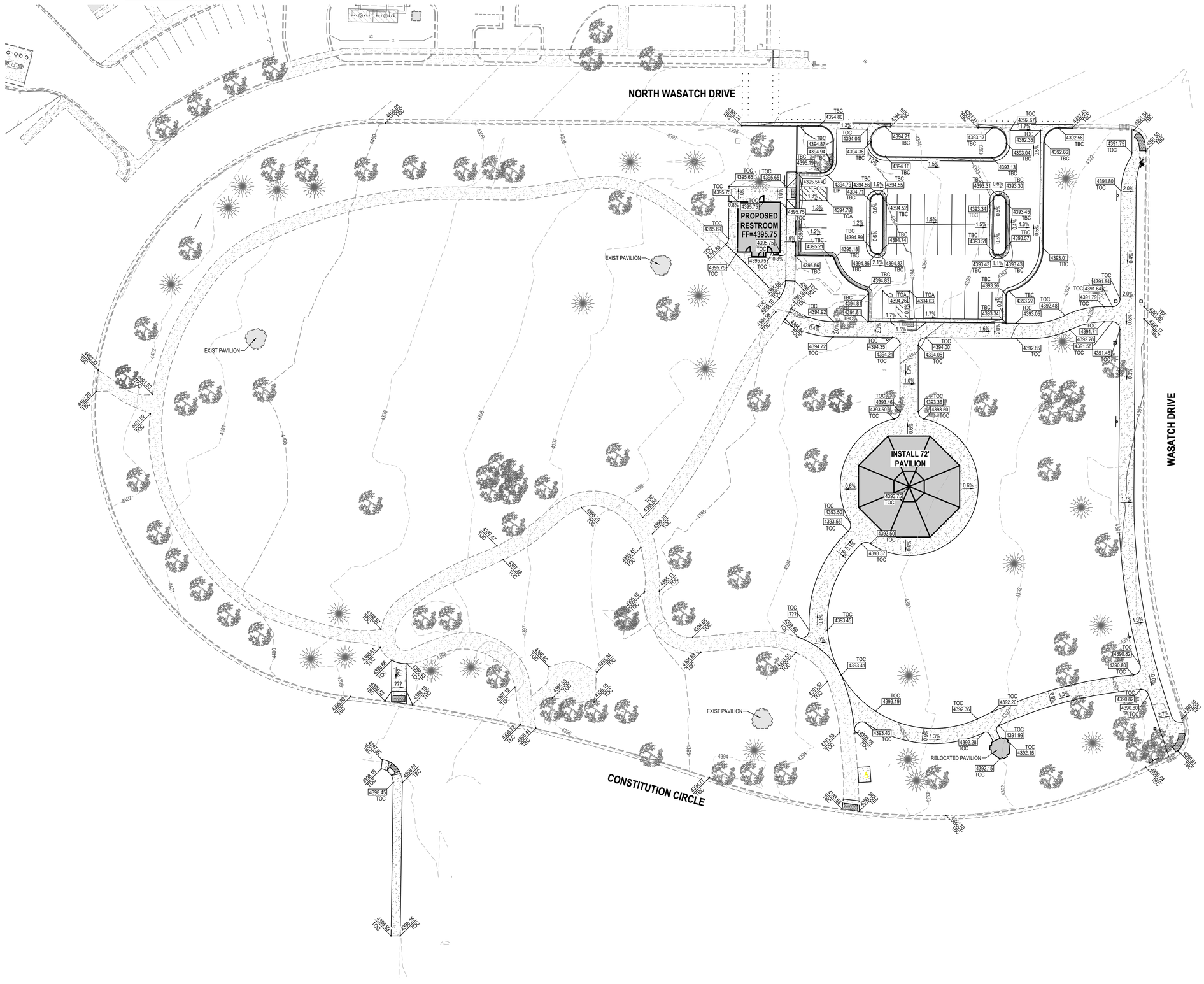

GENERAL NOTES

1. ALL WORK TO COMPLY WITH THE GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
2. ALL IMPROVEMENTS MUST COMPLY WITH ADA STANDARDS AND RECOMMENDATIONS.
3. ALL WORK SHALL COMPLY WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER POSSIBLY INCLUDING, BUT NOT LIMITED TO, REMOVAL OF UNCONSOLIDATED FILL, ORGANICS, AND DEBRIS, PLACEMENT OF SUBSURFACE DRAIN LINES AND GEOTEXTILE, AND OVEREXCAVATION OF UNSUITABLE BEARING MATERIALS AND PLACEMENT OF ACCEPTABLE FILL MATERIAL.
4. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE EXISTING SOIL CONDITIONS.
5. LANDSCAPED AREAS REQUIRE SUBGRADE TO BE MAINTAINED AT A SPECIFIC ELEVATION BELOW FINISHED GRADE AND REQUIRE SUBGRADE TO BE PROPERLY PREPARED AND SCARIFIED. SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
6. SLOPE ALL LANDSCAPED AREAS AWAY FROM BUILDING FOUNDATIONS TOWARD CURB AND GUTTER OR STORM DRAIN INLETS.
7. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY THE LOCATIONS OF EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED IN THE CONTRACT. THE CONTRACTOR IS TO VERIFY ALL CONNECTION POINTS WITH THE EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE EXISTING UTILITIES AND UTILITY STRUCTURES THAT ARE TO REMAIN. IF CONFLICTS WITH EXISTING UTILITIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONSTRUCTION TO DETERMINE IF ANY FIELD ADJUSTMENTS SHOULD BE MADE.
8. ALL STORM DRAIN INFRASTRUCTURE TO BE INSTALLED PER GOVERNING AGENCY OR APWA STANDARD PLANS AND SPECIFICATIONS.
9. ENSURE MINIMUM COVER OVER ALL STORM DRAIN PIPES PER MANUFACTURER'S RECOMMENDATIONS. NOTIFY ENGINEER IF MINIMUM COVER CANNOT BE ATTAINED.
10. ALL FACILITIES WITH DOWNSPOUTS/ROOF DRAINS SHALL BE CONNECTED TO THE STORM DRAIN SYSTEM. SEE PLUMBING PLANS FOR DOWNSPOUT/ROOF DRAIN LOCATIONS AND SIZES. ALL ROOF DRAINS TO HAVE MINIMUM 1% SLOPE.
11. THE CONTRACTOR SHALL ADJUST TO GRADE ALL EXISTING UTILITIES AS NEEDED PER LOCAL GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
12. NOTIFY ENGINEER OF ANY DISCREPANCIES IN DESIGN OR STAKING BEFORE PLACING CONCRETE, ASPHALT, OR STORM DRAIN STRUCTURES OR PIPES.
13. THE CONTRACTOR IS TO PROTECT AND PRESERVE ALL EXISTING IMPROVEMENTS, UTILITIES, AND SIGNS, ETC. UNLESS OTHERWISE NOTED ON THESE PLANS.

HORIZONTAL GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

HORZ: 1 inch = 20 ft.

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REVISIONS

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Stamp

PROFESSIONAL ENGINEER
No. 5049039
4-28-23
STATE OF UTAH
CAMERON NESS PRESTON

Designed By:	M.ELMER
Drawn By:	M.ELMER
Date:	5/1/23
Checked By:	C.PRESTON
Project No:	22-198

Drawing Title

GRADING AND DRAINAGE PLAN

Drawing number

C-200

DEFERRED SUBMITTALS

Delegated Deferred Design Submittals to be provided by Contractor

OVERCURRENT PROTECTIVE DEVICE STUDY AND ARC-FLASH STUDY REPORT & LABELING.

Provide the following items listed below and comply with additional requirements as provided. See specifications.

1. Coordination-study input data, including completed computer program input data sheets.
2. Study and equipment evaluation reports.
3. Overcurrent protective device coordination study report; signed, dated, and sealed by a qualified professional engineer. Overcurrent protection shall coordinate to 0.3 seconds on normal power and to 0.1 seconds on emergency power.
4. Arc-flash study input data, including completed computer program input data sheets.
5. Arc-flash study report; signed, dated, and sealed by a qualified professional engineer.
   a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.

SEISMIC CONTROL FOR ELECTRICAL SYSTEMS

Provide the following items listed below and comply with additional requirements as provided. See specifications.

A. Product Data: For each type of product.
1. Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of seismic-restraint component used.
   a. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by an agency acceptable to authorities having jurisdiction.
   b. Annotate to indicate application of each product submitted and compliance with requirements.

B. Delegated-Design Submittal: For each seismic-restraint device.
1. Include design calculations and details for selecting seismic restraints complying with performance requirements, design criteria, and analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
2. Design Calculations: Calculate static and dynamic loading caused by equipment weight, operation, and seismic and wind forces required to select seismic and wind restraints and for designing vibration isolation bases.
   a. Coordinate design calculations with wind load calculations required for equipment mounted outdoors. Comply with requirements in other Sections for equipment mounted outdoors.
3. Seismic-Restraint Details:
   a. Design Analysis: To support selection and arrangement of seismic restraints. Include calculations of combined tensile and shear loads.
   b. Details: Indicate fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods, and spacings. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events. Indicate association with vibration isolation devices.
   c. Coordinate seismic-restraint and vibration isolation details with wind-restraint details required for equipment mounted outdoors. Comply with requirements in other Sections for equipment mounted outdoors.
   d. Preapproval and Evaluation Documentation: By an agency acceptable to authorities having jurisdiction, showing maximum ratings of restraint items and the basis for approval (tests or calculations).

C. Deferred Submittals for the Authority Having Jurisdiction (AHJ) shall be as required by IBC 106.3.4.2.

1. Deferred submittals of seismic restraint of nonstructural components must be submitted to the AHJ a minimum of two weeks prior to the planned installation in order to allow for plan review and forwarding to inspectors. In the event that the submittal is deficient additional time may become necessary.

2. No deferred submittal element shall be installed until AHJ approval has been received.

3. If seismic restraints of nonstructural components are installed prior to receiving AHJ approval they shall not be covered or concealed until plan review and inspection approval. Further, installers are proceeding at their own risk until plan review and inspection approval occurs.

4. Deferred Submittals are required for:
   a. Electrical distribution equipment (switchboards, panelboards, transformers, ATS, MCC's etc.).
   b. Generators, batteries, UPS.
   c. Conduit racks.
   d. Cable trays.
   e. Lighting fixtures.
   f. Control Panels

GENERAL LABELING SCHEME

FIRST DIGIT - BUILDING LEVEL (1 OR 2)

SECOND DIGIT - PANEL TYPE

- M - MECHANICAL (120/208/277/380/480V)
- L or LCP - LIGHTING (120/208/277/480V)
- P - PLUG LOADS (120/208V)
- G - GENERAL LOADS (120/280V)
- E - EMERGENCY (277/480V)
- S - STANDBY (SPECIFIED ON PANEL)
- U - UPS (SPECIFIED ON PANEL)

THIRD DIGIT - BUILDING AREA (A, B, C, D, ECT.)

FOURTH DIGIT - SEQUENCE # (1,2,3...)

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

1P	SINGLE POLE
1PH	SINGLE-PHASE
1WAY	ONE-WAY
2/C	TWO-CONDUCTOR
2WAY	TWO-WAY
3/C	THREE-CONDUCTOR
3WAY	THREE-WAY
4OUT	QUADRUPLE RECEPTACLE OUTLET
4PDT	FOUR-POLE DOUBLE THROW
4PST	FOUR-POLE SINGLE THROW
4W	FOUR-WIRE
4WAY	FOUR-WAY
A	ABOVE COUNTER
AC	ARMORED CABLE
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
ALUM	ALUMINUM
AMP	AMPERE
ANN	ANNUNCIATOR
AP	ACCESS POINT (WIRELESS DATA)
AR	AS REQUIRED
ASC	AMPS SHORT CIRCUIT
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAGE
BB XFMR	BUCK-BOOST TRANSFORMER
C	CEILING MOUNTED
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCBA	CUSTOM COLOR AS SELECTED BY ARCHITECT
CCTV	CLOSED CIRCUIT TELEVISION
CF/CI	CONTRACTOR FURNISHED/ CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/ OWNER INSTALLED
CFBA	CUSTOM FINISH AS SELECTED BY ARCHITECT
CKT	CIRCUIT
CM	CONSTRUCTION MANAGER
CND	CONDUIT
CO	CONVENIENCE OUTLET
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
dBA	UNIT OF SOUND LEVEL
DPDT	DOUBLE POLE, DOUBLE THROW
DS	DISCONNECT SWITCH
EA	EACH
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRIC NONMETALLIC TUBING
EPO	EMERGENCY POWER OFF
EQUIP	EQUIPMENT
EX	EXISTING
F	FURNITURE MOUNTED
FA	FIRE ALARM
FCP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METAL CONDUIT
FOB	FREIGHT ON BOARD
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
G	GROUND
GEN	GENERATOR
GFCI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HD	HEAVY DUTY
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HV	HIGH VOLTAGE
HZ	HERTZ
I/O	INPUT/ OUTPUT
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
IN/IS	INSULATED/ ISOLATED
IR	INFRARED
J-BOX	JUNCTION BOX
kV	KILOVOLT
kVA	KILOVOLT AMPERE
kVAR	KILOVOLT AMPERE REACTIVE
kW	KILOWATT
kWh	KILOWATT HOUR
LED	LIGHT EMITTING DIODE
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LFNC	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MC	METAL CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTION
MDP	MAIN DISTRIBUTION PANEL
MG	MOTOR GENERATOR
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIOANL ELECTRICAL MANUFACTURERS ASSOCIATION
NFC	NATIONAL FIRE CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OCP	OVER CURRENT PROTECTION
OF/CI	OWNER FURNISHED/ CONTRACTOR INSTALLED
OF/OI	OWNER FURNISHED/ OWNER INSTALLED
OFP	OBTAIN FROM PLANS
OH DR	OVERHEAD (COILING) DOOR
OL	OVERLOAD
PB	PUSHBUTTON
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PTZ	PAN/TILT/ZOOM
QTY	QUANTITY
R	REMOVE
RCP	REFLECTED CEILING PLAN
RMC	RIGID METAL CONDUIT
RNC	RIGID NONMETAL CONDUIT
RPM	REVOLUTIONS PER MINUTE
RR	REMOVE AND RELOCATE
S/S	START/STOP
SCA	SHORT CIRCUIT AMPS
SCBA	STANDARD COLOR AS SELECTED BY ARCHITECT
SF	SQUARE FOOT (FEET)
SFBA	STANDARD FINISH AS SELECTED BY ARCHITECT
SPDT	SINGLE POLE, DOUBLE THROW
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
ST	SINGLE THROW
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TL	TWIST LOCK
TP	TELEPHONE POLE
TP	TWISTED PAIR
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UF	UNDERFLOOR
UGND	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERE
VFC/VFD	VARIABLE FREQUENCY MOTOR CONTROLLER
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

GENERAL ELECTRICAL NOTES

1. CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.

2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.
   A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.
   B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.
   C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE.THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.

3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.

4. SUBMITTALS: PROVIDE ORIGINAL ELECTRONIC PDF FORMAT, BOUND, BOOKMARKED (EACH SECTION AND PRODUCT), AND HIGHLIGHTED. JOB NAME AND SUBCONTRACTOR SHALL BE ON THE FRONT COVER. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.

5. REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.

6. ALL WORK SHALL BE DONE ACCORDING TO THE CURRENT NATIONAL ELECTRIC CODE (NEC), IBC, NFPA, AND IFC. COMPLIANCE AND FINAL APPROVAL IS SUBJECT TO THE ON SITE FIELD INSPECTION OF THE AHJ.

7 TAKE OFF QUANTITIES SHOWN IN SCHEDULE(S) ARE FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OF THE DEVICES, FIXTURES, EQUIPMENT, RACEWAYS, CONDUCTORS, CABLING, ETC. SHOWN AND SPECIFIED IN THE CONTRACT DOCUMENTS INCLUDING THE EXTRA MATERIAL SPECIFIED.

ELECTRICAL SHEET INDEX

NOTE TO CONTRACTORS:
THIS SHEET SET IS CONTRACTUALLY REQUIRED TO BE PRINTED IN COLOR. THERE ARE DIFFERENTIATING FEATURES THAT ARE DESIGNATED THROUGHOUT BY THEIR COLOR. FAILURE TO PRINT THIS SHEET SET IN COLOR MAY RESULT IN A MISINTERPRETATION OF THE DRAWINGS.

BID SET

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REVISIONS

NO	yy/mm/dd	DESCRIPTION

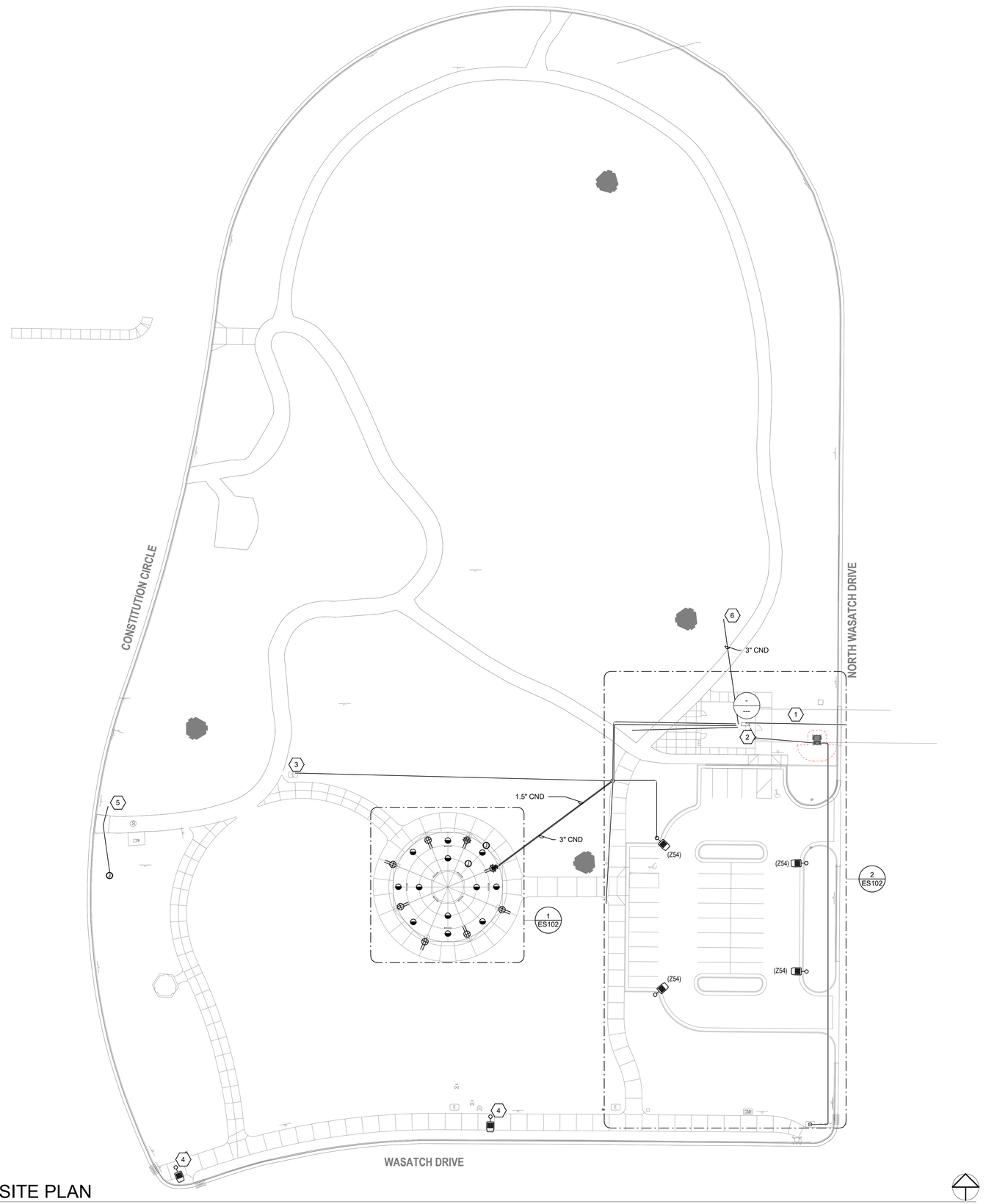
Stamp

LICENSED PROFESSIONAL ENGINEER
No. 7258080
SPENCER C. LITTLE
05/02/2023
STATE OF UTAH

Designed By:	JJN
Drawn By:	JJN
Date:	04/28/2023
Checked By:	SCL
Project No:	230021

Drawing Title
ELEC COVER SHEET

Drawing number
EE001



1 ELECTRICAL SITE PLAN
SCALE: 1/32" = 1'-0"

GENERAL SHEET NOTES

1 THE ELECTRICAL CONTRACTOR SHALL MEET WITH AND COORDINATE WITH ALL SERVICE PROVIDERS (POWER, COMMUNICATION, CABLE/SATELLITE, ETC.)TO THE FACILITY ON SITE PRIOR TO ANY WORK BEING PREFORMED. CONFIRM WITH EACH SERVICE PROVIDER EXACT LOCATIONS EQUIPMENT AND ROUTING. COMPLY WITH ALL SERVICE PROVIDER'S CURRENT STANDARDS AND REQUIREMENTS. PROVIDE THE REQUIRED EQUIPMENT, RACEWAYS, BOXES, CABLE, ETC. AS REQUIRED BY THE SERVICE PROVIDER WEATHER SHOWN ON THE DRAWINGS OR NOT.

2 FOR ALL LIGHT FIXTURES, POLE LIGHTS, AND ALL OTHER ELECTRICAL DEVICES THE CONTRACTOR SHALL COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS WITH ARCHITECT, OWNER, ENGINEER, AND ALL OF THE CONTRACT DOCUMENTS PRIOR TO ROUGH IN AND TRENCHING.

3 CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, AND COMPACTION ASSOCIATED TO ALL ELECTRICAL UNDERGROUND RACEWAYS AND CABLES. COORDINATE WITH ARCHITECTURAL AND CIVIL DRAWINGS. SEE UNDERGROUND RACEWAY DETAILS FOR REQUIREMENTS FOR EACH TRENCH.

4 CONTRACTOR SHALL INSTALL POLE MOUNTED LIGHTS IN STRAIGHT LINES, SQUARE, AND PLUMB. COORDINATE WITH ARCHITECT AND CIVIL DRAWINGS.

5 THE ELECTRICAL CONTRACTOR SHALL HAVE ANY AND ALL CONCRETE POLE BASES AND SLABS REVIEWED BY A STRUCTURAL ENGINEER AND SHALL MODIFY DESIGN PER STRUCTURAL ENGINEER'S AND OR AHJ'S RECOMMENDATIONS.

6 THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CONCRETE/ASPHALT CUTTING AND REPLACEMENT OF CONCRETE/ASPHALT TO MATCH EXISTING ASSOCIATED WITH UNDERGROUND RACEWAYS PROVIDED AS PART OF THIS PROJECT.

7 REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.

8 PROVIDE SERVICE RATED EQUIPMENT AT EACH SERVICE ENTRANCE.

9 SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. VERIFY OR RE-CALCULATE THE AVAILABLE FAULT CURRENT AT THE SERVICE WHERE MODIFICATIONS TO THE ELECTRICAL INSTALLATION OCCUR. PLEASE INCLUDE NOTES IN THE ELECTRICAL DRAWINGS OR SUPPLY CALCULATIONS WHERE APPLICABLE. SEE NEC 110.24. (B)

SHEET KEYNOTES

1 PROVIDE 1.5" CONDUIT FOR TELECOMMUNICATION LINES TO FUTURE SECURITY CAMERAS. RUN CONDUIT TO NEW RESTROOM AND STUB UP INTO CHASE OF RESTROOM.

2 NEW PANELS TO BE INSTALLED INSIDE RESTROOM CHASE. COORDINATE EXACT LOCATION OF PANELS WITH ARCHITECT PRIOR TO ROUGH-IN.

3 PROVIDE 1.5" CND STUBBED UP FROM IN RESTROOM CHASE TO APPROXIMATE LOCATION FOR SECURITY CAMERA IN FUTURE LIGHT POLE. CAP CONDUIT AND MARK ACCORDINGLY. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

4 CONTRACTOR TO DEMOLISH, PROTECT AND PRESERVE EXISTING CITY STREET LIGHTS IN SIMILAR AREA. CONTRACTOR TO REINSTALL EXISTING CITY STREET LIGHTS IN NEW LOCATION 'BEHIND' NEW SIDE WALK. EXTEND CONDUITS AND FEEDERS AS NECESSARY TO RETURN TO ORIGINAL WORKING CONDITION.

5 APPROXIMATE LOCATION OF EXISTING POWER PEDESTAL. PROVIDE NEW GROUND SLEEVE UNDER NEW PATHWAY TO BE BUILT. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING UNDERGROUND CIRCUIT AND VERIFY THE CIRCUIT IS OPERATING CORRECTLY. RECONNECT PEDESTAL TO CORRECT WORKING CONDITIONS.

6 PROVIDE 3" CONDUIT STUBBED UP FROM RESTROOM CHASE FOR FUTURE FLAG POLE EXTENSION. STUB UP AND CAP CONDUIT AND MARK LOCATION ACCORDINGLY. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

BID SET

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REVISIONS

NO.	APPROVED	DESCRIPTION

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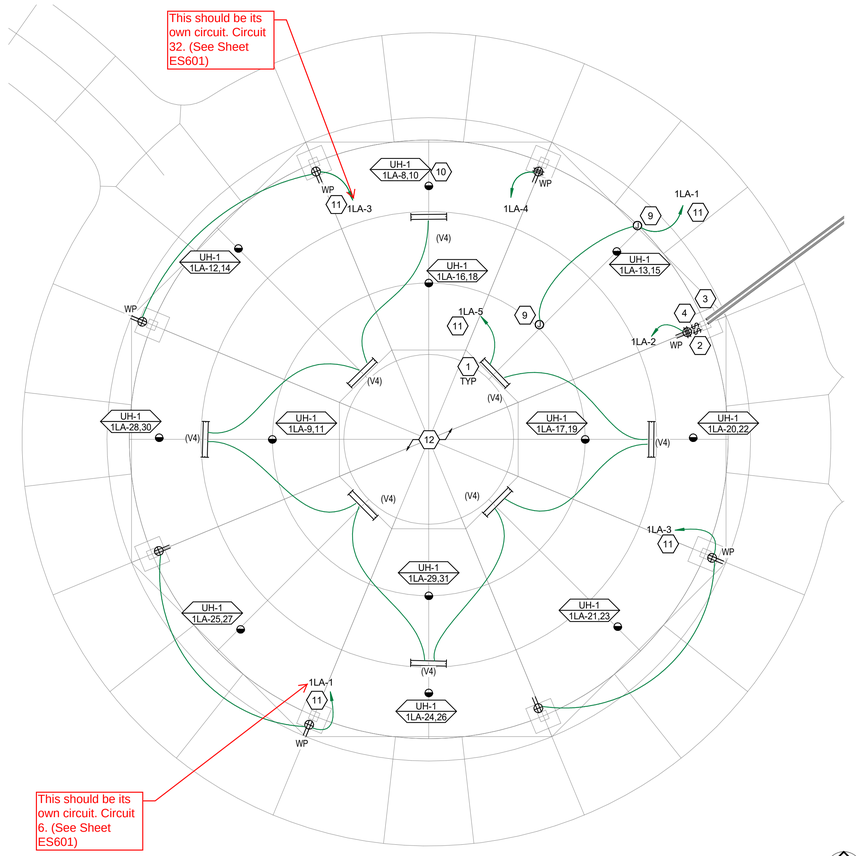
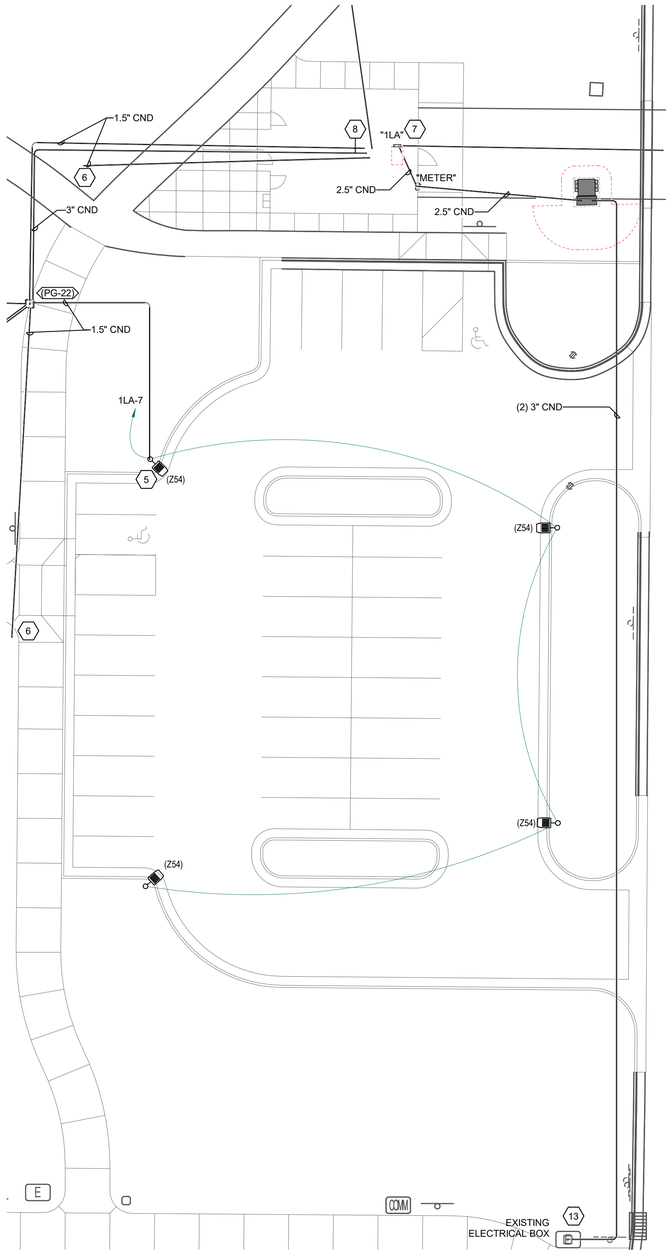
Drawing Title
ELECTRICAL SITE PLAN

Drawing number
ES101



1 ENLARGED PAVILION ELECTRICAL SITE PLAN

SCALE: 1/8" = 1'-0"



2 ENLARGED ELECTRICAL SITE PLAN

SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES

1 THE ELECTRICAL CONTRACTOR SHALL MEET WITH AND COORDINATE WITH ALL SERVICE PROVIDERS (POWER, COMMUNICATION, CABLE/SATELLITE, ETC.)TO THE FACILITY ON SITE PRIOR TO ANY WORK BEING PREFORMED. CONFIRM WITH EACH SERVICE PROVIDER EXACT LOCATIONS EQUIPMENT AND ROUTING. COMPLY WITH ALL SERVICE PROVIDER'S CURRENT STANDARDS AND REQUIREMENTS. PROVIDE THE REQUIRED EQUIPMENT, RACEWAYS, BOXES, CABLE, ETC. AS REQUIRED BY THE SERVICE PROVIDER WEATHER SHOWN ON THE DRAWINGS OR NOT.

2 FOR ALL LIGHT FIXTURES, POLE LIGHTS, AND ALL OTHER ELECTRICAL DEVICES THE CONTRACTOR SHALL COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS WITH ARCHITECT, OWNER, ENGINEER, AND ALL OF THE CONTRACT DOCUMENTS PRIOR TO ROUGH IN AND TRENCHING.

3 CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, AND COMPACTION ASSOCIATED TO ALL ELECTRICAL UNDERGROUND RACEWAYS AND CABLES. COORDINATE WITH ARCHITECTURAL AND CIVIL DRAWINGS. SEE UNDERGROUND RACEWAY DETAILS FOR REQUIREMENTS FOR EACH TRENCH.

4 CONTRACTOR SHALL INSTALL POLE MOUNTED LIGHTS IN STRAIGHT LINES, SQUARE, AND PLUMB. COORDINATE WITH ARCHITECT AND CIVIL DRAWINGS.

5 THE ELECTRICAL CONTRACTOR SHALL HAVE ANY AND ALL CONCRETE POLE BASES AND SLABS REVIEWED BY A STRUCTURAL ENGINEER AND SHALL MODIFY DESIGN PER STRUCTURAL ENGINEER'S AND OR AHJ'S RECOMMENDATIONS.

6 THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CONCRETE/ASPHALT CUTTING AND REPLACEMENT OF CONCRETE/ASPHALT TO MATCH EXISTING ASSOCIATED WITH UNDERGROUND RACEWAYS PROVIDED AS PART OF THIS PROJECT.

7 REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.

8 PROVIDE SERVICE RATED EQUIPMENT AT EACH SERVICE ENTRANCE.

9 SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. VERIFY OR RE-CALCULATE THE AVAILABLE FAULT CURRENT AT THE SERVICE WHERE MODIFICATIONS TO THE ELECTRICAL INSTALLATION OCCUR. PLEASE INCLUDE NOTES IN THE ELECTRICAL DRAWINGS OR SUPPLY CALCULATIONS WHERE APPLICABLE. SEE NEC 110.24. (B)

SHEET KEYNOTES

1 LIGHT FIXTURES TO BE MOUNTED TO THE PAVILION STRUCTURE.

2 PROVIDE ON/OFF WEATHER PROOF SWITCH TO CONTROL POWER TO PAVILION UNIT HEATERS. ALSO PROVIDE DIGITAL TIMER IN RESTROOM CHASE TO CONTROL HEATERS HOURS OF OPERATION. COORDINATE EXACT REQUIREMENTS WITH OWNER PRIOR TO ROUGH IN.

3 PROVIDE 1.5" UTOPIA CONDUIT TO RUN TO PAVILION. CONDUIT TO RUN UP INSIDE OF POLE OF PAVILION UP TO TOP CENTER OF PAVILION ROOF FOR FUTURE SECURITY CAMERA. THERE IS TO BE NO EXPOSED CONDUIT. COORDINATE EXACT LOCATION OF FUTURE SECURITY CAMERA WITH ARCHITECT PRIOR TO ROUGH-IN.

4 PROVIDE ON/OFF WEATHER PROOF TIMER SWITCH (AMERICAN FIRE GLASS AFG-SITS-TS30 OR APPROVED EQUAL) TO CONTROL POWER TO ~~EXISTING CHRISTMAS LIGHTING~~, PAVILION LIGHTING, AND OUTLETS ON INDICATED CIRCUITS.. COORDINATE EXACT REQUIREMENTS WITH OWNER PRIOR TO ROUGH IN.

5 PROVIDE 1.5" CND FOR UTOPIA SECURITY CAMERA FROM CHASE IN NEW RESTROOM. CONDUIT TO STUB UP INTO LIGHT POLE. COORDINATE EXACT REQUIREMENTS FOR STUB UP LOCATION AND ACCESS PANEL AVAILABILITY PRIOR TO ROUGH-IN.

6 PROVIDE 1.5" CND STUBBED UP FROM IN RESTROOM CHASE TO APPROXIMATE LOCATION FOR SECURITY CAMERA IN FUTURE LIGHT POLE. CAP CONDUIT AND MARK ACCORDINGLY. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

7 NEW PANELS TO BE INSTALLED INSIDE RESTROOM CHASE. COORDINATE EXACT LOCATION OF PANELS WITH ARCHITECT PRIOR TO ROUGH-IN.

8 PROVIDE 3" CND STUBBED UP FROM RESTROOM CHASE TO PROVIDE POWER TO PAVILION.

9 PROVIDED JUNCTION BOX WITH SWITCHED 120V POWER TO ROOF LEVEL OF PAVILION IN INDICATED AREA. JUNCTION BOX FOR JELLYFISH CHRISTMAS LIGHTING. COORDINATE EXACT LOCATION WITH ARCHITECT.

10 PROVIDE 120V POWER CONNECTIONS FOR ~~(4)~~ ELECTRIC UNIT HEATERS. ~~UNIT HEATERS TO BE INSTALLED BY OWNER'S MECHANICAL CONTRACTOR~~. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH OWNER AND INSTALLER PRIOR TO ROUGH-IN.

11 CIRCUIT TO BE CONTROLLED BY ON/OFF TIMER.

12 REFER TO DETAIL (1) ON SHEET ES502 AND COORDINATE WITH ARCHITECT FOR EXACT MOUNTING REQUIREMENTS OF LIGHT FIXTURES AND HEATERS PRIOR TO ROUGH-IN.

13 PROVIDE CONDUIT TO EXISTING ELECTRICAL BOX ON SITE. COORDINATE EXACT LOCATION, AND INSTALLATION INSTRUCTIONS WITH CITY UTILITY PROVIDED PRIOR TO ROUGH-IN.

Timer needs to have capabilities for a weekly programmable schedule.

Interior

60 minute timer capability

Outlets to not be on a timer. They should be usable all the time.

12

See Note 4. (60 minute time switch)

BID SET

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OWNER:
LAYTON CITY
437 N WASATCH DR.
LAYTON, UT 84041

CONTACT:
JOELLEN GRANDY
PH: 801-336-3926

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LAYTON COMMONS PARK IMPROVEMENTS
437 N WASATCH DR, LAYTON, UT 84041

REVISIONS

NO.	yy/mm/dd	DESCRIPTION

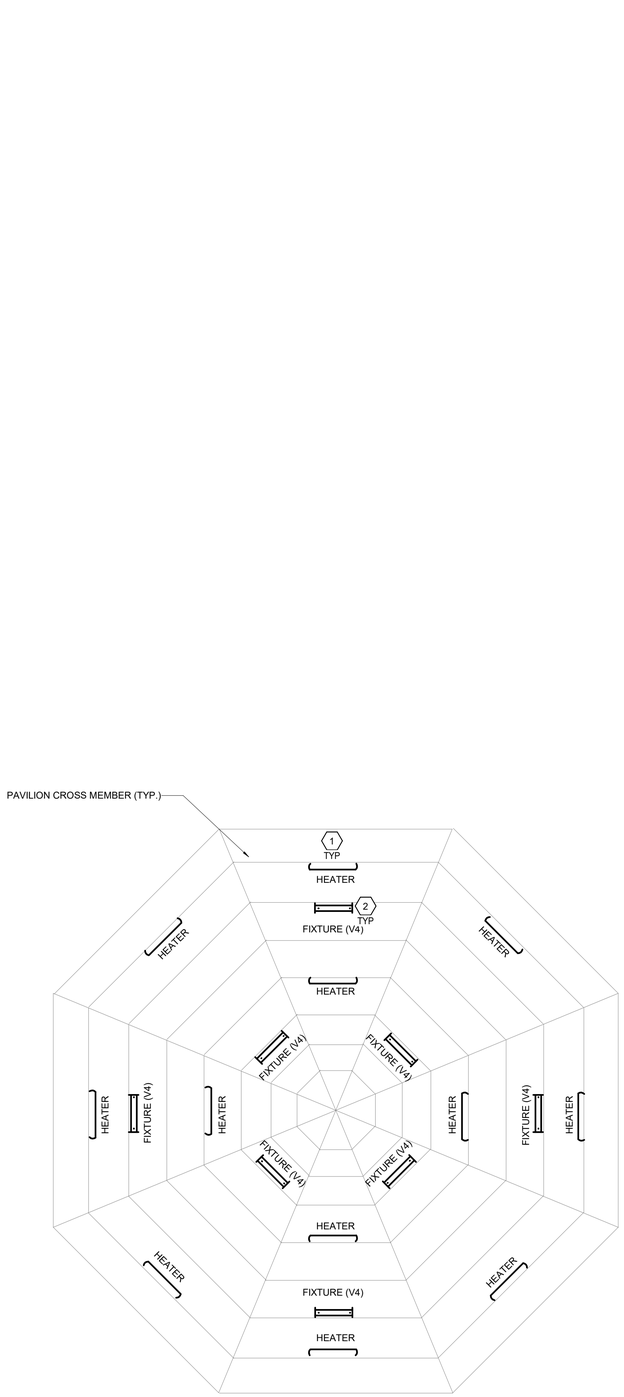
Stamp

LICENSED PROFESSIONAL ENGINEER
No. 7258080
SPENCER C. LITTLE
05/02/2023
STATE OF UTAH

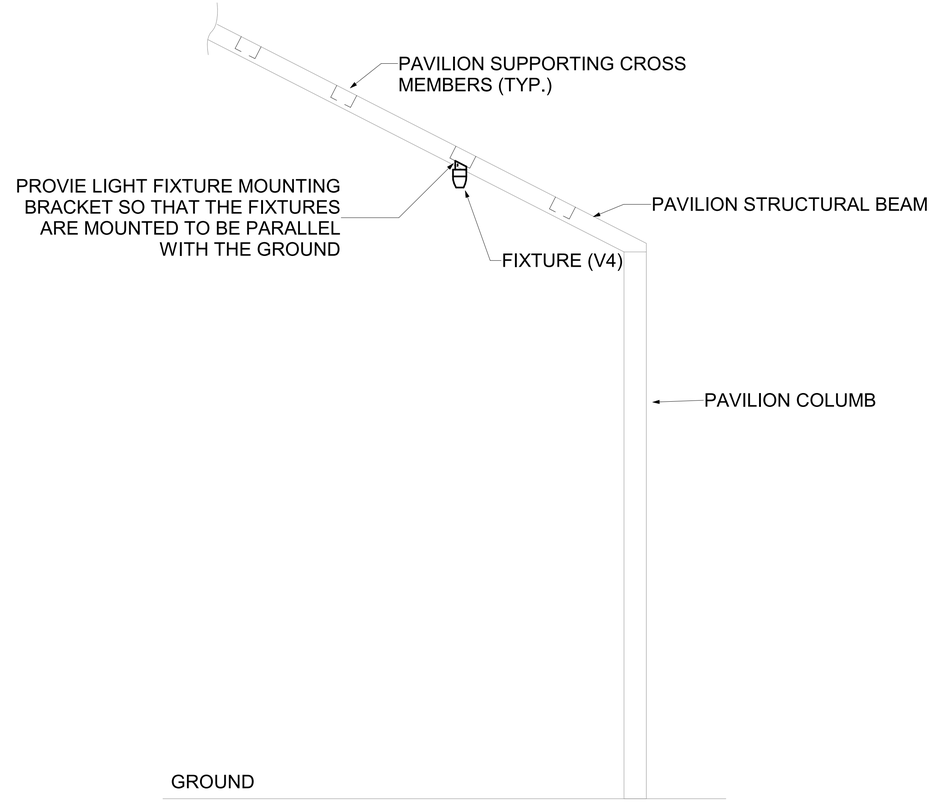
Designed By:	JJN
Drawn By:	JJN
Date:	04/28/2023
Checked By:	SCL
Project No:	230021

Drawing Title
ENLARGED ELECTRICAL SITE PLANS

Drawing number
ES102



1 PAVILION ROOF MOUNTING DETAIL
SCALE: NTS



2 TYPICAL PAVILION LIGHT MOUNTING DETAIL
SCALE: NTS

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LAYTON COMMONS PARK IMPROVEMENTS

437 N WASATCH DR, LAYTON, UT 84041

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NO.	APPROVED	DESCRIPTION

Stamp

LICENSED PROFESSIONAL ENGINEER
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SPENCER C. LITTLE
05/02/2023
STATE OF UTAH

Designed By:	JJN
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Date:	04/28/2023
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Project No:	230021

Drawing Title

SITE ELECTRICAL DETAILS

Drawing number

ES502

BID SET

APPLICATION TIERS	TYPE	DESCRIPTION
LIGHT DUTY	VERTICAL	PEDESTRIAN TRAFFIC ONLY.
TIER 5	VERTICAL	SIDEWALK APPLICATIONS WITH A SAFTEY FACTOR FOR OCCCASIONAL ACCIDENTAL VEHICULAR TRAFFIC.
	LATERAL	
TIER 8	VERTICAL	SIDEWALK APPLICATIONS WITH A SAFTEY FACTOR FOR OCCCASIONAL ACCIDENTAL VEHICULAR TRAFFIC.
	LATERAL	
TIER 15	VERTICAL	DRIEVEWAY, PARKING LOT, AND OFF ROAD APPLICATIONS SUBJECT TO OCCASIONAL NON-DELIBERATE VEHICULAR TRAFFIC.
	LATERAL	
TIER 22	VERTICAL	DRIVEWAY, PARKING LOT, AND OFF ROAD APPLICATIONS SUBJECT TO NON-DELIBERATE HEAVY VEHICULAR TRAFFIC.
	LATERAL	

BOX OPTIONS	DESCRIPTION
BA	BOX WITH OPEN BOTTOM
BB	BOX WITH MOUSE HOLES
BC	DIVIDED BOX
BG	GASKETED BOX WITH OPEN BOTTOM
DA	BOX WITH SOLID BOTTOM
DG	GASKETED BOX WITH SOLID BOTTOM
JA	FOOTED BOX
EA	EXTENSION
RA	SOLID BASE EXTENSION

COVER OPTIONS	DESCRIPTION
CA	BOLT DOWN COVER
WA	STANDARD WITH NO BOLTS
LR	CAST IRON 6 4-1/2" X 7-1/2" LID
LP	CAST IRON 6"X12" LID
LQ	CAST IRON 9"X12" LID
LK	POLYMER CONCRETE 6"X9" DROP-IN LID
LL	POLYMER CONCRETE 7" X 13" DROP-IN LID
LS	THROUGH SLOT (NO METER LID)
O2	OPENS UNDER 90^{O}
OO	USED WITH DROP-IN LID

SYMBOLS LEGEND

PG-34 PG-22 PG-23 PG-22 PG-12

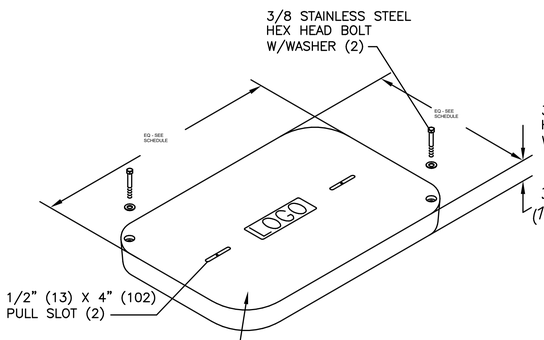
NOTES:
1. CONTRACTOR SHALL PROVIDE A SUBMITTAL ON ALL UNDERGROUND ENCLOSURES FOR THIS PROJECT.
2. ALL ENCLOSURES SHALL BE UL LISTED
3. CONTRACTOR SHALL COORDINATE THE TIER RATING WITH CIVIL ENGINEER AND ARCHITECT IN THE SUBMITTAL PROCESS.
4. CONTRACTOR SHALL ADJUST THE SIZE OF THE ENCLOSURE AS REQUIRED FOR INSTALLATION. SUBMIT AN RFI OR PROVIDE SOME OTHER DOCUMENTATION SO THAT THE DESIGN TEAM AND OWNER UNDERSTAND THIS MODIFICATION PRIOR TO MOVING FORWARD WITH ADJUSTED SIZE OF ENCLOSURE.
5. PROVIDE BASIS OF DESIGN (BOD) ENCLOSURE OR PRE-APPROVED EQUAL.

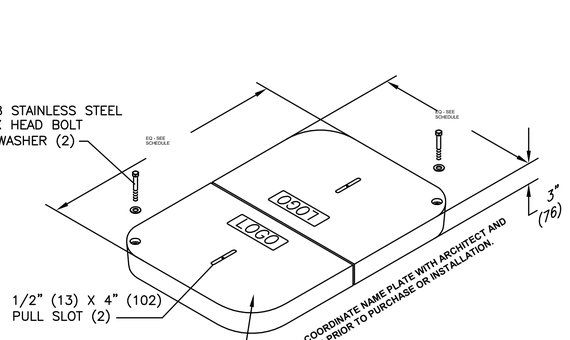
FIXTURE STYLES

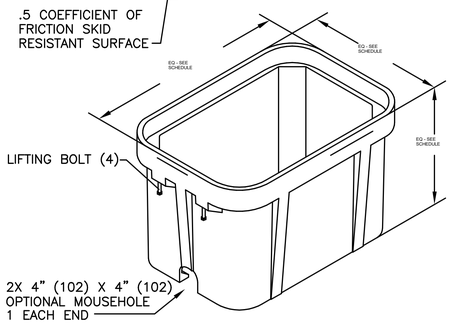
STYLE NAME	DESCRIPTION	IMAGES
PG	STRAIGHT SIDES ALLOW FOR EASY ASJUSTMENT OF BOX SHOULD THE GRADE LEVEL CHANGE. USED FOR A VARIETY OF PURPOSES, SUCH AS A SPLICE BOX, PULL BOX, EQUIPMENT ENCLOSURE, OR FOR ANY APPLICATION REQUIRING EASY ACCESS TO AN UNDERGROUND SERVICE. PG BOXES ARE STACKABLE FOR INCREASED DEPTH.	
PC	STRAIGHT SIDES ALLOW FOR EASY ASJUSTMENT OF BOX SHOULD THE GRADE LEVEL CHANGE. ALL PC BOXES ARE STACKABLE AND ARE AVAILABLE WITH GASKETING.	
PX	PX STYLES ARE EXCELLENT FOR SERVICE BOX ASSEMBLIES AND OFFER FLARED DESIGN TO PREVENT FROST HEAVE. PX BOXES ARE ALSO NESTABLE FOR COMPACT STORAGE.	
PT	THE FLARED DESIGN PREVENTS FROST HEAVE AND COVERS ARE INTERCHANGABLE WITH MANY PRECAST CONCRETE PARTS. PT BOXES ARE ALSO NESTABLE FOR COMPACT STORAGE.	
PD	THESE ENCLOSURES FEATURE A 1 DEGREE FLARE FOR MAXIMUM STRENGTH. FLARED DESIGN OPTIMIZES INTERNAL VOLUME AND MINIMIZES FROST HEAVE.	

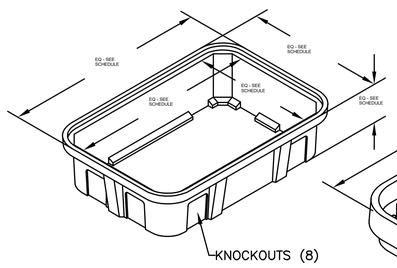
UNDER GROUND ENCLOSURE SCHEDULE

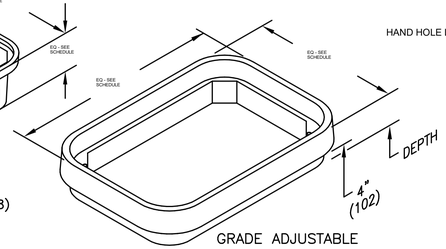
ID	IMAGE	BOX DESCRIPTION	LENGTH	WIDTH	DEPTH	ABOVE GRADE HEIGHT	BASIS OF DESIGN MANUFACTURE PART NO.	BOX OPTIONS	COVER LOGO	COVER OPTIONS	STYLE	TRAFFIC TIER NO.
(PG-22)		UNDERGROUND ENCLOSURE; PRECAST POLYMER CONCRETE WITH REINFORCED WITH FIBER GLASS. PROVIDE WITH BOLT ON COVER.	2' - 0"	2' - 0"	1' - 6"	INSTALL FLUSH WITH GRADE (0'-0")	QUAZITE (PG2424 18)	BA - BOX WITH OPEN BOTTOM	"ELECTRICAL"	WITH TWO BOLTS AND A SINGLE LOGO	PG	TIER 15

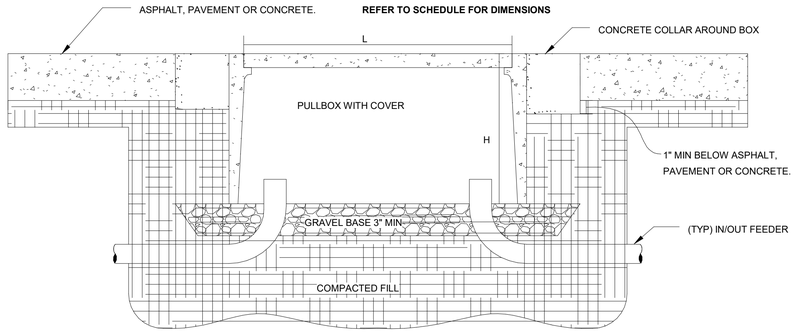




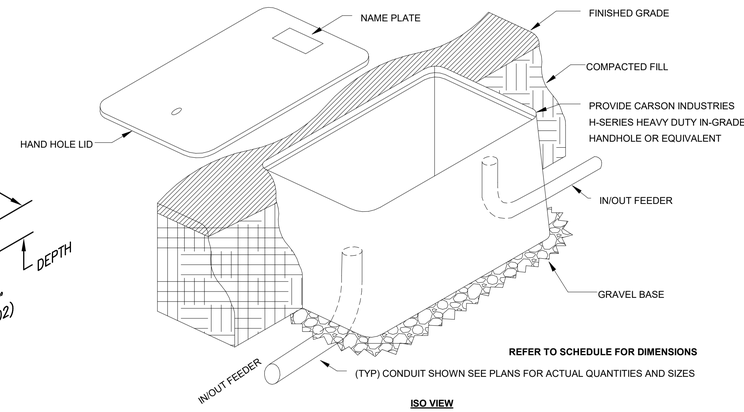








SECTION VIEW



ISO VIEW

A1 TYPICAL UNDERGROUND JUNCTION BOX DETAIL
SCALE: NTS

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LAYTON COMMONS PARK IMPROVEMENTS
437 N WASATCH DR, LAYTON, UT 84041

REVISIONS

NO.	APPVD/BY	DESCRIPTION

Stamp

Designed By:	JJN
Drawn By:	JJN
Date:	04/28/2023
Checked By:	SCL
Project No:	230021

Drawing Title
SITE JUNCTION BOX DETAILS

BID SET

Drawing number
ES505

SINGLE LIGHT FLUTED POLE AND FIXTURE SL-04
STINGER OR CONCRETE BASE

LUMINAIRE SPECIFICATIONS

FIXTURE NO.:	K424R-T1AR-III-100(SSL)-4004 -120:277-K26-PR7-4K-SST- -WRS-TB-BK-#2-WS-3X3
OPTICAL SYSTEM:	TOWER ARRAY ACRYLIC RIPPLED
IES CLASS.:	TYPE III
WATTAGE:	100W (4004 SERIES) SOLID STATE LIGHTING
LINE VOLTAGE:	120:277V
CCT:	4000K
POLE ADAPTOR:	K26
PAINT:	TEXTURED BLACK
OPTIONS:	#2 FINIAL SOLID SPUN TOP TWIST-LOCK RECEPTACLE WITH PHOTO-EYE WESTINGHOUSE RING & STRUTS QUICK DISCONNECT

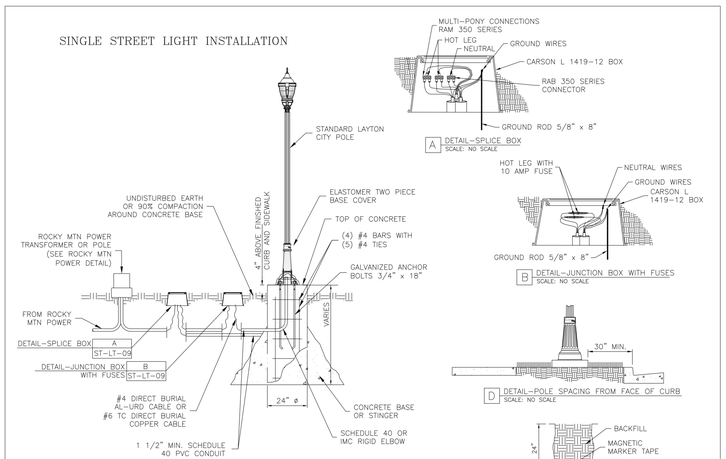
SEE ST-LT-08 FOR CONCRETE BASE DETAIL AND ST-LT-12 FOR STINGER DETAIL.

ALL LIGHT POLES INSTALLED WITHIN UDOT RIGHT-OF-WAY "CLEAR ZONE" (UDOT DD18) MUST HAVE A BREAKAWAY BASE (UDOT SL11) AND USE PRE-CAST POLYMER CONCRETE JUNCTION BOXES

ANCHOR BASE DETAIL
12" BOLT CIRCLE
ANCHOR BOLTS: 3/4" x 18"

DRAWN BY	MTL
SCALE	NONE
DATE	5/11
REVISIONS	7/22
Layton City	STANDARD DRAWING
	SL-04 POLE & FIXTURE
	ST-LT-06

SINGLE STREET LIGHT INSTALLATION



SEE SHEET ST-LT-09 FOR GENERAL NOTES ON STREET LIGHT INSTALLATION.

DRAWN BY	MTL
SCALE	NONE
DATE	10/12
REVISIONS	7/22
Layton City	STANDARD DRAWING
	SINGLE LIGHT INSTALL
	ST-LT-10

A1 LAYTON CITY LIGHT POLE STANDARD
SCALE: NTS

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BID SET

REVISIONS

NO.	APPROVAL	DESCRIPTION

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SPENCER C. LITTLE
05/02/2023
STATE OF UTAH

Designed By:	JJN
Drawn By:	JJN
Date:	04/28/2023
Checked By:	SCL
Project No:	230021

Drawing Title

ELECTRICAL SITE LIGHTING DETAILS AND SCHEDULES

Drawing number

ES508

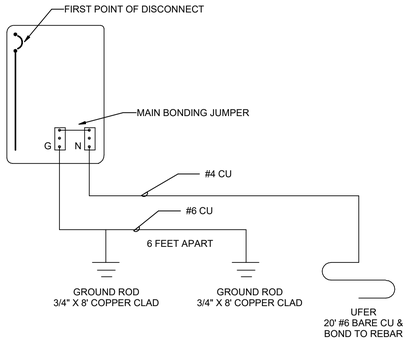
EQUIPMENT SCHEDULE

EQUIPMENT SCHEDULE KEY
E - DIVISION 26
Q - FURNISHED WITH EQUIPMENT
* - COORDINATE WITH THE DIVISION 23 TEMPERATURE CONTROL INSTALLER
** - AUTOMATIC CONTROL WIRING BY DIVISION 23

NOTES:
1. NEMA 3R
2. TOGGLE SWITCH W/ THERMAL OVERLOAD
3. PROVIDE FUSED DISCONNECT ELEVATOR POWER MODULE WITH SHUNT TRIP
4. CONTRACTOR TO PERFOM FINAL CONNECTION TO LINE VOLTAGE THERMOSTATS
5. TOGGLE SWITCH W/BACNET INTERFACE.
6. INDOOR UNITS FED FROM OUTDOOR UNIT. PROVIDE DISCONNECTS FOR BOTH.
7. PROVIDE SWITCH WITH BACNET MS/TP CAPABILITY.
8. PROVIDE LABEL ON DISCONNECT "DISCONNECT OUTDOOR UNIT PRIOR TO INDOOR."
9. LINE VOLTAGE THERMOSTAT ON WALL.
10. PROVIDE EXPLOSION PROOF DEVICES AND WIRING METHODS.
11. PROVIDE DUAL-REDUNDANT 100% RATED VFD'S FOR AIR HANLDER.
12. PROVIDE MANUAL STARTER WITH THERMAL OVERLOAD AND RELAY FOR ATC/BAS CONTROL.
13. PROVIDE NEUTRAL SIZE AT 100% OF CURRENT CARRYING CONDUCTOR.

GENERAL NOTES:
1. WHERE DISCONNECTS, STARTERS, OR VFCs ARE BEING PROVIDED BY ELECTRICAL CONTRACTOR, LOCATE EQUIPMENT IN ACCESSIBLE LOCATION, SUCH THAT IT IS WITHIN SITE OF THE MECHANICAL EQUIPMENT IT IS SERVING, AND COMPLIES WITH N.E.C. REQUIRED CLEARANCES.
2. PROVIDE A NEUTRAL AS REQUIRED BY EQUIPMENT MANUFACTURER AND SUPPLIER. CONTRACTOR SHALL COORDINATE WITH SUBMITTALS AND INSTALLER FOR NUETRAL REQUIREMENTS.

			LOAD DATA								OVERCURRENT PROTECTION			DISCONNECT			STARTER									
MARK	QTY	ITEM DESCRIPTION	HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	SIZES	SELECTOR SWITCH	PILOT LAMP	NORMALLY OPEN CONTACT	NORMALLY CLOSED CONTACT	PHASE FAILURE RELAY	NOTES	MARK
UH-1	12	UNIT HEATER	-	-	-	12.5	208	1	60	2 #12, 12 GR 0.75" CND	E	20/2 CB	1LA	E		1LA	Q	-	-	-	-	-	-	-		UH-1



3 GROUNDING RISER DIAGRAM
SCALE: NTS

PANEL: "1LA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	FED FROM:	CABINET:	LOCATION:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	400 AMPERE MAIN LUGS		SURFACE		

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — **AIC RATING:** 0

CKT	OCP			LOAD (kVA)				PHASE LOAD				LOAD (kVA)			OCP			CKT
NO	AMP	POLE	BKR	LTG	PWR	CO	DESCRIPTION	A	B	C	DESCRIPTION	CO	PWR	LTG	BKR	POLE	AMP	NO
1	20	1		0.0	0.4	0.4	CO: JELLY FISH LIGHTS &...	0.7	0.4		CO: PAVILION QUAD	0.4	0.0	0.0		1	20	2
3	20	1		0.0	0.0	0.7	CO: PAVILION OUTLETS		0.7	0.4	CO: PAVILION QUAD	0.4	0.0	0.0		1	20	4
5	20	1		0.3	0.0	0.0	LTG: PAVILION			0.3	0.0	SPARE	--	--	--		1	20	6
7	20	1		0.4	0.0	0.0	LTG: PARKING LOTS	0.4	1.3			MTR: UH-1	0.0	2.6	0.0		2	20	8
9	20	2		0.0	2.6	0.0	MTR: UH-1			1.3	1.3	--	--	--	--		--	--	10
11	--	--		--	--	--	--				1.3	1.3	MTR: UH-1	0.0	2.6	0.0		2	20	12
13	20	2		0.0	2.6	0.0	MTR: UH-1	1.3	1.3			--	--	--	--		--	--	14
15	--	--		--	--	--	--			1.3	1.3	MTR: UH-1	0.0	2.6	0.0		2	20	16
17	20	2		0.0	2.6	0.0	MTR: UH-1				1.3	1.3	--	--	--	--		--	--	18
19	--	--		--	--	--	--	1.3	1.3			MTR: UH-1	0.0	2.6	0.0		2	20	20
21	20	2		0.0	2.6	0.0	MTR: UH-1			1.3	1.3	--	--	--	--		--	--	22
23	--	--		--	--	--	--				1.3	1.3	MTR: UH-1	0.0	2.6	0.0		2	20	24
25	20	2		0.0	2.6	0.0	MTR: UH-1	1.3	1.3			--	--	--	--		--	--	26
27	--	--		--	--	--	--			1.3	1.3	MTR: UH-1	0.0	2.6	0.0		2	20	28
29	20	2		0.0	2.6	0.0	MOTOR				1.3	1.3	--	--	--	--		--	--	30
31	--	--		--	--	--	--	1.3	0.0			SPARE	--	--	--		1	20	32
33	20	1		--	--	--	SPARE			0.0	0.0	SPARE	--	--	--		1	20	34
35	20	1		--	--	--	SPARE				0.0	0.0	SPARE	--	--	--		1	20	36
37	20	1		--	--	--	SPARE	0.0	0.0			SPARE	--	--	--		1	20	38
39	20	1		--	--	--	SPARE			0.0	0.0	SPARE	--	--	--		1	20	40
41	20	1		--	--	--	SPARE				0.0	0.0	SPARE	--	--	--		1	20	42
TOTALS:							CONNECTED kVA PER PHASE	**12**		**11**		**11**	CONNECTED TOTAL kVA =			**34**				
							CONNECTED AMPS PER PHASE	**100**		**97**		**89**	AVERAGE CONNECTED AMPS PER PHASE =			**95**				

NEC DIVERSIFIED LOAD CALCULATIONS

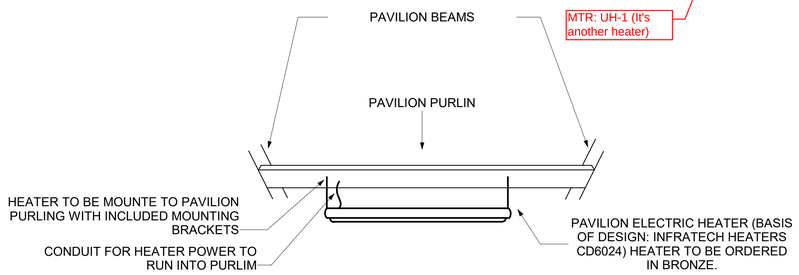
LIGHTING & CONTINUOUS LOADS:	**0.7 kVA @ 125% = 0.9 kVA**	- 100% CONNECTED LOAD PLUS 25%	DIVERSIFIED TOTAL kVA = **35**
RECEPTACLES:	**1.8 kVA @ 100% = 1.8 kVA**	- FIRST 10kVA @ 100%, REMAINDER @ 50%	AVERAGE AMPS PER PHASE = **97**
ALL OTHER LOADS @ 100% :	**32.2 kVA**	- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC	

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCAKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER, AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

MTR: UH-1 (It's another heater)

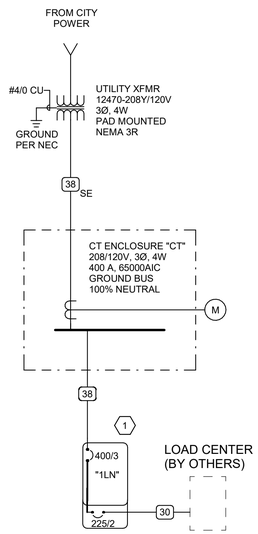
CO: Pavilion Outlets

CO: Pavilion Outlets



NOTE:
HEATER TO BE MOUNTED TO PAVILION PURLIM FACING PARALLEL TO THE GROUND BELOW. CONDUIT FOR HEATER TO RUN THROUGH PAVILION STRUCTURE.

2 PAVILION ELECTRICAL HEATER MOUNTING DETAIL
SCALE: NTS



1 ONE LINE DIAGRAM
SCALE: NTS

COPPER CONDUCTOR AND CONDUIT SCHEDULE

** SCHEDULE NUMBER
** SUBSCRIPT (NOTE 5) (E.G.) 5 IG

SYM	AMP	HH AMPS	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG/HH	SE	NOTES
1	20	-	.75	2	12	12	12	8	2
2	20	-	.75	3	12	12	12	8	2,3
3	20	24	.75	4	12	12	12	8	2,3
4	30	-	.75	2	10	10	10	8	2
5	30	-	.75	3	10	10	10	8	2
6	30	32	.75	4	10	10	10	8	2
7	40	-	1	2	8	10	8	6	2
8	40	-	1	3	8	10	8	6	2
9	40	44	1	4	8	10	8	6	2
10	55	-	1	2	6	10	8	4	2
11	55	-	1	3	6	10	8	4	2
12	55	60	1.25	4	6	10	8	4	2
13	70	-	1	2	4	8	4	2	2
14	70	-	1.25	3	4	8	4	2	2
15	70	76	1.25	4	4	8	4	2	2
16	85	-	1.25	2	3	8	3	2	2
17	85	-	1.25	3	3	8	3	2	2
18	85	92	1.25	4	3	8	3	2	2
19	95	-	1.25	3	2	8	2	2	2
20	95	104	1.50	4	2	8	2	2	2
21	130	-	1.50	3	1	6	2	2	2
22	130	116	1.50	4	1	6	2	2	2
23	150	-	2	3	1/0	6	2	1/0	2
24	150	136	2	4	1/0	6	2	1/0	2
25	175	-	2	3	2/0	6	2	2/0	2
26	175	156	2	4	2/0	6	2	2/0	2
27	200	-	2	3	3/0	6	2	2/0	2
28	200	180	2.50	4	3/0	6	2	2/0	2
29	230	-	2.50	3	4/0	4	2	2/0	2
30	230	208	2.50	4	4/0	4	2	2/0	2
31	255	-	2.50	3	250	4	1	2/0	2
32	255	232	2.50	4	250	4	1	2/0	2
33	310	-	3	3	350	3	1/0	3/0	2
34	310	280	3	4	350	3	1/0	3/0	2
35	380	-	3.50	3	500	3	3/0	3/0	2
36	380	344	4	4	500	3	3/0	3/0	2
37	400	-	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	360	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	-	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	464	2 EA 3	4	250	1	4/0	3/0	2
41	620	-	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	560	2 EA 3	4	350	1/0	4/0	3/0	2,4
43	760	-	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	760	688	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	-	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	768	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	-	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	912	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	-	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	1032	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	-	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	1120	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	1520	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	1824	6 EA 4	4	400	250	250	250	4
55	2660	2408	7 EA 4	4	500	350	350	350	4
56	3040	2752	8 EA 4	4	500	500	500	500	4
57	4180	3784	11 EA 4	4	500	500	500	500	4
58	-	-	5 EA 4	-	-	-	-	-	6
59	-	-	5	-	-	-	-	-	6
60	-	-	10 EA 4	-	-	-	-	-	6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:
   - "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.
   - "FG" FULL SIZE GROUND, SIZE EQUIPMENT GROUNDING CONDUCTOR TO BE SAME SIZE AS THE PHASE CONDUCTORS.
   - "HH": NEUTRAL CURRENTS EXIST DUE TO HIGH HARMONIC "NONLINEAR" LOADS. CURRENT CARRYING CONDUCTORS DERATED ACCORDINGLY. PROVIDE THE IG/HH SIZE FOR THE EQUIPMENT GROUNDING CONDUCTOR.
   - "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.
   - "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.
6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

GENERAL SHEET NOTES

1 CONTRACTOR IS RESPONSIBLE FOR ALL LINE VOLTAGE AS PART OF THIS PROJECT. PROVIDE LINE VOLTAGE REQUIRED TO ALL SYSTEMS PROVIDED AS PART OF THIS PROJECT. COORDINATE WITH ALL OTHER DISCIPLINES AND DRAWINGS.

2 CONTRACTOR IS RESPONSIBLE FOR ALL DEVICES, GEAR, CABLE, CONDUCTORS, TERMINATIONS, OVERCURRENT PROTECTION DEVICES, AND HEAD END EQUIPMENT AS PART OF THIS PROJECT.

3 PROVIDE ELECTRICAL CONNECTION TO MOTORIZED DOORS WITH ALL POWER AND CONTROL WIRING PER MANUFACTURES WRITTEN INSTRUCTIONS. COORDINATE OPERATION OF DOORS WITH SECURITY, FIRE, AND SMOKE CONTROL SEQUENCES OF OPERATION.

4 ELECTRICAL CONDUIT CONNECTIONS MADE TO EXPOSED JUNCTION BOXES ON UNITS SHOULD BE MADE ON THE BOTTOM OF THE BOX. INSTALLATION SHOULD COMPLY WITH LOCAL CODE REQUIREMENTS. THE INSTALLATION SHOULD BE MADE WATERTIGHT.

5 WHERE AN EXTERNAL ELECTRICAL JUNCTION BOX IS NOT USED, WATERTIGHT FITTINGS SHOULD BE USED AT THE PANEL JOINT. IF ELECTRICAL CONDUIT PASSES THROUGH A HOLE IN THE PANEL, THAT JOINT SHOULD BE MADE WATERTIGHT.

6 INSTALLATION SHALL BE IN ACCORDANCE WITH THE NEC "NATIONAL ELECTRICAL CODE."

7 PROVIDE GFCI, HEAVY-DUTY, WEATHER RESISTANT OUTLET WITHIN 25' OF ALL EQUIPMENT. FIELD VERIFY EXISTING CONDITIONS AND PROVIDE ADDITIONAL DEVICE(S) AND CIRCUITING AS REQUIRED.

8 ALL EXTERIOR OUTLETS SHALL BE CONTROLLED WITH RELAY TO TRUN POWER ON AND OFF FOR RESERVED FUNCTIONS.

SHEET KEYNOTES

1 PROVIDE 3" CONDUIT STUBBED UP FROM RESTROOM CHASE FOR FUTURE FLAG POLE EXTENSION. STUB UP AND CAP CONDUIT AND MARK LOCATION ACCORDINGLY. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

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REVISIONS

NO.	submittal	DESCRIPTION

Stamp
LICENSED PROFESSIONAL ENGINEER
No. 7258080
SPENCER C. LITTLE
05/02/2023
STATE OF UTAH

Designed By:	JJN
Drawn By:	JJN
Date:	04/28/2023
Checked By:	SCL
Project No:	230021

Drawing Title
ONE-LINE DIAGRAM & SCHEDULES

Drawing number
ES601

BID SET

EXTERIOR LIGHTING FIXTURE SCHEDULE

ABBREVIATIONS

LUMINAIRE

ARHR	-	AIR RETURN AND HEAT REJECTION
DL	-	DAMP LOCATION
EQC	-	EARTHQUAKE CLIPS
F	-	FUSING
HLD	-	HINGED AND LATCHED DOOR
HS	-	HOUSE SIDE SHIELD
PS	-	PHOTOCELL SWITCH
QRS	-	QUARTZ RESTRIKE
ST	-	STATIC
WG	-	WIRE GUARD
WL	-	WET LOCATION

EMERGENCY

NE	-	NORMAL AND EMERGENCY CONNECTIONS
EB	-	EMERGENCY BATTERY PACK
ET	-	EMERGENCY TRANSFER DEVICE

BALLAST

IS	-	INSTANT START
RS	-	RAPID START
PS	-	PROGRAM START, PARALLEL LAMP OPERATION
PSMH	-	PULSE START METAL HALLIDE (CWA OR ELECTRONIC)
PPLF	-	PROVIDE POWER LINE FILTER
LVTM	-	LOW VOLTAGE TRANSFORMER (MAGNETIC)
LVTE	-	LOW VOLTAGE TRANSFORMER (ELECTRONIC)

DIMMING BALLAST

02	-	2 WIRE DIMMER
D3	-	3 WIRE DIMMER
D4	-	4 WIRE DIMMER
DD	-	DIGITAL DIMMER
SDP	-	STEP DIMMER BALLAST

FINISH

MW	-	MATTE WHITE
BL	-	BLACK
SL	-	SILVER
GO(NIC)	-	GOLD
CL	-	CLEAR
PW	-	PAINTED WHITE
EA	-	EXTRUDED ALUMINUM
S	-	STEEL
GS	-	GALVANIZED STEEL
C	-	CAST
CBA	-	COLOR BY ARCHITECT
SCBA	-	STANDARD COLOR BY ARCHITECT
CCA	-	CUSTOM COLOR BY ARCHITECT
FS 209D	-	MEETS FEDERAL STANDARD 209D
TP	-	THERMALLY PROTECTED
FL	-	FLUSH
R	-	REGRESS
M	-	MITERED

LENS

#A	-	ACRYLIC #THICK
#OA	-	ACRYLIC #THICK (OPAL)
GC	-	GLASS (CLEAR)
GO	-	GLASS (OPAL)
GF	-	GLASS (FROSTED)
SGL	-	SOFT GLOW LENS
HPL	-	HIGH PERFORMANCE LENS
DO	-	DROP OPAL
CGL	-	CONVEX GLASS LENS
S	-	SATIN LENS

REFLECTOR AND DISTRIBUTION

I	-	TYPE I
II	-	TYPE II
III	-	TYPE III
IV	-	TYPE IV
V	-	TYPE V
VSQ	-	TYPE V SQUARE
SA	-	SPUN ALLUMINUM
SR	-	SEGMENTED REFLECTOR
BW#	-	NEMA BEAM WIDTH 1 THRU 7

CUTOFF CLASSIFICATION

FC	-	FULL CUTOFF
CO	-	CUTTOFF
SC	-	SEMI CUTOFF
NC	-	NONCUTOFF

MOUNTING

B	-	BASE
C	-	CEILING
F	-	FLANGE
G	-	GRID
P	-	PENDANT
PL		POLE
R	-	RECESSED
S	-	SURFACE
W	-	WALL

CONFIGURATION

BA	-	BANNER ARMS
BH	-	BULL HORN
DL	-	2 "L" SHAPE
DS	-	2 @ 180
PT	-	INLINE POST TOP
Q	-	QUAD
SH		SHEPHERDS HOOK
SL	-	SINGLE
T	-	3 "T" SHAPE

POLE

RS	-	ROUND STRAIGHT
RT	-	ROUND TAPERED
SS	-	SQUARE STRAIGHT
ST	-	SQUARE TAPERED

1. VERIFY THE PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS.
2. COMPLY WITH THE "EXTERIOR LIGHTING" SECTION OF THE SPECIFICATIONS.
3. REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS.
4. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED.

NOTES

1. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER.
2. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES.

			LUMINAIRE								LAMP			BALLAST		FINISH			DIFFUSER				REFLECTOR			MOUNTING							MANUFACTURER (CATALOG SERIES)			
			BUG RATING			SIZE (NOMINAL)																															
ID	IMAGE	TYPE	BACK	UP	GLARE	LENGTH	WIDTH	DEPTH	DIAMETER / APERTURE	OPTIONS	COLOR	TYPE	LUMENAIRE LUMENS	INPUT VOLTS	ANSI WATTS	HOUSING	TRIM	OTHER	TYPE	FINISH	CONFIGURATION	OPTIONS	DISTRIBUTION TYPE	FINISH	EFFICIENCY	TYPE	CONFIGURATION	POLE BASE HEIGHT	POLE HEIGHT	WIND RATING	OPTIONS	OPTION 1	OPTION_2	OPTION 3	ALLOWANCE
(V4)		STRIP LIGHT; LED				49.13"	9.26"	3.97"		-	4000K	LED	4800	0	45	SCBA	SCBA	SCBA															KENNAL (N548-P-1-45L50K-DCC-1-DV)	OR APPROVED EQUAL	OR APPROVED EQUAL	
(Z54)		MODERN STYLE, LED POLE LIGHT, REFER TO LAYTON CITY DETAIL SL-04 ON SHEET ES508						26"	14"		4000K	LED	12000		100	SCBA	SCBA	SCBA					V		0			3' - 0"	17' - 0"			KING (K424R)	OR APPROVED EQUAL	OR APPROVED EQUAL	

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REVISIONS

NO.	APPROVAL	DESCRIPTION

Stamp

LICENSED PROFESSIONAL ENGINEER
No. 7258080
SPENCER C. LITTLE
05/02/2023
STATE OF UTAH

Designed By:	JJN
Drawn By:	JJN
Date:	04/28/2023
Checked By:	SCL
Project No:	230021

Drawing Title
EXTERIOR LIGHTING FIXTURE SCHEDULE

Drawing number
ES602

BID SET

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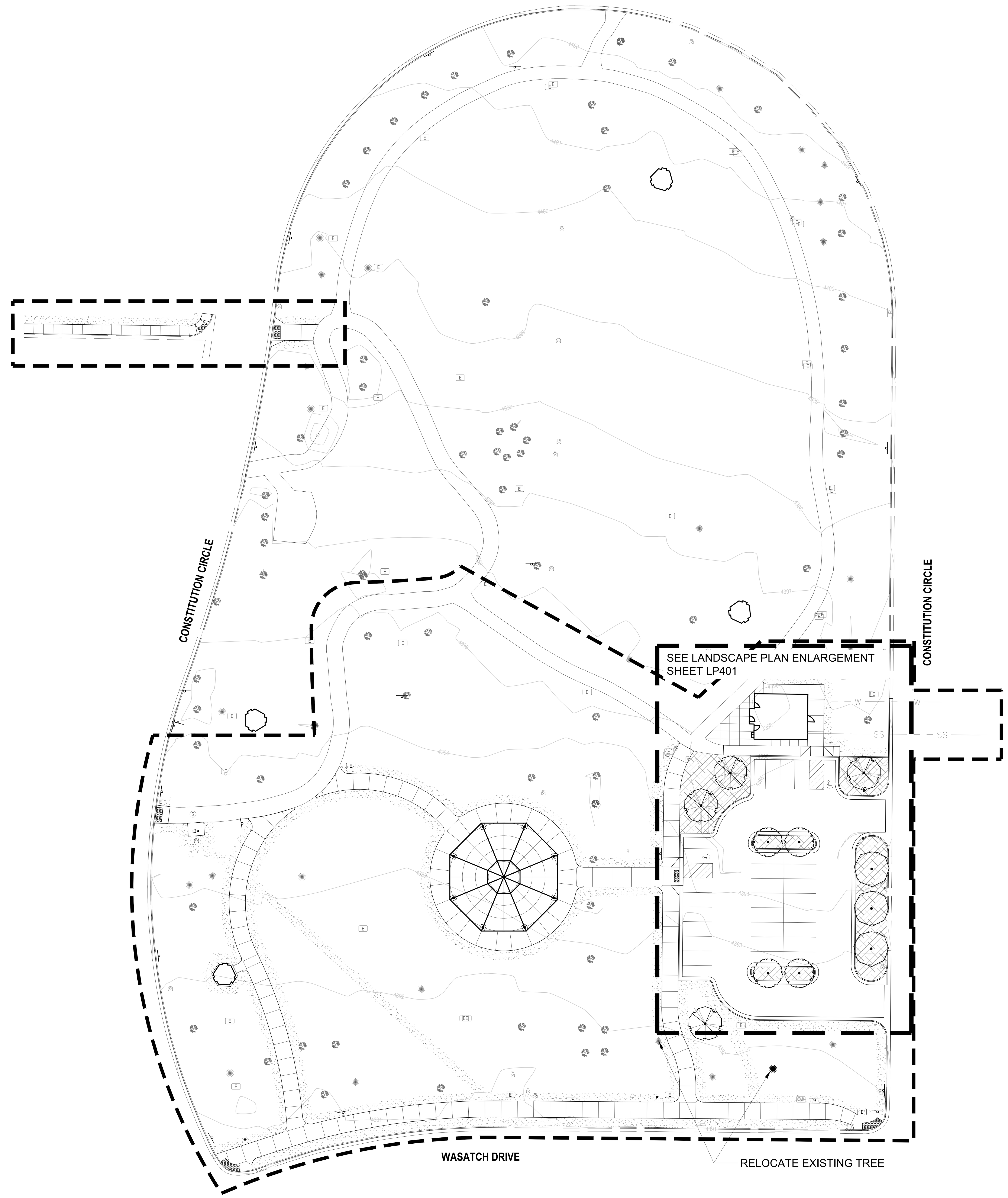
LAYTON COMMONS PARK IMPROVEMENTS
437 N WASATCH DR, LAYTON, UT 84041

PLANT SCHEDULE

DECIDUOUS TREES	BOTANICAL / COMMON NAME
	ULMUS X `FRONTIER` / AMERICAN ELM
	ZELKOVA SERRATA 'CITY SPRITE' / JAPANESE ZELKOVA
ORNAMENTAL TREES	**BOTANICAL / COMMON NAME**
	MALUS X `SPRING SNOW` / SPRING SNOW CRAB APPLE
GROUND COVERS	**BOTANICAL / COMMON NAME**
	PLANTING BED / CRUSHED ANGULAR ROCK 4"-6". OWNER TO SELECT COLOR.
	POA PRATENSIS / KENTUCKY BLUEGRASS REPAIR EXISTING TURF AS NEEDED.
	CONSTRUCTION LIMIT LINE

NOTE:
WHERE TREES ARE REMOVED THE CONTRACTOR SHALL STUMP GRIND THE REMAINING STUMP BELOW GRADE AND INSTALL NEW SOD IN DISTURBED AREA.



Scale: 1" = 40'-0"
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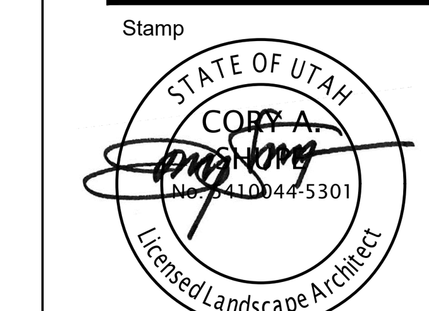
BID SET

REVISIONS

NO.	DATE	DESCRIPTION

Stamp



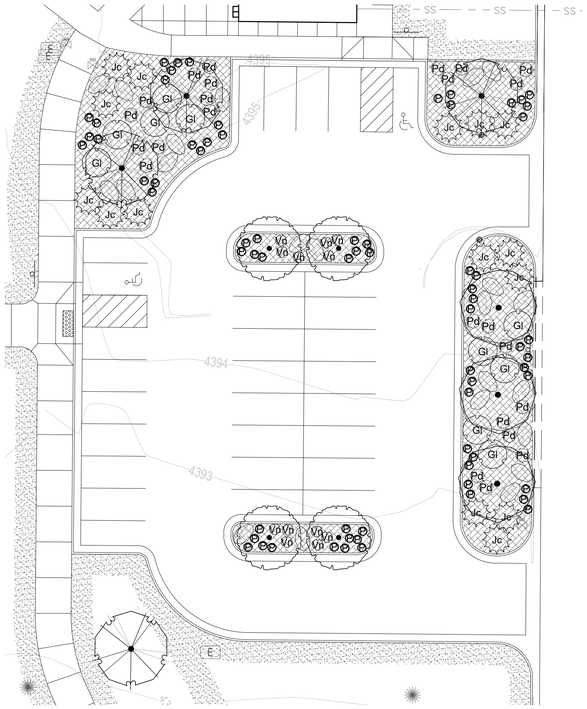
Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title

OVERALL LANDSCAPE PLAN

Drawing number

LP101



PLANT SCHEDULE

DECIDUOUS TREES	BOTANICAL / COMMON NAME
	ULMUS X `FRONTIER` / AMERICAN ELM
	ZELKOVA SERRATA 'CITY SPRITE' / JAPANESE ZELKOVA

ORNAMENTAL TREES	BOTANICAL / COMMON NAME
	MALUS X `SPRING SNOW` / SPRING SNOW CRAB APPLE

SHRUBS	BOTANICAL / COMMON NAME
Jc	JUNIPERUS HORIZONTALIS `BLUE CHIP` / BLUE CHIP JUNIPER
Pd	PHYSOCARPUS OPULIFOLIUS 'DONNA MAY' / LITTLE DEVIL™ DWARF NINEBARK
Gl	RHUS AROMATICA `GRO-LOW` / GRO-LOW FRAGRANT SUMAC
Vo	VIBURNUM OPULUS 'NANUM' / DWARF EUROPEAN CRANBERRYBUSH

ORNAMENTAL GRASSES	BOTANICAL / COMMON NAME
	PENNISETUM ALOPECUROIDES `HAMELN` / HAMELN DWARF FOUNTAIN GRASS

GROUND COVERS	BOTANICAL / COMMON NAME
	PLANTING BED / CRUSHED ANGULAR ROCK 4"-6". OWNER TO SELECT COLOR.
	POA PRATENSIS / KENTUCKY BLUEGRASS REPAIR EXISTING TURF AS NEEDED.

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	QTY
	CONSTRUCTION LIMIT LINE	

BID SET

Scale: 1" = 20'-0"

0 10 20 40 60

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REVISIONS

NO.	yy/mm/dd	DESCRIPTION

Stamp

STATE OF UTAH
CORT A. [illegible]
[illegible]-5301
Licensed Landscape Architect
04/28/2023

Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title

LANDSCAPE PLAN ENLARGEMENT

Drawing number

LP401

LANDSCAPE NOTES:

1. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST AMERICAN PUBLIC WORKS ASSOCIATION (APWA) AND LAYTON CITY STANDARDS, SPECIFICATIONS, AND DETAILS.

2. ALL PLANT MATERIAL SHALL BE GROWN IN CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THIS WORK AND SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1 UNLESS OTHERWISE NOTED. PROVIDE TREES OF NORMAL GROWTH AND UNIFORM HEIGHTS, ACCORDING TO SPECIES, WITH STRAIGHT TRUNKS AND WELL DEVELOPED LEADERS, LATERALS, AND ROOTS.

3. THE CONTRACTOR SHALL CALL BLUE STAKES AT 1-800-662-4111 FOR UNDERGROUND UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION.

4. EXISTING UTILITIES, EASEMENTS, AND STRUCTURES SHOWN ON THE DRAWINGS ARE IN ACCORDANCE WITH AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, SIZE, TYPE, AND STRUCTURES TO BE ENCOUNTERED ON THE PROJECT PRIOR TO ANY EXCAVATION AND CONSTRUCTION IN THE VICINITY OF THE EXISTING UTILITIES AND STRUCTURES.

5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL REQUIRED PERMITS, LICENSES, AND APPROVALS REQUIRED TO LEGALLY AND RESPONSIBLY COMPLETE THE WORK.

6. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL, DISPOSAL, OR RELOCATION OF ALL OBSTRUCTIONS AND DEBRIS WITHIN THE DELINEATED CONSTRUCTION AREA PRIOR TO STARTING NEW CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ANY DEBRIS RESULTING FROM NEW CONSTRUCTION.

7 CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID DAMAGE TO EXISTING FEATURES AND FACILITIES SCHEDULED TO REMAIN AS PART OF THE FINISHED CONSTRUCTION. REPAIR, REPLACEMENT, AND/OR REMOVAL AS DETERMINED BY OWNER SHALL BE AT THE CONTRACTOR'S EXPENSE.

8. CONTRACTOR SHALL ROUGH GRADE TO WITHIN +/- A TENTH OF A FOOT FROM FINISH GRADE. ALL TURF GRASS AREAS SHALL BE GRADED 6" BELOW PROPOSED FINISH GRADE. SHRUB BEDS SHALL BE GRADED 16" BELOW PROPOSED FINISH GRADE.

9. ALL COMPACTED AREAS DEVELOPED THROUGH CONSTRUCTION WITHIN PROPOSED LANDSCAPE AREAS SHALL BE SCARIFIED AND LOOSENED TO A DEPTH OF 12" PRIOR TO LANDSCAPE AND IRRIGATION WORK BEGINNING.

10. CONTRACTOR SHALL INSTALL A MIN. OF 4 INCHES OF PREMIUM OR AMENDED TOPSOIL FOR ALL TURF GRASS AREAS. INSTALL 12 INCHES OF PREMIUM OR AMENDED TOPSOIL IN ALL MANICURED SHRUB BEDS. CONTRACTOR SHALL TEST, AMEND, AND USE EXISTING STOCKPILE OF TOPSOIL ON SITE TO MEET SPECIFICATIONS. ALL PLANTING PITS SHALL RECEIVE PLANTING BACKFILL MIX PER SPECIFICATIONS.

11. CONTRACTOR SHALL INSTALL A MIN. OF 3 INCHES OF ROCK MULCH ON DEWITT PRO WEED BARRIER FABRIC IN ALL SHRUB BEDS. APPLY PRE-EMERGENT TO ALL PLANTING BEDS BEFORE INSTALLING MULCH.

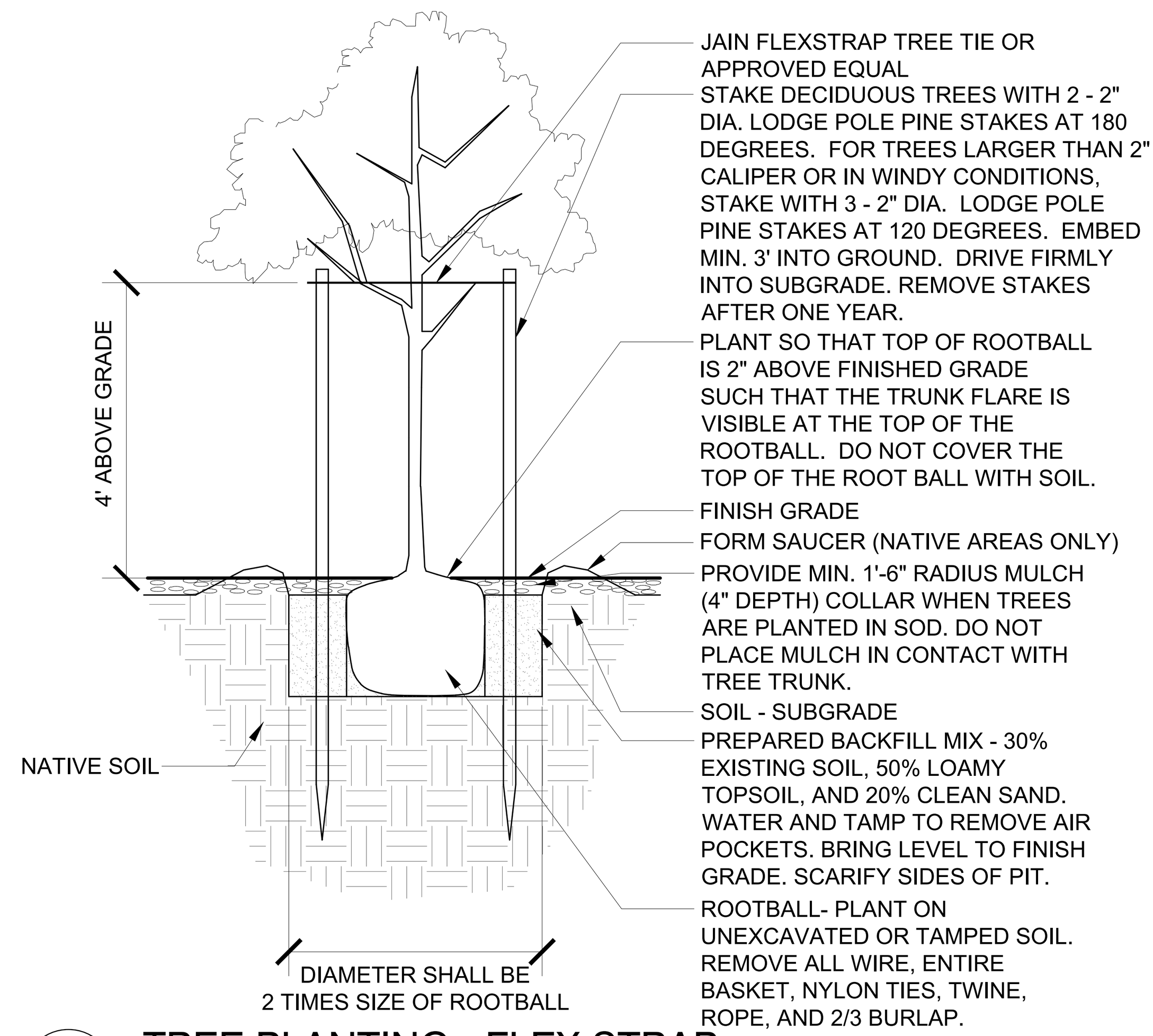
12. NO PLANT SPECIES SUBSTITUTIONS WILL BE MADE WITHOUT APPROVAL OF OWNER.

13. ALL PLANT LAYOUT SHALL BE VERIFIED AND APPROVED IN FIELD BY OWNER PRIOR TO PLANTING. FAILURE TO RECEIVE APPROVAL MAY RESULT IN RE-WORK BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

14. ALL AREAS WITHIN AND AFFECTED BY THIS PROJECT SHALL HAVE POSITIVE DRAINAGE. POSITIVE DRAINAGE SHALL BE PROVIDED TO DIRECT STORMWATER AWAY FROM ALL STRUCTURES.

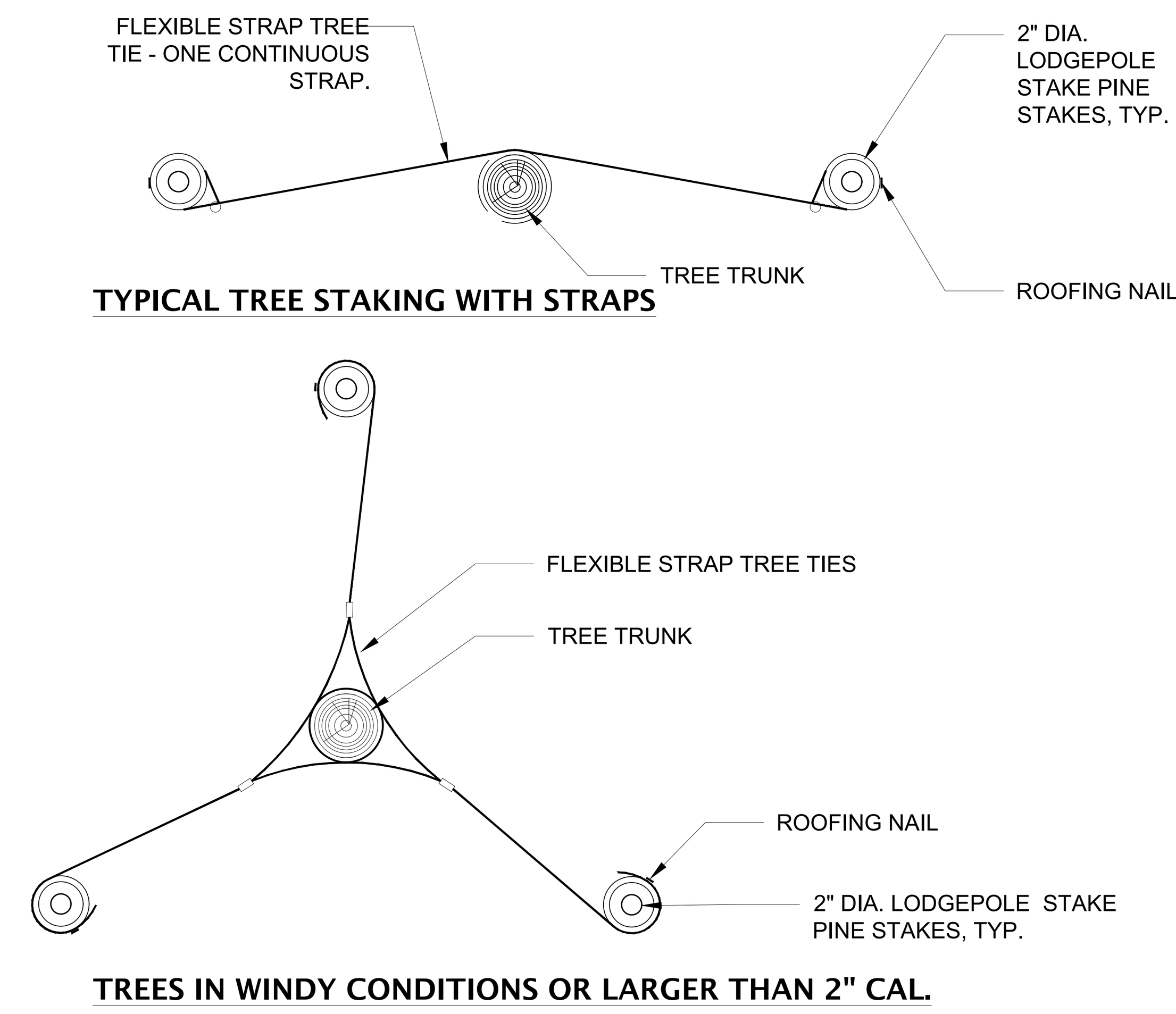
15. ALL CLARIFICATIONS OF DISCREPANCIES BETWEEN THE DRAWINGS AND THE SITE SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER PRIOR TO BEGINNING OF WORK.

16. CONTRACTOR SHALL PROVIDE A ONE YEAR WARRANTY ON ALL PLANT MATERIAL FROM THE DATE OF FINAL ACCEPTANCE.



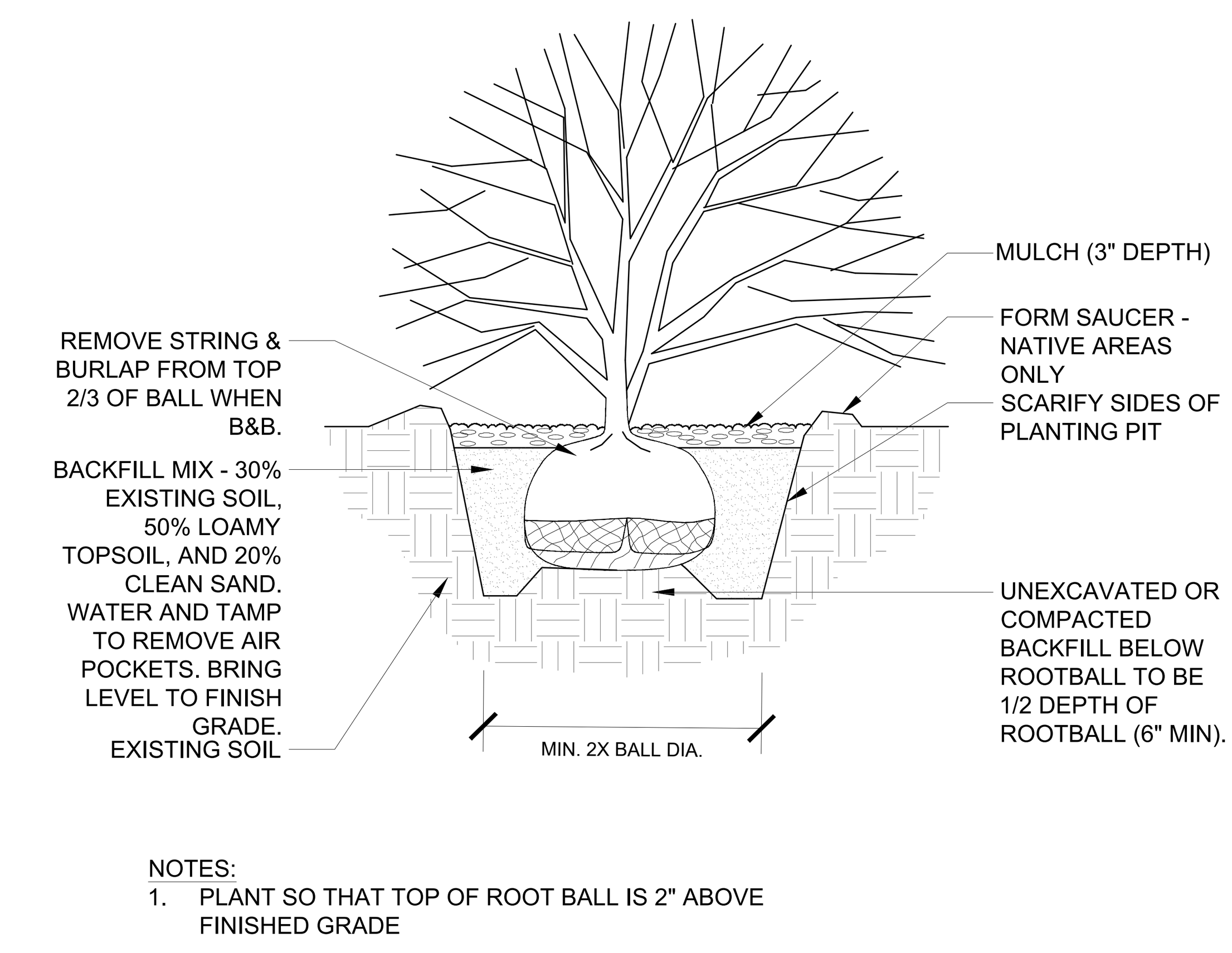
1 TREE PLANTING - FLEX STRAP

NOT TO SCALE



2 TREE STAKING - FLEX STRAPS

NOT TO SCALE



NOTES:
1. PLANT SO THAT TOP OF ROOT BALL IS 2" ABOVE FINISHED GRADE

3 SHRUB DETAIL

NOT TO SCALE

PLANT SCHEDULE

DECIDUOUS TREES	BOTANICAL / COMMON NAME	CONT	CAL	QTY
	ULMUS X `FRONTIER` / AMERICAN ELM	B&B	2" CAL	4
	ZELKOVA SERRATA 'CITY SPRITE' / JAPANESE ZELKOVA	B&B	2" CAL	4
ORNAMENTAL TREES	**BOTANICAL / COMMON NAME**	**CONT**	**CAL**	**QTY**
	MALUS X `SPRING SNOW` / SPRING SNOW CRAB APPLE	B&B	2" CAL	3
SHRUBS	**BOTANICAL / COMMON NAME**	**CONT**	**HYDROZONE**	**QTY**
Jc	JUNIPERUS HORIZONTALIS `BLUE CHIP` / BLUE CHIP JUNIPER	5 GAL		15
Pd	PHYSOCARPUS OPULIFOLIUS 'DONNA MAY' / LITTLE DEVIL™ DWARF NINEBARK	5 GAL		24
Gl	RHUS AROMATICA `GRO-LOW` / GRO-LOW FRAGRANT SUMAC	5 GAL		10
Vo	VIBURNUM OPULUS 'NANUM' / DWARF EUROPEAN CRANBERRYBUSH	5 GAL		12
ORNAMENTAL GRASSES	**BOTANICAL / COMMON NAME**	**CONT**	**HYDROZONE**	**QTY**
	PENNISETUM ALOPECUROIDES `HAMELN` / HAMELN DWARF FOUNTAIN GRASS	1 GAL		69
GROUND COVERS	**BOTANICAL / COMMON NAME**	**CONT**	**SPACING**	
	PLANTING BED / CRUSHED ANGULAR ROCK 4"-6". OWNER TO SELECT COLOR.	BED		4,625 SF
	POA PRATENSIS / KENTUCKY BLUEGRASS REPAIR EXISTING TURF AS NEEDED.	SOD		16,285 SF

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	QTY
	BLONDE "BROWNS CANYON" BOULDERS 3` - 5` DIAMETER; 1/3 @ 3` DIAMETER, 1/3 @ 4` DIAMETER AND 1/3 @ 5` DIAMETER	22

* ALL SHOWN QUANTITIES ARE PROVIDED FOR CONVENIENCE ONLY. CONTRACTOR IS RESPONSIBLE TO CONDUCT INDEPENDENT TAKEOFFS TO ESTABLISH QUANTITIES. PLAN SYMBOL QUANTITIES OVERRIDE QUANTITIES SHOWN IN SCHEDULE.

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JOELLEN GRANDY
801-336-3926

LAYTON COMMONS PARK IMPROVEMENTS
437 N WASATCH DR, LAYTON, UT 84041

REVISIONS

NO.	DATE	DESCRIPTION

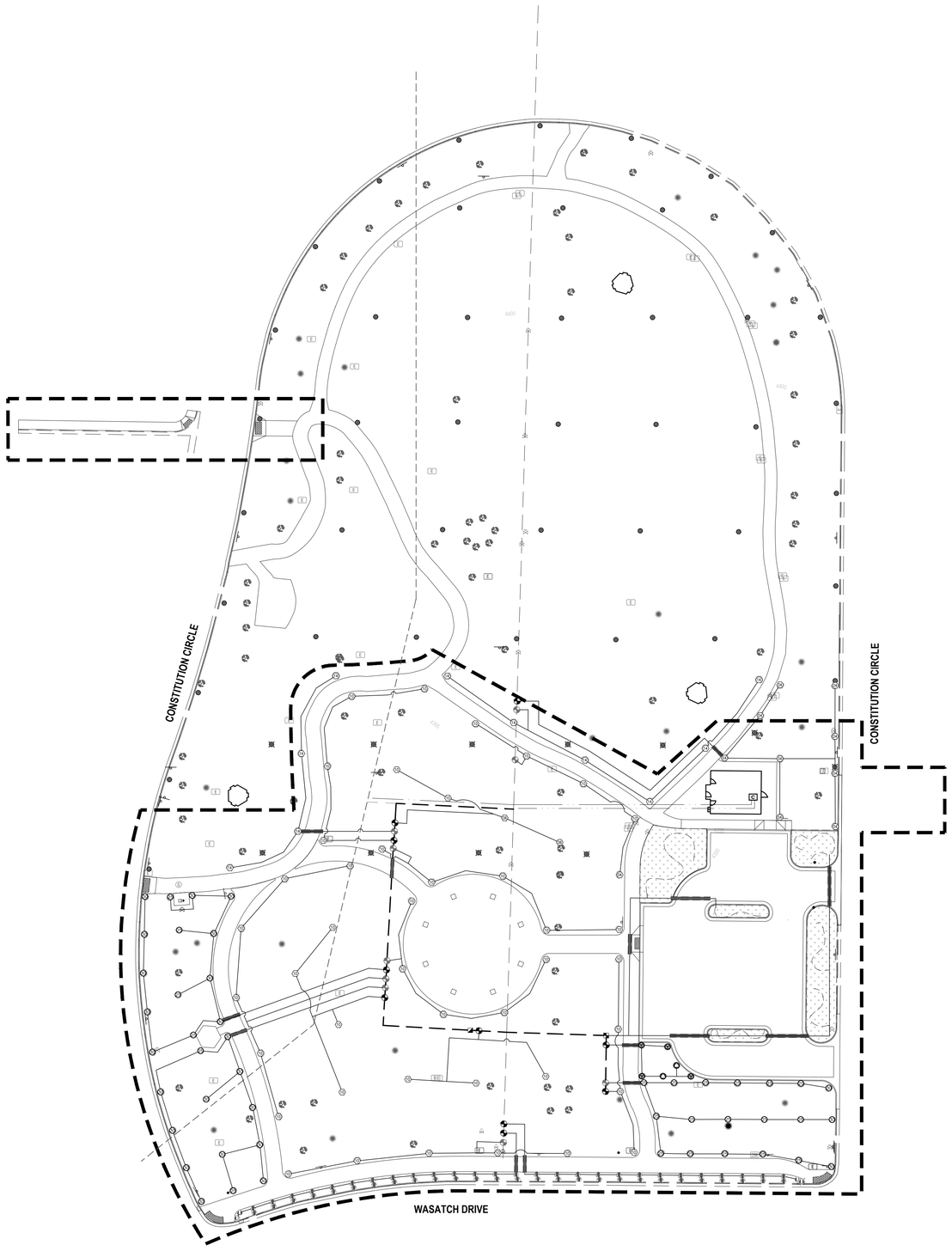
Stamp
STATE OF UTAH
CORY A.
Licensed Landscape Architect
04/28/2023

Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

BID SET

Drawing Title
LANDSCAPE PLAN NOTES & DETAILS

Drawing number
LP501



Scale: 1" = 40'-0"

0 20 40 80 120

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REVISIONS

NO.	yy/mm/dd	DESCRIPTION

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STATE OF UTAH
CORY A. [illegible]
[illegible]-5301
Licensed Landscape Architect

04/28/2023

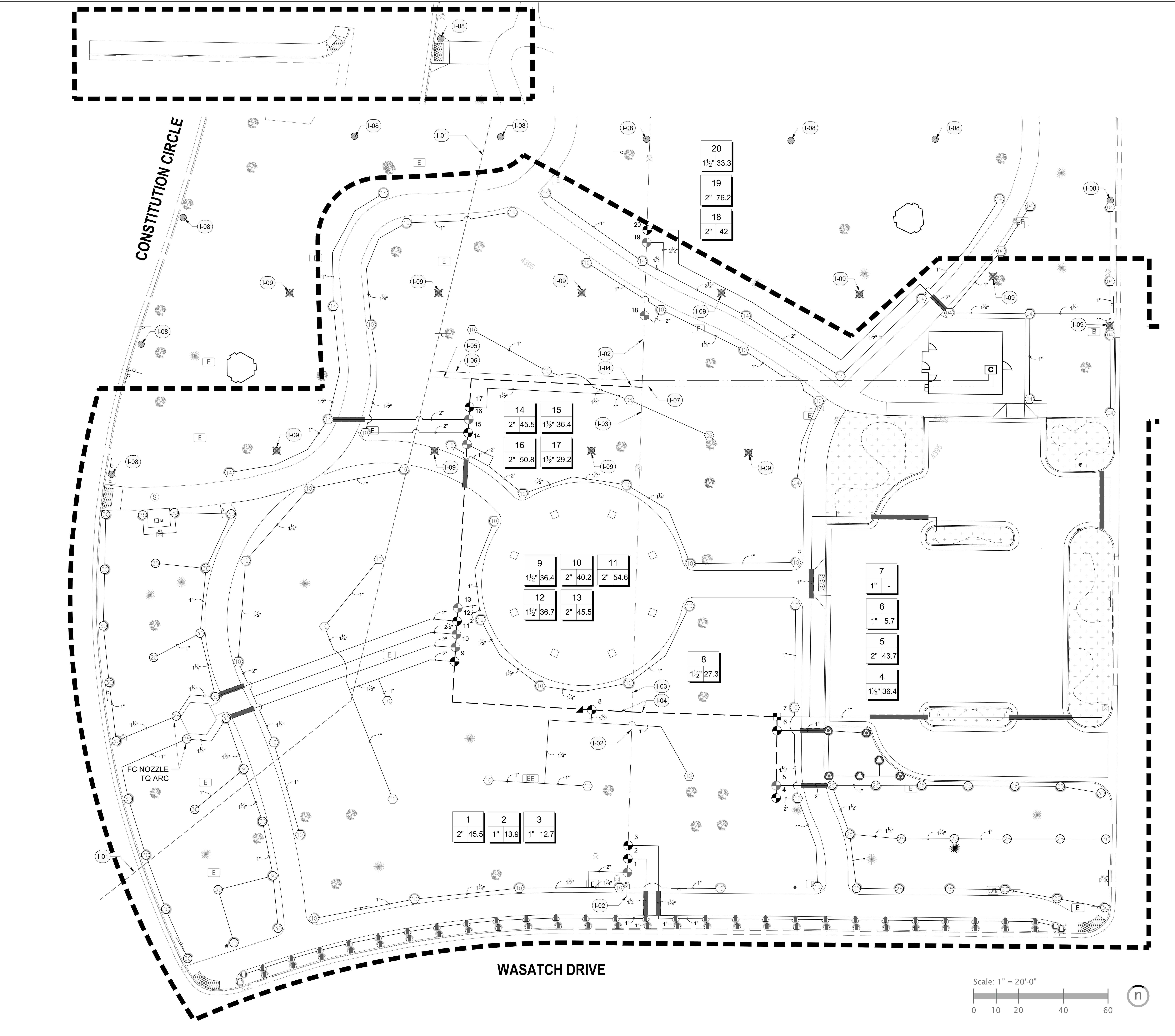
Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title

OVERALL IRRIGATION PLAN

Drawing number

LI101



REFERENCE NOTES SCHEDULE

SYMBOL	IRRIGATION DESCRIPTION
I-01	APPROXIMATE LOCATION OF 18" HDPE SECONDARY WATER MAIN. WATER MAIN TO BE PRESERVED AND PROTECTED. DO NOT DRIVE OVER THE TOP WITH HEAVY EQUIPMENT.
I-02	APPROXIMATE LOCATION OF EXISTING 6" MAINLINE. MAINLINE TO BE PRESERVED AND PROTECTED OUTSIDE OF IMPROVEMENT AREAS. MAINLINE TO BE REROUTED AS NEEDED AROUND PROPOSED IMPROVEMENTS. INSTALL TEMPORARY IRRIGATION AS NEEDED.
I-03	REMOVE EXISTING MAINLINE.
I-04	PROPOSED REROUTING OF MAINLINE.
I-05	FUTURE CONNECTION TO SECONDARY WATER MAIN AS PART OF CULINARY TO SECONDARY CONVERSION.
I-06	INSTALL 1" CONDUIT FROM NEW CONTROLLER LOCATION TO FUTURE SECONDARY CONNECTION TO FACILITATE INSTALLATION OF MASTER VALVE AND FLOW SENSOR.
I-07	INTERCEPT EXISTING WIRE PATH THAT PARALLELS MAINLINE. RUN REW 14 AWG WIRE FROM NEW CONTROLLER LOCATION AND CONNECT TO EACH OF THE WIRES IN THE WIRE PATH (+/- 8 WIRES) THAT SERVE REMAINING ZONES ON NORTH END OF SITE.
I-08	APPROXIMATE LOCATION OF EXISTIG HEAD TO REMAIN. ADJUST LOCATION AND TRAJECTORY AS NEEDED TO MAXIMIZE DISTRIBUTION UNIFORMITY AND MAINTAIN HEAD-TO-HEAD COVERAGE.
I-09	APPROXIMATE LOCATION OF EXISTING HEAD TO BE REMOVED. FOR SINGLE HEAD WITH ADDITIONAL DOWNSTREAM HEADS: REMOVE HEAD AND SWING ASSEMBLY, CAP SPRINKLER CONNECTION AT LATERAL LINE. FOR MULTIPLE HEADS: CUT AND CAP LATERAL LINE IMMEDIATELY AFTER LAST HEAD. FOR COMPLETE ZONE: REMOVE VALVE, VALVE BOX, HEADS, AND PIPES EXPOSED DURING THE COURSE OF CONSTRUCTION.

IRRIGATION_SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
LST SST RST	RAIN BIRD R-VAN-STRIP 1806-SAM-P45 SHRUB ROTARY, 5FT.X15FT. (LCS AND RCS), 5FT.X30FT. (SST) HAND ADJUSTABLE MULTI-STREAM ROTARY W/ 1800 TURF SPRAY BODY ON 6IN. POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2IN. NPT FEMALE THREADED INLET.
18 ADJ 18 F	RAIN BIRD R-VAN18 1806-SAM-P45 TURF ROTARY, 13FT.-18FT. 45-270 DEGREES AND 360 DEGREES. HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6IN. POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2IN. NPT FEMALE THREADED INLET.
24 ADJ 24 F	RAIN BIRD R-VAN24 1806-SAM-P45 TURF ROTARY, 17FT.-24FT. 45-270 DEGREES AND 360 DEGREES. HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6IN. POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2IN. NPT FEMALE THREADED INLET.

SYMBOL	MANUFACTURER/MODEL
04	RAIN BIRD 6504-PC, FC-SS 04
06	RAIN BIRD 6504-PC, FC-SS 06
10	RAIN BIRD 6504-PC, FC-SS 10
14	RAIN BIRD 6504-PC, FC-SS 14

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	RAIN BIRD XCZ-100-PRB-COM WIDE FLOW DRIP CONTROL KIT FOR COMMERCIAL APPLICATIONS. 1IN. BALL VALVE WITH 1IN. PESB VALVE AND 1IN. PRESSURE REGULATING 40PSI QUICK-CHECK BASKET FILTER. 0.3 GPM-20 GPM
	AREA TO RECEIVE DRIP EMITTERS RAIN BIRD XBCV-PC SINGLE OUTLET, PRESSURE COMPENSATING DRIP EMITTERS. FLOW RATES OF 0.5 GPH=BLUE, 1.0 GPH=BLACK, AND 2.0 GPH=RED. COMES WITH A SELF-PIERCING BARB INLET X BARB OUTLET. WITH CHECK VALVE. Emitter Notes: 20PC emitters (6 assigned to each B & B, 2"Cal plant) 20PC emitters (6 assigned to each B&B, 2" Cal plant) 20PC emitters (1 assigned to each 1 Gal plant) 20PC emitters (2 assigned to each 5 Gal plant)

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	RAIN BIRD PESB 1IN., 1-1/2IN., 2IN. PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION. WITH SCRUBBER TECHNOLOGY FOR RELIABLE PERFORMANCE IN DIRTY WATER IRRIGATION APPLICATIONS.
	RAIN BIRD 44-LRC 1IN. BRASS QUICK-COUPLING VALVE, WITH CORROSION-RESISTANT STAINLESS STEEL SPRING, LOCKING THERMOPLASTIC RUBBER COVER, AND 2-PIECE BODY.
C	EXISTING WEATHERTRAK ETPRO3 W/NEW EXPANSION RELOCATE FROM EXISTING LOCATION JUST EAST OF THE DAVIS ARTS COUNCIL BUILDING. EXPAND 18 STATION TO 30 STATION CONTROLLER BY PROVIDING ADDITIONAL 24 STATION OUTPUT BOARD AND SUPPLEMENTAL 6-STATION KEY. WIRE TO ALL NEW AND EXISTING ZONES TO REMAIN.
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40
	IRRIGATION MAINLINE: CLASS 200 PVC
	PIPE SLEEVE: PVC SCHEDULE 40
	DRIP DISTRIBUTION TUBING - RAIN BIRD XT-700 (MAXIMUM FLOW 4 GPM (240 GPH), MAXIMUM LENGTH 100')

Valve Callout
Valve Number
Valve Flow
Valve Size

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REVISIONS

N0.	yy/mm/day	DESCRIPTION

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04/28/2023

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Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title

IRRIGATION PLAN ENLARGEMENT

Drawing number

LI401

IRRIGATION NOTES

1. THIS DRAWING IS DIAGRAMMATIC AND IS INTENDED TO CONVEY THE GENERAL LAYOUT OF IRRIGATION SYSTEM COMPONENTS. ALL IRRIGATION EQUIPMENT SHALL BE INSTALLED IN PLANTING AREAS WHEREVER POSSIBLE. LOCATE MAINLINE AND VALVES NEAR WALKS WHERE FEASIBLE.

2. THE CONTRACTOR SHALL VERIFY THE AVAILABLE WATER PRESSURE AT THE SITE PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES BETWEEN THE WATER PRESSURE SHOWN ON THE DRAWINGS AND ACTUAL PRESSURE READINGS AT THE POINT OF CONNECTION TO THE LANDSCAPE ARCHITECT. WATER PRESSURE AT THE POINT OF CONNECTION IS EXPECTED TO BE A MINIMUM OF **75** PSI. IN THE EVENT THAT PRESSURE DIFFERENCES ARE NOT REPORTED PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.

3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL STRUCTURES, SITE IMPROVEMENTS, WALKS, UTILITIES, AND GRADE CHANGES. COORDINATE LAYOUT OF THE IRRIGATION SYSTEM WITH OTHER TRADES SO THAT CONSTRUCTION CAN CONTINUE IN A NORMAL SEQUENCE OF EVENTS. ADJUSTMENTS MAY BE NECESSARY TO MAINTAIN FULL COVERAGE DEPENDING ON ACTUAL SITE CONDITIONS. ANY SIGNIFICANT CHANGES WILL REQUIRE WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO PLACEMENT. ALL MODIFICATIONS SHALL BE RECORDED ON 'AS-BUILT' DRAWINGS.

4. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM WHEN IT IS APPARENT IN THE FIELD THAT UNKNOWN OBSTRUCTIONS OR GRADING DIFFERENCES MAY NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. IN THE EVENT THAT THIS NOTIFICATION IS NOT PERFORMED, CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.

5. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT SITE CONDITIONS AND EXISTING IRRIGATION SYSTEM (IF ANY). IN THE EVENT THAT THE CONTRACTOR DAMAGES, DISPLACES OR OTHERWISE CAUSES OTHER TRADES WORK TO BE REINSTALLED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL CONDITION AT HIS OWN EXPENSE.

6. THE CONTRACTOR SHALL FLUSH AND ADJUST ALL SPRINKLER HEADS AND VALVES FOR OPTIMUM PERFORMANCE. INSTALL HEADS WITH THE APPROPRIATE ARC AND RADIUS FOR THE AREA TO BE COVERED. ADJUST NOZZLES TO ELIMINATE OVERSPRAY ONTO WALKS, BUILDINGS, ETC.

7. IRRIGATION CONTROLLER(S) SHALL BE GROUNDED PER ESTABLISHED ASIC GUIDELINES.

8. IRRIGATION CONTROL WIRES SHALL BE COLOR CODED WIRE FOR DIRECT BURIAL. COMMON, HOT, & SPARE WIRES SHALL BE 14 AWG (WHITE, RED & YELLOW RESPECTIVELY). FOR CONTROL WIRE RUNS EXCEEDING 3000 FEET OR COMMON WIRE RUNS EXCEEDING 1500 FEET, USE 12 AWG WIRE. CONTRACTOR SHALL RUN 1 DEDICATED SPARE WIRE 'HOMERUN' FROM CONTROLLER TO TERMINUS OF EACH WIRE LEG. WHERE REQUIRED, COMMUNICATION WIRE TO FLOW SENSOR SHALL BE PAIGE ELECTRIC PE-39-3 CABLE. ALL WIRE SPLICES TO BE LOCATED IN VALVE BOX. ALL WIRE CONNECTIONS SHALL BE 3M DBRY.

9. ALL MAINLINES, LATERAL LINES, AND CONTROL WIRES UNDER PAVING SHALL BE INSTALLED IN SEPARATE SLEEVES.

10. ALL MAINLINE AND LATERAL LINE PIPE SHALL BE SCHEDULE 40 PVC THROUGH 3" PIPE. 4" TO 6" PIPE SHALL BE CLASS 200 PVC. ALL LATERAL LINE FITTINGS SHALL BE SCHEDULE 40 PVC UNLESS OTHERWISE NOTED. ALL MAINLINE FITTINGS UNDER 3" SHALL BE SCHEDULE 80 PVC. MAINLINE FITTINGS 3" AND LARGER SHALL BE HARCO DUCTILE IRON, RESTRAIN PER MANUFACTURER'S RECOMMENDATIONS.

11. CONTRACTOR SHALL USE WELD-ON P-70 PRIMER AND 711 LOW VOC CEMENT FOR ALL SOLVENT WELDED JOINTS.

12. ALL LINES SHALL SLOPE TO DRAIN. ADD MANUAL DRAINS AT ALL MAINLINE LOW POINTS AS NECESSARY FOR COMPLETE DRAINAGE OF THE ENTIRE SYSTEM. INDICATE ALL DRAIN LOCATIONS ON 'AS-BUILT' DRAWINGS.

13. ALL VALVE BOXES AND LIDS IN ROCK MULCH AREAS ARE TO BE TAN IN COLOR. VALVE BOXES AND LIDS IN BARK MULCH AND LAWN AREAS ARE TO BE STANDARD GREEN. ALIGN VALVE BOXES PARALLEL WITH EDGE OF PAVEMENT/PLANTING BEDS. WHERE FEASIBLE, LOCATE THE EDGE OF VALVE BOX 12"-18" FROM EDGE OF PAVEMENT.

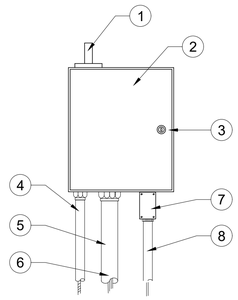
14. ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE. HEADS SHALL BE LOCATED 1" AWAY FROM AND 1/4" BELOW ADJACENT CURBS, WALLS, WALKS, AND MOWSTRIPS.

15. DRIP DISTRIBUTION TUBING TO BE BURIED BELOW MULCH AND STAKED AT MIN. 6' O.C. DRIP FITTINGS SHALL BE BARBED INSERT TYPE FITTINGS, COMPRESSION TYPE FITTINGS WILL NOT BE ACCEPTED. EMITTERS SHALL BE LOCATED ON UPHILL SIDE OF PLANTS. INSTALL DRIP FLUSH VALVE AT LOW POINT OF EACH DRIP ZONE AND AT THE END DRIP LINES.

16. GUARANTEE: ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF ACCEPTANCE AGAINST ALL DEFECTS IN MATERIAL, EQUIPMENT, AND WORKMANSHIP. GUARANTEE SHALL COVER REPAIR OF DAMAGE TO ANY PART OF THE PREMISES RESULTING FROM LEAKS OR OTHER DEFECTS IN MATERIAL, EQUIPMENT, OR WORKMANSHIP TO THE SATISFACTION OF THE OWNER. REPAIRS, IF REQUIRED, SHALL BE DONE PROMPTLY AND AT NO ADDITIONAL COST TO THE OWNER.

17. SEE DETAILS FOR ADDITIONAL INFORMATION. ALL IRRIGATION EQUIPMENT NOT OTHERWISE DETAILED SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.

18. CONTRACTOR SHALL VERIFY AND COORDINATE ALL PROPOSED IRRIGATION TRENCHING IN FIELD WITH OWNER PRIOR TO PERFORMING WORK TO MINIMIZE DISTURBANCE AND DAMAGE TO EXISTING TREE ROOTS.

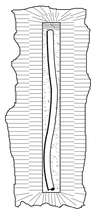


1. ANTENNA
2. IRRIGATION CONTROLLER
3. CENTER OF CONTROLLER TO BE +/- 5'-3" FROM FINISH GRADE
4. #6 COPPER GROUND WIRE IN GALVANIZED IMC CONDUIT. CONNECT TO EXTERIOR MOUNTED EARTH GROUND OR BUILDING GROUND.
5. 2 1/2" GALVANIZED IMC CONDUIT AND FITTINGS
6. LOW VOLTAGE CONTROL WIRING FROM AUTOMATIC CONTROLLER TO ELECTRIC CONTROL VALVES.
7. POWER JUNCTION BOX
8. 1/2" GALVANIZED IMC ELECTRICAL CONDUIT AND FITTING TO POWER SUPPLY

1 CONTROLLER WITH WALL MOUNT

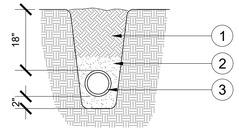
NOT TO SCALE

PLAN VIEW

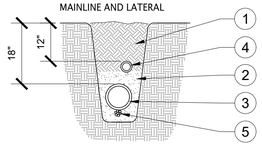


SECTIONS

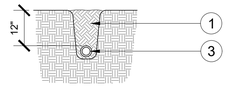
MAIN SUPPLY LINE



MAINLINE AND LATERAL



LATERAL LINE



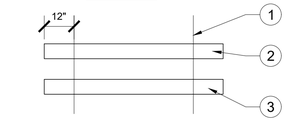
1. DEBRIS FREE FILL
2. DEBRIS FREE SAND. 2" ABOVE AND BELOW MAINLINE.
3. MAINLINE
4. LATERAL LINE
5. TUBING OR WIRING TO BE TAPED TO MAINLINE EVERY 10'-0"

NOTES:
1. TAPE AND BUNDLE TUBING OR WIRING AT 10' INTERVALS
2. ALL 120 VOLT WIRING IN CONDUIT TO BE INSTALLED AS PER LOCAL CODES
3. ALL PVC PIPING TO BE SNAKED IN TRENCHES AS SHOWN
4. ALL TRENCH WIDTHS 8" MINIMUM

2 PIPE TRENCH

NOT TO SCALE

PLAN VIEW



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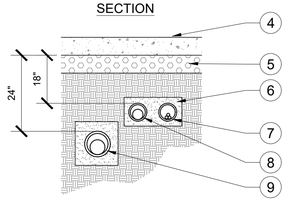
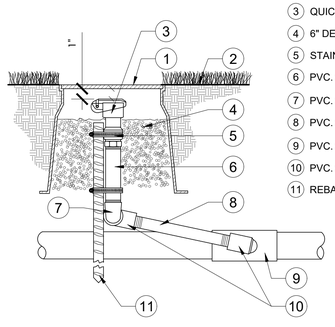


1. PAVING SURFACE EDGE
2. SLEEVE, TYP.
3. EXTEND ALL SLEEVING MIN. OF 12" BEYOND EDGE OF PAVING, TYP.
4. PAVING SURFACE
5. COMPACTED BASE
6. SURROUND SLEEVE WITH 3" OF DEBRIS-FREE SAND.
7. IRRIGATION WIRES SLEEVE
8. LATERAL SLEEVING
9. MAIN LINE SLEEVE

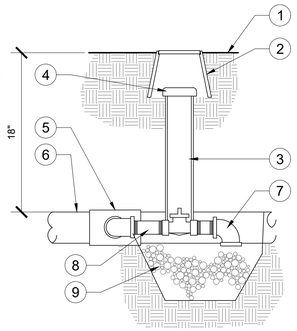
NOTES:
1. SEE NOTES (IRRIGATION LEGEND) FOR SLEEVE SIZING.
2. 4" MIN. CLEARANCE IN ANY DIRECTION BETWEEN LATERALS, MAINLINE, OR SLEEVING.

3 PIPE SLEEVE

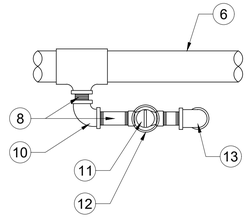
NOT TO SCALE



1. ROUND VALVE BOX: EXTENSION LENGTH AS REQ'D.
2. FINISH GRADE
3. QUICK COUPLING VALVE
4. 6" DEEP PEA GRAVEL
5. STAINLESS STEEL GEAR CLAMPS (1 OF 2)
6. PVC. SCH. 80 NIPPLE (6" LENGTH)
7. PVC. SCH. 80 STREET EL
8. PVC. SCH. 80 NIPPLE (8" LENGTH)
9. PVC. SCH. 80 TEE
10. PVC. SCH. 80 ELL
11. REBAR STAKE (24" LENGTH)



SIDE VIEW

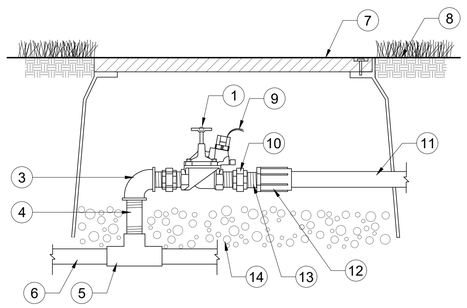


TOP VIEW

1. FINISH GRADE
2. ROUND VALVE BOX
3. 2" CLASS 200 PVC SLEEVE
4. CAP
5. TEE IN MAIN LINE
6. MAIN LINE
7. MARLEX STREET ELL
8. 3/4" SCH. 80 PVC THREADED NIPPLE AND ELBOW
9. 1 CU. FT. PEA GRAVEL SUMP
10. 3/4" ELBOW
11. MANUAL DRAIN
12. 2" CLASS 200 PVC SLEEVE
13. MARLEX STREET ELL

4 QUICK COUPLER

NOT TO SCALE

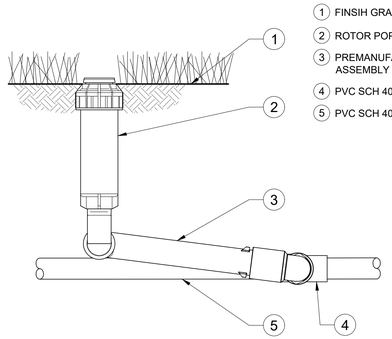


1. AUTOMATIC CONTROL VALVE SEE LEGEND SHEET FOR TYPE.
2. SCH. 80 PVC THREADED NIPPLE
3. SCH. 80 PVC THREADED ELL
4. SCH. 80 PVC THREADED NIPPLE
5. PVC MAINLINE TEE (SXSXT)
6. MAINLINE (SIZE AS NOTED ON THE PLAN)
7. VALVE BOX, SIZE AS REQUIRED
8. FINISH GRADE
9. SLACK WIRE AT ALL CONNECTIONS PROVIDE 12" OF EXPANSION LOOP INSIDE VALVE BOX.
10. SCHEDULE 80 ACTION UNION (BOTH SIDES)
11. LATERAL LINE TO HEADS
12. PVC ADAPTOR TYP.
13. SCHEDULE 80 PVC CLOSE NIPPLE ON BOTH SIDES OF UNION
14. GRAVEL LAYER (12" MIN. DEPTH)

NOTES:
1. ALL IRRIGATION CONTROL WIRE SPLICES ARE TO BE MADE USING 3M DBR-Y SPLICE.
2. ALL VALVE BOXES AND LIDS IN ROCK MULCH AREAS ARE TO BE TAN IN COLOR. VALVE BOXES AND LIDS IN BARK MULCH AND LAWN AREAS TO BE STANDARD GREEN.

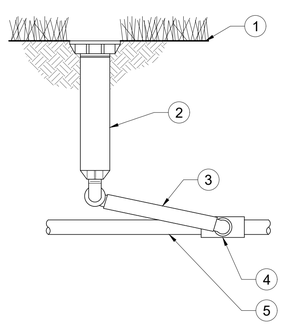
5 MANUAL DRAIN VALVE

NOT TO SCALE



1. FINSIH GRADE/TURF CROWN
2. ROTOR POP-UP SPRINKLER
3. PREMANUFACTURED SWING JOINT ASSEMBLY
4. PVC SCH 40 TEE OR ELL
5. PVC SCH 40 LATERAL PIPE

NOTES:
1. SWING JOINT ASSEMBLY: TWO SPIRAL BARB ELBOWS, SBE-050, 12-24" SWING PIPE, AND ONE 1/2" MARLEX STREET ELBOW.
2. USE NOZZLE SPECIFIED ON PLAN.



1. FINISH GRADE/TURF CROWN
2. POP-UP SPRINKLER
3. FUNNY PIPE WITH STREET ELL AND FUNNY ELL
4. PVC SCH 40 TEE OR ELL
5. PVC SCH 40 LATERAL PIPE

NOTES:
1. SWING JOINT ASSEMBLY: TWO SPIRAL BARB ELBOWS, 12-24" SWING PIPE, AND ONE 1/2" MARLEX STREET ELBOW.
2. USE FIXED SPRAY NOZZLES WHENEVER POSSIBLE.

6 IRRIGATION CONTROL VALVE

NOT TO SCALE

7 POP UP ROTOR

NOT TO SCALE

8 POP-UP SPRAY/ROTARY

NOT TO SCALE

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LAYTON COMMONS PARK IMPROVEMENTS

437 N WASATCH DR, LAYTON, UT 84041

REVISIONS

NO.	symmetry	DESCRIPTION

Stamp

04/28/2023

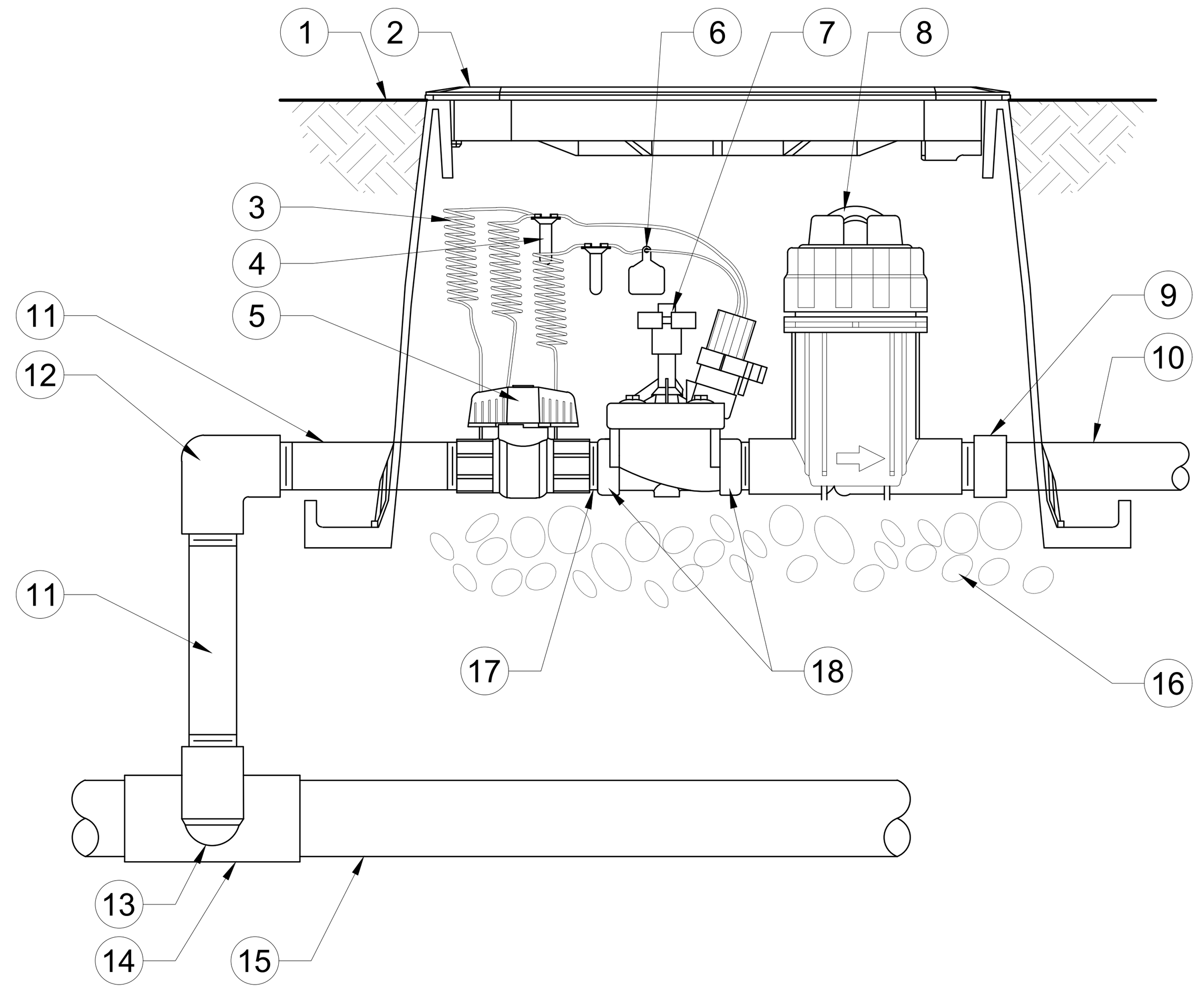
Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title

IRRIGATION PLAN NOTES & DETAILS

Drawing number

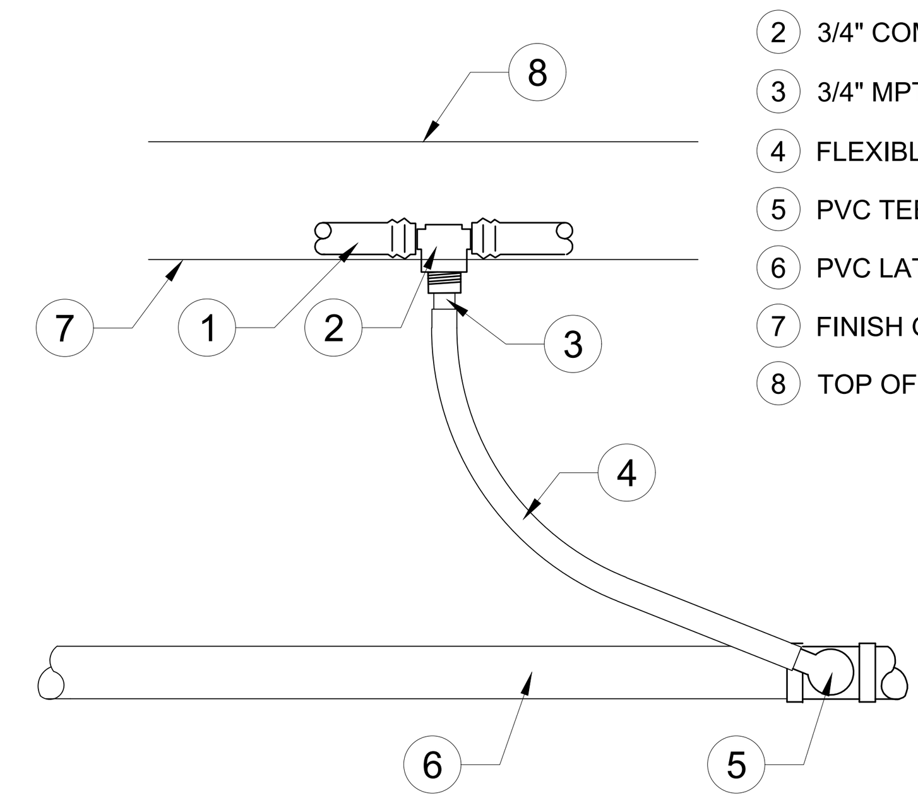
LI501



1. FINISH GRADE/TOP OF MULCH
2. VALVE BOX WITH COVER: RAIN BIRD VB-STD
3. 30-INCH LINEAR LENGTH OF WIRE, COILED
4. WATERPROOF CONNECTION: RAIN BIRD DB SERIES
5. 1 INCH BALL VALVE (INCLUDED IN XCZ-PRB-100 KIT)
6. ID TAG
7. REMOTE CONTROL VALVE: RAIN BIRD PESB (INCLUDED IN XCZ-100-PRB-COM KIT)
8. PRESSURE REGULATING QUICK CHECK BASKET FILTER: RAIN BIRD PRB-QKCHK-100 (INCLUDED IN XCZ-100-PRB-COM KIT)
9. PVC SCH 40 FEMALE ADAPTOR
10. LATERAL PIPE
11. PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
12. PVC SCH 40 ELL
13. PVC SCH 80 NIPPLE (2-INCH LENGTH, HIDDEN) AND PVC SCH 40 ELL
14. PVC SCH 40 TEE OR ELL
15. MAINLINE PIPE
16. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
17. PVC SCH 80 NIPPLE, CLOSE (INCLUDED IN XCZ KIT)
18. ACTION MANIFOLD FITTINGS, (2 EA.) BUTTRESS NIPPLE 18011-X SPIGOT/SLIP ADAPTOR 18012-X

1 DRIP CONTROL ZONE KIT (RAINBIRD)

NOT TO SCALE

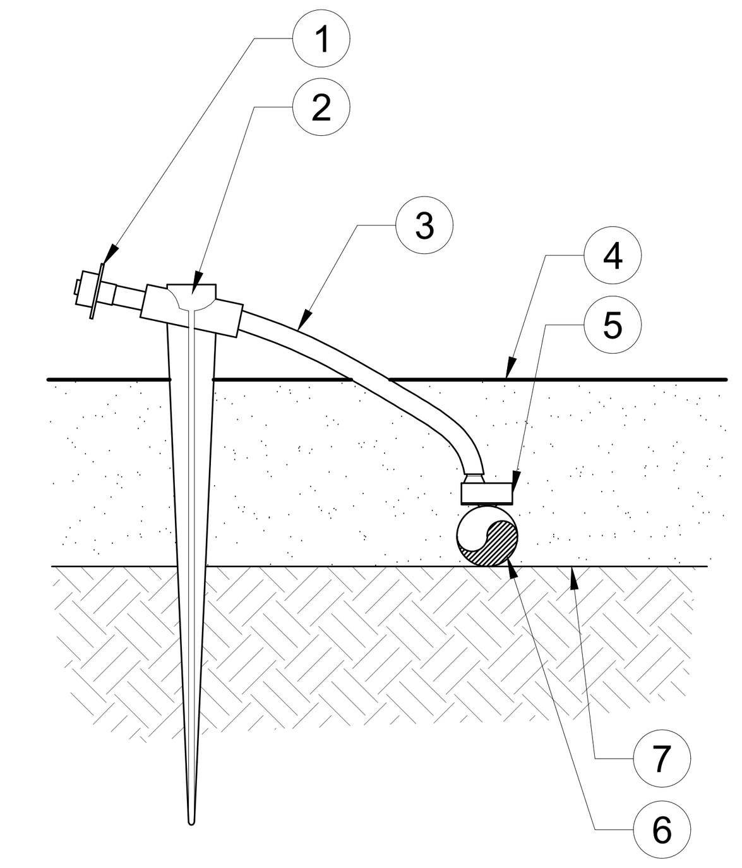


1. DRIP TUBING
2. 3/4" COMBINATION TEE
3. 3/4" MPT ADAPTER
4. FLEXIBLE POLY TUBING
5. PVC TEE OR ELBOW WITH 3/4" MPT ELBOW
6. PVC LATERAL LINE
7. FINISH GRADE
8. TOP OF MULCH

NOTES:
1. INSTALL A MINIMUM OF ONE PVC TO DRIP TUBING CONNECTION FOR EVERY 5 GPM OF FLOW.
2. CONSULT MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM RUN LENGTH.

2 PVC TO DRIP TUBING CONNECTION

NOT TO SCALE



1. DIFFUSER BUG CAP: RAIN BIRD DBC-025 (UNLESS OTHERWISE SPECIFIED)
2. UNIVERSAL 1/4" TUBING STAKE: RAIN BIRD TS-025
3. 1/4" DISTRIBUTION TUBING: RAIN BIRD XQ TUBING (LENGTH AS REQUIRED)
4. TOP OF MULCH
5. SINGLE-OUTLET BARB INLET X BARB OUTLET EMITTER: RAIN BIRD XERI-BUG EMITTER
6. 1/2" POLYETHYLENE TUBING: 2 RAIN BIRD XT-700 XERI-TUBE
7. FINISH GRADE

NOTES:
1. USE RAIN BIRD XERIMAN TOOL XM-TOOL TO INSERT EMITTER DIRECTLY INTO $\frac{1}{2}$" POLYETHYLENE TUBING.

3 DRIP EMITTER

NOT TO SCALE

BID SET

blu line designs
planning | landscape architecture | design
8719 S. Sandy Parkway
Sandy, UT 84070
p 801.913.7994

OWNER:
LAYTON CITY
437 N WASATCH DR, LAYTON, UT 84041

CONTACT:
JOELLEN GRANDY
801-336-3926

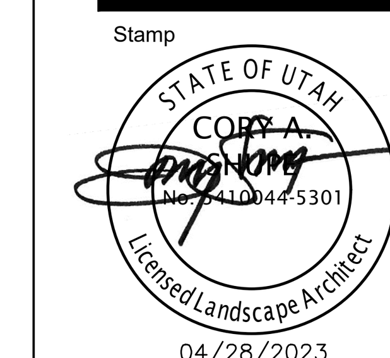
LAYTON COMMONS PARK IMPROVEMENTS

437 N WASATCH DR, LAYTON, UT 84041

REVISIONS

NO.	DATE	DESCRIPTION

Stamp



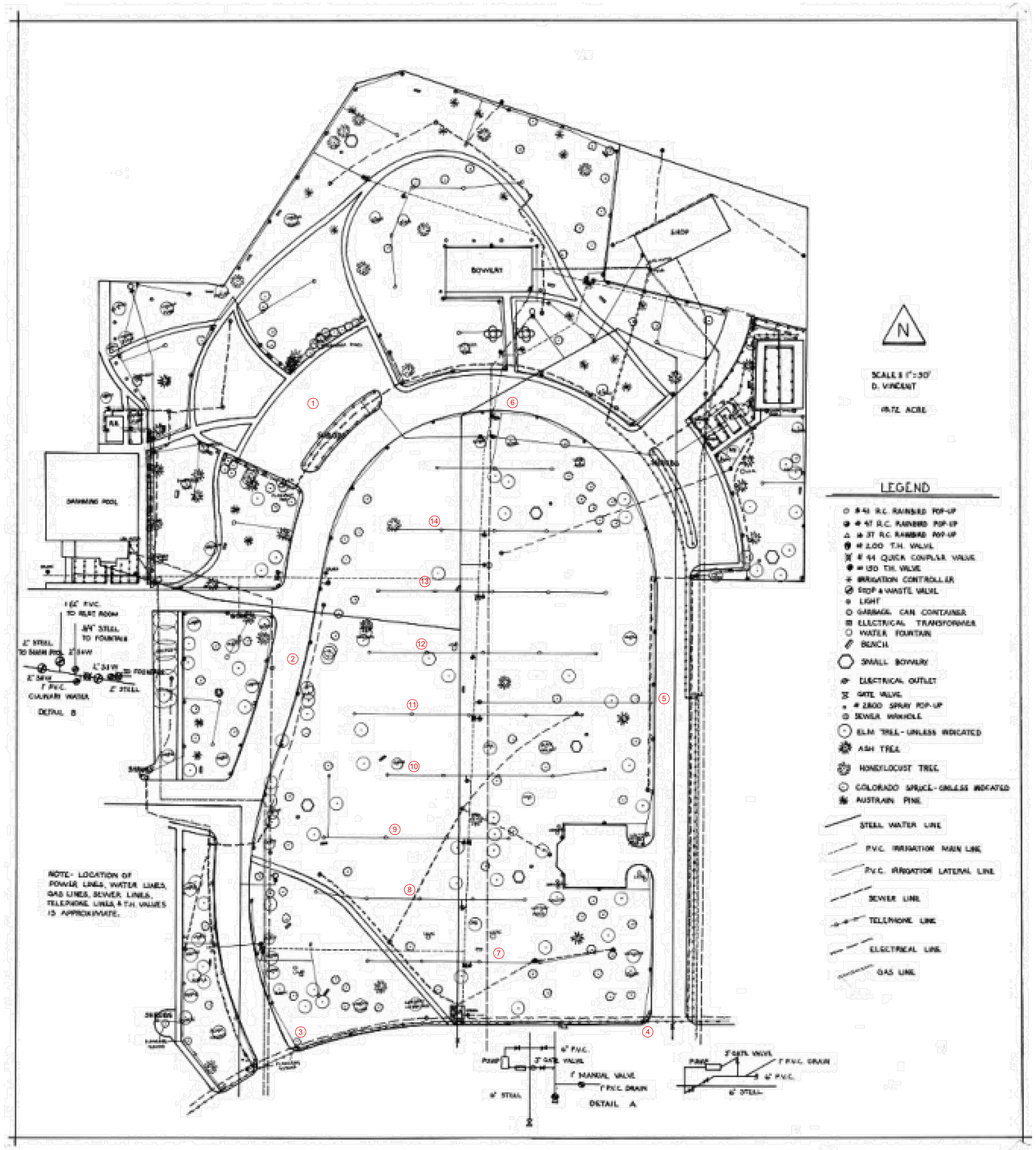
Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title

IRRIGATION PLAN DETAILS

Drawing number

LI502



Scale: 1" = 60'-0"

0 30 60 120 180

BID SET

blu line designs
planning | landscape architecture | design
8719 S. Sandy Parkway
Sandy, UT 84070
p 801.913.7994

OWNER:

LAYTON CITY
437 N WASATCH DR, LAYTON, UT 84041

CONTACT:

JOELLEN GRANDY
801-336-3926

LAYTON COMMONS PARK IMPROVEMENTS

437 N WASATCH DR, LAYTON, UT 84041

REVISIONS

NO.	DATE	DESCRIPTION

Stamp

STATE OF UTAH
CORY A.
Licensed Landscape Architect
04/28/2023

Designed By:	TH
Drawn By:	TH
Date:	04/28/2023
Checked By:	RD
Project No:	22-198

Drawing Title

IRRIGATION AS-BUILT DRAWING

Drawing number

LI503

SHEET INDEX

DESIGN TEAM

OWNER

LAYTON CITY
465 N WASATCH DR
LAYTON, UTAH 84041
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jgrandy@laytoncity.org
JOELLEN GRANDY

ARCHITECT

DESIGN WEST ARCHITECTS
255 SOUTH 300 WEST
LOGAN, UTAH 84321
PHONE: 435.752.7031
ryanl@designwestarchitects.com
RYAN LEMON

ELECTRICAL

SINE SOURCE ENGINEERING
95 WEST GOLF COURSE ROAD, SUITE 102
LOGAN, UTAH 84321
PHONE: 435.787.1445
shanes@sinesource.net
SHANE SWENSON, MANAGER

MECHANICAL/PLUMBING

VBFA
181 EAST 5600 SOUTH, SUITE 200
MURRAY, UTAH 84107
PHONE: 801.530.3148
jjenkins@vbfa.com
JED JENKINS, PE

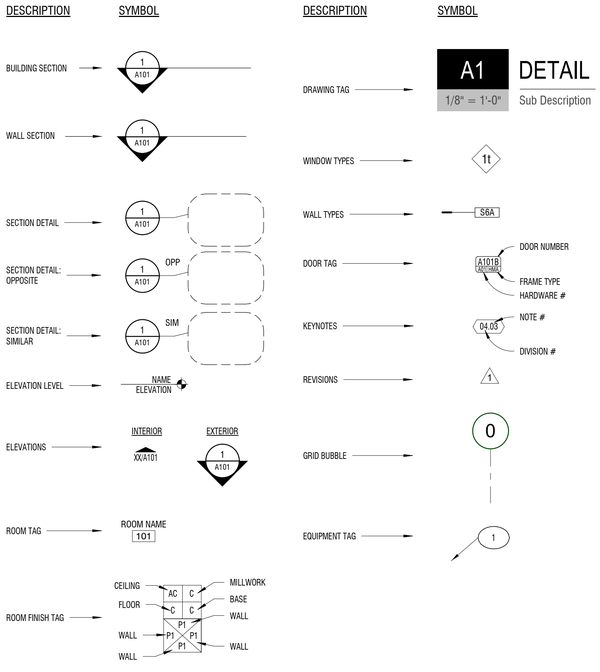
STRUCTURAL

SILVERPEAK ENGINEERING
177 EAST ANTELOPE DRIVE, SUIT B
LAYTON, UTAH 84041
PHONE: 801.499.5054
jayson@silverpeakeng.com
JAYSON LOVE

ABBREVIATIONS

ABR.	DESCRIPTION	ABR.	DESCRIPTION	ABR.	DESCRIPTION
ACC STA	ACCESSIBLE STATION	EIFS	EXTERIOR INSULATION FINISH SYSTEM	d	PENNY
AC	ACOUSTIC, ACOUSTICAL			P-LAM	PLASTIC LAMINATE PLATE
ABS	ACRYLONITRILE-BUTADIENE -STYRENE	FIN	FINISH	PLYWD	PLYWOOD
		FEC	FIRE EXTINGUISHER CABINET	PVC	POLYVINYL CHLORIDE
AD	ADDENDUM	FLR	FLOOR	PREFAB	PREFABRICATED
ADJ	ADJUSTABLE	FD	FLOOR DRAIN	PT	PRESERVATIVE TREATED
AFF	ABOVE FINISH FLOOR	FTG	FOOTING	PROJ	PROJECTION
ALT	ALTERNATE	FDN	FOUNDATION	QT	QUARRY TILE
ALUM	ALUMINUM	GALV	GALVANIZED	RAD	RADIUS
AB	ANCHOR BOLT	GI	GALVANIZED IRON	REF	REFRIGERATOR
L	ANGLE	GA	GAUGE	REINF	REINFORCE
ASI	ARCHITECT SUPPLEMENTAL INSTRUCTION	GYP BD	GYPSUM BOARD	REV	REVISION
		HDWD	HARDWOOD	RFI	REQUEST FOR INFORMATION
ASPH	ASPHALT	HT	HEIGHT	RD	ROOF DRAIN
BSMT	BASMENT	HM	HOLLOW METAL	RO	ROUGH OPENING
BB	BASKETBALL	HORIZ	HORIZONTAL	R/	ROUND
BRG	BEARING	ID	INSIDE DIAMETER	SCHED	SCHEDULE
BM	BENCH MARK	INSUL	INSULATION	SIM	SIMILAR
BLKG	BLOCKING	INT	INTERIOR	SHT	SHEET
BD	BOARD	JT	JOINT	SPEC	SPECIFICATION
B.O.	BOTTOM OF	KD	KNOCK DOWN	SQ	SQUARE
BLDG	BUILDING	KO	KNOCK OUT	SS	STAINLESS STEEL
B.U.R.	BUILT UP ROOF	LLV	LONG LEG VERTICAL	STD	STANDARD
CLG	CEILING	MH	MANHOLE	STL	STEEL
C	CENTER LINE	MFR	MANUFACTURER	STOR	STORAGE
CT	CERAMIC TILE	MB	MARKER BOARD	STRUCT	STRUCTURAL
CB	CHALKBOARD	MO	MASONRY OPENING	SUSP	SUSPENDED, SUSPENSION
C	CHANNEL	MAX	MAXIMUM	SYS	SYSTEM
CO	CLEAN OUT	MECH	MECHANICAL	TB	TACKBOARD
COL	COLUMN	MT	MOUNT	TEL	TELEPHONE
CONC	CONCRETE	MTL	METAL	TV	TELEVISION
CMU	CONCRETE MASONRY UNIT	MIN	MINIMUM	TEMP	TEMPORARY
CONN	CONNECTION	MISC	MISCELLANEOUS	TS	TUBE STEEL
CONT	CONTINUOUS	(N)	NEW	THRES	THRESHOLD
CONTR	CONTRACTOR	NIC	NOT IN CONTRACT	TOIL	TOILET
DIM	DIMENSION	NTS	NOT TO SCALE	T.O.	TOP OF
DS	DOWNSPOUT	O.C.	ON CENTER	T & B	TOP AND BOTTOM
DWG	DRAWING	OPNG	OPENING	TYP	TYPICAL
EA	EACH	OPP	OPPOSITE	VERT	VERTICAL
ELECT	ELECTRICAL	OD	OUTSIDE DIAMETER	U.N.O.	UNLESS NOTED OTHERWISE
EWC	ELECTRIC WATER COOLER	OH	OVERHEAD	WC	WATER CLOSET
ELEV	ELEVATION	OF/CI	OWNER FURNISHED / CONTRACTOR INSTALLED	WM	WATER METER
EQ	EQUAL			WWF	WELDED WIRE FABRIC
EQUIP	EQUIPMENT	OF/OI	OWNER FURNISHED / OWNER INSTALLED	W	WIDE FLANGE
EXIST	EXISTING			W/	WITH
(E)	EXISTING	O.T.S.	OPEN TO STRUCTURE	W/O	WITHOUT
EXP	EXPANSION	PART BD	PARTICLE BOARD	WD	WOOD
EXT	EXTERIOR	PARTN	PARTITION		

SYMBOLS LEGEND



MATERIALS LEGEND

MATERIAL	SYMBOL
EARTH	
ASPHALT PAVING	
COMPACTED GRANULAR FILL	
CONCRETE	
CONCRETE MASONRY UNITS	
BRICK	
STEEL	
CONTINUOUS WOOD	
WOOD BLOCKING	
PLYWOOD / OSB	
PARTICLE BOARD	
INSULATION	
RIGID INSULATION	
GYPSUM BOARD	
ACOUSTIC TILE	
GLU-LAMINATE BEAM	
PLASTER & METAL LATH	
GLASS	
FINISH WOOD	
ALUMINUM	
WOOD STUD WALL	

LAYTON CITY - HEATED RESTROOM

LAYTON, UT

FOR CONSTRUCTION

design west | architects
LOGAN UT 84321
SALT LAKE CITY UT 84103
255 SOUTH 300 WEST
795 NORTH 400 WEST

LAYTON CITY - HEATED RESTROOM
LAYTON, UT
LAYTON CITY PARKS AND RECREATION DEPARTMENT

DESCRIPTION:
DATE:
MARK:

PROJECT #: 820201
DRAWN BY: HARRIS
CHECKED BY: LEMON
ISSUED: 02.03.2023

STATE OF UTAH
RYAN WAYNE LEMON
8668330-0301
LICENSED ARCHITECT

COVER SHEET
G-001

3/17/2023 9:21:26 AM

GENERAL CONDITIONS:

SECTION 00 0102
PROJECT INFORMATION
PART 1 GENERAL

1.01 PROJECT IDENTIFICATION
A. PROJECT NAME: LAYTON CITY HARMONY PARK
B. OWNER'S PROJECT NUMBER: 820200
C. THE OWNER, HEREINAFTER REFERRED TO AS OWNER: LOGAN CITY SCHOOL DISTRICT

1.02 INSTRUCTIONS TO BUILDERS
A. OF THE INVITATION TO BID LETTER SENT BY THE OWNER.

1.03 BID FORM:
A. OF THE INVITATION TO BID LETTER SENT BY THE OWNER. THE "STANDARD FORM OF REEMENT BETWEEN OWNER AND CONTRACTOR FOR A SMALL PROJECT" A.I.A. DOCUMENT 155, LATEST EDITION ISSUED BY THE AMERICAN INSTITUTE OF ARCHITECTS FOR USE IN MALL CONSTRUCTION CONTRACTS WITH A STIPULATED UMS THESUGGESTED FORM OF CONTRACT AGREEMENT.

1.04 GENERAL CONDITIONS
A. "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT", A.I.A. FORM A205 LATEST EDITIONS ARE A PART AND CONDITION OF EACH DIVISION OF THESE SPECIFICATIONS. THE WORK CONSISTS OF THE CONSTRUCTION AND COMPLETION OF BUILDING SHELL, INCLUDING ALL ITS APPURTENANCES, SITE WORK, LANDSCAPING AND ANY OFF SITE IMPROVEMENT REQUIRED OR NECESSARY, SHOWN ON THE DRAWINGS, EXCEPTING ONLY THOSE ITEMS SPECIFICALLY SHOWN, NOTED OR SPECIFIED AS NOT IN CONTRACT (NIC).

1.05 NOTICE TO PROSPECTIVE BIDDERS
A. THESE DOCUMENTS CONSTITUTE AN INVITATION TO BID TO AND REQUEST FOR QUALIFICATIONS FROM SUBCONTRACTORS FOR THE CONSTRUCTION OF THE PROJECT DESCRIBED BELOW,

1.06 PROJECT DESCRIPTION
A. SUMMARY PROJECT DESCRIPTION: NEW CONSTRUCTION ON VACANT PARCEL. BUILDING CONSISTS OF ONE STORY WOOD CONSTRUCTION CLINIC.
B. CONTRACT SCOPE: CONSTRUCTION AND SITE IMPROVEMENTS..
C. CONTRACT TERMS: SEE INVITATION TO BID AND BID FORM FOR CONTRACT TERMS.
D. ESTIMATED CONTRACT AMOUNT: TO BE DETERMINED.
E. TO ASSIST IN THE ASSESSMENT OF SUBSOIL CONDITIONS AT SITE, [A GEOTECHNICAL REPORT HAS BEEN PREPARED AND IS AVAILABLE UPON REQUEST.]

1.07 PROJECT CONSULTANTS
A. THE ARCHITECT, HEREINAFTER REFERRED TO AS ARCHITECT: DESIGN WEST ARCHITECTS.
1. ADDRESS: 255 SOUTH 300 WEST
2. CITY, STATE, ZIP: LOGAN, UTAH 84321
3. PHONE/FAX: 435-752-7031
4. E-MAIL: ryanl@designwestarchitects.com

1.08 PROCUREMENT TIMETABLE
A. LAST REQUEST FOR SUBSTITUTION DUE: SHALL BE ESTABLISHED BY THE GENERAL CONTRACTOR
B. BIDS MAY NOT BE WITHDRAWN UNTIL: 60 DAYS AFTER DUE DATE.
C. THE OWNER RESERVES THE RIGHT TO CHANGE THE SCHEDULE OR TERMINATE THE ENTIRE PROCUREMENT PROCESS AT ANY TIME.

1.09 PROCUREMENT DOCUMENTS
A. AVAILABILITY OF DOCUMENTS: COMPLETE SETS OF PROCUREMENT DOCUMENTS MAY BE OBTAINED:
1. AT THE FOLLOWING ADDRESS:
A. OFFICE OF THE ARCHITECT
B. DESIGN WEST ARCHITECTS

DIVISION 1 – GENERAL REQUIREMENT

SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS
PART 1 GENERAL

1.01 SECTION INCLUDES
CONSTRUCTION SCHEDULE
A. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ARCHITECT AND OWNER, A BAR-CHART TYPE PROGRESS SCHEDULE FOR THE ENTIRE PROJECT, WITHIN SEVEN (7) DAYS AFTER AWARD OF CONTRACT. PROVIDE A SEPARATE BAR FOR EACH WORK ITEM LISTED IN THE SCHEDULE OF VALUES. INCLUDE APPROPRIATE TIME FOR PROJECT MOBILIZATION, PROCUREMENT OF PRODUCTS, REVIEW AND RETURN OF SHOP DRAWINGS, FABRICATION, INSTALLATION, TESTING, FINAL CLEANUP AND INSTALLATION TIME FOR WORK UNDER SEPARATE CONTRACTS. IDENTIFY EACH CALENDAR DAY THROUGHOUT THE SCHEDULE. HIGHLIGHT CRITICAL PATH ELEMENTS OF THE SCHEDULE THAT ARE IMPORTANT TO COMPLETE THE WORK ON TIME. CORRELATE THE ORGANIZATION OF THE SCHEDULE WITH THE DATE OF SUBSTANTIAL COMPLETION INDICATED IN THE OWNER-CONTRACTOR AGREEMENT.

1.02 PROJECT COORDINATION & ADMINISTRATION
A. COORDINATE THE WORK OF THE COMPLETE PROJECT TO ASSURE AN EFFICIENT AND ORDERLY SEQUENCE OF INSTALLATION OF CONSTRUCTION ELEMENTS, AND FOR INSTALLATION OF ITEMS FURNISHED AND INSTALLED BY OTHERS, WITH PROVISIONS FOR ACCOMMODATING OTHER ITEMS TO BE INSTALLED LATER. COORDINATE SPACE REQUIREMENTS AND INSTALLATION OF MECHANICAL AND ELECTRICAL WORK WHICH ARE INDICATED DIAGRAMMATICALLY ON THE DRAWINGS. UTILIZE SPACE EFFICIENTLY TO MAXIMIZE ACCESSIBILITY FOR OTHER INSTALLATIONS, AND FOR MAINTENANCE.

1.03 PRE-CONSTRUCTION MEETING
A. MEET WITH THE OWNER'S DESIGNATED CONSTRUCTION REPRESENTATIVE BEFORE STARTING CONSTRUCTION. DISCUSS PROCEDURES AND REQUIREMENTS FOR SITE ACCESS, WORK HOURS, PARKING, DELIVERIES AND RECEIVING, DEBRIS AND WASTE RECEPTACLES, TEMPORARY BARRICADES, AND CONSTRUCTION OPERATIONS THAT MAY BE OFFENSIVE.

1.04 MAINTENANCE OF CONSTRUCTION DOCUMENTS
A. THE CONTRACTOR SHALL MAINTAIN AT THE PROJECT SITE, A "RECORD SET OF CONSTRUCTION DOCUMENTS" AND THE FOLLOWING RELATED DRAWINGS OR DOCUMENTS PREPARED BY OTHERS: SHOP DRAWINGS AND DATA SHEETS PREPARED BY THE MANUFACTURERS, FABRICATORS, AND SUPPLIERS, AND EXTERIOR SIGNAGE SHOP DRAWINGS, BY THE SIGNAGE CONTRACTOR.
B. DO NOT CONSTRUCT ANY PORTION OF THE WORK RELATED TO THESE DRAWINGS AT ANY TIME WITHOUT SUCH DRAWINGS BEING AVAILABLE AT THE PROJECT SITE.
C. "AS BUILT" DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR. DRAWINGS SHALL INDICATE THE SIZE AND DIMENSIONS OF ALL CONCEALED AND UNDERGROUND WORK, AND SHALL INDICATE DEPTH OF MAJOR CONDUIT AND PIPING. "AS BUILT" DRAWINGS SHALL SHOW ALL PLUMBING AND ELECTRICAL MODIFICATIONS, PARTITION CHANGES, AND ASSEMBLY MODIFICATIONS.

1.05 PERMITS AND LOCAL CODES
A. THE LAWS IN FORCE AT THE BUILDING LOCATION SHALL GOVERN. THESE INCLUDE THE LATEST EDITIONS OF THE INTERNATIONAL BUILDING CODE, INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, NATIONAL ELECTRIC CODE, LIFE SAFETY CODE, ANSI 117.1 AND LOCAL ORDINANCES. THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL NECESSARY BUILDING PERMITS AND FOR INSPECTION SERVICES OF LOCAL AUTHORITIES AND HIS OWN BUSINESS LICENSES. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF OCCUPATIONAL SAFETY AND HEALTH STANDARDS, FEDERAL, STATE, COUNTY AND MUNICIPAL

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION

3.01 PROGRESS MEETINGS
A. SCHEDULE AND ADMINISTER MEETINGS THROUGHOUT PROGRESS OF THE WORK AT MAXIMUM MONTHLY INTERVALS.
B. ATTENDANCE REQUIRED: JOB SUPERINTENDENT, MAJOR SUBCONTRACTORS AND SUPPLIERS, OWNER, ARCHITECT, AS APPROPRIATE TO AGENDA TOPICS FOR EACH MEETING.
C. RECORD MINUTES AND DISTRIBUTE COPIES WITHIN TWO DAYS AFTER MEETING TO PARTICIPANTS, WITH TWO COPIES TO ARCHITECT, OWNER, PARTICIPANTS, AND THOSE AFFECTED BY DECISIONS MADE.

3.02 CONSTRUCTION PROGRESS SCHEDULE
A. IF PRELIMINARY SCHEDULE REQUIRES REVISION AFTER REVIEW, SUBMIT REVISED SCHEDULE WITHIN 10 DAYS.
B. WITHIN 20 DAYS AFTER REVIEW OF PRELIMINARY SCHEDULE, SUBMIT DRAFT OF PROPOSED COMPLETE SCHEDULE FOR REVIEW.
1. INCLUDE WRITTEN CERTIFICATION THAT MAJOR CONTRACTORS HAVE REVIEWED AND ACCEPTED PROPOSED SCHEDULE.
C. WITHIN 10 DAYS AFTER JOINT REVIEW, SUBMIT COMPLETE SCHEDULE.
D. SUBMIT UPDATED SCHEDULE WITH EACH APPLICATION FOR PAYMENT.

3.03 SUBMITTALS FOR REVIEW
A. WHEN THE FOLLOWING ARE SPECIFIED IN INDIVIDUAL SECTIONS, SUBMIT THEM FOR REVIEW:
1. PRODUCT DATA.
2. SHOP DRAWINGS.
3. SAMPLES FOR SELECTION.
4. SAMPLES FOR VERIFICATION.
B. SUBMIT TO ARCHITECT FOR REVIEW FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND THE DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS.
C. SAMPLES WILL BE REVIEWED ONLY FOR AESTHETIC, COLOR, OR FINISH SELECTION.
D. AFTER REVIEW, PROVIDE COPIES AND DISTRIBUTE IN ACCORDANCE WITH SUBMITTAL PROCEDURES ARTICLE BELOW AND FOR RECORD DOCUMENTS PURPOSES DESCRIBED IN SECTION 01 7800 - CLOSEOUT SUBMITTALS.

3.04 SUBMITTALS FOR INFORMATION
A. WHEN THE FOLLOWING ARE SPECIFIED IN INDIVIDUAL SECTIONS, SUBMIT THEM FOR INFORMATION:
1. DESIGN DATA.
2. CERTIFICATES.
3. TEST REPORTS.
4. INSPECTION REPORTS.
5. MANUFACTURER'S INSTRUCTIONS.
6. MANUFACTURER'S FIELD REPORTS.
7. OTHER TYPES INDICATED.
B. SUBMIT FOR ARCHITECT'S KNOWLEDGE AND SORENSEN AND GNEHM AS CONTRACT ADMINISTRATOR OR FOR OWNER. NO ACTION WILL BE TAKEN.

3.05 SUBMITTALS FOR PROJECT CLOSEOUT
A. SUBMIT CORRECTION PUNCH LIST FOR SUBSTANTIAL COMPLETION.
B. SUBMIT FINAL CORRECTION PUNCH LIST FOR SUBSTANTIAL COMPLETION.
C. WHEN THE FOLLOWING ARE SPECIFIED IN INDIVIDUAL SECTIONS, SUBMIT THEM AT PROJECT CLOSEOUT:
1. PROJECT RECORD DOCUMENTS.
2. OPERATION AND MAINTENANCE DATA.
3. WARRANTIES.
4. BONDS.
5. OTHER TYPES AS INDICATED.
D. SUBMIT FOR OWNER'S BENEFIT DURING AND AFTER PROJECT COMPLETION.

3.06 NUMBER OF COPIES OF SUBMITTALS
A. DOCUMENTS FOR REVIEW:
1. SMALL SIZE SHEETS, NOT LARGER THAN 8-1/2 X 11 INCHES: SUBMIT THE NUMBER OF COPIES THAT CONTRACTOR REQUIRES, PLUS TWO COPIES THAT WILL BE RETAINED BY ARCHITECT. ELECTRONIC COPIES ARE ACCEPTABLE AND ENCOURAGED.
B. DOCUMENTS FOR INFORMATION: SUBMIT TWO COPIES. ELECTRONIC COPIES ARE ACCEPTABLE AND ENCOURAGED.
C. SAMPLES: SUBMIT THE NUMBER SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS; ONE OF WHICH WILL BE RETAINED BY ARCHITECT.
1. AFTER REVIEW, PRODUCE DUPLICATES.
2. RETAINED SAMPLES WILL NOT BE RETURNED TO CONTRACTOR UNLESS SPECIFICALLY SO STATED.

3.07 SUBMITTAL PROCEDURES
A. SHOP DRAWING PROCEDURES:
1. PREPARE ACCURATE, DRAWN-TO-SCALE, ORIGINAL SHOP DRAWING DOCUMENTATION BY INTERPRETING THE CONTRACT DOCUMENTS AND COORDINATING RELATED WORK.
2. GENERIC, NON-PROJECT SPECIFIC INFORMATION SUBMITTED AS SHOP DRAWINGS DO NOT MEET THE REQUIREMENTS FOR SHOP DRAWINGS.
B. SEQUENTIALLY NUMBER THE TRANSMITTAL FORM. REVISE SUBMITTALS WITH ORIGINAL NUMBER AND A SEQUENTIAL ALPHABETIC SUFFIX.
C. IDENTIFY PROJECT, CONTRACTOR, SUBCONTRACTOR OR SUPPLIER; PERTINENT DRAWING AND DETAIL NUMBER, AND SPECIFICATION SECTION NUMBER, AS APPROPRIATE ON EACH COPY.
D. APPLY CONTRACTOR'S STAMP, SIGNED OR INITIALED CERTIFYING THAT REVIEW, APPROVAL, VERIFICATION OF PRODUCTS REQUIRED, FIELD DIMENSIONS, ADJACENT CONSTRUCTION WORK, AND COORDINATION OF INFORMATION IS IN ACCORDANCE WITH THE REQUIREMENTS OF THE WORK AND CONTRACT DOCUMENTS.
E. FOR EACH SUBMITTAL FOR REVIEW, ALLOW 15 DAYS EXCLUDING DELIVERY TIME TO AND FROM THE CONTRACTOR.
F. IDENTIFY VARIATIONS FROM CONTRACT DOCUMENTS AND PRODUCT OR SYSTEM LIMITATIONS THAT MAY BE DETRIMENTAL TO SUCCESSFUL PERFORMANCE OF THE COMPLETED WORK.
G. PROVIDE SPACE FOR CONTRACTOR AND ARCHITECT REVIEW STAMPS.
H. WHEN REVISED FOR RESUBMISSION, IDENTIFY ALL CHANGES MADE SINCE PREVIOUS SUBMISSION.
I. DISTRIBUTE REVIEWED SUBMITTALS AS APPROPRIATE. INSTRUCT PARTIES TO PROMPTLY REPORT ANY INABILITY TO COMPLY WITH REQUIREMENTS.
J. SUBMITTALS NOT REQUESTED WILL NOT BE RECOGNIZED OR PROCESSED.

SECTION 01 4000
QUALITY REQUIREMENTS
PART 1 GENERAL

1.01 SUBMITTALS
A. TESTING AGENCY QUALIFICATIONS:
1. PRIOR TO START OF WORK, SUBMIT AGENCY NAME, ADDRESS, AND TELEPHONE NUMBER, AND NAMES OF FULL TIME REGISTERED ENGINEER AND RESPONSIBLE OFFICER.
B. TEST REPORTS: AFTER EACH TEST/INSPECTION, PROMPTLY SUBMIT TWO COPIES OF REPORT TO ARCHITECT AND TO CONTRACTOR.
C. CERTIFICATES: WHEN SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS, SUBMIT CERTIFICATION BY THE MANUFACTURER AND CONTRACTOR OR INSTALLATION/APPLICATION SUBCONTRACTOR TO ARCHITECT, IN QUANTITIES SPECIFIED FOR PRODUCT DATA.
1. INDICATE MATERIAL OR PRODUCT CONFORMS TO OR EXCEEDS SPECIFIED REQUIREMENTS. SUBMIT SUPPORTING REFERENCE DATA, AFFIDAVITS, AND CERTIFICATIONS AS APPROPRIATE.

PART 3 EXECUTION

2.01 CONTROL OF INSTALLATION
A. MONITOR QUALITY CONTROL OVER SUPPLIERS, MANUFACTURERS, PRODUCTS, SERVICES, SITE CONDITIONS, AND WORKMANSHIP, TO PRODUCE WORK OF SPECIFIED QUALITY.
B. COMPLY WITH MANUFACTURERS' INSTRUCTIONS, INCLUDING EACH STEP IN SEQUENCE.
C. SHOULD MANUFACTURERS' INSTRUCTIONS CONFLICT WITH CONTRACT DOCUMENTS, REQUEST CLARIFICATION FROM ARCHITECT BEFORE PROCEEDING.
D. COMPLY WITH SPECIFIED STANDARDS AS MINIMUM QUALITY FOR THE WORK EXCEPT WHERE MORE STRINGENT TOLERANCES, CODES, OR SPECIFIED REQUIREMENTS INDICATE HIGHER STANDARDS OR MORE PRECISE WORKMANSHIP.
E. HAVE WORK PERFORMED BY PERSONS QUALIFIED TO PRODUCE REQUIRED AND SPECIFIED QUALITY.
F. VERIFY THAT FIELD MEASUREMENTS ARE AS INDICATED ON SHOP DRAWINGS OR AS INSTRUCTED BY THE MANUFACTURER.
G. SECURE PRODUCTS IN PLACE WITH POSITIVE ANCHORAGE DEVICES DESIGNED AND SIZED TO WITHSTAND STRESSES, VIBRATION, PHYSICAL DISTORTION, AND DISFIGUREMENT.

2.02 DEFECT ASSESSMENT
A. REPLACE WORK OR PORTIONS OF THE WORK NOT CONFORMING TO SPECIFIED REQUIREMENTS.
B. IF, IN THE OPINION OF ARCHITECT, IT IS NOT PRACTICAL TO REMOVE AND REPLACE THE WORK, ARCHITECT WILL DIRECT AN APPROPRIATE REMEDY OR ADJUST PAYMENT.

SECTION 01 6000
PRODUCT REQUIREMENTS
PART 1 GENERAL

1.01 SUBMITTALS
A. PRODUCT DATA SUBMITTALS: SUBMIT MANUFACTURER'S STANDARD PUBLISHED DATA. MARK EACH COPY TO IDENTIFY APPLICABLE PRODUCTS, MODELS, OPTIONS, AND OTHER DATA. SUPPLEMENT MANUFACTURERS' STANDARD DATA TO PROVIDE INFORMATION SPECIFIC TO THIS PROJECT.
B. SHOP DRAWING SUBMITTALS: PREPARED SPECIFICALLY FOR THIS PROJECT; INDICATE UTILITY AND ELECTRICAL CHARACTERISTICS, UTILITY CONNECTION REQUIREMENTS, AND LOCATION OF UTILITY OUTLETS FOR SERVICE FOR FUNCTIONAL EQUIPMENT AND APPLIANCES.
C. SAMPLE SUBMITTALS: ILLUSTRATE FUNCTIONAL AND AESTHETIC CHARACTERISTICS OF THE PRODUCT, WITH INTEGRAL PARTS AND ATTACHMENT DEVICES. COORDINATE SAMPLE SUBMITTALS FOR INTERFACING WORK.

PART 2 PRODUCTS

2.01 NEW PRODUCTS
A. PROVIDE NEW PRODUCTS UNLESS SPECIFICALLY REQUIRED OR PERMITTED BY THE CONTRACT DOCUMENTS.

2.02 PRODUCT OPTIONS
A. PRODUCTS SPECIFIED BY REFERENCE STANDARDS OR BY DESCRIPTION ONLY: USE ANY PRODUCT MEETING THOSE STANDARDS OR DESCRIPTION.
B. PRODUCTS SPECIFIED BY NAMING ONE OR MORE MANUFACTURERS: USE A PRODUCT OF ONE OF THE MANUFACTURERS NAMED AND MEETING SPECIFICATIONS, NO OPTIONS OR SUBSTITUTIONS ALLOWED.
C. PRODUCTS SPECIFIED BY NAMING ONE OR MORE MANUFACTURERS WITH A PROVISION FOR SUBSTITUTIONS: SUBMIT A REQUEST FOR SUBSTITUTION FOR ANY MANUFACTURER NOT NAMED.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES
A. SUBSTITUTION REQUESTS MUST BE SUBMITTED DURING THE BID PERIOD. BID QUESTIONS AND SUBSTITUTION REQUESTS WILL BE ADDRESSED BY THE ARCHITECT UNTIL 72 HOURS PRIOR TO THE BID DATE PUBLISHED BY THE CONSTRUCTION MANAGER.
B. DOCUMENT EACH REQUEST WITH COMPLETE DATA SUBSTANTIATING COMPLIANCE OF PROPOSED SUBSTITUTION WITH CONTRACT DOCUMENTS.
C. A REQUEST FOR SUBSTITUTION CONSTITUTES A REPRESENTATION THAT THE SUBMITTER:
1. HAS INVESTIGATED PROPOSED PRODUCT AND DETERMINED THAT IT MEETS OR EXCEEDS THE QUALITY LEVEL OF THE SPECIFIED PRODUCT.
2. WILL PROVIDE THE SAME WARRANTY FOR THE SUBSTITUTION AS FOR THE SPECIFIED PRODUCT.
3. WILL COORDINATE INSTALLATION AND MAKE CHANGES TO OTHER WORK THAT MAY BE REQUIRED FOR THE WORK TO BE COMPLETE WITH NO ADDITIONAL COST TO OWNER.
4. WAIVES CLAIMS FOR ADDITIONAL COSTS OR TIME EXTENSION THAT MAY SUBSEQUENTLY BECOME APPARENT.
D. SUBSTITUTION SUBMITTAL PROCEDURE:
1. SUBMIT THREE COPIES OF REQUEST FOR SUBSTITUTION FOR CONSIDERATION. LIMIT EACH REQUEST TO ONE PROPOSED SUBSTITUTION.
2. SUBMIT SHOP DRAWINGS, PRODUCT DATA, AND CERTIFIED TEST RESULTS ATTESTING TO THE PROPOSED PRODUCT EQUIVALENCE. BURDEN OF PROOF IS ON PROPOSER.
3. THE ARCHITECT WILL NOTIFY CONTRACTOR BY ADDENDUM OF DECISION TO ACCEPT.

SECTION 01 7000
EXECUTION AND CLOSEOUT REQUIREMENTS
PART 1 GENERAL

1.01 SUBMITTALS

1.02 PROJECT CONDITIONS
A. GRADE SITE TO DRAIN. MAINTAIN EXCAVATIONS FREE OF WATER. PROVIDE, OPERATE, AND MAINTAIN PUMPING EQUIPMENT.
B. VENTILATE ENCLOSED AREAS TO ASSIST CURE OF MATERIALS, TO DISSIPATE HUMIDITY, AND TO PREVENT ACCUMULATION OF DUST, FUMES, VAPORS, OR GASES.
C. DUST CONTROL: EXECUTE WORK BY METHODS TO MINIMIZE RAISING DUST FROM CONSTRUCTION OPERATIONS. PROVIDE POSITIVE MEANS TO PREVENT AIR-BORNE DUST FROM DISPERSING INTO ATMOSPHERE AND OVER ADJACENT PROPERTY.
D. EROSION AND SEDIMENT CONTROL: PLAN AND EXECUTE WORK BY METHODS TO CONTROL SURFACE DRAINAGE FROM CUTS AND FILLS, FROM BORROW AND WASTE DISPOSAL AREAS. PREVENT EROSION AND SEDIMENTATION.

PART 2 PRODUCTS
PART 3 EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS
A. INSTALL PRODUCTS AS SPECIFIED IN INDIVIDUAL SECTIONS, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, AND SO AS TO AVOID WASTE DUE TO NECESSITY FOR REPLACEMENT.
B. MAKE VERTICAL ELEMENTS PLUMB AND HORIZONTAL ELEMENTS LEVEL, UNLESS OTHERWISE INDICATED.
C. INSTALL EQUIPMENT AND FITTINGS PLUMB AND LEVEL, NEATLY ALIGNED WITH ADJACENT VERTICAL AND HORIZONTAL LINES, UNLESS OTHERWISE INDICATED.
D. MAKE CONSISTENT TEXTURE ON SURFACES, WITH SEAMLESS TRANSITIONS, UNLESS OTHERWISE INDICATED.
E. MAKE NEAT TRANSITIONS BETWEEN DIFFERENT SURFACES, MAINTAINING TEXTURE AND APPEARANCE.

3.02 PROGRESS CLEANING
A. MAINTAIN AREAS FREE OF WASTE MATERIALS, DEBRIS, AND RUBBISH. MAINTAIN SITE IN A CLEAN AND ORDERLY CONDITION.

3.03 PROTECTION OF INSTALLED WORK
A. PROTECT INSTALLED WORK FROM DAMAGE BY CONSTRUCTION OPERATIONS.
B. PROVIDE SPECIAL PROTECTION WHERE SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS.
C. REMOVE PROTECTIVE COVERINGS WHEN NO LONGER NEEDED; REUSE OR RECYCLE PLASTIC COVERINGS IF POSSIBLE.

3.04 FINAL CLEANING
A. USE CLEANING MATERIALS THAT ARE NON-HAZARDOUS.
B. CLEAN INTERIOR AND EXTERIOR GLASS, SURFACES EXPOSED TO VIEW; REMOVE TEMPORARY LABELS, STAINS AND FOREIGN SUBSTANCES, POLISH TRANSPARENT AND GLOSSY SURFACES, VACUUM CARPETED AND SOFT SURFACES.
C. REMOVE ALL LABELS THAT ARE NOT PERMANENT. DO NOT PAINT OR OTHERWISE COVER FIRE TEST LABELS OR NAMEPLATES ON MECHANICAL AND ELECTRICAL EQUIPMENT.
D. CLEAN EQUIPMENT AND FIXTURES TO A SANITARY CONDITION WITH CLEANING MATERIALS APPROPRIATE TO THE SURFACE AND MATERIAL BEING CLEANED.

3.05 CLOSEOUT PROCEDURES
A. MAKE SUBMITTALS THAT ARE REQUIRED BY GOVERNING OR OTHER AUTHORITIES.
B. NOTIFY ARCHITECT WHEN WORK IS CONSIDERED READY FOR SUBSTANTIAL COMPLETION.
C. SUBMIT WRITTEN CERTIFICATION CONTAINING CONTRACTOR'S CORRECTION PUNCH LIST, THAT CONTRACT DOCUMENTS HAVE BEEN REVIEWED, WORK HAS BEEN INSPECTED, AND THAT WORK IS COMPLETE IN ACCORDANCE WITH CONTRACT DOCUMENTS AND READY FOR ARCHITECT'S SUBSTANTIAL COMPLETION INSPECTION.
D. NOTIFY ARCHITECT WHEN WORK IS CONSIDERED FINALLY COMPLETE AND READY FOR ARCHITECT'S SUBSTANTIAL COMPLETION FINAL INSPECTION.
E. COMPLETE ITEMS OF WORK DETERMINED BY ARCHITECT LISTED IN EXECUTED CERTIFICATE OF SUBSTANTIAL COMPLETION.

SECTION 01 7800
CLOSEOUT SUBMITTALS
PART 1 GENERAL

1.01 SUBMITTALS
A. PROJECT RECORD DOCUMENTS: SUBMIT DOCUMENTS TO ARCHITECT FOR FINAL IMPLEMENTATION OF CHANGES DURING THE CONSTRUCTION PROCESS TO CREATE "RECORD" OR "AS-BUILT" DOCUMENTS AS THEY ARE COMMONLY KNOWN..
B. OPERATION AND MAINTENANCE DATA:
C. WARRANTIES AND BONDS:
1. FOR EQUIPMENT OR COMPONENT PARTS OF EQUIPMENT PUT INTO SERVICE DURING CONSTRUCTION WITH OWNER'S PERMISSION, SUBMIT DOCUMENTS WITHIN 10 DAYS AFTER ACCEPTANCE.

PART 3 EXECUTION

2.01 PROJECT RECORD DOCUMENTS
A. MAINTAIN ON SITE ONE SET OF THE FOLLOWING RECORD DOCUMENTS; RECORD ACTUAL REVISIONS TO THE WORK:
1. DRAWINGS.
2. ADDENDA.
3. CHANGE ORDERS AND OTHER MODIFICATIONS TO THE CONTRACT.

2.02 OPERATION AND MAINTENANCE DATA
A. SOURCE DATA: FOR EACH PRODUCT OR SYSTEM, LIST NAMES, ADDRESSES AND TELEPHONE NUMBERS OF SUBCONTRACTORS AND SUPPLIERS, INCLUDING LOCAL SOURCE OF SUPPLIES AND REPLACEMENT PARTS.
B. PRODUCT DATA: MARK EACH SHEET TO CLEARLY IDENTIFY SPECIFIC PRODUCTS AND COMPONENT PARTS, AND DATA APPLICABLE TO INSTALLATION. DELETE INAPPLICABLE INFORMATION.
C. DRAWINGS: SUPPLEMENT PRODUCT DATA TO ILLUSTRATE RELATIONS OF COMPONENT PARTS OF EQUIPMENT AND SYSTEMS, TO SHOW CONTROL AND FLOW DIAGRAMS. DO NOT USE PROJECT RECORD DOCUMENTS AS MAINTENANCE DRAWINGS.

2.03 WARRANTIES AND BONDS
A. OBTAIN WARRANTIES AND BONDS, EXECUTED IN DUPLICATE BY RESPONSIBLE SUBCONTRACTORS, SUPPLIERS, AND MANUFACTURERS, WITHIN 10 DAYS AFTER COMPLETION OF THE APPLICABLE ITEM OF WORK. EXCEPT FOR ITEMS PUT INTO USE WITH OWNER'S PERMISSION, LEAVE DATE OF BEGINNING OF TIME OF WARRANTY UNTIL THE DATE OF SUBSTANTIAL COMPLETION IS DETERMINED.

DIVISION 2 – SITE WORK (SEE CIVIL SHEETS)

DIVISION 3 – CONCRETE

SECTION 03 0505
UNDERSLAB VAPOR BARRIER
PART 1 GENERAL

1.01 SUBMITTALS
A. PRODUCT DATA: SUBMIT MANUFACTURERS' DATA ON MANUFACTURED PRODUCTS.
B. SAMPLES: SUBMIT SAMPLES OF UNDERSLAB VAPOR BARRIER TO BE USED.
C. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE INSTALLATION PROCEDURES AND INTERFACE REQUIRED WITH ADJACENT CONSTRUCTION.

PART 2 PRODUCTS

2.01 MATERIALS
A. UNDERSLAB VAPOR BARRIER:
1. WATER VAPOR PERMEANCE: NOT MORE THAN 0.010 PERMS, MAXIMUM.
2. THICKNESS: 20 MILLS MILS.
3. BASIS OF DESIGN:
A. STEGO INDUSTRIES LLC; STEGO WRAP VAPOR BARRIER (20-MIL): www.stegoindustries.com.
B. SUBSTITUTIONS: SEE SECTION 01 6000 - PRODUCT REQUIREMENTS.
B. ACCESSORY PRODUCTS: VAPOR BARRIER MANUFACTURER'S RECOMMENDED TAPE, ADHESIVE, MASTIC, ETC., FOR SEALING SEAMS AND PENETRATIONS IN VAPOR BARRIER.

PART 3 EXECUTION

3.01 INSTALLATION
A. INSTALL VAPOR BARRIER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ASTM E1643.
B. INSTALL VAPOR BARRIER UNDER INTERIOR SLABS ON GRADE; LAP SHEET OVER FOOTINGS AND SEAL TO FOUNDATION WALLS.

SECTION 03 3000
CAST-IN-PLACE CONCRETE
PART 1 GENERAL

1.01 SUBMITTALS
A. PRODUCT DATA: SUBMIT MANUFACTURERS' DATA ON MANUFACTURED PRODUCTS SHOWING COMPLIANCE WITH SPECIFIED REQUIREMENTS AND INSTALLATION INSTRUCTIONS.

1.02 QUALITY ASSURANCE
A. PERFORM WORK OF THIS SECTION IN ACCORDANCE WITH ACI 301 AND ACI 318.
B. FOLLOW RECOMMENDATIONS OF ACI 305R WHEN CONCRETING DURING HOT WEATHER.
C. FOLLOW RECOMMENDATIONS OF ACI 306R WHEN CONCRETING DURING COLD WEATHER.

PART 2 PRODUCTS

2.01 FORMWORK
A. FORM MATERIALS: CONTRACTOR'S CHOICE OF STANDARD PRODUCTS WITH SUFFICIENT STRENGTH TO WITHSTAND HYDROSTATIC HEAD WITHOUT DISTORTION IN EXCESS OF PERMITTED TOLERANCES.
1. FORM FACING FOR EXPOSED FINISH CONCRETE: CONTRACTOR'S CHOICE OF MATERIALS THAT WILL PROVIDE SMOOTH, STAIN-FREE FINAL APPEARANCE.
2. FORM COATING: RELEASE AGENT THAT WILL NOT ADVERSELY AFFECT CONCRETE OR INTERFERE WITH APPLICATION OF COATINGS.
3. FORM TIES: TAPER REMOVABLE BOLT TYPE THAT WILL LEAVE NO METAL WITHIN 1-1/2 INCHES OF CONCRETE SURFACE.

2.02 REINFORCEMENT
A. REINFORCING STEEL: ASTM A615/A615M, GRADE 60 - 60,000 PSI.
1. TYPE: DEFORMED BILLET-STEEL BARS.
2. FINISH: UNFINISHED, UNLESS OTHERWISE INDICATED.
B. STEEL WELDED WIRE REINFORCEMENT: ASTM A 185/A 185M, PLAIN TYPE.
C. REINFORCEMENT ACCESSORIES:
1. TIE WIRE: ANNEALED, MINIMUM 16 GAGE, 0.0508 INCH.
2. CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS: SIZED AND SHAPED FOR ADEQUATE SUPPORT OF REINFORCEMENT DURING CONCRETE PLACEMENT.

2.03 CONCRETE MATERIALS
A. CEMENT: ASTM C150, TYPE I - NORMAL PORTLAND TYPE.
B. FINE AND COARSE AGGREGATES: ASTM C 33.
C. FLY ASH: ASTM C618, CLASS C OR F.
D. WATER: CLEAN AND NOT DETRIMENTAL TO CONCRETE.
E. FIBER REINFORCEMENT: ALKALI-RESISTANT POLYPROPYLENE COMPLYING WITH ASTM C1116/C1116M.

2.04 ADMIXTURES
A. DO NOT USE CHEMICALS THAT WILL RESULT IN SOLUBLE CHLORIDE IONS IN EXCESS OF 0.1 PERCENT BY WEIGHT OF CEMENT.

2.05 ACCESSORY MATERIALS
A. UNDERSLAB VAPOR RETARDER: MULTI-LAYER, FABRIC-, CORD-, GRID-, OR ALUMINUM-REINFORCED POLYETHYLENE OR EQUIVALENT, COMPLYING WITH ASTM E1745, CLASS A; STATED BY MANUFACTURER AS SUITABLE FOR INSTALLATION IN CONTACT WITH SOIL OR GRANULAR FILL UNDER CONCRETE SLABS. THE USE OF SINGLE PLY POLYETHYLENE IS PROHIBITED.
B. NON-SHRINK CEMENTITIOUS GROUT: PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS.

2.06 CURING MATERIALS
A. CURE CONCRETE ACCORDING TO ACI 308.1 BY ONE OR MORE OF THE FOLLOWING METHODS
1. EVAPORATION REDUCER: LIQUID THIN-FILM-FORMING COMPOUND THAT REDUCES RAPID MOISTURE LOSS CAUSED BY HIGH TEMPERATURE, LOW HUMIDITY, AND HIGH WINDS; INTENDED FOR APPLICATION IMMEDIATELY AFTER CONCRETE PLACEMENT.
2. CURING COMPOUND, NATURALLY DISSIPATING: CLEAR, WATER-BASED, LIQUID MEMBRANE-FORMING COMPOUND; COMPLYING WITH ASTM C309.
3. CURING AND ANTI-SPALLING COMPOUND: BOILED LINSEED OIL COMPOUND.
4. CURING COMPOUND, NON-DISSIPATING: LIQUID, MEMBRANE-FORMING, CLEAR, NON-YELLOWING ACRYLIC; COMPLYING WITH ASTM C309.
5. MOISTURE-RETAINING SHEET: ASTM C171.
6. WATER: POTABLE, NOT DETRIMENTAL TO CONCRETE.

2.07 CONCRETE MIX DESIGN
A. PROPORTIONING NORMAL WEIGHT CONCRETE: COMPLY WITH ACI 211.1 RECOMMENDATIONS.
B. CONCRETE STRENGTH: ESTABLISH REQUIRED AVERAGE STRENGTH FOR EACH TYPE OF CONCRETE ON THE BASIS OF FIELD EXPERIENCE OR TRIAL MIXTURES, AS SPECIFIED IN ACI 301.
C. ADMIXTURES: ADD ACCEPTABLE ADMIXTURES AS RECOMMENDED IN ACI 211.1 AND AT RATES RECOMMENDED OR REQUIRED BY MANUFACTURER.
D. NORMAL WEIGHT CONCRETE:
1. COMPRESSIVE STRENGTH, WHEN TESTED IN ACCORDANCE WITH ASTM C39/C39M AT 28 DAYS: AS SCHEDULED.
2. FLY ASH CONTENT: MAXIMUM 15 PERCENT OF CEMENTITIOUS MATERIALS BY WEIGHT.

PART 3 EXECUTION

3.01 PREPARATION
A. FORMWORK: COMPLY WITH REQUIREMENTS OF ACI 301. DESIGN AND FABRICATE FORMS TO SUPPORT ALL APPLIED LOADS UNTIL CONCRETE IS CURED, AND FOR EASY REMOVAL WITHOUT DAMAGE TO CONCRETE.

3.02 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS
A. COMPLY WITH REQUIREMENTS OF ACI 301. CLEAN REINFORCEMENT OF LOOSE RUST AND MILL SCALE, AND ACCURATELY POSITION, SUPPORT, AND SECURE IN PLACE TO ACHIEVE NOT LESS THAN MINIMUM CONCRETE COVERAGE REQUIRED FOR PROTECTION.

3.03 PLACING CONCRETE
A. PLACE CONCRETE IN ACCORDANCE WITH ACI 304R.
B. PLACE CONCRETE FOR FLOOR SLABS IN ACCORDANCE WITH ACI 302.1R.
C. FINISH FLOORS LEVEL AND FLAT, UNLESS OTHERWISE INDICATED, WITHIN THE TOLERANCES SPECIFIED BELOW.

3.04 FLOOR FLATNESS AND LEVELNESS TOLERANCES
A. MINIMUM F(F) FLOOR FLATNESS AND F(L) FLOOR LEVELNESS VALUES:
1. UNDER CARPETING: F(F) OF 25; F(L) OF 20, ON-GRADE ONLY.
2. UNDER THIN RESILIENT FLOORING AND THINSET TILE: F(F) OF 35; F(L) OF 25, ON-GRADE ONLY.
B. MEASURE F(F) AND F(L) IN ACCORDANCE WITH ASTM E1155, WITHIN 48 HOURS AFTER SLAB INSTALLATION; REPORT BOTH COMPOSITE OVERALL VALUES AND LOCAL VALUES FOR EACH MEASURED SECTION.
C. CORRECT THE SLAB SURFACE IF COMPOSITE OVERALL VALUE IS LESS THAN SPECIFIED AND IF LOCAL VALUE IS LESS THAN TWO-THIRDS OF SPECIFIED VALUE OR LESS THAN F(F) 13/F(L) 10.
D. PROVIDE REMEDIATION TO CORRECT DEFECTS BY GRINDING, PLANING, SURFACE REPAIR, RE-TOPPING, OR BY REMOVAL AND REPLACEMENT OF THE DEFECTIVE WORK AT NO ADDITIONAL COST TO THE OWNER OR ARCHITECT. AREAS REQUIRING CORRECTIVE WORK WILL BE IDENTIFIED. ADDITIONAL TESTING WILL BE REQUIRED TO CONFIRM THE ENTIRE AREA IS IN COMPLIANCE. RE-MEASURE CORRECTED AREAS BY THE SAME PROCESS.
E. SLOPE SLAB TO DRAIN IN AREAS IDENTIFIED ON PLANS.

3.05 CONCRETE FINISHING
A. REPAIR SURFACE DEFECTS, INCLUDING TIE HOLES, IMMEDIATELY AFTER REMOVING FORMWORK.
B. CONCRETE SLABS: FINISH TO REQUIREMENTS OF ACI 302.1R, AND AS FOLLOWS:
1. DECORATIVE EXPOSED SURFACES: TROWEL AS DESCRIBED IN ACI 302.1R; USE STEEL-REINFORCED PLASTIC TROWEL BLADES INSTEAD OF STEEL BLADES TO AVOID BLACK-BURNISH MARKS; DECORATIVE EXPOSED SURFACES INCLUDE SURFACES TO BE STAINED OR DYED, PIGMENTED CONCRETE, SURFACES TO RECEIVE LIQUID HARDENERS, SURFACES TO BE POLISHED, AND ALL OTHER EXPOSED SLAB SURFACES.

3.06 CURING AND PROTECTION
A. COMPLY WITH REQUIREMENTS OF ACI 308R. IMMEDIATELY AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY.

3.07 JOINT DEVICES & FILLER MATERIALS
A. JOINT FILLER: ASTM D1751; ASPHALT IMPREGNATED FIBERBOARD OR FELT, THICKNESS TO SUIT APPLICATION.

3.08 FIELD QUALITY CONTROL
A. FIELD INSPECTION AND TESTING WILL BE PERFORMED IN ACCORDANCE WITH ACI 301 BY AN INDEPENDENT TESTING FIRM EMPLOYED BY THE CONTRACTOR. PROVIDE FREE ACCESS TO WORK AND COOPERATE WITH TESTING FIRM. SUBMIT PROPOSED MIX DESIGN OF EACH CLASS OF CONCRETE TO INSPECT AND TESTING FIRM FOR REVIEW PRIOR TO COMMENCEMENT OF WORK. PERFORM TEST OF CEMENT AND AGGREGATES TO ENSURE CONFORMANCE WITH SPECIFIED REQUIREMENT.
B. THREE CONCRETE TEST CYLINDERS WILL BE TAKEN FOR EVERY 75 OR LESS CU YDS OF EACH CLASS OF CONCRETE PLACED. ONE ADDITIONAL TEST CYLINDER WILL BE TAKEN DURING COLD WEATHER CONCRETING, CURED ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS. ONE SLUMP TEST WILL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN. ONE AIR CONTENT TEST WILL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN. RECORD TEMPERATURE OF CONCRETE SAMPLE FOR EACH STRENGTH TEST AND ATMOSPHERIC TEMPERATURE AT THAT TIME.

3.09 REINFORCING STEEL
A. ALL REINFORCED BARS SHALL BE DETAILED, BOLSTERED AND SUPPORTED IN ACCORDANCE WITH ACI 315 AND STRUCTURAL NOTES. PLACE STEEL IN CENTER OF WALL AND DOWEL, UNLESS OTHERWISE INDICATED, TO FOOTING OR TO STRUCTURE ABOVE AND BELOW WITH SAME DOWEL SIZE AND SPACING AS VERTICAL REINFORCEMENT. ALL DOWELS SHALL HAVE AT LEAST 30 DIAMETERS EMBEDMENT. PROVIDE CORNER BARS AT ALL INTERSECTING CORNERS. USE SAME SIZE BAR AND SPACING AS HORIZONTAL WALL REINFORCEMENT.

3.10 ANCHOR PLATE GROUT
A. COMMERCIAL NON-SHRINK GROUT CONFORMING TO DEPT. OF ARMY CORPS OF ENGINEERS CE-20-401 AND CRD-C58862 "EMBECO" PRE-MIXING GROUT, MASTER BUILDERS CO., DIVISION OF AMERICAN MARIETTA CO., CLEVELAND, OHIO. LITHOCHROME METALLIC GROUT, L.M. SCHOFIELD CO. LOS ANGELES, CALIFORNIA.

3.11 GRAVEL UNDER SLABS
A. GRAVEL TO BE 1/4 TO 1 INCH PLACED MINIMUM OF 4 INCHES LEVEL AND CONSOLIDATED THOROUGHLY.

DIVISION 4 - MASONRY

SECTION 04 2200
CONCRETE MASONRY UNITS
PART 1 GENERAL

1.01 SUBMITTALS
A. SUBMIT PRODUCT DATA FOR MORTAR, WALL TIES, ANCHORS, AND OTHER ACCESSORIES. SUBMIT SAMPLES OF DECORATIVE BLOCK, FACE BRICK UNITS, AND MORTAR TO ILLUSTRATE COLOR, TEXTURE, AND EXTREMES OF COLOR RANGE.
B. PROVIDE ALL MASONRY UNITS IN SIZES AND SHAPES AS SHOWN ON THE DRAWINGS.
C. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

PART 2 PRODUCTS

2.01 MATERIALS
A. HOLLOW LOAD BEARING CONCRETE MASONRY UNITS: ASTM C90, TYPE II-NONMOISTURE CONTROLLED; STANDARD WEIGHT. DECORATIVE DESIGN AND COLOR AS SELECTED.
B. GROUT: PORTLAND CEMENT, ASTM C150, TYPE I; FINE AND COURSE AGGREGATE, ASTM C404; CLEAN AND POTABLE WATER. 3,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS; 8-10 INCH SLUMP; PREMIXED TYPE, ASTMC94; TEST EACH LOAD IN ACCORDANCE WITH ASTM C1019.
C. MORTAR: PREMIX TYPE, ASTM C387, TYPE M OR TYPE S CEMENT, 1,800 PSI COMPRESSIVE STRENGTH. MOISTURE CONTROL: HYDROSHIELD, OR EQUIVALENT; ONE QUART PER BAG OF CEMENT. BONDING AGENT: LATEX TYPE. WATER: CLEAN AND POTABLE. INSTALLATION: MSJC SPEC. MANUFACTURED BY: SPECIFIED MIX, QUICKCRETE CO., OR EQUIVALENT. MORTAR COLOR: MINERAL OXIDE PIGMENT; COLOR AS SELECTED; MANUFACTURED BY SOLOMON, DAVIS, OR EQUIVALENT. DO NOT USE ANIT-FREEZE ADDITIVES.

2.02 ACCESSORIES
A. SINGLE WYTHE JOINT REINFORCEMENT: LADDER TYPE; COLD DRAWN STEEL WIRE CONFORMING TO ASTM A951, HOT DIP GALVANIZED AFTER FABRICATION; 3/16 INCH SIDE RODS WITH CROSS TIES.
B. REINFORCING STEEL: ASTM A615/A615M, 60 KSI YIELD GRADE, DEFORMED BILLET BARS, UNCOATED FINISH. MUST BEAR GRADE MARKINGS.
C. WALL TIES: CORRUGATED FORMED SHEET METAL, 22 GAGE THICK, OR W1.7 TIES, HOT DIP GALVANIZED TO ASTM A153/A135M B2 FINISH. LENGTH AS NECESSARY TO ENGAGE HORIZONTAL JOINT REINFORCEMENT. PLACE WALL TIES AT NO GREATER THAN 16 INCHES ON CENTER HORIZONTILY AND VERTICALLY.
D. FLASHING: COMPOSITE SHEET OF 32 MIL RUBBERIZED ASPHALT COMPOUND INTEGRALLY BONDED TO CROSS LAMINATED 8 MIL POLYETHYLENE; 40 MIL TOTAL THICKNESS: PERM-A-BARRIER MANUFACTURED BY W.R. GRACE & CO.
E. MOISTURE BARRIER: BUILDING WRAP MANUFACTURED BY TYVEK.
F. WEEPS: MOLDED POLYVINYL CHLORIDE GRILLES; INSECT PROOF; #D/A 1006 MANUFACTURED BY DUR-O-WALL.
G. JOINT FILLER: CLOSED CELL POLYETHYLENE ROPE; OVERSIZED 50% TO JOINT WIDTH; SELF EXPANDING; MAXIMUM LENGTHS POSSIBLE.
H. CLEANING SOLUTION: NON-ACIDIC, NOT HARMFUL TO MASONRY WORK OR ADJACENT MATERIALS, AS RECOMMENDED BY THE MASONRY UNIT MANUFACTURER.
I. PREFORMED CONTROL JOINTS: POLYVINYL CHLORIDE MATERIAL. PROVIDE WITH CORNER AND TEE ACCESSORIES, CEMENT FUSED JOINTS

PART 3 EXECUTION

3.01 PLACING AND BONDING
A. LAY MASONRY IN RUNNING BOND, UNLESS OTHERWISE INDICATED, WITH FULL HEAD AND BED JOINTS. LAY TO PROVIDE NOT LESS THAN 1/3 OF A UNIT AT CORNERS. ALL JOINTS SHALL BE UNIFORM WIDTH AND THICKNESS. TOOL EXPOSED JOINTS TO UNIFORM FACE. INTERLOCK INTERSECTIONS AND EXTERNAL CORNERS. ISOLATE MASONRY PARTITIONS FROM VERTICAL STRUCTURAL MEMBERS WITH A CONTROL JOINT. ISOLATE TOP JOINT OF MASONRY FROM HORIZONTAL FRAMING MEMBERS, SLABS OR DECKS WITH COMPRESSIBLE JOINT FILLER. INSTALL WEEP HOLES IN VENEER AT 32 INCH ON CENTER ABOVE FLASHING, SHELF ANGLES, AND AT BOTTOM OF WALLS. INSTALL HORIZONTAL JOINT REINFORCEMENT 16 INCHES ON CENTER. PLACE JOINT REINFORCEMENT CONTINUOUS IN FIRST AND SECOND JOINT BELOW TOP OF WALLS. POUR LOOSE INSULATION IN BLOCK CORES AS SHOWN ON THE DRAWINGS.
B. INSTALL VENEER TIES AT 16 INCHES OC. VERTICALLY AND 16 INCHES OC. HORIZONTALLY. PLACE AT EVERY OTHER COURSE AROUND PERIMETER OF OPENINGS, WITHIN 12 INCHES OF OPENING. BEND END OF EACH TIE AROUND HORIZONTAL REINFORCEMENT.

3.02 TOLERENCES
A. MAX. VARIATION FROM PLUMB AND STRAIGHT: 1/4 INCH IN 10 FT, NON-CUMULATIVE. MAX. VARIATION FROM LEVEL COURSING: 1/8 INCH IN 3 FT, 1/4 INCH IN 10 FT, 1/2 INCH IN 30 FT.
B. CLEAN ALL WORK THOROUGHLY USING NON-METALLIC BRUSHES AND CLEANING SOLUTION AND RINSE WITH WATER. PROTECT ADJACENT FINISHES. ALL FINISHED SURFACES TO BE UNMARRED.

DIVISION 6 - CARPENTRY

SECTION 06 1753
SHOP-FABRICATED WOOD TRUSSES
PART 1 GENERAL

1.01 SECTION INCLUDES
A. SHOP FABRICATED WOOD TRUSSES FOR ROOF FRAMING.
B. BRIDGING, BRACING, AND ANCHORAGE.

1.02 REFERENCE STANDARDS
A. TPI 1 - NATIONAL DESIGN STANDARD FOR METAL-PLATE-CONNECTED WOOD TRUSS CONSTRUCTION; 2014.
B. TPI BCSI 1 - BUILDING COMPONENT SAFETY INFORMATION BOOKLET: THE GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES; 2015.
C. TPI DSB-89 - RECOMMENDED DESIGN SPECIFICATION FOR TEMPORARY BRACING OF METAL PLATE CONNECTED WOOD TRUSSES; 1989.

1.03 SUBMITTALS
A. SEE SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.
B. SHOP DRAWINGS: SHOW TRUSS CONFIGURATIONS, SIZES, SPACING, SIZE AND TYPE OF PLATE CONNECTORS, CAMBERS, FRAMED OPENINGS, BEARING AND ANCHOR DETAILS, AND BRIDGING AND BRACING.
1. PROVIDE SHOP DRAWINGS STAMPED OR SEALED BY DESIGN ENGINEER.
2. SUBMIT DESIGN CALCULATIONS.

1.04 DELIVERY, STORAGE, AND HANDLING
A. HANDLE AND ERECT TRUSSES IN ACCORDANCE WITH TPI BCSI 1.
B. STORE TRUSSES IN VERTICAL POSITION RESTING ON BEARING ENDS.

PART 2 PRODUCTS

2.01 TRUSSES
A. WOOD TRUSSES: DESIGNED AND FABRICATED IN ACCORDANCE WITH TPI 1 AND TPI DSB-89 TO ACHIEVE STRUCTURAL REQUIREMENTS INDICATED.

2.02 MATERIALS
A. LUMBER:
1. MOISTURE CONTENT: BETWEEN 7 AND 9 PERCENT.
2. LUMBER FABRICATED FROM OLD GROWTH TIMBER IS NOT PERMITTED.
B. TRUSS BRIDGING: TYPE, SIZE AND SPACING RECOMMENDED BY TRUSS MANUFACTURER.

PART 3 EXECUTION

3.01 EXAMINATION
A. VERIFY THAT SUPPORTS AND OPENINGS ARE READY TO RECEIVE TRUSSES.

3.02 PREPARATION
A. COORDINATE PLACEMENT OF BEARING ITEMS.

3.03 ERECTION
A. INSTALL TRUSSES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND TPI DSB-89 AND TPI BCSI 1; MAINTAIN A COPY OF EACH TPI DOCUMENT ON SITE UNTIL INSTALLATION IS COMPLETE.
B. SET MEMBERS LEVEL AND PLUMB, IN CORRECT POSITION.
C. INSTALL PERMANENT BRIDGING AND BRACING.

DIVISION 7 - MOISTURE PROTECTION

SECTION 07 1113
BITUMINOUS DAMPPROOFING
PART 1 GENERAL

1.01 SECTION INCLUDES
A. BITUMINOUS DAMPPROOFING.
B. PROTECTION BOARDS.

1.02 RELATED REQUIREMENTS
A. SECTION 07 2100 - THERMAL INSULATION: RIGID INSULATION BOARD USED AS PROTECTION BOARD.

1.03 REFERENCE STANDARDS
A. ASTM D41/D41M - STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING; 2011 (REAPPROVED 2016).
B. ASTM D1227 - STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR ROOFING; 2013.
C. ASTM D4479/D4479M - STANDARD SPECIFICATION FOR ASPHALT ROOF OATINGS - ASBESTOS-FREE; 2007, WITH EDITORIAL REVISION (2012).
D. NRCA (WM) - THE NRCA WATERPROOFING MANUAL; 2005.

1.04 SUBMITTALS
A. SEE SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.
B. PRODUCT DATA: PROVIDE PROPERTIES OF PRIMER, BITUMEN, AND MASTICS.
C. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES AND PERIMETER CONDITIONS REQUIRING SPECIAL ATTENTION.

1.05 QUALITY ASSURANCE
A. INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

1.06 FIELD CONDITIONS
A. MAINTAIN AMBIENT TEMPERATURES ABOVE 40 DEGREES F FOR 24 HOURS BEFORE AND DURING APPLICATION UNTIL DAMPPROOFING HAS CURED.

PART 2 PRODUCTS

2.01 BITUMINOUS DAMPPROOFING
A. BITUMINOUS DAMPPROOFING: COLD-APPLIED, SPRAY-GRADE; ASPHALT BASE, VOLATILE PETROLEUM SOLVENTS, AND OTHER CONTENT, SUITABLE FOR APPLICATION BY SPRAY, BRUSH, ROLLER, OR SQUEEGEE; ASBESTOS-FREE; SUITABLE FOR APPLICATION ON VERTICAL AND HORIZONTAL SURFACES.
1. COMPOSITION: TYPE II, MINIMUM, ASBESTOS FREE.
2. VOC CONTENT: NOT MORE THAN PERMITTED BY LOCAL, STATE, AND FEDERAL REGULATIONS.
3. APPLIED THICKNESS: 1/16 INCH, MINIMUM, WET FILM.
4. PRODUCTS:
A. W. R. MEADOWS, INC; SEALMASTIC SPRAY-MASTIC: www.wrmeadows.com/#sle.
B. KARNAK CORP. 83 FIBERED: www.karnakcorp.com
C. SUBSTITUTIONS: SEE SECTION 01 6000 - PRODUCT REQUIREMENTS.
B. PRIMERS, MASTICS, AND RELATED MATERIALS: TYPE AS RECOMMENDED BY DAMPPROOFING MANUFACTURER.

2.02 BITUMEN MATERIALS
A. COLD ASPHALTIC TYPE:
1. BITUMEN: EMULSIFIED ASPHALT, ASTM D1227;WITH FIBER REINFORCEMENT OTHER THAN ASBESTOS (TYPE II).
2. ASPHALT PRIMER: COMPATIBLE WITH SUBSTRATE.

2.03 ACCESSORIES
A. PROTECTION BOARD: RIGID INSULATION SPECIFIED IN SECTION 07 2100.

PART 3 EXECUTION

3.01 EXAMINATION
A. VERIFY EXISTING CONDITIONS ARE ACCEPTABLE PRIOR TO STARTING THIS WORK.
B. VERIFY SUBSTRATE SURFACES ARE DURABLE, FREE OF MATTER DETRIMENTAL TO ADHESION OR APPLICATION OF DAMPPROOFING SYSTEM.
C. VERIFY THAT ITEMS PENETRATING SURFACES TO RECEIVE DAMPPROOFING ARE SECURELY INSTALLED.

3.02 PREPARATION
A. PROTECT ADJACENT SURFACES NOT DESIGNATED TO RECEIVE DAMPPROOFING.
B. CLEAN AND PREPARE SURFACES TO RECEIVE DAMPPROOFING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
C. DO NOT APPLY DAMPPROOFING TO SURFACES UNACCEPTABLE TO MANUFACTURER.
D. APPLY MASTIC TO SEAL PENETRATIONS, SMALL CRACKS, OR MINOR HONEYCOMBS IN SUBSTRATE.

3.03 APPLICATION
A. FOUNDATION WALLS: APPLY TWO COATS OF ASPHALT DAMPPROOFING.
B. FOUNDATION WALLS: PATCH DISTURBED AREAS OF EXISTING DAMPPROOFING WITH TWO ADDITIONAL COATS OF DAMPPROOFING OF THE SAME GENERIC TYPE.
C. PERFORM THIS WORK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NRCA (WM) APPLICABLE REQUIREMENTS.
D. PRIME SURFACES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NRCA (WM) APPLICABLE REQUIREMENTS.
E. APPLY BITUMEN BY SPRAY APPLICATION.
F. APPLY BITUMEN IN ONE COAT, CONTINUOUS AND UNIFORM, AT A RATE OF 25 SQ FT/GAL PER COAT.
G. APPLY FROM 2 INCHES BELOW FINISH GRADE ELEVATION DOWN TO TOE OF FOOTINGS.
H. SEAL ITEMS WATERTIGHT WITH MASTIC, THAT PROJECT THROUGH DAMPPROOFING SURFACE.
I. PLACE PROTECTION BOARD DIRECTLY OVER DAMPPROOFING, BUTT JOINTS, AND ADHERE TO TACKY DAMPPROOFING.
J. SCRIBE AND CUT BOARDS AROUND PROJECTIONS, PENETRATIONS, AND INTERRUPTIONS.

SECTION 07 2100 – THERMAL INSULATION
BATT INSULATION
PART 2 PRODUCTS

2.01 GLASS FIBER BLANKET BATT INSULATION:
A. GLASS FIBERS FORMED WITH BINDERS INTO RESILIENT FLEXIBLE BLANKETS OR SEMI-RIGID BATTS; ASTM C665 TYPES I, II, OR III, UNFACED OR FACED UNITS AS INDICATED, DENSITIES OF NOT LESS THAN 0.5 LB. PER CU. FT., K-VALUE OF .27; MANUFACTURER'S STANDARD LENGTHS AND WIDTHS AS REQUIRED TO COORDINATE WITH SPACES TO BE INSULATED.

SECTION 07 4113
MANUFACTURED ROOF PANELS
PART 1 GENERAL

1.01 ADMINISTRATIVE REQUIREMENTS
A. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SERVICES FOR ALL STANDING SEAM METAL ROOF PANELS. COMPLETELY COORDINATE WITH WORK OF ALL OTHER TRADES ALTHOUGH SUCH WORK MAY NOT SPECIFICALLY BE INDICATED.

1.02 SUBMITTALS
A. SUBMIT COMPLETE SHOP DRAWINGS AND ERECTION DETAILS. SUBMIT SAMPLES AND COLOR CHIPS FOR ALL PROPOSED FINISHES.
B. CERTIFICATION SHALL BE SUBMITTED, BASED ON INDEPENDENT TESTING LABORATORY,INDICATING NO MEASURABLE WATER PENETRATION OR AIR LEAKAGE THROUGH THE SYSTEM WHEN TESTED IN ACCORDANCE WITH ASTM E-1680 AND E-1646. UP LIFT RATING I90.

1.03 QUALITY ASSURANCE
A. INSTALLER QUALIFICATIONS:
1. AN EXPERIENCED INSTALLER WHO HAS COMPLETED METAL ROOF PANEL PROJECTS SIMILAR IN MATERIAL,DESIGN,AND EXTENT TO THAT INDICATED FOR THIS PROJECT AND WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE.
B. APPLICABLE STANDARDS:
1. SMACNA: “ARCHITECTURAL SHEET METAL MANUAL".
C. FINISHES:
1. POWDERED COAT COLOR TO MATCH ROOF PANELS.
2. SHALL BE FULL STRENGTH KYNAR 500® PVDF RESIN-BASED COATING APPLIED BY THE MANUFACTURER ON A CONTINUOUS COIL COATING LINE, WITH A TOP SIDE DRY FILM THICKNESS OF 0.70 TO 0.90 MIL OVER 0.25 TO 0.35 MIL PRIME COAT, TO PROVIDE A TOTAL DRY FILM THICKNESS OF 0.95 TO 1.25 MIL. FILM THICKNESS OF 0.25 MIL. FINISH SHALL CONFORM TO ALL TESTS FOR ADHESION, FLEXIBILITY,AND LONGEVITY AS SPECIFIED BY THE KYNAR 500® PVDF RESIN-BASED COATING SUPPLIER.

1.04 WARRANTY
A. FURNISH A WARRANTY COVERING BARE METAL AGAINST RUPTURE, STRUCTURAL FAILURE AND PERFORATION DUE TO NORMAL ATMOSPHERIC CORROSION EXPOSURE FORA PERIOD OF 20 YEARS FROM DATE OF SUBSTANTIAL INCLUDING PAINT FINISH AGAINST CRACKING, CHECKING, BLISTERING, PEELING, FLAKING, CHIPPING, CHALKING AND FADING FOR A PERIOD OF TWENTY (20) YEARS.

1.05 MANUFACTURERES
A. SPECIFIED PRODUCT IS BERRIDGE ZEE-LOCK SYSTEM, SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING METAL PANELS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, AEP – SPAN; DALLAS, TEXAS ALUMAX CORP; MESQUITE, TEXAS MBCI METAL ROOF AND WALL SYSTEMS; SALT LAKE CITY, UTAH IMSA BUILDING PRODUCTS; SALT LAKE CITY, UTAH 6. OR APPROVED EQUIVELANT.

3/17/2023 9:21:27 AM C:\Users\ryanl\Documents\820201 - Layton City Center Park V23_ryanl@designwestarchitects.com.rvt

design west | architects
255 SOUTH 300 WEST LOGAN UT 84321
795 NORTH 400 WEST SALT LAKE CITY UT 84103

LAYTON CITY - HEATED RESTROOM
LAYTON, UT
LAYTON CITY PARKS AND RECREATION DEPARTMENT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 820201
DRAWN BY: HARRIS
CHECKED BY: LEMON
ISSUED: 02.03.2023

RYAN WAYNE LEMON
8668330-0301

FOR CONSTRUCTION

SPECIFICATIONS
G-002

PART 2 PRODUCTS

2.01 MATERIALS

A. PREFORMED METAL PANELS 2" HIGH VERTICAL LEGS SHALL BE SPACED AT 16" ON CENTER AND SHALL HAVE NO EXPOSED FASTENERS.

B. PANELS SHALL BE PREFINISHED SITE-FORMED 22 GAGE GALVALUME ASTM 792-86 A255 PORTABLE ROLLFORMER IN CONTINUOUS LENGTHS FROM RIDGE TO EAVE OR FACTORY-FORMED TO 40' MAX.CONTINUOUS ZEE RIB SHALL BE 1-3/8" WIDE AND 2-1/8" IN HEIGHT.

C. RIB SHALL BE CONNECTED TO PURLIN WITH TWO #12-14 X 1" SELF-DRILLING/TAPPING FASTENERS (ZEE CLIPS SPACED AT 3'-0"). VINYL WEATHERSEAL INSERT TO BE FACTORY-INSTALLED OVER CONTINUOUS ZEE RIB.

D. SIDE LAP TO BE MECHANICALLY SEAMED WITH A POWERED SEAMER. WHEN REQUIRED, PANEL ASSEMBLY TO BEAR UNDERWRITERS LABORATORIES LABEL UL90.

2.02 UNDERLAYMENT MATERIALS

A. ALS: 30# BUILDING FELT WHERE INDICATED. SELF-ADHERING SHEET UNDERLAYMENT, POLYETHYLENE FACED (ICE AND WATER SHIELD): ASTM D 1970, MINIMUM OF 40 MILS (1.0 MM) THICK; SLIP-RESISTING, POLYETHYLENE-FILM-REINFORCED TOP SURFACE LAMINATED TO SBS-MODIFIED ASPHALT ADHESIVE, WITH RELEASE-PAPER BACKING; COLD APPLIED. PRODUCTS: HIGH TEMP PRODUCTS ONLY CARLISLE COATINGS & WATERPROOFING, DIV. OF CARLISLE COMPANIES INC.; DRI-START "A". GRACE, W.R. & CO.; GRACE ICE AND WATER SHIELD. HENRY COMPANY; PERMA-SEAL PE. PROVIDE WHERE INDICATED ON DRAWINGS AND PER MANUFACTURER RECOMMENDATIONS FOR SUBSTRATE INDICATED.

B. FASTENERS: ALUMINUM ROOF PANELS:USE ALUMINUM OR STAINLESS STEEL FASTENERS FOR SURFACES EXPOSED TO THE EXTERIOR AND ALUMINUM OR GALVANIZED STEEL FASTENERS FOR SURFACES EXPOSED TO THE INTERIOR.

C. RIDGE VENTS: MANUFACTURERS STANDARD AS INDICATED ON THE DRAWINGS.

PART 3 EXECUTION

3.01 PREPARATION

A. INSPECT INSTALLED WORK OF OTHER TRADES AND VERIFY THAT SUCH WORK IS COMPLETE TO A POINT WHERE THIS WORK MAY CONTINUE. VERIFY THAT INSTALLATION MAY BE MADE IN ACCORDANCE WITH APPROVED SHOP DRAWINGS AND MANUFACTURER'S INSTRUCTIONS. COORDINATE WITH THE METAL ROOF SYSTEM MANUFACTURER TO INSURE THAT REDUCED CLIP SPACING AT EAVES, RAKES, RIDGES AND CORNER AREAS ARE ACCOMMODATED.

3.02 DISCREPANCIES

A. IN EVENT OF DISCREPANCY, NOTIFY THE ARCHITECT. DO NOT PROCEED WITH INSTALLATION UNTIL DISCREPANCIES HAVE BEEN RESOLVED.

3.03 INSATALLATION

A. INSTALL METAL ROOF SYSTEM SO THAT IT IS WEATHER TIGHT, WITHOUT WAVES, WARPS, BUCKLES, FASTENING STRESSES OR DISTORTION, ALLOWING FOR EXPANSION AND CONTRACTION. INSTALL METAL ROOF SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SHOP DRAWINGS.

B. PROVIDE CONCEALED ANCHORS AT ALL PANEL ATTACHMENT LOCATIONS. INSTALL ANCHORS TO ACCOMMODATE THERMAL EXPANSION.

C. INSTALL PANELS PLUMB, LEVEL AND STRAIGHT WITH SEAMS AND RIBS PARALLEL, CONFORMING TO DESIGN AS INDICATED.

D. SNAP-JOINT:

1. NEST STANDING SEAMS AND FASTEN TOGETHER BY INTERLOCKING AND COMPLETELY ENGAGING FACTORY-APPLIED SEALANT. INSTALL ROOF PANELS TO WITHSTAND RETAINED SNOW & ICE LOADS.

3.04 CLEAN AND PROTECTION

A. DISPOSE OF EXCESS MATERIALS AND REMOVE DEBRIS FROM SITE. CLEAN WORK IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROTECT WORK AGAINST DAMAGE UNTIL FINAL ACCEPTANCE.

B. REPLACE OR REPAIR TO THE SATISFACTION OF THE ARCHITECT (OWNER), ANY WORK THAT BECOMES DAMAGED PRIOR TO FINAL ACCEPTANCE.

C. TOUCH UP MINOR SCRATCHES AND ABRASIONS WITH TOUCH UP PAINT SUPPLIED BY THE METAL ROOF SYSTEM MANUFACTURER.

SECTION 07 6200
SHEET METAL FLASHING AND TRIM
PART 1 GENERAL

1.01 SUBMITTALS

A. SHOP DRAWINGS: INDICATE MATERIAL PROFILE, JOINTING PATTERN, JOINTING DETAILS, FASTENING METHODS, FLASHINGS, TERMINATIONS, AND INSTALLATION DETAILS.

1.02 QUALITY ASSURANCE

A. PERFORM WORK IN ACCORDANCE WITH SMACNA 1793 AND CDA A4050 REQUIREMENTS AND STANDARD DETAILS, EXCEPT AS OTHERWISE INDICATED.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. PRE-FINISHED ALUMINUM: ASTM B209 (ASTM B209M); 0.032 INCH THICK; PLAIN FINISH SHOP PRE-COATED WITH FLUOROPOLYMER COATING.

1. FLUOROPOLYMER COATING: HIGH PERFORMANCE ORGANIC FINISH, AAMA 2604; MULTIPLE COAT, THERMALLY CURED FLUOROPOLYMER FINISH SYSTEM.
2. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS.

2.02 ACCESSORIES

A. FASTENERS: SAME MATERIAL AND FINISH AS FLASHING METAL, WITH SOFT NEOPRENE WASHERS.

B. SEALANT TO BE CONCEALED IN COMPLETED WORK: NON-CURING BUTYL SEALANT.

C. SEALANT TO BE EXPOSED IN COMPLETED WORK: ASTM C920; ELASTOMERIC SEALANT, 100 PERCENT SILICONE WITH MINIMUM MOVEMENT CAPABILITY OF PLUS / MINUS 25 PERCENT AND RECOMMENDED BY MANUFACTURER FOR SUBSTRATES TO BE SEALED; CLEAR.

D. PLASTIC CEMENT: ASTM D4586, TYPE I.

E. REGLETS: SURFACE MOUNTED TYPE, RIGID EXTRUDED PVC; FACE AND ENDS COVERED WITH PLASTIC TAPE.

2.03 FABRICATION

A. FORM SECTIONS TRUE TO SHAPE, ACCURATE IN SIZE, SQUARE, AND FREE FROM DISTORTION OR DEFECTS.

B. FORM PIECES IN LONGEST POSSIBLE LENGTHS.

C. FORM MATERIAL WITH FLAT LOCK SEAMS, EXCEPT WHERE OTHERWISE INDICATED. AT MOVING JOINTS, USE SEALED LAPPED, BAYONET-TYPE OR INTERLOCKING HOOKED SEAMS.

2.04 SPLASH PADS

A. PRECAST CONCRETE TYPE, OF SIZE AND PROFILES INDICATED; MINIMUM 3000 PSI AT 28 DAYS, WITH MINIMUM 5 PERCENT AIR ENTRAINMENT.

PART 3 EXECUTION

3.01 INSTALLATION

A. SECURE FLASHINGS IN PLACE USING CONCEALED FASTENERS. USE EXPOSED FASTENERS ONLY WHERE PERMITTED.

B. SEAL METAL JOINTS WATERTIGHT

DIVISION 8 – WINDOWS / DOORS

SECTION 08 1213
HOLLOW METAL FRAMES
PART 1 GENERAL

1.01 SUBMITTALS

A. SHOP DRAWINGS: DETAILS OF EACH OPENING, SHOWING ELEVATIONS, GLAZING, FRAME PROFILES, AND IDENTIFYING LOCATION OF DIFFERENT FINISHES, IF ANY.

1.02 DELIVERY, STORAGE, AND HANDLING

PART 2 PRODUCTS

2.01 STEEL DOOR FRAMES - GENERAL REQUIREMENTS

A. REFER TO DOOR AND FRAME SCHEDULE ON THE DRAWINGS FOR FRAME SIZES, FIRE RATINGS, SOUND RATINGS, FINISHING, DOOR HARDWARE TO BE INSTALLED, AND OTHER VARIATIONS, IF ANY.

B. DOOR FRAME TYPE: PROVIDE STEEL DOOR FRAMES WITH EITHER INTEGRAL CASING, FOR FIELD FINISHING, OR APPLIED CASINGS, PREFINISHED.

C. ACCESSIBILITY: COMPLY WITH ICC A117.1 AND ADA STANDARDS (2010).

D. COMBINED REQUIREMENTS: IF A PARTICULAR DOOR AND FRAME UNIT IS INDICATED TO COMPLY WITH MORE THAN ONE TYPE OF REQUIREMENT, COMPLY WITH ALL THE SPECIFIED REQUIREMENTS FOR EACH TYPE; FOR INSTANCE, AN EXTERIOR DOOR THAT IS ALSO INDICATED AS BEING SOUND-RATED MUST COMPLY WITH THE REQUIREMENTS SPECIFIED FOR EXTERIOR DOORS AND FOR SOUND-RATED DOORS; WHERE TWO REQUIREMENTS CONFLICT, COMPLY WITH THE MOST STRINGENT.

E. HARDWARE PREPARATION: IN ACCORDANCE WITH BHMA A156.115, WITH REINFORCEMENT WELDED IN PLACE, IN ADDITION TO OTHER REQUIREMENTS SPECIFIED.

2.02 STEEL DOOR FRAMES WITH INTEGRAL CASINGS

A. FINISH: FACTORY PRIMED, FOR FIELD FINISHING.

2.03 ACCESSORY MATERIALS

A. SILENCERS: RESILIENT RUBBER, FITTED INTO DRILLED HOLE; 3 ON STRIKE SIDE OF SINGLE DOOR, 3 ON CENTER MULLION OF PAIRS, AND 2 ON HEAD OF PAIRS WITHOUT CENTER MULLIONS.

2.04 FINISH MATERIALS

A. PRIMER: RUST-INHIBITING, COMPLYING WITH ANSI/SDI A250.10, DOOR MANUFACTURER'S STANDARD.

B. FACTORY FINISH: COMPLYING WITH ANSI/SDI A250.3, MANUFACTURER'S STANDARD COATING.

SECTION 08 7100
DOOR HARDWARE
PART 1 GENERAL

1.01 ADMINISTRATIVE REQUIREMENTS

A. FURNISH TEMPLATES FOR DOOR AND FRAME PREPARATION TO MANUFACTURERS AND FABRICATORS OF PRODUCTS REQUIRING INTERNAL REINFORCEMENT FOR DOOR HARDWARE.

B. CONVEY OWNER'S KEYING REQUIREMENTS TO MANUFACTURERS.

1.02 SUBMITTALS

A. HARDWARE SCHEDULE: DETAILED LISTING OF EACH ITEM OF HARDWARE TO BE INSTALLED ON EACH DOOR. USE DOOR NUMBERING SCHEME AS INCLUDED IN THE CONTRACT DOCUMENTS. IDENTIFY ELECTRICALLY OPERATED ITEMS AND INCLUDE POWER REQUIREMENTS.

1.03 QUALITY ASSURANCE

1.04 WARRANTY

A. PROVIDE 10 YEAR WARRANTY FOR DOOR CLOSERS AND LOCKSETS.

KEY TO OWNERS EXISTING KEY SYSTEM WHERE KEYED LOCKS (VERIFY WITH OWNER)

MANUFACTURERS USED:
HINGES: PBB
LOCKSETS: SCHLAGE
KICK PLATE: IVES
WALL STOP: IVES
CLOSER: SARGENT

HARDWARE SET TYPICAL: VERIFY WITH OWNER

3	EA	HINGE	5BB1 4.5X4.5 NRP	652 IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626 SCH
3	EA	SILENCER	SR64	GRY IVE
1	EA	THREASHOLD		
1	SET	WEATHERSTRIPING		
1	EA	CLOSER	1430 PSH	SARGENT
1	EA	KICK PLATE	K1050	32" ROCKWOOD

SECTION 08 8300
MIRRORS
PART 1 GENERAL (IN RESTROOMS AS SHOWN IN CONTRACT DOCUMENTS. SEE INTERIOR ELEVATIONS.)
PART 2 PRODUCTS

2.01 MATERIALS

A. MIRROR DESIGN CRITERIA: SELECT MATERIALS AND/OR PROVIDE SUPPORTS AS REQUIRED TO LIMIT MIRROR MATERIAL DEFLECTION TO 1/200, OR TO THE FLEXURE LIMIT OF GLASS, WITH FULL RECOVERY OF GLAZING MATERIALS, WHICHEVER IS LESS.

B. MIRROR GLASS: CLEAR, ANNEALED FLOAT GLASS; ASTM C1036, WITH COPPER AND SILVER COATINGS, AND PROTECTIVE OVERCOATING.

1. THICKNESS: 3/32 INCH.
2. EDGES: ARRISED.
3. SIZE: AS NOTED ON DRAWINGS.

2.02 ACCESSORIES

A. MIRROR ADHESIVE: CHEMICALLY COMPATIBLE WITH MIRROR COATING AND WALL SUBSTRATE.

PART 3 EXECUTION

3.01 INSTALLATION

A. INSTALL MIRRORS IN ACCORDANCE WITH GANA (TIPS) AND MANUFACTURERS RECOMMENDATIONS.

B. SET MIRRORS PLUMB AND LEVEL, AND FREE OF OPTICAL DISTORTION.

DIVISION 9 - FINISHES

SECTION 09 9000
PAINTING AND COATING
PART 1 GENERAL

1.01 SECTION INCLUDES

A. SCOPE: FINISH ALL INTERIOR AND EXTERIOR SURFACES EXPOSED TO VIEW, UNLESS FULLY FACTORY-FINISHED AND UNLESS OTHERWISE INDICATED, INCLUDING THE FOLLOWING:

1. BOTH SIDES AND EDGES OF PLYWOOD BACKBOARDS FOR ELECTRICAL AND TELECOM EQUIPMENT BEFORE INSTALLING EQUIPMENT.
2. EXPOSED SURFACES OF STEEL LINTELS AND LEDGE ANGLES.
3. MECHANICAL AND ELECTRICAL:
   A. IN FINISHED AREAS, PAINT ALL INSULATED AND EXPOSED PIPES, CONDUIT, BOXES, INSULATED AND EXPOSED DUCTS, HANGERS, BRACKETS, COLLARS AND SUPPORTS, MECHANICAL EQUIPMENT, AND ELECTRICAL EQUIPMENT, UNLESS OTHERWISE INDICATED.
   B. PAINT INTERIOR SURFACES OF AIR DUCTS AND CONVECTOR AND BASEBOARD HEATING CABINETS THAT ARE VISIBLE THROUGH GRILLES AND LOUVERS WITH ONE COAT OF FLAT BLACK PAINT TO VISIBLE SURFACES.
   C. PAINT CEILING SPACE ABOVE HEARTFELT LINER CLOUD FLAT BLACK.
   D. PAINT EXPOSED DUCT WORK ACCENT COLOR – SELECTED BY ARCHITECT.

B. DO NOT PAINT OR FINISH THE FOLLOWING ITEMS:

1. ITEMS FULLY FACTORY-FINISHED UNLESS SPECIFICALLY SO INDICATED; MATERIALS AND PRODUCTS HAVING FACTORY-APPLIED PRIMERS ARE NOT CONSIDERED FACTORY FINISHED.
2. ITEMS INDICATED TO RECEIVE OTHER FINISHES.
3. ITEMS INDICATED TO REMAIN UNFINISHED.
4. FIRE RATING LABELS, EQUIPMENT SERIAL NUMBER AND CAPACITY LABELS, AND OPERATING PARTS OF EQUIPMENT.
5. FLOORS, UNLESS SPECIFICALLY SO INDICATED.
6. GLASS.
7. CONCEALED PIPES, DUCTS, AND CONDUITS.

1.02 SUBMITTALS

A. PRODUCT DATA: PROVIDE COMPLETE LIST OF ALL PRODUCTS TO BE USED, WITH THE FOLLOWING INFORMATION FOR EACH:

B. SAMPLES: SUBMIT THREE PAPER "DRAW DOWN" SAMPLES, 8-1/2 BY 11 INCHES IN SIZE, ILLUSTRATING RANGE OF COLORS AVAILABLE FOR EACH FINISHING PRODUCT SPECIFIED.

1. WHERE SHEEN IS SPECIFIED, SUBMIT SAMPLES IN ONLY THAT SHEEN.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. PROVIDE ALL PAINT AND COATING PRODUCTS FROM THE SAME MANUFACTURER TO THE GREATEST EXTENT POSSIBLE.

B. PAINTS:

1. DURON, INC: www.duron.com.
2. GLIDDEN PROFESSIONAL: A PRODUCT OF PPG ARCHITECTURAL COATINGS: www.gliddenprofessional.com.
3. BENJAMIN MOORE & CO: www.benjaminmoore.com.
4. PPG ARCHITECTURAL FINISHES, INC: www.ppgat.com.
5. PRATT & LAMBERT PAINTS: www.prattandlambert.com.
6. SHERWIN-WILLIAMS COMPANY: www.sherwin-williams.com.
7. KWALL.

2.02 PAINTS AND COATINGS - GENERAL

A. PAINTS AND COATINGS: READY MIXED, UNLESS INTENDED TO BE A FIELD-CATALYZED COATING.

1. SUPPLY EACH COATING MATERIAL IN QUANTITY REQUIRED TO COMPLETE ENTIRE PROJECT'S WORK FROM A SINGLE PRODUCTION RUN.
2. DO NOT REDUCE, THIN, OR DILUTE COATINGS OR ADD MATERIALS TO COATINGS UNLESS SUCH PROCEDURE IS SPECIFICALLY DESCRIBED IN MANUFACTURER'S PRODUCT INSTRUCTIONS.

B. COLORS: AS INDICATED ON DRAWINGS

1. IN FINISHED AREAS, FINISH PIPES, DUCTS, CONDUIT, AND EQUIPMENT THE SAME COLOR AS THE WALL/CEILING THEY ARE MOUNTED ON/UNDER.

2.03 PAINT SYSTEMS - EXTERIOR

A. FERROUS METAL: FOR DECORATIVE RAILINGS, STEEL FABRICATED GUSSET PLATES, ANGLES AN D BOLTS ETC.

1. 1ST COAT-VALSPAR 13-R-50 CHROMAX PRIMER, THINED 5 TO 10% WITH 7-T-33 THINER AND APPLIED AT 2.0 MILS DRY FILM THICKNESS
   A. 2ND COAT INDUSTRIAL ACRYLIC 2.0 -4.0 MILS
   B. 3RD COAT INDUSTRIAL ACRYLIC 2.0 - 4.0 MILS
2. ZINK COATED METAL, GALVANIZED:
   A. 1ST COAT VALSPAR 13-Y-8 VAL-CHEM VINYL WASH PRIMER 0.3 TO 0.5 MILLS DRY FILM THICKNESS
   B. 1ST AND 2ND COAT INDUSTRIAL ENAMEL 1.5 MILLS DRY FILM THICKNESS
3. ALUMINUM:
   A. PRIMER: ULTRATECH UNIVERSAL WB METAL PRIMER C-309 2.0 TO 2.5 MILS
   B. 1ST AND 2ND COATS: KWAL WATERBORNE ACRYLIC GLOSS DTM C-1500 1.6 TO 2.0 MILS

2.04 PAINT SYSTEMS - INTERIOR

A. GYPSUM BOARD SUBSTRATES:

1. PRIMER: KWAL C-152 1.5 TO 2.0 MILS
2. 1ST AND 2ND COAT: SEMI GLOSS ACRYLIC ULTRATECH 2.0 TO 4.0 MILS
3. FINISH CPOATS MAY BE OMITTED BEHIND ACOUSTIC PANELS ETC.

B. FERROUS METAL:

1. PRIME COAT: KWAL: ULTRATECH WB METAL PRIMER C-309 2.0 TO 2.5 MILS
2. 1ST AND 2ND COAT: KWAL WATERBORNE ACRYLIC S/G DTM C-1520 1.6 TO 2.0 MILS PER COAT.
3. PAINT EXPOSED TO VIEW METAL DUCTS COLOR SELECTED BY ARCHITECT (NOT TO MATCH CEILING).

C. GALVANIZED SUBSTRATES:

1. PRIME COAT: DTM ACRYLIC PRIMER FINISH WHITE
2. 1ST AND 2ND COAT DTM ACRYLIC COATING DEMI-GLOSS EXTRA WHITE/TINT BASE

D. EPOXY PAINT (TOILET ROOMS AND HOUSEKEEPING)

1. PRIME COAT: PROGREEN
2. 1ST AND 2ND COAT: WATER BASED EPOXY.

E. WOOD AND HARDBOARD, OPAQUE FINISH:

1. PRIMER: KWAL: ULTRATECH ALL PURPOSE PRIMER C-135 1.4 TO 1.7 MILS
2. FINISH COATS: KWAL: ULTRATECH ZERO ACRYLIC S/G C-136 1.8 TO 2.0 MILS

PART 3 EXECUTION

3.01 PREPARATION

A. CLEAN SURFACES THOROUGHLY AND CORRECT DEFECTS PRIOR TO COATING APPLICATION.

B. PREPARE SURFACES USING THE METHODS RECOMMENDED BY THE MANUFACTURER FOR ACHIEVING THE BEST RESULT FOR THE SUBSTRATE UNDER THE PROJECT CONDITIONS.

3.02 APPLICATION

A. REMOVE UNFINISHED LOUVERS, GRILLES, COVERS, AND ACCESS PANELS ON MECHANICAL AND ELECTRICAL COMPONENTS AND PAINT SEPARATELY.

B. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

C. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY. ALLOW APPLIED COATS TO DRY BEFORE NEXT COAT IS APPLIED.

D. VACUUM CLEAN SURFACES OF LOOSE PARTICLES. USE TACK CLOTH TO REMOVE DUST AND PARTICLES JUST PRIOR TO APPLYING NEXT COAT.

E. REINSTALL ELECTRICAL COVER PLATES, HARDWARE, LIGHT FIXTURE TRIM, ESCUTCHEONS, AND FITTINGS REMOVED PRIOR TO FINISHING.

DIVISION 10 - SPECIALTIES

SECTION 10 1400
SIGNAGE
PART 1 GENERAL
PART 2 PRODUCTS

2.01 SIGNAGE APPLICATIONS

A. ACCESSIBILITY COMPLIANCE: SIGNS ARE REQUIRED TO COMPLY WITH ADA STANDARDS AND ICC A117.1 AND APPLICABLE BUILDING CODES, UNLESS OTHERWISE INDICATED; IN THE EVENT OF CONFLICTING REQUIREMENTS, COMPLY WITH THE MOST COMPREHENSIVE AND SPECIFIC REQUIREMENTS.

B. ROOM AND DOOR SIGNS: PROVIDE DOOR SIGNS FOR THE 2 RESTROOMS PLANNED.

1. SIGN TYPE: FLAT SIGNS WITH ENGRAVED PANEL MEDIA AS SPECIFIED.
2. PROVIDE "TACTILE" SIGNAGE, WITH LETTERS RAISED MINIMUM 1/32 INCH AND GRADE II BRAILLE.
3. CHARACTER HEIGHT: 1 INCH.
4. SIGN HEIGHT: 2 INCHES, UNLESS OTHERWISE INDICATED.
5. OFFICE DOORS: IDENTIFY WITH ROOM NUMBERS TO BE DETERMINED LATER, NOT THE NUMBERS SHOWN ON THE DRAWINGS. IN ADDITION, PROVIDE "WINDOW" SECTION FOR REPLACEABLE OCCUPANT NAME.
6. CONFERENCE AND MEETING ROOMS: IDENTIFY WITH ROOM NUMBERS TO BE DETERMINED LATER, NOT THE NUMBERS SHOWN ON THE DRAWINGS; IN ADDITION, PROVIDE "WINDOW" SECTION WITH SLIDING "IN USE/VACANT" INDICATOR.
7. SERVICE ROOMS: IDENTIFY WITH ROOM NAMES AND NUMBERS TO BE DETERMINED LATER, NOT THOSE SHOWN ON THE DRAWINGS.
8. REST ROOMS: IDENTIFY WITH UNIVERSAL ACCESSIBLE PICTOGRAM, THE WORD "RESTROOM", AND BRAILLE.

SECTION 10 2800
TOILET, BATH, AND LAUNDRY ACCESSORIES
PART 1 GENERAL

1.01 SUBMITTALS

A. PRODUCT DATA: SUBMIT DATA ON ACCESSORIES DESCRIBING SIZE, FINISH, DETAILS OF FUNCTION, AND ATTACHMENT METHODS.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. BOBRICK
B. AMERICAN SPECIALISTS
C. BRADLEY CORPORATION

2.02 TOILET ROOM ACCESSORIES

A. TOILET PAPER DISPENSER: SINGLE ROLL, SURFACE MOUNTED BRACKET TYPE, SATIN FINISHED CAST ALUMINUM BRACKETS, SPINDLELESS TYPE FOR TENSION SPRING DELIVERY DESIGNED TO PREVENT THEFT OF TISSUE ROLL.

B. PAPER TOWEL DISPENSER: FOLDED PAPER TYPE, STAINLESS STEEL, SEMI-RECESSED, WITH VIEWING SLOTS ON SIDES AS REFILL INDICATOR AND TUMBLER LOCK.

1. CAPACITY: 300 C-FOLD MINIMUM.
2. LOCATION: WHERE INDICATED ON DRAWINGS.

C. SOAP DISPENSER: LIQUID SOAP DISPENSER, WALL-MOUNTED, SURFACE, WITH STAINLESS STEEL COVER AND HORIZONTAL STAINLESS STEEL TANK AND WORKING PARTS; PUSH TYPE SOAP VALVE, CHECK VALVE, AND WINDOW GAGE REFILL INDICATOR, TUMBLER LOCK.

1. LOCATION: WHERE INDICATED ON DRAWINGS.

D. SEAT COVER DISPENSER: STAINLESS STEEL, SURFACE-MOUNTED, RELOADING BY CONCEALED OPENING AT BASE, TUMBLER LOCK.

1. MINIMUM CAPACITY: 250 SEAT COVERS, EACH SIDE.
2. LOCATION EACH TOILET ROOM.

E. GRAB BARS: STAINLESS STEEL, NONSLIP GRASPING SURFACE FINISH.

1. STANDARD DUTY GRAB BARS:
   A. PUSH/PULL POINT LOAD: 250 POUND-FORCE, MINIMUM.
   B. DIMENSIONS: 1-1/4 INCH OUTSIDE DIAMETER, MINIMUM 0.05 INCH WALL THICKNESS, EXPOSED FLANGE MOUNTING, 1-1/2 INCH CLEARANCE BETWEEN WALL AND INSIDE OF GRAB BAR.
   C. LENGTH AND CONFIGURATION: AS INDICATED ON DRAWINGS.

F. DIAPER CHANGING STATION: WALL-MOUNTED FOLDING DIAPER CHANGING STATION FOR USE IN COMMERCIAL TOILET FACILITIES, MEETING OR EXCEEDING ASTM F2285.

1. STYLE: HORIZONTAL.
2. MATERIAL: POLYETHYLENE.
3. MOUNTING: SURFACE.
4. COLOR: GRAY.
5. MINIMUM RATED LOAD: 250 LBS.

G. TOILET PARTITION: BOBRICK SOLID PHENOLIC OR EQUAL/

1. COLOR TO BE SELECTED BY OWNER
2. FLOOR TO CEILING MOUNT
3. 25 YEAR WARRANTY
4. FULL HEIGHT INSTITUTIONAL HINGES

H. ELECTRIC HAND/HAIR DRYERS

1. XLERATOR Hand Dryer MODEL XL-GR GRAPHITE TEXTURED PAINTED COVER

PART 3 EXECUTION

3.01 INSTALLATION

A. INSTALL ACCESSORIES IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS IN LOCATIONS INDICATED ON THE DRAWINGS.

B. INSTALL PLUMB AND LEVEL, SECURELY AND RIGIDLY ANCHORED TO SUBSTRATE.

C. MOUNTING HEIGHTS: AS REQUIRED BY ACCESSIBILITY REGULATIONS, UNLESS OTHERWISE INDICATED.

SECTION 10 4400
FIRE PROTECTION SPECIALTIES
PART 1 GENERAL

1.01 SUBMITTALS

A. PRODUCT DATA: PROVIDE EXTINGUISHER OPERATIONAL FEATURES.

PART 2 PRODUCTS

2.01 FIRE EXTINGUISHERS

A. FIRE EXTINGUISHERS - GENERAL: COMPLY WITH PRODUCT REQUIREMENTS OF NFPA 10 AND APPLICABLE CODES, WHICHEVER IS MORE STRINGENT.

B. DRY CHEMICAL TYPE FIRE EXTINGUISHERS: CARBON STEEL TANK, WITH PRESSURE GAGE.

1. CLASS: A:B:C.
2. SIZE: 10 POUND.

DIVISION 11 - EQUIPMENT
DIVISION 12 - FURNISHINGS
DIVISION 13 - SPECIAL CONSTRUCTION
DIVISION 14 - CONVEYING SYSTEMS
DIVISION 15 - MECHANICAL / PLUMBING
SEE MECHANICAL DRAWINGS AND SPECIFICATIONS FOR DESIGN CRITERIA AND REQUIREMENTS OF ALL MECHANICAL AND PLUMBING.

DIVISION 16 - ELECTRICAL
SEE ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR DESIGN CRITERIA AND REQUIREMENTS OF ALL POWER AND LIGHTING.

design west | architects
255 SOUTH 300 WEST LOGAN UT 84321
798 NORTH 400 WEST SALT LAKE CITY UT 84103

LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

DESCRIPTION:

DATE:

MARK:

FOR CONSTRUCTION

PROJECT #: 820201
DRAWN BY: HARRIS
CHECKED BY: LEMON
ISSUED: 02.03.2023

STATE OF UTAH
RYAN WAYNE LEMON
8668330-0301
LICENSED ARCHITECT

SPECIFICATIONS

G-003

3/7/2023 9:21:28 AM C:\Users\ryan\Documents\820201 - Layton City Cemtery Park v23_ryan@designwestarchitects.com.rvt

GENERAL NOTES:

1. VISITS TO THE JOB SITE BY REPRESENTATIVES OF THE ENGINEER DO NOT SUBSTITUTE APPROVAL OF THE WORK PERFORMED BY THE CONTRACTOR OR HIS SUBCONTRACTORS AND ARE MERELY FOR THE PURPOSE OF OBSERVING THE WORK PERFORMED.
2. CONTRACTOR SHALL NOTIFY ENGINEER/ARCHITECT OF ANY DISCREPANCIES, OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN ALL CASES, UNLESS OTHERWISE DIRECTED, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN AND BE PERFORMED.
3. CONTRACTOR SHALL VERIFY ALL CONDITIONS, DIMENSIONS AND ELEVATIONS, ETC., AT THE SITE AND SHALL COORDINATE WORK PERFORMED BY ALL TRADES. DO NOT SCALE DRAWINGS.
4. SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER/ARCHITECT PRIOR TO FABRICATION OR ERECTION FOR ANY PREFABRICATED OR MANUFACTURER- DESIGNED COMPONENTS AND SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THIS STRUCTURE RESIDES.
5. SIZES, LOCATIONS, LOADS, AND ANCHORAGES OF EQUIPMENT SHALL BE VERIFIED IN THE FIELD WITH EQUIPMENT MANUFACTURERS (SUPPLIERS) PRIOR TO FABRICATION OR INSTALLATION OF SUPPORTING STRUCTURES.
6. TEMPORARY BRACING SHALL BE PROVIDED WHEREVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING WIND. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY, OR UNTIL ALL THE STRUCTURAL ELEMENTS ARE INSTALLED.
7. DURING AND AFTER CONSTRUCTION THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOAD.
8. CONTRACTOR AND ALL SUBCONTRACTORS SHALL PERFORM THEIR TRADES AND DUTIES IN A MANNER CONFORMING TO THE PROCEDURES AND REQUIREMENTS AS STATED IN THE CURRENTLY ADOPTED INTERNATIONAL BUILDING CODE, (OR LATEST ACCEPTED CODE ADOPTED BY THE LOCAL BUILDING OFFICIALS).
9. ANY SPECIAL INSPECTIONS REQUIRED BY THE BUILDING OFFICIAL OR THE BUILDING CODE ARE THE RESPONSIBILITY OF THE OWNER OR CONTRACTOR.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOB SITE.

FOUNDATION AND EARTHWORK NOTES

1. SOILS INFORMATION / REPORT
   - 1.1. SOILS REPORT BY: GSH
     SOILS REPORT PROJECT NUMBER: 1824-009-201
     DATED: 01-07-2021
   - 1.2. SOIL BEARING CAPACITY: 2500 ON COMPACTED FILL
   - 1.3. FROST PROTECTION (TO BOTTOM OF FOOTING): 30 INCHES MINIMUM
     CONTRACTOR SHALL ENSURE THAT THE FOOTING ELEVATIONS WILL PROVIDE MINIMUM FROST PROTECTION BELOW THE FINAL GRADES.
   - 1.4. LATERAL SOIL PRESSURES (EQUIVALENT FLUID DENSITY)
2. ANY SOIL CONDITION ENCOUNTERED DURING EXCAVATION THAT IS CONTRARY TO THOSE USED FOR DESIGN OF FOOTINGS AS OUTLINED IN THE WORKING DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING.
3. ALL FOOTINGS SHALL BEAR ON UNDISTURBED NATIVE SOIL OR ENGINEERED GRANULAR FILL COMPACTED TO 95% OF MAX DENSITY, BASED ON ASTM D 1557 METHOD OF COMPACTION. FILL SHALL BE PLACED IN LAYERS NOT TO EXCEED SIX INCHES IN DEPTH AFTER COMPACTION AND SHALL EXTEND DOWN TO IN-SITU SOILS. FILL SHALL BE COMPACTED UNDER ALL CONCRETE WORK ON THE SITE.
4. NO FOOTINGS SHALL BE PLACED IN WATER, SNOW, FROZEN GROUND, OR UNSTABLE SOILS.
5. ALL EXCAVATIONS ADJACENT TO AND BELOW FOOTING ELEVATION FOR OTHER TRADES SHALL BE ACCOMPLISHED PRIOR TO POURING ANY FOOTINGS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR LATERALLY SUPPORTING ALL RETAINING TYPE FOUNDATION WALLS WHILE COMPACTING BEHIND WALLS AND UNTIL ALL SUPPORTING MEMBERS HAVE BEEN PLACED (SUCH AS FLOOR SLABS). ALL OPEN EXCAVATIONS AND TRENCHES SHALL BE SUPPORTED AND BARRICADED BY CONTRACTOR TO CONFORM WITH OSHA SAFETY STANDARDS.
7. ALL REINFORCEMENTS SHALL BE SECURELY TIED IN PLACE PRIOR TO POURING CONCRETE.
8. PROVIDE DOWELS IN FOOTING AND FOUNDATIONS TO MATCH ALL VERTICAL BARS IN WALLS AND COLUMNS ABOVE, UNLESS NOTED OTHERWISE.
9. CONSULT THE PROJECT SPECIFICATIONS AND SOILS REPORT FOR FURTHER EARTHWORK REQUIREMENTS.

CONCRETE NOTES

CONCRETE MATERIALS:

- 1.1. CEMENT TYPE - ASTM C-150: TYPE I/II
  CEMENT SOURCE SHALL REMAIN THE SAME FOR THE ENTIRE JOB.
- 1.2. FLY ASH - ASTM C618: CLASS F, 25% MAX CEMENT. CONTENT
- 1.3. ADMIXTURES:
  - 1.3.1. AIR-ENTRAINING - ASTM C260
  - 1.3.2. WATER-REDUCING ADMIXTURE - ASTM C494, TYPE A
  - 1.3.3. RETARDING ADMIXTURE - ASTM C494, TYPE B
  - 1.3.4. WATER-REDUCING AND RETARDING ADMIXTURE - ASTM C494, TYPE F
  - 1.3.5. HIGH-RANGE, WATER-REDUCING AND RETARDING ADMIXTURE - ASTM 494, TYPE G
  - 1.3.6. ADMIXTURE MANUFACTURER SHALL HAVE ISO 9001 QUALITY CERTIFICATION.
  - 1.3.7. ALL ADMIXTURES SHALL BE FROM THE SAME MANUFACTURER TO ENSURE COMPATIBILITY
  - 1.3.8. CALCIUM CHLORIDE SHALL NOT BE ADDED TO THE CONCRETE MIX
- 1.4. NORMAL WEIGHT AGGREGATES: ASTM C33
  - 1.4.2. COMBINED AGGREGATE GRADATION FOR SLABS ON GRADE AND OTHER DESIGNATED CONCRETE SHALL BE 8% TO 18% FOR LARGE TOP SIZE AGGREGATES (1 1/2") OR 8% TO 22% FOR SMALLER TOP SIZE AGGREGATES (1" OR 3/4") RETAINED ON EACH SIEVE BELOW THE TOP SIZE AND ABOVE THE NO. 100. THE RANGE FOR THE NO. 30 AND NO. 50 SIEVES SHALL BE 8% TO 15% RETAINED IN EACH. TO AVOID GAP GRADING THE FOLLOWING SHALL OCCUR.
    - 1.4.2.1. THE PERCENT RETAINED ON TWO ADJACENT SIEVES SHALL NOT FALL BELOW 5%
    - 1.4.2.2. THE PERCENT RETAINED ON THREE ADJACENT SIEVES THAT NOT FALL BELOW 8%
    - 1.4.2.3. WHEN THE PERCENT RETAINED ON TWO ADJACENT SIEVES IS LESS THAN 8%, THE TOTAL RETAINED ON EITHER OF THESE SIEVES AND THE ADJACENT OUTSIDE SIEVE SHALL BE AT LEAST 13%. SEE ACI 302 SECTION 5.4.3.3
  - 1.4.3. A GRADATION CHART OR TABLE SHALL BE SUBMITTED WITH MIX DESIGNS FOR SLABS ON GRADE
  - 1.4.4. MAXIMUM AGGREGATE SIZE SHALL BE NOT LARGER THAN:
    - 1.4.4.1. 1/5 THE NARROWEST DIMENSION OF THE FORMS
    - 1.4.4.2. 1/3 THE DEPTH OF THE SLAB
    - 1.4.4.3. 3/4 THE MINIMUM SPACING BETWEEN BARS
- 1.5. REINFORCING STEEL - ASTM A615, GRADE 60 (Fy = 60 ksi)
  USE GRADE 40 (Fy = 40 ksi) FOR FIELD BENT DOWELS WITH SPACINGS REDUCED BY 1/3 FROM THAT INDICATED IN THE DRAWINGS.
- 1.6. ANCHOR RODS (TYPICAL): ASTM F1554, GRADE 36
  - 1.6.1. HEAVY HEX NUTS AND HARDENED WASHERS: ASTM A563
- 1.7. WATER CEMENT RATIO SHALL MEET THE REQUIREMENTS OF ACI 318
- 1.8. PROVIDE AIR ENTRAINMENT AS RECOMMENDED BY ACI 318.
  HORIZONTAL USE CONCRETE THAT EXTENDS ABOVE GRADE AND IS EXPOSED TO FREEZING AND THAWING WHILE MOIST SHALL BE AIR ENTRAINED (UNLESS OTHERWISE INDICATED)
- 1.9. ITEMS NOT PERMITTED TO BE DIRECTLY EMBEDED IN CONCRETE ARE ALUMINUM CONDUIT, PRODUCTS CONTAINING ALUMINUM, OR OTHER SUCH NON-COMPATIBLE MATERIALS.
2. CONCRETE COMPRESSIVE STRENGTHS OF CONCRETE AT 28 DAYS AND ACI 318 CLASSIFICATIONS SHALL BE AS FOLLOWS (OR AS OTHERWISE INDICATED)
   - 2.1. EXTERIOR FOOTINGS & EXTERIOR FOUNDATION WALLS
     STRENGTH: 3,000 PSI
     CLASSIFICATION: F0, S0, W0, C0
   - 2.2. INTERIOR SLABS ON GRADE
     STRENGTH: 3,000 PSI
     CLASSIFICATION: F0, S0, W0, C0
   - 2.3. ALL SITE CONCRETE WITH REINFORCEMENT
     STRENGTH: 5,000 PSI
     CLASSIFICATION: F3, S0, W1, C2
   - 2.4. ALL SITE CONCRETE WITHOUT REINFORCEMENT
     STRENGTH: 4,500 PSI
     CLASSIFICATION: F3, S0, W1, C2
3. REINFORCEMENT COVER

		CLEAR COVER
3.1.	CAST-IN-PLACE CONCRETE	
3.1.1.	PERMANENTLY CAST AGAINST EARTH	3"
3.1.2.	FORMED CONCRETE EXPOSED TO WEATHER	
	#5 BARS AND SMALLER	1 1/2"
	#6 THROUGH #18 BARS	2"
3.1.3.	CONCRETE NOT EXPOSED TO WEATHER OR AGAINST EARTH	
	SLABS, WALLS AND THEIR PIERS	3/4"
	BEAMS, COLUMNS:	1 1/2"

4. ONLY ONE GRADE OR TYPE OF CONCRETE SHALL BE POURED ON THE SITE AT ANY GIVEN TIME.
   - 4.1. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THE ACI STANDARDS AND PRACTICES
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHORING AND FORMWORK.
   - 5.1. SUPPORTING FORMS AND SHORING SHALL NOT BE REMOVED UNTIL STRUCTURAL MEMBERS HAVE ACQUIRED SUFFICIENT STRENGTH TO SAFELY SUPPORT THEIR OWN WEIGHT AND ANY CONSTRUCTION LOAD TO WHICH THE MAY BE SUBJECTED.
6. CONSTRUCTION JOINTS, CONTROL JOINTS
   - 6.1. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION JOINTS SHALL BE KEYED WITH A KEY 1-1/2" DEEP, A LENGTH 2" LESS THAN THE MEMBER, AND A WIDTH 1/2 OF THE MEMBER. REINFORCING SHALL BE CONTINUOUS THRU JOINT.
   - 6.2. UNLESS NOTED OTHERWISE, CONTROL JOINTS (CONTRACTION JOINTS) SHALL BE SPACED NO FURTHER THAN 30 TIMES THE SLAB THICKNESS. THE CONTROL JOINTS SHALL BE INSTALLED SO THAT THE LENGTH TO WIDTH RATIO IS NO MORE THAN 1.2:1.
     - 6.2.1. CONTROL JOINTS SHALL BE COMPLETED AS SOON AS FINAL SET IS ACHIEVED. THE JOINT DEPTH FOR SAWCUT AND TOOLED JOINTS SHALL BE 1/4" THE SLAB THICKNESS. THE SAWCUT DEPTH SHALL INCREASE TO 1/3 THE SLAB THICKNESS FOR MACRO FIBER REINFORCED SLABS.
7. CONSTRUCTION AND DETAILING
   - 7.1. ALL SPLICES IN CONTINUOUS CONCRETE REINFORCING BARS SHALL LAP 40 BAR DIAMETERS. ALL SUCH SPLICES SHALL BE MADE IN A REGION OF COMPRESSION UNLESS OTHERWISE SHOWN.
   - 7.2. ALL OPENINGS IN CONCRETE WALLS SHALL BE REINFORCED WITH 2 #5 BARS EXTENDING 2'0" MIN BEYOND THE EDGE OF THE OPENING AT EACH FACE OF OPENING (UNLESS NOTED OTHERWISE).
   - 7.3. BEFORE CONCRETE IS POURED CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT. OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC. RELATIVE TO WORK.
   - 7.4. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, ORNAMENT, CLIPS OR GROUNDS, REQUIRED TO BE ENCASED IN CONCRETE AND FLOOR LOCATION OF FLOOR FINISHES AND SLAB DEPRESSIONS.
   - 7.5. NO PIPES, DUCTS, SLEEVES, ETC SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. PENETRATIONS THROUGH WALLS WHEN APPROVED SHALL BE BUILT INTO THE WALL PRIOR TO CONCRETE PLACEMENT. PENETRATIONS THROUGH WALLS WHEN APPROVED SHALL BE BUILT INTO THE WALL PRIOR TO CONCRETE PLACEMENT.
   - 7.6. ALL REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH THE CURRENT VERSION OF ACI-318.
   - 7.7. USE CHAIRS OR OTHER SUPPORT DEVICES RECOMMENDED BY THE CRSI TO SUPPORT AND TIE REINFORCEMENT BARS PRIOR TO PLACING CONCRETE. REINFORCING STEEL FOR SLABS ON GRADE AND SLABS OVER METAL DECK SHALL BE ADEQUATELY SUPPORTED. SUPPORT REINFORCING STEEL OF SLABS ON GRADE WITH PRECAST CONCRETE UNITS. LIFTING THE REINFORCING OFF THE GRADE OR DECK DURING PLACEMENT IS NOT PERMITTED.
   - 7.8. FOR STEPS IN FOUNDATION GREATER THAN 2 FEET, WRAP CORNER W/2- #4 BARS EXTENDING 18" EACH DIRECTION.
   - 7.9. REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY NOTED ON DRAWINGS.

MASONRY NOTES

1. MASONRY MATERIALS:
   - 1.1. CONCRETE MASONRY UNITS (CMU) ASTM C90: f'm = 2,000 PSI
     LIGHTWEIGHT GRADE N
     - 1.1.1. MINIMUM NET AREA UNIT STRENGTH: 2,800 PSI
   - 1.2. MORTAR CEMENT: USE TYPE "S" ACCORDING TO IBC SECTION 2103.7 AND TESTED EVERY 5,000 SQUARE FEET ACCORDING TO ASTM C270
     - 1.2.1. ADMIXTURE SHALL NOT BE ADDED TO THE MORTAR MIX. (1,500 PSI MINIMUM COMPRESSIVE STRENGTH FOR FIELD SPECIMENS) TESTING SHALL BE CONTRACTED BY THE OWNER. DO NOT USE CALCIUM CHLORIDE IN THE MORTAR.
   - 1.3. MASONRY GROUT ASTM C476: GROUT SHALL OBTAIN A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 28 DAYS.
     - 1.3.1. SHALL BE PROPORTIONED ACCORDING TO IBC SECTION 2103.10 AND TESTED EVERY 5,000 SQUARE FEET ACCORDING TO IBC TABLE 2103.10. TESTING SHALL BE CONTRACTED BY THE OWNER.
   - 1.4. REINFORCING STEEL: ASTM A615, GRADE 60 (fy = 60 KSI)
   - 1.5. WIRE JOINT REINFORCING: ASMT A951
   - 1.6. DEFOREMED BAR ANCHORS (DBA): ASTM A496
   - 1.7. HEADED STUD ANCHORS (HSA): ASTM A108
   - 1.8. ANCHOR RODS: ASTM F1554, GRADE 36
     - 1.8.1. HEAVY HEX NUTS AND HARDENED WASHERS: ASTM A563 / ASTM F436
2. MORTAR JOINTS: JOINTS SHALL BE "CONCAVE", "V-JOINT" OR "WEATHERED RAKED" FOR STRUCTURAL MEMBERS UNLESS NOTED OTHERWISE.
3. MASONRY WALLS, BEAMS AND COLUMNS SHALL BE CONSTRUCTED WITH RUNNING BOND, UNLESS NOTED OTHERWISE.
4. GROUTING REQUIREMENTS: COMPLY WITH IBC SECTION 2104 AND ACI 530.1/ASCE 6/TMS 602. GROUT SHALL BE MECHANICALLY CONSOLIDATED AND MECHANICALLY RECONSOLIDATED ACCORDING TO ACI 530.1/ASCE 6/TMS SECTION 3.5E.
5. REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY SHOWN ON DRAWINGS. IN SUCH CASES, USE ONLY ANS STANDARDS.
6. STANDARDS: REINFORCING DETAILING SHALL COMPLY WITH AMERICAN CONCRETE INSTITUTE (ACI) STANDARD 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
7. REINFORCEMENT PROTECTION (COVER):
   - 7.1. JOINT REINFORCEMENT SHALL HAVE NOT LESS THAN 5/8" MORTAR COVERAGE FROM THE EXPOSED FACE.
   - 7.2. OTHER REINFORCEMENT SHALL HAVE A MINIMUM COVERAGE OF ONE BAR DIAMETER OVER ALL THE BARS, BUT NOT LESS THAN 3/4".
8. LAP ALL MASONRY REINFORCING PER BAR SIZE AS FOLLOWS:

   REQUIRED LAP LENGTHS FOR SINGLE BARS CENTERED IN EACH CELL:
   #3 = 15" #6 = 36" #9 = 64"
   #4 = 20" #7 = 42"
   #5 = 25" #8 = 53"

   REQUIRED LAP LENGTHS FOR 2 BARS PER CELL WITH 2" COVER:
   #3 = 16" #6 = 51" #9 = 82"
   #4 = 22" #7 = 63"
   #5 = 34" #8 = 72"
9. CORNER BARS: HORIZONTAL REINFORCEMENT SHALL BE CONTINUOUS AT ALL CORNERS AND AT INTERSECTING WALLS. PROVIDE CORNER BARS WITH THE REQUIRED LAP SPLICE LENGTH.
10. ALL VERTICAL REINFORCING SHALL BE DOWELED TO THE FOUNDATION WALL, (STRUCTURE BELOW) AND TO THE STRUCTURE ABOVE WITH THE SAME DOWEL SIZE, SPACING (AND IN THE SAME CORE) AS THE VERTICAL WALL REINFORCING UNLESS NOTED OTHERWISE.
11. WALL OPENINGS 24" AND WIDER: PROVIDE REINFORCED MASONRY LINTELS PER MASONRY LINTEL SCHEDULE OVER THE TOP OF, AND 2- #5 BARS, IN GROUTED SPACES, ON ALL SIDES AND ADJACENT TO EVERY UNSCHEDULED OPENING, UNLESS NOTED OTHERWISE. BARS FOR ALL OPENINGS SHALL EXTEND A MINIMUM OF 48 BAR DIAMETERS BEYOND THE CORNERS OF THE OPENING. WHERE A 48 BAR DIAMETER EXTENSION IS NOT POSSIBLE, EXTEND BARS AS FAR BEYOND THE OPENING AS POSSIBLE AND TERMINATE THEM WITH A 90 DEGREE STANDARD ACI HOOK.
12. ALL MASONRY COLUMN TIES SHALL TERMINATE WITH 135 DEGREE HOOKS PLUS A 6 BAR DIAMETER EXTENSION (4" MINIMUM).
13. WALL REINFORCING SHALL BE AS NOTED ON THE PLANS, BUT NOT LESS THAN THE FOLLOWING: 8" CMU WALLS W/ #5 VERT. @ 32" O.C. & (1) #5 HORIZ. @ 48" O.C. 12" CMU WALLS W/ (2) #5 VERT. @ 24" O.C. & (1) #6 HORIZ. @ 48" O.C.
14. ADDITIONAL LADDER-TYPE JOINT REINFORCING (DUR-O-WALL) CONSISTING OF (2) #9 GALVANIZED WIRES SHALL BE USED HORIZONTALLY AT 16" O.C. IN ALL MASONRY WALLS. JOINT REINFORCING SHALL BE THE STANDARD WIDTH FOR THE WALL THICKNESS IT IS REINFORCING.
15. PROVIDE MASONRY CONTROL JOINTS @ A SPACING OF (2) TIMES THE WALL HEIGHT OR 40'-0" MAX. (WHICHEVER IS LESS) ON ALL MASONRY WALLS.
16. WE RECOMMEND THE USE OF AN INTEGRATED WATER REPELLENT ADMIXTURE FOR BLOCK AND MORTAR. SEE SPECIFICATIONS FOR DETAIL.

LUMBER NOTES

1. WOOD MATERIALS
   - 1.1. FRAMING LUMBER
     - 1.1.1. STUDS BEARING WALLS: DOUG-FIR LARCH #2 BTR
     - 1.1.2. STUDS NON BEARING WALLS: DOUG-FIR LARCH STUD GRADE BTR
     - 1.1.3. JOISTS: DOUG-FIR LARCH #2 BTR
     - 1.1.4. HEADERS: DOUG-FIR LARCH #2 BTR
     - 1.1.5. POSTS: DOUG-FIR LARCH #1 BTR
     - 1.1.6. SILL PLATES IN CONTACT WITH CONCRETE: DOUG-FIR LARCH #2 (PRESS. TREAT.)
   - 1.2. ENGINEERED LUMBER
     - 1.2.1. GLU-LAM BEAMS: 24F-V4 DOUG-FIR
     - 1.2.2. CANTILEVERED GLU-LAM BEAMS: 24F-V8 DOUG-FIR
     - 1.2.3. LAMINATED VENEER LUMBER (LVL): 1.9E
   - 1.3. SHEATHING
   - 1.4. WOOD SHEATHING SHALL BE UNSANDED PLYWOOD OR ORIENTED STRAND BOARD (OSB) AND SHALL BE INTERIOR GRADE WITH EXTERIOR GLUE AND HAVE THE MINIMUM FOLLOWING SPAN RATING AND THICKNESS, UNLESS NOTED OTHERWISE.
     40/20: ROOF (19/32 INCH THICK)
2. WHERE NOT NOTED OTHERWISE, CONNECT ALL WOOD TO CONCRETE, WOOD TO STEEL AND WOOD TO WOOD (EXCEPT STUD TO PLATE) WITH SIMPSON CONNECTORS OR APPROVED EQUAL.
3. ALL WOOD IN DIRECT CONTACT WITH CONCRETE, MASONRY OR SOIL SHALL BE PRESSURE TREATED OR BE REDWOOD
4. ALL MULTIPLE PLATES AND LEDGERS SHALL BE NAILED TOGETHER WITH 16d NAILS AT 8" ON CENTER.
5. STUD WALLS SHALL RUN CONTINUOUS BETWEEN POINTS OF HORIZONTAL SUPPORT. PROVIDE BRACING WHERE OTHERWISE.
6. BLOCK ALL HORIZONTAL EDGES OF PLYWOOD WALL SHEATHING WITH 2" NOMINAL BLOCKING. BLOCK EDGES OF PLYWOOD ON FLOORS AND ROOF AS DIRECTED ON DRAWINGS.
7. SOLID 2" NOMINAL BLOCKING (SHAPED AND FULL DEPTH) SHALL BE PROVIDED AT ENDS OR POINTS OF SUPPORT OF ALL WOOD JOISTS. ATTACH BLOCKING TO THE WOOD TOP PLATE WITH ONE SIMPSON "A35" CONNECTOR PER EACH PIECE OF BLOCKING WITH (12) 8d x 1-1/2" NAILS.
8. ALL WALLS SHALL HAVE A MINIMUM OF TWO TOP PLATES. SPLICES IN TOP PLATES SHALL BE STAGGERED A MINIMUM OF FOUR FEET FROM THE NEAREST ADJOINING SPLICE IN THE TOP PLATE.
9. ALL LEDGER BOLTS SHALL HAVE PLATE WASHERS WITH A MINIMUM DIA. EQUAL TO 3 TIMES THE BOLT DIA. UNLESS SHOWN OTHERWISE IN DETAILS.
10. MINIMUM NAILING FOR GENERAL FRAMING AND CARPENTRY SHALL BE PER THE IRC/IBC OR PER THE "MINIMUM NAILING SCHEDULE" IN THESE DRAWINGS.
11. FASTENERS SUCH AS STAPLES, CAN ONLY BE SUBSTITUTED FOR NAILS AT A RATE EQUAL TO LOAD VALUES PROVIDED BY I.C.B.O. APPROVAL. SEE EQUIVALENT STAPLE SCHEDULE IN THESE DRAWINGS.
12. JOISTS SHALL HAVE BRIDGING, BLOCKING AND NOTCHED BEARING PLATES AS RECOMMENDED BY THE MANUFACTURER WITH A MINIMUM OF ONE ROW OF BRACING AT MID SPAN. MANUFACTURER SHALL SUPPLY AND CONTRACTOR SHALL INSTALL. PROVIDE AT 8'-0" O.C. MAXIMUM BETWEEN JOIST END SUPPORTS.
13. ALL FASTENERS (I.E. NAILS, SCREWS, ANCHOR BOLTS, ETC.) WHICH ARE TO BE INSTALLED IN PRESERVATIVE TREATED WOOD (I.E. SILL PLATES) SHALL MEET THE REQUIREMENTS OF IBC 2304.10.5.1

LEGENDS OF MARKS AND ABBREVIATIONS

AB	ANCHOR BOLT(S)
ABV	ABOVE
ALT	ALTERNATE
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
BLDG	BUILDING
BLW	BELOW
BOT	BOTTOM
BRG	BEARING
BTWN	BETWEEN
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCT(ION)
CJ	CONTROL JOINT
CRW-X	CONCRETE RETAINING WALL
CP-X	CONCRETE PIER
CW-X	CONCRETE WALL
D	DEPTH
db	BAR DIAMETER
DBE	DECK BEARING ELEVATION
DBL	DOUBLE
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DIST	DISTANCE
(E)	EXISTING
EA	EACH
E.F.	EACH FACE
E.J.	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATION
E.O.D.	EDGE OF DECK
E.O.S.	EDGE OF SLAB
EQUIP	EQUIPMENT
EQ	EQUAL
E.W.	EACH WAY
EX	EXISTING
EXT	EXTERIOR
FC-X	CONTINUOUS FOOTING
F.D.	FLOOR DRAIN
FDN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
F5-X	SPOT FOOTING
FT	FOOT
FTG	FOOTING
FTS-X	THICKENED SLAB FOOTING
GA	GAUGE
GALV	GALVANIZED
GLB	GLU-LAM BEAM
GSN	GENERAL STRUCTURAL NOTES
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
HT	HEIGHT
ICC	INTERNATIONAL CODE COUNCIL
IBC	INTERNATIONAL BUILDING CODE
I.F.	INSIDE FACE
IN	INCH
INT	INTERIOR
IRC	INTERNATIONAL RESIDENTIAL CODE
J.B.E.	JOIST BEARING ELEVATION
JST	JOIST
k	KIPS (1000 POUNDS)
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
LBS	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
LVL	LAMINATED VENEER LUMBER
MAS	MASONRY
MAX	MAXIMUM
MC-X	MASONRY COLUMN
MCJ	MASONRY CONTROL JOINT
MECH	MECHANICAL
MF	MOMENT FRAME
MIN	MINIMUM
MISC	MISCELLANEOUS
ML-X	MASONRY LINTEL
MP-X	MASONRY PIER
MW-X	MASONRY WALL
(N)	NEW
NTS	NOT TO SCALE
O.C.	ON CENTER
O.F.	OUTSIDE FACE
OPP	OPPOSITE
PAF	POWDER-ACTUATED FASTENER
PAR	PARALLEL
PCF	POUNDS PER CUBIC FOOT
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PNL	PANEL
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
#	POUNDS (LBS)
REINF	REINFORCEMENT
REQD	REQUIRED
R.D.	ROOF DRAIN
RTU	ROOF TOP UNIT
SIM	SIMILAR
STR	STRUCTURAL
STRUCT	STRUCTURAL
STS	SELF TAPPING SCREWS
T&B	TOP AND BOTTOM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF SLAB
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTES OTHERWISE
VERT	VERTICAL
W/	WITH
WT	WALL THICKNESS
WWF	WELDED WIRE FABRIC

DESIGN CRITERIA

1.	GOVERNING BUILDING CODE(S) RISK CATEGORY	2018 INTERNATIONAL BUILDING CODE II
2.	SEISMIC LOADS SEISMIC IMPORTANCE FACTOR, I_e SEISMIC DESIGN CATEGORY	1.0 D
2.1.	MAPPED SPECTRAL ACCELERATION	S_S = 1.254 S_1 = 0.444
2.2.	SOIL SITE CLASS	D
2.3.	SOIL SITE COEFFICIENTS	F_a = 1.20 F_v = 1.81
2.4.	5% DAMPED ACCELERATION	$S_{DS} = 2/3 * F_a * S_S = 1.003$ $S_{D1} = 2/3 * F_v * S_1 = 0.549$
2.5.	BASIC SFRS	SPECIAL REINFORCED MASONRY WALLS
2.6.	RESPONSE MOD. COEFFICIENT SYSTEM OVER-STRENGTH FACTOR DEFLECTION AMPLIFICATION FACTOR	R = 5 Ω = 2.5 C_d = 3.5
2.7.	SEISMIC RESPONSE COEFFICIENT 2.9.W	$C_s = S_{DS} * I_e / R$ DEAD LOADS OF STRUCTURE
2.8.	BASE SHEAR	$V = C_s * W = 0.16 * W$ (STRENGTH)
2.9.	ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE
3.	WIND LOADS	
3.1.	WIND VELOCITY (3 SECOND GUST)	105 MPH (STRENGTH) 82 MPH (ALLOWABLE (I_w = 1.0))
3.2.	EXPOSURE TYPE	C
3.3.	INTERNAL PRESSURE COEFF. GC_{pi}	+/- 0.18
3.4.	TOPOGRAPHIC FACTOR, K_{zt}	1.0
4.	SNOW LOADS	
4.1.	GROUND SNOW LOAD	P_g = 35 psf
4.2.	SNOW IMPORTANCE FACTOR	I_s = 1.0
4.3.	SNOW EXPOSURE COEFFICIENT	C_e = 1.0
4.4.	THERMAL EXPOSURE COEFFICIENT	C_t = 1.0
4.5.	ROOF SNOW LOAD	$P_f = 0.7 * C_e * C_t * I_s * P_g$ = 25 PSF PLUS SNOW DRIFT

THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE GENERAL CONTRACTORS AND OTHERS. THE ARCHITECT AND ENGINEERS HAVE NOT VERIFIED THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT

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LAYTON CITY - HEATED RESTROOM
LAYTON, UT
LAYTON CITY PARKS AND RECREATION DEPARTMENT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 820201
DRAWN BY: JDL
CHECKED BY:
ISSUED: 03.06.2023

PROFESSIONAL STRUCTURAL ENGINEER
03/06/2023
JAYSON D. LOVE
NO. 9847711
STATE OF UTAH

FOR CONSTRUCTION

GENERAL STRUCTURAL NOTES

S001

FOOTING AND FOUDNATION NOTES

1. COORDINATE LOCATION OF SLOPED SLABS, DEPRESSED SLABS, FLOOR DRAINS, ETC. WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR EXTERIOR CONCRETE WORK AT DOORS, SIDEWALKS, ETC.
3. SEE ARCHITECTURAL DRAWINGS FOR CONTROL JOINT LOCATIONS.
4. SEE FOUNDATION AND EARTHWORK NOTES ON SHEET S001 FOR MINIMUM FILL REQUIRED BENEATH FOOTINGS.
5. ALL SPOT FOOTINGS SHALL BE CENTERED UNDER WALLS AND COLUMNS (UNO)
6. SEE DETAIL 1/S501 AND 2/S501 FOR CONDITION WHERE BURIED PIPES RUN PARALLEL AND PERPENDICULAR TO FOOTINGS.
7. SEE DETAIL 5/S501 FOR SLAB REINFORCING WHERE CONTROL JOINTS ARE DISCONTINUOUS.
8. SEE DETAIL 4/S501 FOR TYPICAL SLAB ON GRADE CONTROL JOINTS.
9. SEE DETAIL 9/S501 FOR MINIMUM REINFORCING LAYOUT IN MASONRY WALLS AND AROUND SCHEDULED AND UNSCHEDULED OPENINGS.
10. SEE DETAIL 7/S501 FOR TYPICAL MASONRY HORIZONTAL REINFORCING TERMINATION DETAIL.
11. SEE DETAIL 8/S501 FOR TYPICAL MASONRY CONTROL JOINTS. REFER TO GENERAL STRUCTURAL NOTES FOR MASONRY CONTROL JOINTS.
12. SEE DETAIL 6/S501 FOR TYPICAL MASONRY WALL AND CONCRETE WALL CORNER AND INTERSECTION REINFORCING.
13. SEE SHEET S601 FOR ADDITIONAL WOOD SCHEDULES INCLUDING MINIMUM NAILING REQUIREMENTS
14. CARRY ALL COLUMN LOADS DOWN TO FOOTING OR FOUNDATION WALL.

NOTES AND SYMBOLS LEGEND

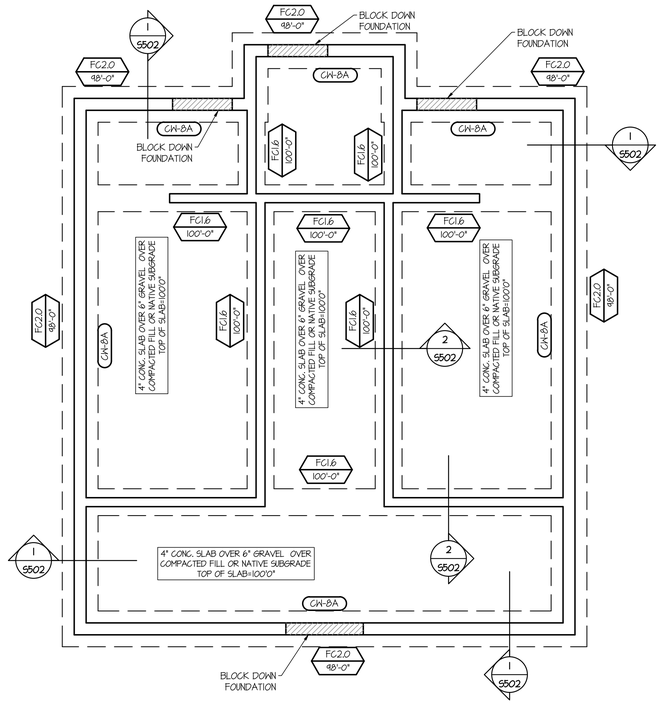
- XX / SXXX — INDICATES DETAIL REFERENCE NUMBER / INDICATES SHEET REFERENCE NUMBER
- FXXX / XX'-X" — INDICATES FOOTING DESIGNATION, SEE SCHEDULE ON SHEET S601 / INDICATES TOP OF FOOTING ELEVATION
- INDICATES MASONRY WALL
- INDICATES CONCRETE WALL
- INDICATES RECESSED FOUNDATION WALL AT OPENINGS WITH SLAB POUR OVER
- CW-X — INDICATES CONCRETE WALL TYPE, SEE SCHEDULE ON SHEET S601
- MW-X — INDICATES MASONRY WALL TYPE, SEE SCHEDULE ON SHEET S601
- MP-X — INDICATES MASONRY PIER TYPE, SEE SCHEDULE ON SHEET S601
- ML-X — INDICATES MASONRY LINTEL, SEE SCHEDULE THIS SHEET

ROOF FRAMING NOTES

1. VERIFY ALL ROOF OPENINGS FOR MECHANICAL SHAFTS, STAIRS, ETC. WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. BLOCK JOISTS SOLID AT ALL BEARING POINTS.
3. CARRY ALL COLUMN LOADS DOWN TO FOOTING OR FOUNDATION WALL.
4. SEE "MINIMUM NAILING" SCHEDULE ON SHEET S601 FOR TYPICAL NAILING FOR VARIOUS FRAMING CONDITIONS

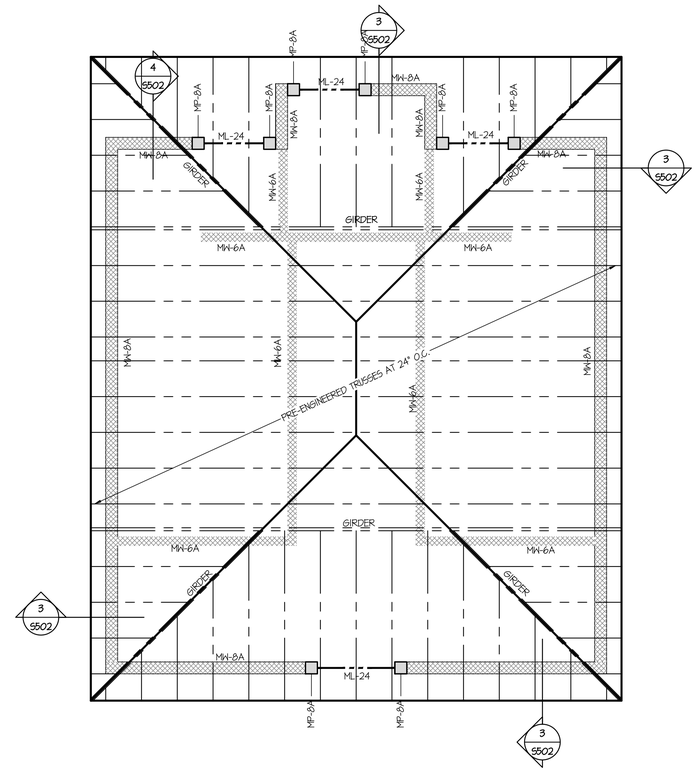
SYMBOL LEGEND

INTENSITY / LENGTH	SNOW DRIFT INTENSITY AND LENGTH



FOOTING / FOUNDATION PLAN

SCALE: 1/4" = 1'-0" — 1 S101



ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0" — 2 S101

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LAYTON CITY - HEATED RESTROOM

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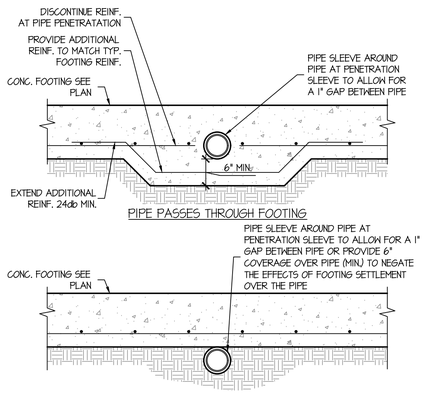
FOR CONSTRUCTION

STRUCTURAL PLANS

S101

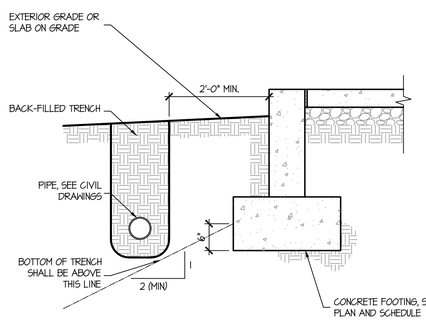
NORTH



TYPICAL FOOTING PENETRATION

1 S501

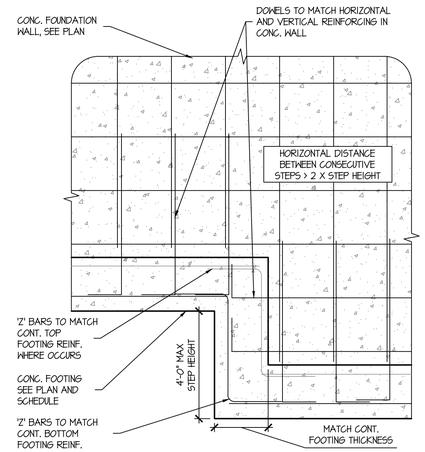
NOT TO SCALE



PIPE PARALLEL TO FOOTING DETAIL

2 S501

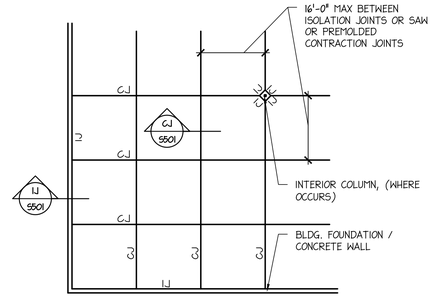
NOT TO SCALE



TYPICAL FOOTING STEP DETAIL

3 S501

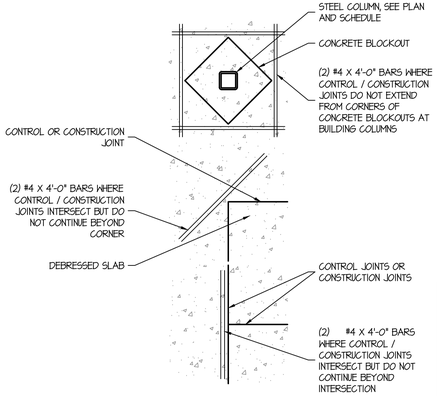
NOT TO SCALE



CONTROL JOINTS

4 S501

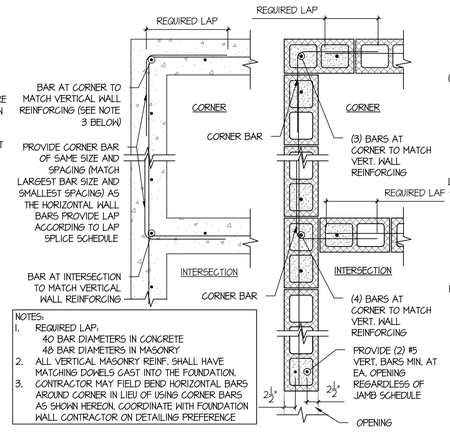
NOT TO SCALE



ADDITIONAL SLAB REINFORCEMENT

5 S501

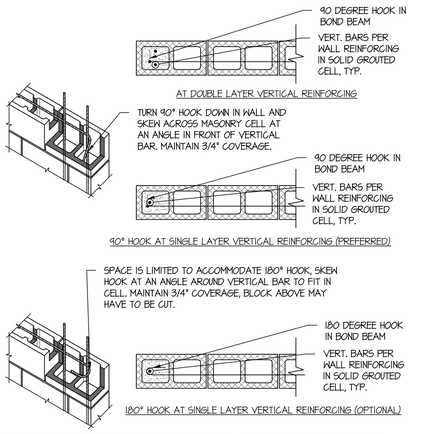
NOT TO SCALE



SINGLE LAYER AND DOUBLE LAYER TYPICAL CORNER REINFORCEMENT

6 S501

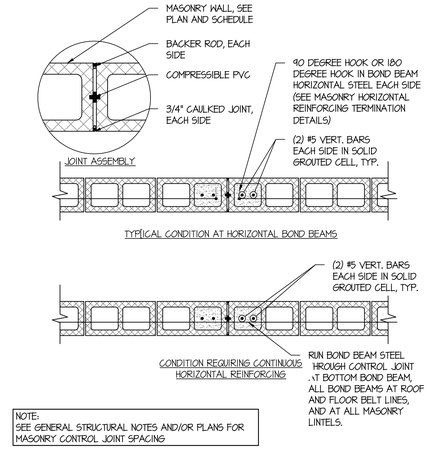
NOT TO SCALE



MASONRY HORIZONTAL REINFORCING TERMINATION DETAIL

7 S501

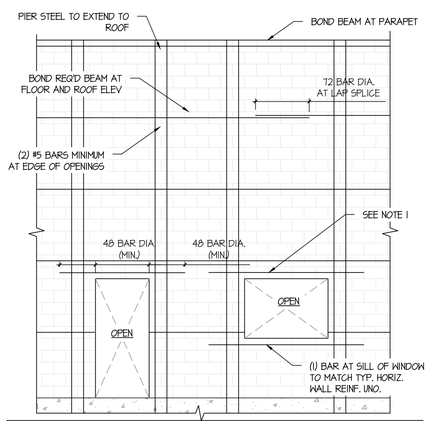
NOT TO SCALE



MASONRY CONTROL JOINT

8 S501

NOT TO SCALE



TYPICAL REINF. BAR LAYOUT

9 S501

NOT TO SCALE

FOR CONSTRUCTION

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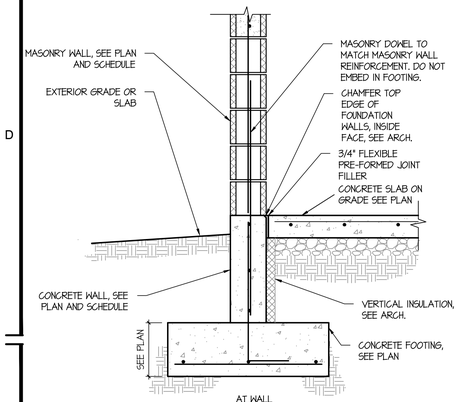
NO. 7858 (STATE OF UTAH)

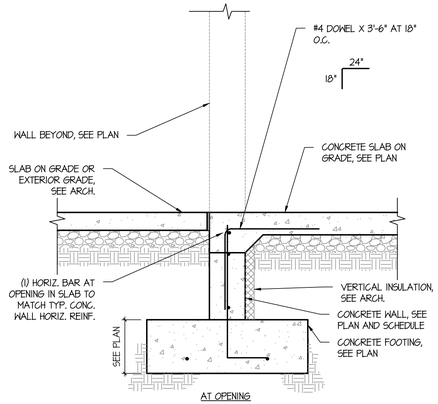
STRUCTURAL DETAILS

S501

NOTES:
1. ALL VERTICAL MASONRY REINFORCEMENT SHALL HAVE MATCHING DOWELS CAST INTO THE FOUNDATION



AT WALL



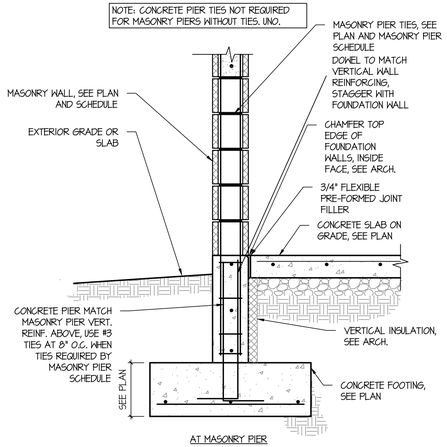
AT OPENING

TYPICAL EXTERIOR FOUNDATION WALL DETAIL AT 8" MASONRY WALL

NOT TO SCALE

1 / S502

NOTE: CONCRETE PIER TIES NOT REQUIRED FOR MASONRY PIERS WITHOUT TIES, UNO.

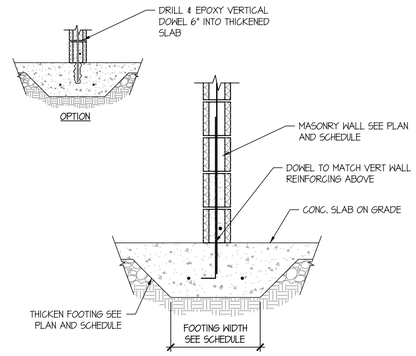


AT MASONRY PIER

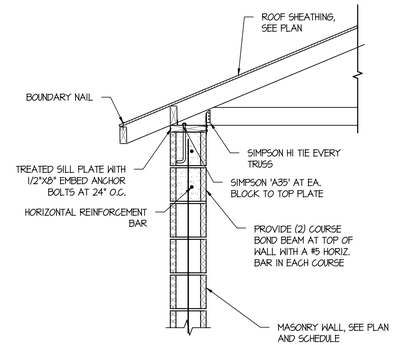
INTERIOR MASONRY WALL TO FOOTING

NOT TO SCALE

2 / S502



THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE GENERAL CONTRACTORS AND OTHERS. THE ARCHITECT AND ENGINEERS HAVE NOT VERIFIED THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT



ROOF FRAMED WITH TRUSS

ROOF AT MASONRY

NOT TO SCALE

3 / S502

INTERIOR SHEAR WALL CONNECTION

NOT TO SCALE

4 / S502

FOR CONSTRUCTION

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255 SOUTH 300 WEST
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LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 820201
DRAWN BY: JDL
CHECKED BY:
ISSUED: 03.06.2023

PROFESSIONAL STRUCTURAL ENGINEER
03/06/2023
JAYSON D. LOVE
STATE OF UTAH
NO. 9047171

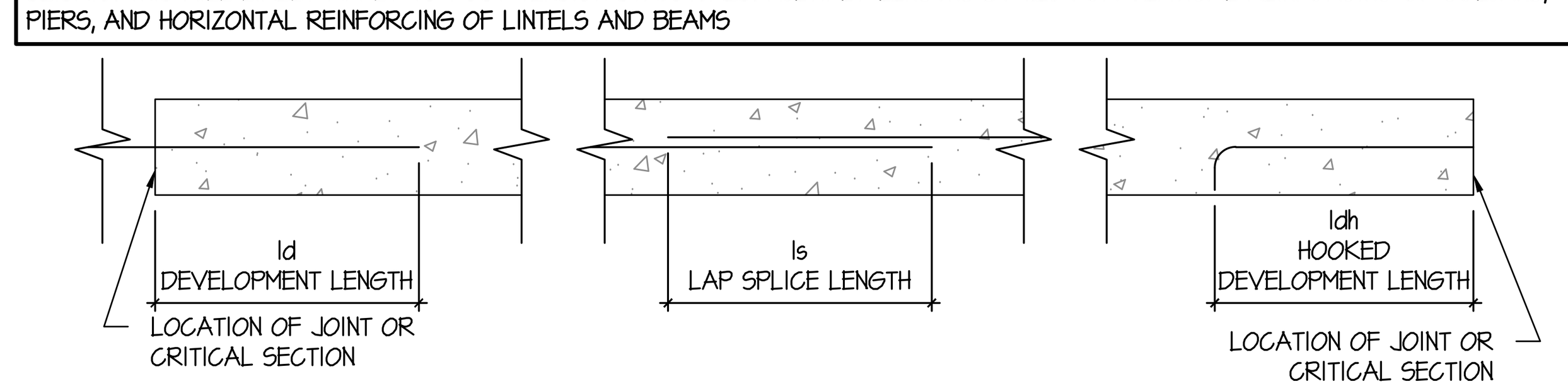
STRUCTURAL DETAILS

S502

CONCRETE REINFORCING BAR LAP SPLICE SCHEDULE (ACI 318-14)

BAR SIZE	f'c = 3,000 psi			f'c = 4,000 psi & f'c = 4,500 psi			f'c = 5,000 psi			f'c = 6,000 psi		
	ld & ls CLASS A	ls CLASS B	ldh	ld & ls CLASS A	ls CLASS B	ldh	ld & ls CLASS A	ls CLASS B	ldh	ld & ls CLASS A	ls CLASS B	ldh
#3	16"	21"	8"	14"	18"	7"	13"	17"	6"	12"	16"	6"
#4	22"	29"	11"	19"	25"	9"	17"	22"	8"	15"	20"	8"
#5	27"	35"	14"	24"	31"	12"	21"	27"	11"	19"	25"	10"
#6	33"	43"	16"	28"	36"	14"	25"	33"	13"	23"	30"	12"
#7	48"	62"	19"	42"	55"	17"	37"	48"	15"	34"	44"	14"
#8	55"	72"	22"	47"	61"	19"	42"	55"	17"	39"	51"	15"
#9	62"	81"	25"	53"	69"	21"	48"	62"	19"	44"	57"	17"
#10	68"	88"	27"	59"	77"	24"	53"	69"	21"	48"	62"	19"
#11	75"	75"	30"	65"	85"	26"	58"	75"	23"	53"	69"	21"

1. THIS SCHEDULE SHALL BE USED FOR ALL BAR SPLICES IN CONCRETE WALLS UNLESS OTHERWISE NOTED.
2. FOR ALL LIGHTWEIGHT CONCRETE, ALL LENGTHS IN THE TABLE ABOVE SHALL BE MULTIPLIED BY 1.33
3. FOR ALL EPOXY COATED BARS, MULTIPLY ld, ldh, AND ls BY 1.2. THE EPOXY BARS SHALL HAVE A CLEAR SPACING EQUAL TO OR GREATER THAN 6*db AND CLEAR COVER GREATER THAN 3*db, OTHERWISE LENGTHS SHALL BE MULTIPLIED BY 1.5
4. BARS IN BEAMS OR SLABS THAT HAVE MORE THAN 12 INCHES OF FRESH CONCRETE BELOW ARE CONSIDERED TOP BARS. MULTIPLY ld AND ls BY 1.2
5. CLASS A SPLICES MAY BE USED ONLY IN CASES WHERE 50% OR LESS OF THE BARS ARE SPLICED AT THE SAME LOCATION
6. CLASS B SPLICES SHALL BE USED FOR ALL SPLICES UNLESS THE REQUIREMENTS OF CLASS A ARE MET.
7. SPLICES FOR BUNDLED BARS:
   a. FOR BUNDLED BARS OF THREE OR LESS, MULTIPLY ls BY 1.2
   b. FOR BUNDLED BARS OF FOUR, MULTIPLY ls BY 1.33
   c. BUNDLED BARS GREATER THAN (4) BARS IS NOT PERMITTED
   d. ENTIRE BUNDLES SHALL NOT BE LAP SPLICED
   e. INDIVIDUAL BAR SPLICES WITHIN THE BUNDLE SHALL NOT OVERLAP
8. TIES AND STIRRUPS SHALL NOT BE SPLICED
9. HOOKED BARS (ldh):
   a. FOR HOOKED BARS THAT ARE ENCLOSED IN TIES OR STIRRUPS THAT ARE SPACED NO MORE THAN 3 TIMES THE HOOKED BAR DIAMETER (db) OVER THE LENGTH OF THE HOOK OR OVER THE HOOKED DEVELOPMENT LENGTH, HOOKED DEVELOPMENT LENGTH MAY BE REDUCED BY 80%
   b. FOR HOOKED BARS THAT WILL HAVE SIDE CONCRETE COVER (NORMAL TO PLANE OF HOOK) >= 2.1/2 INCHES AND 90-DEGREE HOOKS WITH COVER ON THE BAR EXTENSION BEYOND THE HOOK >= 2 INCHES, HOOKED DEVELOPMENT LENGTH MAY BE REDUCED BY 70%
   c. HOOKED BARS LOCATED AT THE END OF A MEMBER SHALL HAVE SIDE AND TOP/BOTTOM) COVER GREATER THAN 2.1/2 INCHES OR SHALL HAVE TIES OR STIRRUPS AS DESCRIBED IN NOTE 9.a WITH NO REDUCTION.
10. HEADED BAR DEVELOPMENT LENGTH SHALL CONFORM TO SECTION 25.4.4 OF THE ACI 318-14
11. db = BAR DIAMETER; ld = DEVELOPMENT LENGTH; ldh = HOOKED BAR DEVELOPMENT LENGTH; ls = BAR LAP SPLICE LENGTH
12. ENGINEER NOTE: INCLUDE NOTE 12 IF YOU WILL HAVE YIELDING OF LONGITUDINAL REINFORCING DUE TO LATERAL DISPLACEMENTS FROM SEISMIC. THIS WILL LIKELY APPLY TO POST-TENSION STRUCTURES. **MULTIPLY LENGTHS BY 1.25 FOR VERTICAL REINFORCING OF COLUMNS, PIERS, AND HORIZONTAL REINFORCING OF LINTELS AND BEAMS**

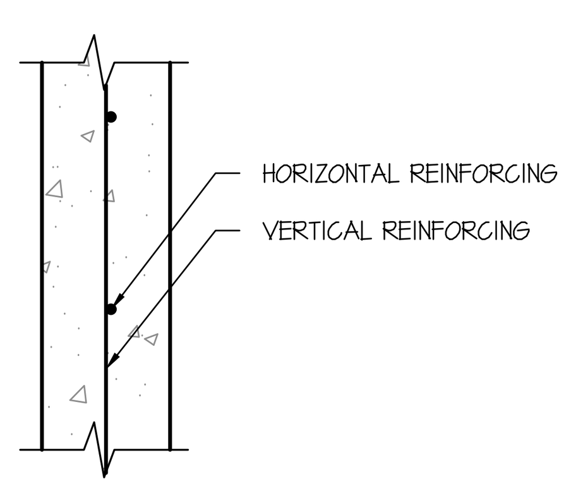


CONCRETE WALL SCHEDULE

MARK	THICKNESS	REINFORCING			TYPE	COMMENTS
		VERTICAL	HORIZONTAL	TOP AND BOTTOM		
CW-8A	8"	#4 AT 18" O.C.	#4 AT 12" O.C.	(1) #4	A	

CONCRETE FOUNDATION WALL NOTES:

1. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.



TYPE 'A'

CONCRETE FOOTING SCHEDULE

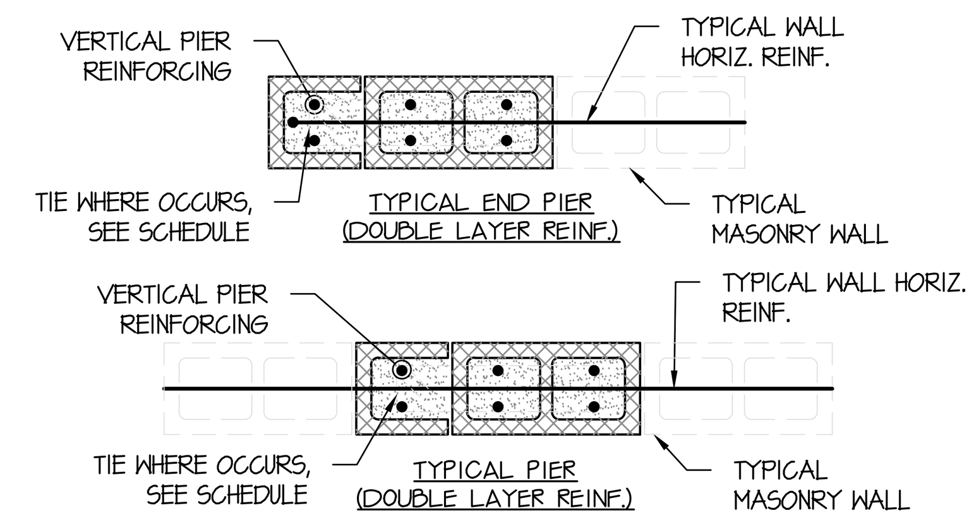
MARK	WIDTH	LENGTH	THICK	CROSSWISE REINFORCING				LENGTHWISE REINFORCING				REMARKS
				NO.	SIZE	LENGTH	SPACING	NO.	SIZE	LENGTH	SPACING	
FC1.6	1'-8"	CONT.	12"	--	NONE	REQ'D	--	2	#5	CONT.	EVEN	THICKENED SLAB
FC2.0	2'-0"	CONT.	12"	--	NONE	REQ'D	48"	2	#5	CONT.	EVEN	

NOTES:
1. PLACE ALL FOOTINS REINFORCING 3" FROM BOTTOM OF FOOTING WITH 3" CLEAR ON SIDES UNLESS NOTED OTHERWISE.
2. RUN CONTINUOUS FOOTING REINFORCEMENT THROUGH SPOT FOOTINGS.
3. TOP REINFORCING, WHERE OCCURS, SHALL BE PLACED IN THE TOP OF THE FOOTING WITH 2" MINIMUM CONCRETE COVER.
4. SEE GENERAL STRUCTURAL NOTES FOR BEARING MATERIAL REQUIREMENTS AND ADDITIONAL REQUIREMENTS.

MASONRY PIER SCHEDULE

MARK	SIZE	REINFORCING		TYPE	REMARKS
		VERTICAL	TIES		
MP-8A	8" X 'T'	(2) #5 BARS	--	:	

NOTES:
1. HORIZONTAL WALL REINFORCING SHALL BE LOCATED BETWEEN THE VERTICAL BARS FOR DOUBLE LAYER MASONRY PIERS
2. VERTICAL REINFORCING AND TIES SHALL EXTEND FULL HEIGHT OF THE WALL (UNO)
3. VERTICAL MASONRY PIER REINFORCING SHALL EXTEND INTO THE FOUNDATION STEM WALL 2'-0". FOR WALLS SHORTER THAN 2'-0" MASONRY PIER REINFORCING SHALL EXTEND INTO THE FOOTING AND TERMINATE WITH A STANDARD HOOK
4. HORIZONTAL REINFORCING OF ADJACENT WALLS SHALL RUN CONTINUOUS THROUGH MASONRY PIERS
5. WHERE NOTED, TIES SHALL BE REQUIRED FROM 16" BELOW THE BOTTOM OF THE ADJACENT OPENING TO 16" ABOVE THE TOP OF THE ADJACENT OPENING. TIES NEED NOT BE ADDED TO THE CONCRETE FOUNDATION WALL.
6. WHERE NOTED, TIES SHALL BE REQUIRED FULL HEIGHT OF WALL BETWEEN LEVELS. #3 TIES SHALL ALSO BE ADDED TO THE CONCRETE FOUNDATION WALL DIRECTLY BELOW THE MASONRY PIERS AT THE SAME SPACING AS THE PIER TIE SPACING.



MASONRY WALL SCHEDULE

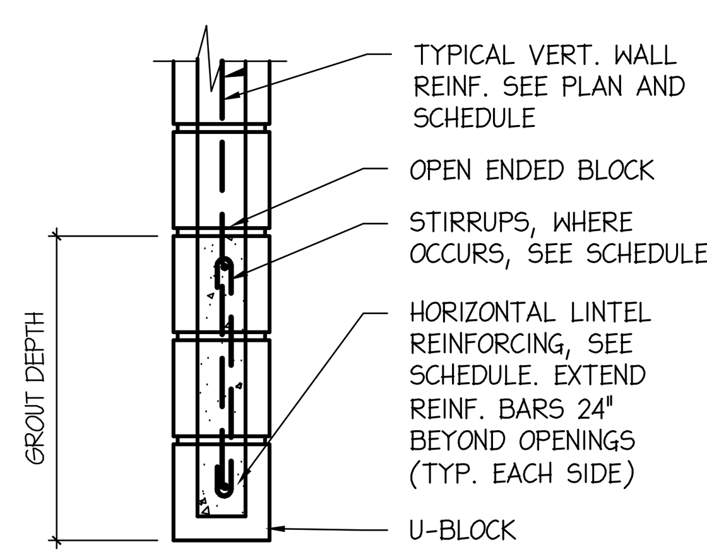
MARK	THICKNESS	SOLID GROUT	REINFORCING		REMARKS
			VERTICAL	HORIZONTAL	
MW-8A	8"	NO	#5 AT 32" O.C.	#5 AT 48" O.C.	
MW-6A	6"	NO	#5 AT 32" O.C.	#4 AT 48" O.C.	

MASONRY WALL NOTES:

1. COORDINATE WALL FINISHES, MATERIALS, COURSING, ETC. WITH ARCHITECTURAL DRAWINGS.
2. DO NOT SOLID GROUT WALLS UNLESS REQUIRED BY SCHEDULES, NOTES, OR DETAILS.
3. ALL BELOW GRADE MASONRY COURSES SHALL BE SOLID GROUTED.
4. SINGLE LAYER VERTICAL REINFORCING TO BE CENTERED IN THE WALL UNO.
5. PROVIDE TWO VERTICAL BARS (MIN.) AT ALL CORNERS AND ENDS OF WALLS.
6. HORIZONTAL WALL REINFORCING SHALL BE PLACED BETWEEN VERTICAL MASONRY COLUMN REINFORCING BARS.
7. HORIZONTAL WALL REINFORCING BARS SHALL CONTINUE THROUGH ALL MASONRY LINTELS. WHERE BOTH LINTEL REINFORCING AND HORIZONTAL WALL REINFORCING OCCUR IN THE SAME COURSE, USE THE LARGER REINFORCING.
8. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

MASONRY LINTEL SCHEDULE

MARK	GROUT DEPTH	REINFORCING		REMARKS
		HORIZONTAL	STIRRUPS	
ML-24	24"	(1) #5 BAR	NONE	

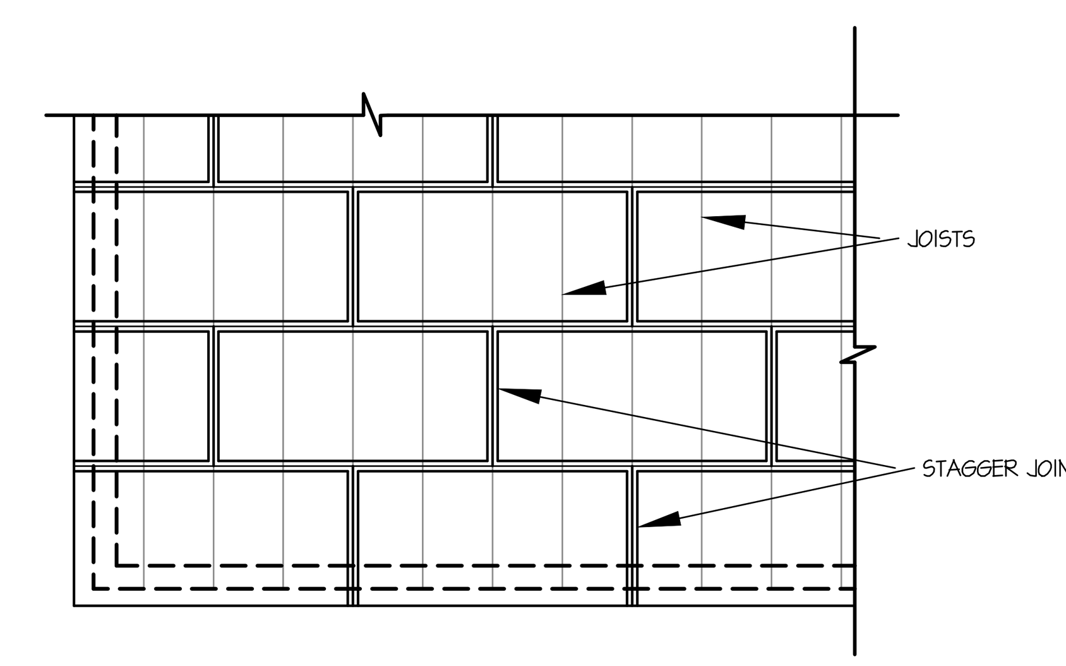


NOTE: CONTINUE TOP REINF. BETWEEN OPENINGS WHEN THERE IS MORE THAN ONE OPENING SEPARATED BY A PIER.

ROOF SHEATHING SCHEDULE

LOCATION	THICKNESS	NAIL SIZE	EDGE NAIL	FIELD NAIL	BOUNDARY NAIL	EDGE BLOCK	COMMENTS
ROOF	19/32"	10D	6"	12"	6"	NO	

SHEATHING NOTES:
1. MINIMUM NAIL PENETRATION INTO FRAMING: 10d - 1.5/8"
2. USE COMMON NAILS (10d DIAMETER = 0.148")
3. ALL WOOD FLOOR SHEATHING SHALL BE GLUED AND NAILED.
4. PROVIDE (2) ROWS OF BOUNDARY NAILING STAGGERED OVER INTERIOR SHEAR WALLS AT FLOOR AND ROOF
5. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.



HORIZONTAL SHEATHING LAYOUT

NOT TO SCALE

MINIMUM NAILING SCHEDULE

"CONNECTION"	"NAILING"
1. JOIST TO SILL GIRDER, TOENAIL..................	3-8d
2. BRIDGING TO JOIST, TOENAIL EA. END..................	2-8d
3. SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL...........	6d @ 16" OC
4. TOP PLATE TO STUD, END NAIL..................	2-16d
5. STUD TO SOLE PLATE..........................4-8d TOENAIL, 2-6d END NAIL	
6. DOUBLE STUDS, FACE NAIL..................	16d @ 24" OC
7. DOUBLE TOP PLATES, FACE NAIL..................	16d @ 16" OC
8. TOP PLATES, LAPS & INTERSECTIONS, FACE NAIL...........	2-16d
9. CONTINUOUS HEADERS TWO PIECES, ALONG EA. EDGE...	16d @ 16" OC
10. CEILING JOISTS TO PLATE, TOENAIL..................	3-8d
11. CONTINUOUS HEADERS TO STUD, TOENAIL..................	4-8d
12. CEILING JOISTS, LAPS OVER PARTITIONS, FACE NAIL....	3-16d
13. CEILING JOISTS TO PARALLEL RAFTERS, FACE NAIL.....	3-16d
14. RAFTER TO PLATE, TOENAIL..................	3-8d
15. BUILT-UP CORNER STUDS..................	16d @ 24" OC
16. BUILT-UP GIRDER AND BEAMS...............20d @ 32" OC T/B STAGGERED 2-20d @ ENDS & SPLICES	

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FOR CONSTRUCTION

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795 NORTH 400 WEST SALT LAKE CITY UT 84103

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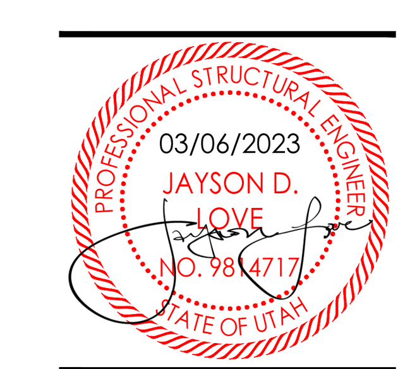
LAYTON CITY - HEATED RESTROOM
LAYTON, UT
LAYTON CITY PARKS AND RECREATION DEPARTMENT

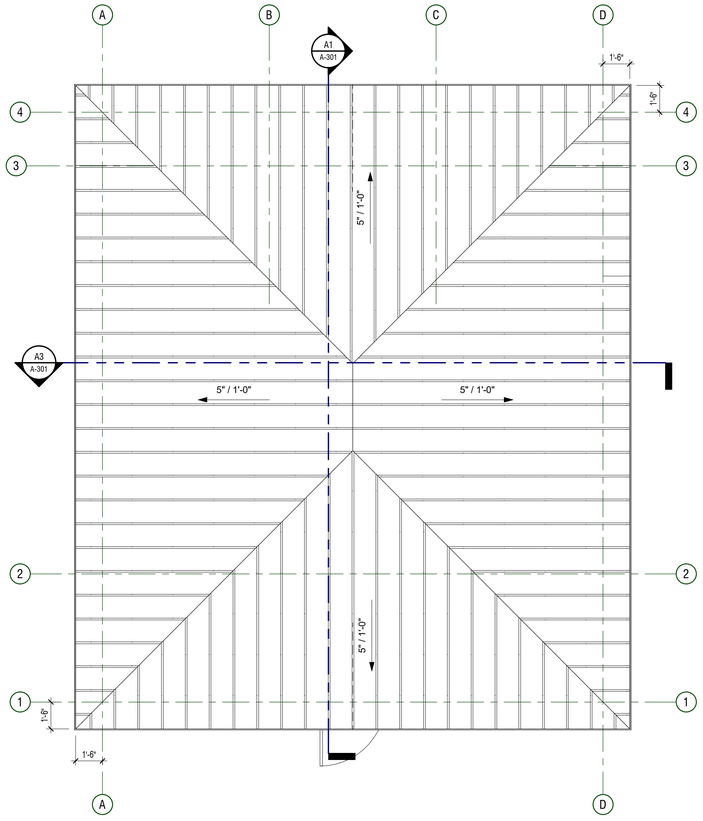
MARK: DATE: DESCRIPTION:

PROJECT #: 820201
DRAWN BY: JDL
CHECKED BY:
ISSUED: 03.06.2023



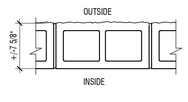
STRUCTURAL SCHEDULES

S601



A1 ROOF PLAN

1/4" = 1'-0"

MARK	ASSEMBLY	FIRE RATING
W8		N/A TESTING SOURCE: N/A
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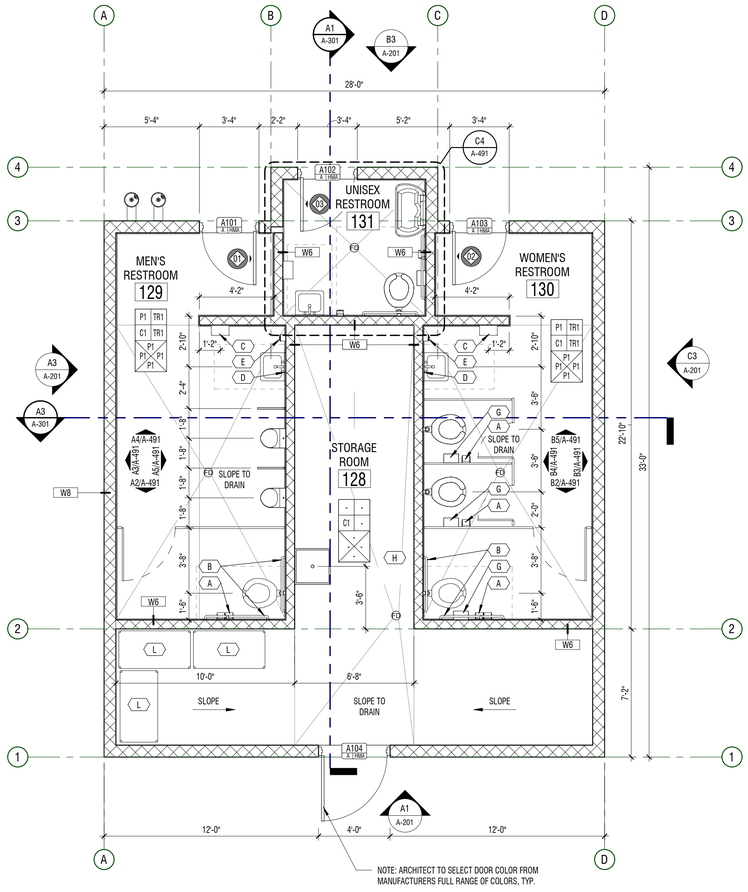
		N/A TESTING SOURCE: N/A

MARK	ASSEMBLY	FIRE RATING
W6		N/A TESTING SOURCE: N/A
DESCRIPTION: N/A		STC RATING
		N/A TESTING SOURCE: N/A



A3 FLOOR PLAN

1/4" = 1'-0" DIMENSION, ANNOTATION, FINISHES

GENERAL NOTES

1. LEGAL: THE CONSTRUCTION DOCUMENTS FOR THIS PROJECT ARE COMPOSED OF SETS OF DRAWINGS AND SPECIFICATIONS, AND THEREFORE SHALL BE USED AND MAINTAINED IN THEIR ENTIRETY. ANY CONTRACTOR, SUBCONTRACTOR, VENDOR OR PARTY PARTICIPATING IN OR BIDDING ON THIS PROJECT SHALL BE EXPECTED TO PERFORM DUE DILIGENCE TO ENSURE THEIR BID, WORK PERFORMED, AND MATERIALS PROVIDED CONFORMS TO THE INFORMATION PROVIDED WITHIN ANY AND ALL SHEETS OF DRAWINGS AND SPECIFICATIONS, INCLUDING, BUT NOT LIMITED TO, ANY SUBSEQUENT ADDENDA OR CLARIFICATIONS THAT MAY BE ISSUED RELEVANT TO THEIR SCOPE OF WORK. PROJECT SCOPE MAY BE DEFINED WITHIN SPECIFICATIONS AND/OR DRAWINGS.

   ADDITIONALLY, DRAWINGS MAY NOT BE RE-SCALED WHEN PRINTED. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE, AND LARGER SCALE DRAWINGS SHALL HAVE PRECEDENCE OVER SMALLER SCALE DRAWINGS.

   ANY DEVIATION FROM OR CONFLICT WITHIN THE DRAWINGS AND/OR SPECIFICATIONS, MUST BE SUBMITTED VIA REQUEST FOR INFORMATION (RFI) AND RESPONDED TO BY THE ARCHITECT BEFORE CONTINUING THAT PORTION OF WORK.

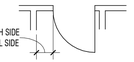
2. KEYNOTES: THE FIRST TWO NUMBERS REPRESENT THE RELATED CSI MASTERFORMAT DIVISION. THE SECOND SET OF NUMBERS REPRESENTS AN IDENTIFYING MARK VALUE. NOT ALL VALUES MAY BE USED OR OCCUR IN THE DOCUMENT SET.

   ADDITIONALLY, KEYNOTES RETAIN THEIR ASSIGNED VALUE UNIVERSALLY THROUGHOUT THE SET. THE KEYNOTES LISTED BELOW, REPRESENT THE KEYNOTES FOUND AND UTILIZED ON THIS SHEET AND EACH LIST WILL DIFFER RESPECTIVE TO ITS' SHEET. THEREFORE, BASED ON ACTUAL KEYNOTES UTILIZED ON A GIVEN SHEET OF DRAWINGS, GAPS IN THE SEQUENCING WILL OCCUR.

3. CONTRACTOR SHALL BE FAMILIARIZED WITH THE LAY-OUT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. ANY QUESTIONS SHALL BE SUBMITTED VIA REQUEST FOR INFORMATION (RFI).

4. ALL INTERIOR DIMENSIONS ARE TO/FROM FACE OF STUD / MASONRY. ALL EXTERIOR DIMENSIONS ARE TO/FROM FACE OF GRID/FOUNDATION. DIMENSIONS MARKED 'CLEAR' OR 'CLR' ARE FROM FACE OF FINISH TO FACE OF FINISH AND SHALL BE MAINTAINED AND CANNOT BE FIELD ADJUSTED WITHOUT PRIOR APPROVAL OF THE ARCHITECT.

5. MIN CLEARANCE REQUIRED ON LATCH SIDE OF DOORS SHALL CONFORM TO ADA REQUIREMENTS
   12" MIN PUSH SIDE
   18" MIN PULL SIDE

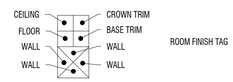


6. PROVIDE 5/8" PLYWOOD BACKING PANELS AT ELECTRICAL ROOMS AND TELEVISION LOCATIONS FOR EQUIPMENT MOUNTING.
7. WALL TYPES SHOWN AS — S6A — ARE SHOWN ON SHEET A-101. FOR OTHER WALLS SEE BUILDING AND WALL SECTIONS.
8. RESTROOMS MUST COMPLY WITH ADA REQUIREMENTS. SEE SHEET A-102 FOR MORE INFORMATION
9. SLOPE ALL FLOORS TO FLOOR DRAINS (FD) U.N.O.
10. INSTALL CONTROL JOINTS EVERY 20'-0" MIN.
11. FLOOR FINISH IN ALL AREAS TO BE POLISHED CONCRETE

SIGNAGE:
1. FOR SIGN TYPE AND STYLE SEE SPECIFICATIONS

MENS RESTROOM SIGN
WOMENS RESTROOM SIGN
UNISEX RESTROOM SIGN

FINISHES:



P1 - WHITE PAINT
TR1 - 1x4 PVC TRIM, WHITE, CAULK TRIM TO WALL AND FLOOR/CEILING
C1 - POLISHED CONCRETE

EQUIPMENT LEGEND

- A — TOILET TISSUE DISPENSER
  OWNER FURNISHED, OWNER INSTALLED
- B — GRAB BAR
  LENGTH INDICATED ON A-102 STANDARD MOUNTING HEIGHT
- C — ELECTRIC HAND DRYER
  CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
- D — STAINLESS STEEL MIRROR
  2'W x 3'H
- E — SOAP DISPENSER
  OWNER FURNISHED, OWNER INSTALLED
- G — FEMININE NAPKIN DISPOSAL
  OWNER PROVIDED, OWNER INSTALLED
- H — 24" X 24" MOP SINK
- J — DIAPER CHANGING STATION
  CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
- K — DRAIN PIPE PROTECTION
- L — HEAVY DUTY METAL SHELVING (5) ADJUSTABLE SOLID SHELVES, 48" WIDE X 24" DEEP X 72" TALL, 2000# CAPACITY. SHELF (MIN.)
  CONTRACTOR FURNISHED, CONTRACTOR INSTALLED

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795 NORTH 400 WEST

LAYTON CITY - HEATED RESTROOM
LAYTON, UT
LAYTON CITY PARKS AND RECREATION DEPARTMENT

MARK:	DATE:	DESCRIPTION:

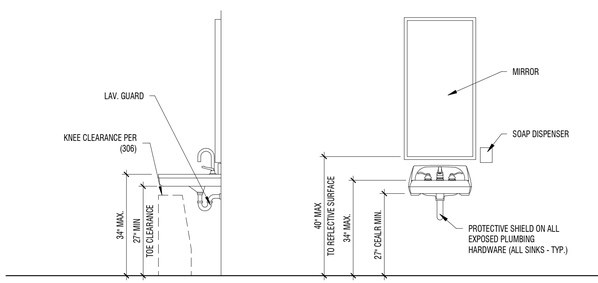
PROJECT #:	820201
DRAWN BY:	HARRIS
CHECKED BY:	LEMON
ISSUED:	02.03.2023

FOR CONSTRUCTION

DIMENSION PLAN, ANNOTATION PLAN, ROOF PLAN

A-101

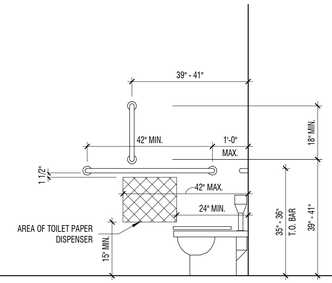
STANDARD MOUNTING HEIGHTS



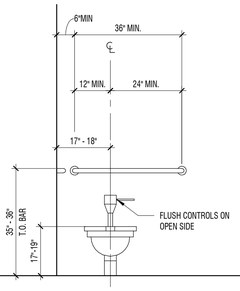
ACCESSIBLE SINK (606)

MIRROR (603.3)

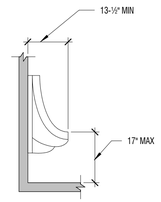
LAVATORY/MIRROR



ACCESSIBLE WATER CLOSET (604)

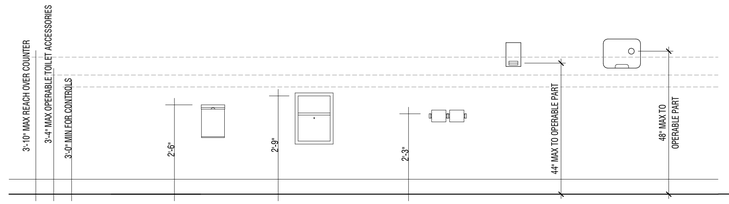


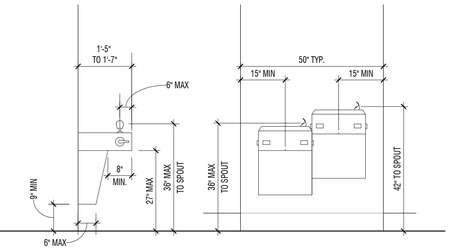
ACCESSIBLE WATER CLOSET (604)



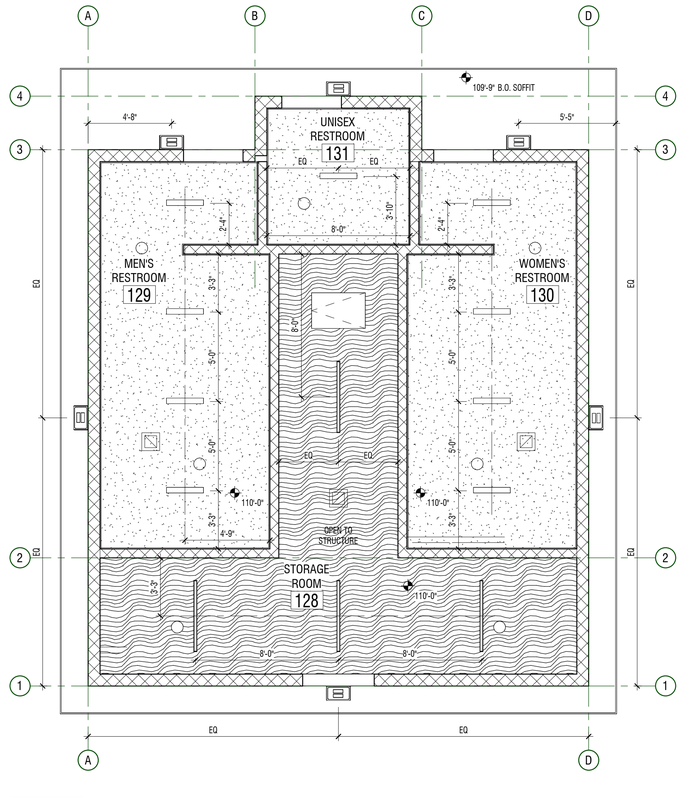
(a)
WALL HUNG TYPE

FIGURE 605.2 HEIGHT AND DEPTH OF URINALS





DRINKING FOUNTAIN (602)



A3 REFLECTED CEILING PLAN

1/4" = 1'-0"

GENERAL NOTES

1. LEGAL: THE CONSTRUCTION DOCUMENTS FOR THIS PROJECT ARE COMPOSED OF SETS OF DRAWINGS AND SPECIFICATIONS, AND THEREFORE SHALL BE USED AND MAINTAINED IN THEIR ENTIRETY. ANY CONTRACTOR, SUBCONTRACTOR, VENDOR OR PARTY PARTICIPATING IN OR BIDDING ON THIS PROJECT SHALL BE EXPECTED TO PERFORM DUE DILIGENCE TO ENSURE THEIR BID, WORK PERFORMED, AND MATERIALS PROVIDED CONFORMS TO THE INFORMATION PROVIDED WITHIN ANY AND ALL SHEETS OF DRAWINGS AND SPECIFICATIONS, INCLUDING, BUT NOT LIMITED TO, ANY SUBSEQUENT ADDENDA OR CLARIFICATIONS THAT MAY BE ISSUED RELEVANT TO THEIR SCOPE OF WORK. PROJECT SCOPE MAY BE DEFINED WITHIN SPECIFICATIONS AND/OR DRAWINGS.

   ADDITIONALLY, DRAWINGS MAY NOT BE RE-SCALED WHEN PRINTED, WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE, AND LARGER SCALE DRAWINGS SHALL HAVE PRECEDENCE OVER SMALLER SCALE DRAWINGS.

   ANY DEVIATION FROM OR CONFLICT WITHIN THE DRAWINGS AND/OR SPECIFICATIONS, MUST BE SUBMITTED TO AND APPROVED BY THE ARCHITECT BEFORE CONTINUING THAT PORTION OF WORK.
2. KEYNOTES: THE FIRST TWO NUMBERS REPRESENT THE RELATED CSI MASTERFORMAT DIVISION. THE SECOND SET OF NUMBERS REPRESENTS AN IDENTIFYING MARK VALUE. NOT ALL VALUES MAY BE USED OR OCCUR IN THE DOCUMENT SET.

   ADDITIONALLY, KEYNOTES RETAIN THEIR ASSIGNED VALUE UNIVERSALLY THROUGHOUT THE SET. THE KEYNOTES LISTED BELOW, REPRESENT THE KEYNOTES FOUND AND UTILIZED ON THIS SHEET AND EACH LIST WILL DIFFER RESPECTIVE TO ITS' SHEET. THEREFORE, BASED ON ACTUAL KEYNOTES UTILIZED ON A GIVEN SHEET OF DRAWINGS, GAPS IN THE SEQUENCING WILL OCCUR.
3. CONTRACTOR SHALL VERIFY LAY-OUT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL.
4. ALL INTERIOR DIMENSIONS ARE TO/FROM FACE OF STUD / MASONRY. ALL EXTERIOR DIMENSIONS ARE TO/FROM FACE OF GRID/FOUNDATION. DIMENSIONS MARKED 'CLEAR' OR 'CLR' ARE FROM FACE OF FINISH TO FACE OF FINISH AND SHALL BE MAINTAINED AND CANNOT BE FIELD ADJUSTED WITHOUT PRIOR APPROVAL OF THE ARCHITECT.
5. CEILING HEIGHT IS B.O. FINISHED CEILING HEIGHT ABOVE FINISHED FLOOR
6. MEASURMENTS SPECIFYING "EQ" = EQUAL LENGTH OR WIDTH TO FILL REMAINDER OF LENGTH REQUIRED
7. CEILINGS WITH NO DIRECT MEASUREMENTS, ASSUME CEILING TO BE EQUALLY DISTANCED ON ALL SIDES OF ROOM
8. FIXTURES IN OPEN TO STRUCTURE AREAS ARE DIMENSIONED FROM WALL OR CENTERLINE OF ROOM
9. LIGHT FIXTURES WITH NO DIMENSIONS ARE TO BE CENTERED ON ROOM UNLESS OTHERWISE NOTED
10. MECHANICAL, ELECTRICAL, SPRINKLER AND DRAIN CONTRACTORS TO COORDINATE PRIOR TO CONSTRUCTION TO AVOID CONFLICTS BETWEEN SYSTEMS

LEGEND

MATERIALS

PAINTED GYPSUM BOARD CEILINGS TYPICAL, U.N.O. (COLOR: WHITE)

OSB SHEATHING CEILINGS

METAL VENTED SOFFIT, MCELROY METAL (COLOR: ALMOND)

SYMBOLS

LIGHTING FIXTURES:

SURFACE MOUNTED FIXTURES - SEE ELECTRICAL FOR SPECS

EXTERIOR WALL SCONCE - SEE ELECTRICAL FOR SPECS

SENSORS/SIGNS/ELEC./DATA:

OCCUPANCY SENSOR

AIR GRILLES:

EXHAUST

MISC. ITEMS:

24X36 ATTIC ACCESS HATCH

NOTE:
2'-0" X 3'-0" FRAMED OPENING WITH 2X10 STUDS, LID TO BE 5/8" GYPSUM BOARD ATTACHED TO OSB SHEATHING, LIP TO BE 1X4 FRAMING AROUND OPENING TO CATCH LID, R-21 BATT INSULATION SECURED TO LID

FOR CONSTRUCTION

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LOGAN UT 84321
255 SOUTH 300 WEST
SALT LAKE CITY UT 84103
795 NORTH 400 WEST

LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

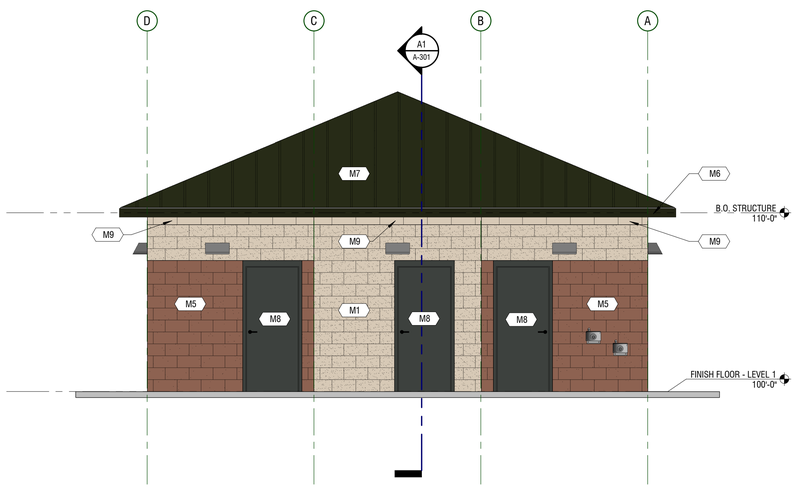
MARK:	DESCRIPTION:	DATE:

PROJECT #: 820201
DRAWN BY: HARRIS
CHECKED BY: LEMON
ISSUED: 02.03.2023

STATE OF UTAH
RYAN WAYNE LEMON
8668330-0301
LICENSED ARCHITECT

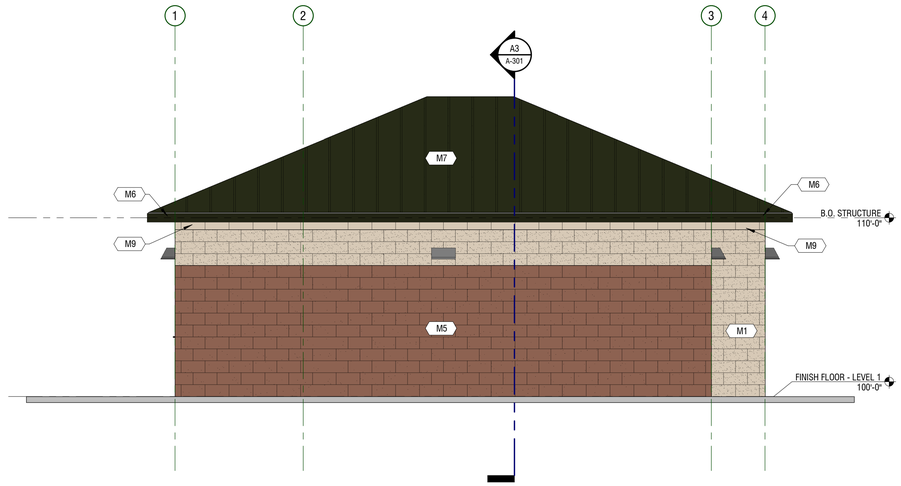
REFLECTED CEILING PLAN, MOUNTING HEIGHTS

A-102



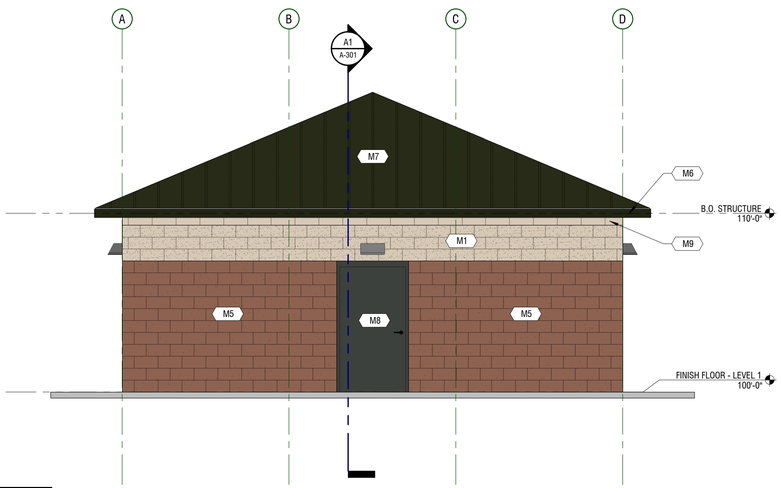
B3 EXTERIOR ELEVATION

1/4" = 1'-0" FRONT



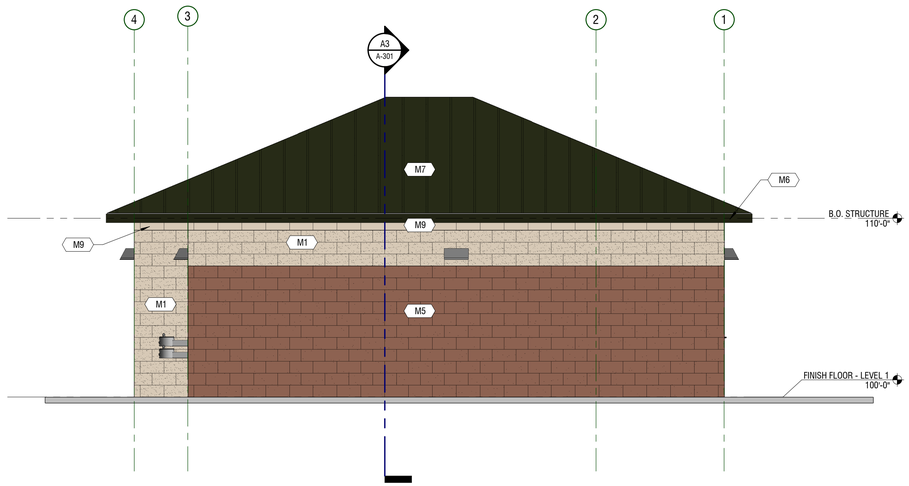
C3 EXTERIOR ELEVATION

1/4" = 1'-0" LEFT



A1 EXTERIOR ELEVATION

1/4" = 1'-0" BACK



A3 EXTERIOR ELEVATION

1/4" = 1'-0" RIGHT

EXTERIOR MATERIALS

MARK	DESCRIPTION
DIVISION 04: UNIT MASONRY	
M1	SPLIT FACE CMU, AMCOR (COLOR: AMBER GREY)(OFFSET: NONE)
M5	HONED FACE CMU AMCOR (COLOR: MOUNTAIN RED)(OFFSET: NONE)
M9	HONED FACE CMU, AMCOR (COLOR: AMBER GREY)(OFFSET: NONE)
DIVISION 05: METALS	
M6	METAL FASCIA, MCELROY METAL (COLOR: PATRICIA BRONZE)
M7	STANDING SEAM METAL ROOF, MCELROY METAL (COLOR: PATRICIA BRONZE)
M8	DOOR & FRAME PAINT: SW7645 THUNDER GRAY

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255 SOUTH 300 WEST
795 NORTH 400 WEST

LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

DESCRIPTION:
DATE:
MARK:

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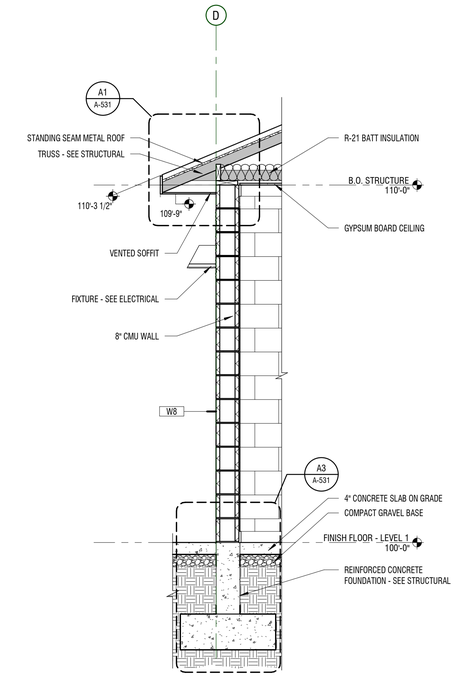
CHECKED BY: LEMON
ISSUED: 02.03.2023

STATE OF UTAH
RYAN WAYNE LEMON
8668330-0301
LICENSED ARCHITECT

FOR CONSTRUCTION

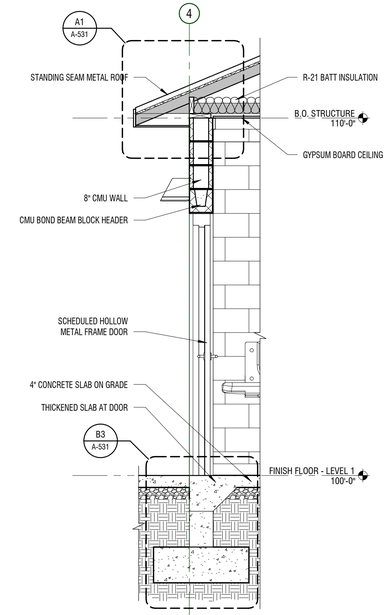
EXTERIOR ELEVATIONS

A-201



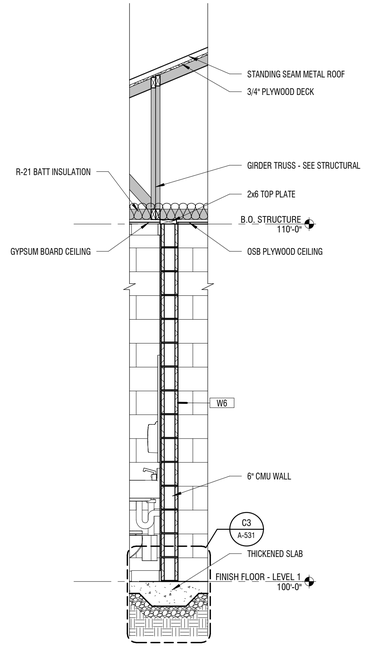
C2 WALL SECTION

1/2" = 1'-0"



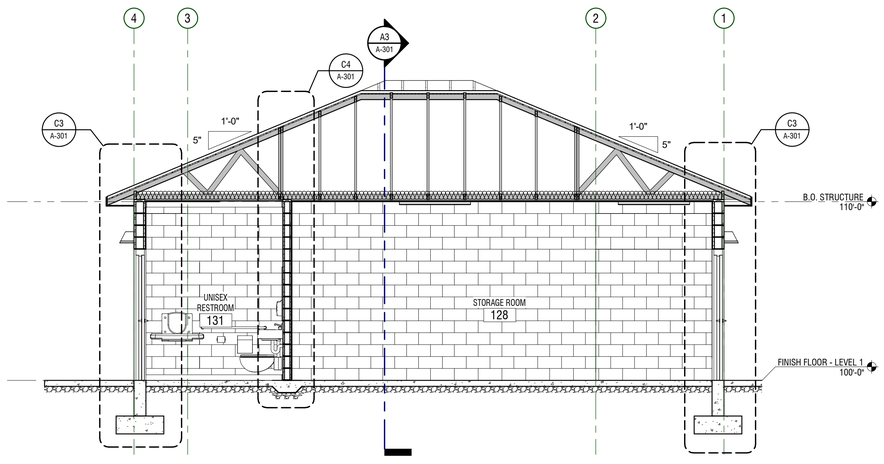
C3 WALL SECTION

1/2" = 1'-0"



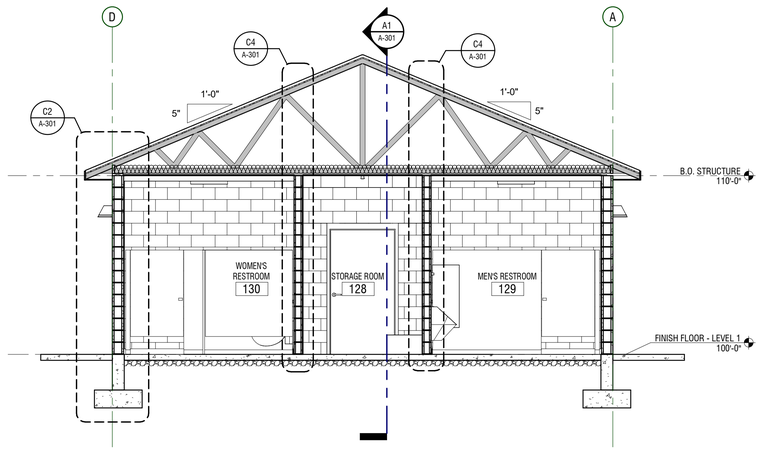
C4 WALL SECTION

1/2" = 1'-0"



A1 BUILDING SECTION

1/4" = 1'-0"



A3 BUILDING SECTION

1/4" = 1'-0"

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5. SEE FLOOR PLANS FOR SIGNAGE LOCATION

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SALT LAKE CITY UT 84103
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LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

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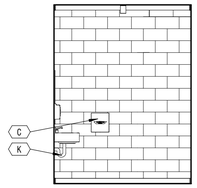
ISSUED: 02.03.2023

STATE OF UTAH
RYAN WAYNE LEMON
8668330-0301
LICENSED ARCHITECT

FOR CONSTRUCTION

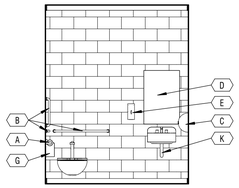
BUILDING SECTIONS, WALL SECTIONS

A-301



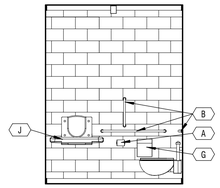
C1 INTERIOR ELEVATION

1/4" = 1'-0" UNISEX RESTROOM 131



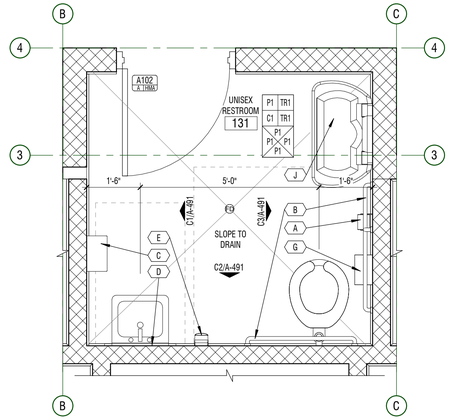
C2 INTERIOR ELEVATION

1/4" = 1'-0" UNISEX RESTROOM 131



C3 INTERIOR ELEVATION

1/4" = 1'-0" UNISEX RESTROOM 131

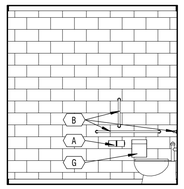


C4 ENLARGED PLAN

1/2" = 1'-0"

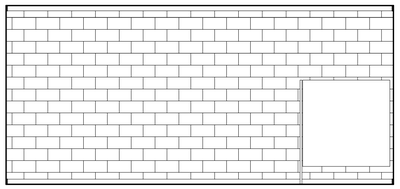
EQUIPMENT LEGEND

- A — TOILET TISSUE DISPENSER
  OWNER FURNISHED, OWNER INSTALLED
- B — GRAB BAR
  LENGTH INDICATED ON A-102 STANDARD MOUNTING HEIGHT
- C — ELECTRIC HAND DRYER
  CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
- D — STAINLESS STEEL MIRROR
  2'W x 3'H
- E — SOAP DISPENSER
  OWNER FURNISHED, OWNER INSTALLED
- G — FEMININE NAPKIN DISPOSAL
  OWNER PROVIDED, OWNER INSTALLED
- H — 24" X 24" MOP SINK
- J — DIAPER CHANGING STATION
  CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
- K — DRAIN PIPE PROTECTION
- L — HEAVY DUTY METAL SHELVING (5) ADJUSTABLE SOLID SHELVES, 48" WIDE X 24" DEEP X 72" TALL, 2000# CAPACITY/ SHELF (MIN.)
  CONTRACTOR FURNISHED, CONTRACTOR INSTALLED



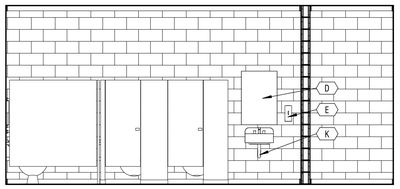
B2 INTERIOR ELEVATION

1/4" = 1'-0" WOMENS RESTROOM 130



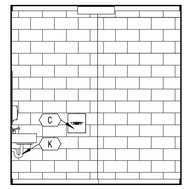
B3 INTERIOR ELEVATION

1/4" = 1'-0" WOMENS RESTROOM 130



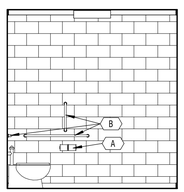
B4 INTERIOR ELEVATION

1/4" = 1'-0" WOMENS RESTROOM 130



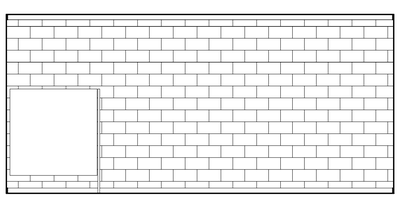
B5 INTERIOR ELEVATION

1/4" = 1'-0" WOMENS RESTROOM 130



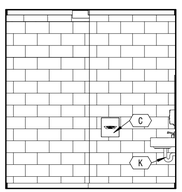
A2 INTERIOR ELEVATION

1/4" = 1'-0" MENS RESTROOM 129



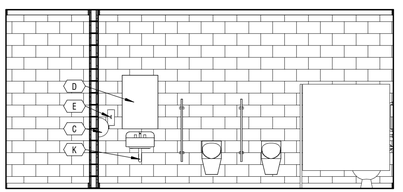
A3 INTERIOR ELEVATION

1/4" = 1'-0" MENS RESTROOM 129



A4 INTERIOR ELEVATION

1/4" = 1'-0" MENS RESTROOM 129



A5 INTERIOR ELEVATION

1/4" = 1'-0" MENS RESTROOM 129

FOR CONSTRUCTION

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LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

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MARK:

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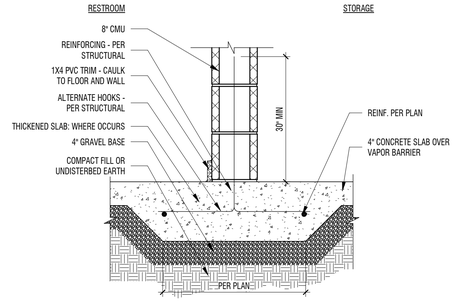
STATE OF UTAH
RYAN WAYNE LEMON
8668330-0301
LICENSED ARCHITECT

INTERIOR ELEVATIONS, ENLARGED PLANS

A-491

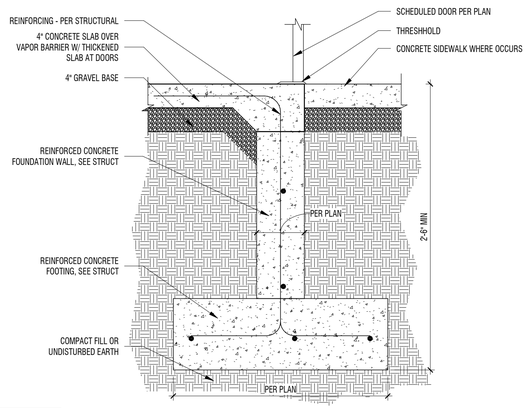
DOOR SCHEDULE

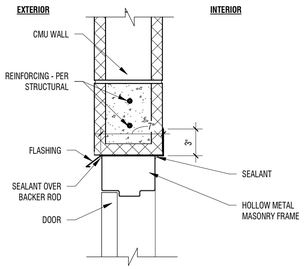
WT	LEAF SIZE W	LEAF SIZE H	DOOR TYPE (2)	THICKNESS (3)	CONSTRUCTION (4)	FINISH (5)	GLAZING (6)	RATING (7)	FRAME TYPE (8)	DETAILS (9) HEAD	DETAILS (9) JAMB	DETAILS (9) SILL	HARDWARE (10)	NOTES (11)
A101	3'-0"	7'-0"	HM01	1 3/4"	HMIP		-	-	HMA	C2/A-531	B2/A-531	A2/A-531	A	
A102	3'-0"	7'-0"	HM01	1 3/4"	HMIP		-	-	HMA	C2/A-531	B2/A-531	A2/A-531	A	
A103	3'-0"	7'-0"	HM01	1 3/4"	HMIP		-	-	HMA	C2/A-531	B2/A-531	A2/A-531	A	
A104	3'-8"	7'-0"	HM01	1 3/4"	HMIP		-	-	HMA	C2/A-531	B2/A-531	A2/A-531	A	



C3 BUILDING DETAIL

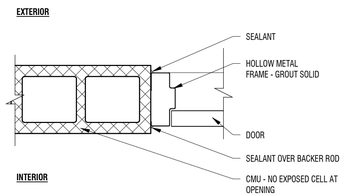
1" = 1'-0"





C2 HM HEAD DETAIL

1 1/2" = 1'-0"

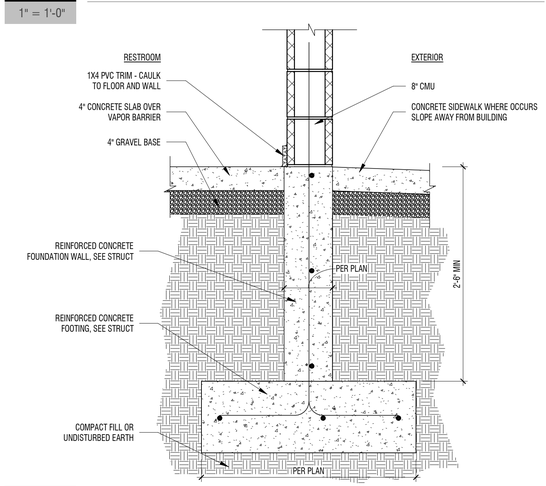


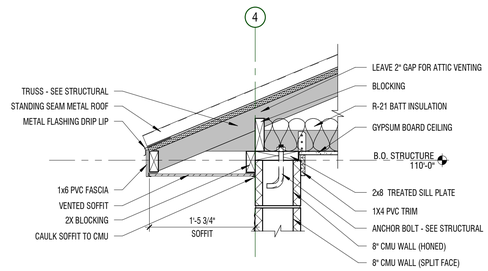
B2 HM DOOR JAMB DETAIL

1 1/2" = 1'-0"

B3 BUIILDING DETAIL

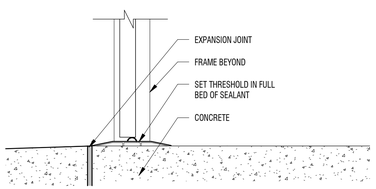
1" = 1'-0"





A1 BUILDING DETAIL

1" = 1'-0"



A2 THRESHOLD DETAIL

1 1/2" = 1'-0"

A3 BUILDING DETAIL

1" = 1'-0"

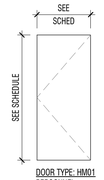
GENERAL NOTES

1. PROVIDE SEALANT AT JOINTS AT DISSIMILAR MATERIAL CONNECTIONS, ISOLATE DISSIMILAR METALS.
2. ALL DIMENSIONS FOR DOOR OPENINGS TO BE FIELD VERIFIED PRIOR TO MANUFACTURING AND INSTALLATION.

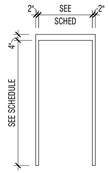
SCHEDULE NOTES

- IF SCHEDULE FIELD SHOWS A HYPHEN(-) OR IS BLANK, THERE ARE NO ITEMS APPLICABLE OR IS DETERMINED BY MANUFACTURER.
- SWING LINES SHOWN BELOW ARE REPRESENTATIONAL AND DO NOT INDICATE ACTUAL SWING. SEE PLANS FOR INDIVIDUAL SWINGS.

1. LEAF SIZING: SEE SCHEDULE
2. DOOR TYPES:



3. THICKNESS: SEE SCHEDULE
4. CONSTRUCTION:
   - GL GLASS
   - AL ALUMINUM
   - HMI HOLLOW METAL, INSULATED
   - HM HOLLOW METAL
   - SC SOLID CORE
5. FINISH: SEE DOOR FINISHES ON SHEET A-691
   MANUF. ARCHITECT TO SELECT COLOR FROM MANUFACTURES FULL RANGE OF COLORS
6. GLAZING: (DOOR AND WINDOW)
   - SG SAFETY GLASS (TEMPERED OR LAMINATED)
   - SGI SAFETY GLASS INSULATED, LOW E
   - CG CLEAR FLOAT GLASS
   - CGI CLEAR FLOAT GLASS INSULATED - LOW E
   - SP SPANDREL PANEL
7. RATING: 20, 45, 60 AND ETC. INDICATES FIRE RATING
   NOTE: ALL FIRE RATED DOORS SHALL BE AUTOMATIC CLOSING OR SELF-CLOSING AS PROVIDED IN THE IBC, IN ADDITION SEE THE IBC FOR SPECIAL PROVISIONS RELATING TO DOORS.
8. FRAME TYPE: (NUMBER(S) INDICATE(S) FRAME TYPE(S) SHOWN



FRAME TYPE: HM A

9. DETAILS: (REFER TO SHEETS INDICATED FOR DOOR AND WINDOW DETAILS)
10. HARDWARE:

TYPE: A
KEY TO OWNERS EXISTING KEY SYSTEM WHERE KEYED LOCKS (VERIFY WITH OWNER)
MANUFACTRUES USED:
HINGES: PBB
LOCKSETS: SCHLAGE
KICK PLATE: IVES
WALL STOP: IVES
CLOSER: SARGENT

HARDWARE SET TYPICAL - VERIFY WITH OWNER:

3 EA HINGE	5BB1 4.5X4.5 NRP	652 IVE
1 EA STOREROOM LOCK	ND80PD RHO	626 SCH
3 EA SILENCER	SR64	GRY IVE
1 EA THREASHOLD		
1 SET WEATHER STRIPING		
1 EA CLOSER	1430 PSH	SARGENT
1 EA KICK PLATE	K1050	32" ROCKWOOD

11. NOTES:
    A: MARINE GRADE CLEAR COAT FINISH ON TOILET CUBICLE DOORS

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LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

DESCRIPTION:
DATE:
MARK:

FOR CONSTRUCTION

PROJECT #: 820201
DRAWN BY: HARRIS
CHECKED BY: LEMON
ISSUED: 02.03.2023

STATE OF UTAH
RYAN WAYNE LEMON
8668330-0301
LICENSED ARCHITECT

BUILDING DETAILS, DOOR SCHEDULE, DOOR TYPES, DOOR DETAILS

A-531

LEGEND OF MECHANICAL SYMBOLS AND ABBREVIATIONS

DUCTWORK/GRILLES

Symbol	Description
12X12 200	CEILING EXHAUST REGISTER,
12/8	RECTANGULAR DUCT WITH FREE AREA DIMENSIONS SHOWN IN INCHES.
12ø	ROUND DUCT WITH FREE AREA DIMENSIONS SHOWN IN INCHES.
W R	R/W=1. ROUND DUCT SIMILAR TO RECTANGULAR
12Ø 12/12	HIGH EFFICIENCY FITTING
	MANUAL VOLUME DAMPER

PIPING

Symbol	Description
OR	SHUT OFF VALVE
OR	BALL VALVE
OR	CHECK VALVE
OR	LATERAL STRAINER WITH BLOW-OFF VALVE, PROVIDE HOSE END WITH CAP WHERE DISCHARGE IS NOT PIPED TO DRAIN
RPBP	REDUCED PRESSURE BACKFLOW PREVENTOR W/ DRAIN PAN
OR	PRESSURE REDUCING VALVE SELF CONTAINED
0.0 GPM OR	CALIBRATED BALANCING VALVE WITH GPM INDICATED
	THERMOMETER - TEMP RANGE AS INDICATED
	PRESSURE GAUGE WITH SHUT OFF PLUG VALVE
OR	UNION
	REDUCER
	BRANCH - BOTTOM CONNECTION
	BRANCH - TOP CONNECTION
	BRANCH - SIDE CONNECTION
	RISE OR DROP
	RISER - DOWN (ELBOW)
	RISER - UP (ELBOW)
	PIPE CAP
	ARROW INDICATES DIRECTION OF FLOW IN PIPE
	VALVE IN RISE
OR	90° ELBOW
	45° ELBOW

PLUMBING

Symbol	Description
	HOSE BIBB
	FLOOR DRAIN
FCO COTG	FLOOR CLEAN-OUT OR CLEAN-OUT TO GRADE
VTR	VENT THRU ROOF
	WATER HAMMER ARRESTOR
	CLEAN-OUT

ANNOTATIONS

Symbol	Description
P-1	PLUMBING FIXTURES
A M101	DETAIL TAG - TOP FIGURE IS DETAIL NO. BOTTOM FIGURE IS SHEET NO.
EF 1	EQUIPMENT IDENTIFICATION
1	KEYED NOTE IDENTIFICATION

LINETYPES

Symbol	Description
	DOMESTIC COLD WATER (DCW)
	DOMESTIC HOT WATER (DHW)
	SEWER (BELOW GRADE)
	VENT (SEWER)

MECHANICAL GENERAL NOTES

1. PROVIDE EG-1 TYPE GRILLE, AS SCHEDULED, FOR ALL CEILING EXHAUST GRILLES, SHOWN AS SUCH.
2. COORDINATE EXACT LOCATION OF DUCTS WITH STRUCTURAL MEMBERS, LIGHTS, REFLECTED CEILING, PLUMBING, ETC.
3. BRANCH DUCTWORK SHALL BE SIZED TO MATCH THE NECK SIZE OF THE DIFFUSER, REGISTER OR GRILLE IT SERVES UNLESS NOTED OTHERWISE.
4. INSTALL HARD ELBOWS AS SHOWN. HARD ELBOWS ARE REQUIRED FOR SOUND ATTENUATION.
5. INSTALL EQUIPMENT WITH CLEARANCE PER MANUFACTURER'S RECOMMENDATIONS. MAINTAIN PROPER SPACE FOR, CONTROLS, AND MAINTENANCE ACCESS.
6. INSTALL TURNING VANES IN ALL SQUARE AND RECTANGULAR LOW PRESSURE DUCTWORK.
7. DETAILS REFERENCE ALL SHEETS.
8. DO NOT ROUTE DUCTS OR PIPES ABOVE ELECTRICAL PANELS. DO NOT ROUTE DUCTS OR PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.
9. PROVIDE CEILING ACCESS PANELS AS REQUIRED WHERE MECHANICAL EQUIPMENT, VALVES, ETC, ARE LOCATED ABOVE INACCESSIBLE CEILINGS.
10. ALL DUCT DIMENSIONS ARE INSIDE FREE AREA DIMENSIONS.

PLUMBING GENERAL NOTES

1. SLOPE PIPING AS FOLLOWS, UNLESS OTHERWISE NOTED. WASTE: BRANCHES 1/4" PER FOOT. WASTE MAINS: 1/8" PER FOOT.
2. SLEEVE PIPING THRU WALLS/FOUNDATIONS WHERE REQUIRED.
3. PLUMBING DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY EXACT ROUTING AND COORDINATE WITH ALL OTHER TRADES.
4. ALL PIPING IN PLUMBING CHASES TO BE ARRANGED TO ALLOW MAINTENANCE ACCESS.
5. NO PIPING TO RUN OVER ELECTRICAL PANELS.
6. SLEEVE/CONFIGURE CMU WALLS FOR EMBEDDED PIPING AND PIPE PENETRATIONS AS REQUIRED.
7. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE MOUNTING HEIGHTS, DIMENSIONS, AND OTHER REQUIREMENTS.
8. CONTRACTOR TO VERIFY CONNECTION SIDE OF ADA FIXTURES AND ADJUST ACCORDINGLY.
9. LOCATE ALL VENTS MINIMUM 25 FT AWAY FROM AIR INTAKES.
10. INSTALL DOMESTIC WATER LINES BELOW DUCTWORK.
11. INSTALL A 24"x24" ACCESS DOOR BELOW ALL ISOLATION VALVES AND CIRCUIT SETTERS WHERE MOUNTED ABOVE HARD CEILINGS.
12. MOUNT ALL CEILING TYPE ISOLATION VALVES, CONTROL VALVES, CIRCUIT SETTERS, ETC. NEAR CEILING FOR ACCESSIBILITY.
13. DETAILS REFERENCE ALL SHEETS.

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MARK: DATE: DESCRIPTION:

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PROJECT #: 820201
DRAWN BY: DB
CHECKED BY: JJ
ISSUED: 02.03.2023

MECHANICAL SYMBOLS LEGEND AND GENERAL NOTES

M001

PART 1 – GENERAL

1.01 DESCRIPTION

A. WORK INCLUDED: FURNISH ALL LABOR, MATERIALS,EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL HEATING, AND VENTILATION AIR AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

B. RELATED WORK INCLUDED IN THIS SECTION:

1. FURNISHING ELECTRICAL DEVICES NECESSARY FOR MECHANICAL WORK, EXCEPT DISCONNECTS UNLESS INDICATED OTHERWISE.
2. LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS INCLUDING FINAL CONNECTIONS AS INDICATED ON WIRING DIAGRAMS.
3. CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS INDICATED ON WIRING DIAGRAMS.
4. RESPONSIBILITY FOR OBTAINING CLARIFICATION OF DISCREPANCIES BETWEEN MECHANICAL AND ELECTRICAL WORK FROM ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
5. RESPONSIBILITY FOR PROPER OPERATION OF AUTOMATIC ELECTRICAL CONTROLS AND EQUIPMENT, AND OF ELECTRIC POWER DRIVEN EQUIPMENT FURNISHED UNDER THIS SECTION.

C. RELATED WORK IN OTHER SECTIONS:

1. ELECTRICAL WORK AS FOLLOWS WILL BE PROVIDED UNDER ELECTRICAL DIVISION:

A. CONDUIT FOR LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED EXCEPT CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.

B. LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED HEREIN EXCEPT LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.

C. PROVIDING DISCONNECT SWITCHES.

D. INSTALLING ELECTRICAL DEVICES SUCH AS STARTERS AND DISCONNECTS, AND, WHEN INDICATED, FURNISHING ALL SUCH DEVICES.

E. CODES AND STANDARDS:

1. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
2. 2018 INTERNATIONAL MECHANICAL CODE.
3. 2018 INTERNATIONAL BUILDING CODE.
4. 2018 INTERNATIONAL PLUMBING CODE.
5. 2018 INTERNATIONAL ENERGY CONSERVATION CODE.
6. 2018 INTERNATIONAL FUEL AND GAS CODE.
7. ASHRAE 90.1-2016.
8. 2017 INTERNATIONAL ELECTRICAL CODE.

1.02 PRODUCT HANDLING

A. PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION.

B. REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

1.03 JOB CONDITIONS

A. EXAMINATION OF SITE: EXAMINE THE SITE AND INCLUDE IN BID PROPOSAL ALL CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED.

1.04 MISCELLANEOUS

A. PERMIT AND FEES: ARRANGE, APPLY AND PAY FOR ALL NECESSARY PERMITS, INSPECTIONS, EXAMINATIONS AND FEES OR CHARGES REQUIRED BY PUBLIC AUTHORITIES HAVING JURISDICTION.

B. LOCATIONS AND ACCESSIBILITY: CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACE AVAILABLE FOR INSTALLATION OF WORK UNDER THIS SECTION. VALVES, MOTORS, CONTROLS AND OTHER DEVICES REQUIRING SERVICE, MAINTENANCE AND ADJUSTMENT SHALL BE PLACED IN FULLY ACCESSIBLE POSITIONS AND LOCATIONS. PROVIDE ACCESS DOORS WHERE REQUIRED IN DUCTWORK AND/OR CONSTRUCTION WHETHER SPECIALLY DETAILED OR NOT, AND RENDER ALL SUCH DEVICES ACCESSIBLE.

C. SCAFFOLDING: FURNISH ALL SCAFFOLDING, RIGGING AND HOISTING AS REQUIRED FOR THE PROPER EXECUTION OF THE WORK.

D. DRAWINGS: DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF DUCTWORK, EQUIPMENT, AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. ALL OFFSETS AND INTERFERENCES MAY NOT BE SHOWN BECAUSE OF THE SCALE OF DRAWINGS. ASSUME THE RESPONSIBILITY FOR COORDINATING THE WORK WITH ALL OTHER TRADES. WORK SPECIFIED AND NOT CLEARLY DEFINED BY THE DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY TO THE ENGINEER. IN THE EVENT CHANGES IN INDICATED LOCATIONS AND ARRANGEMENTS ARE DEEMED NECESSARY BY ENGINEER, THEY SHALL BE MADE BY THIS CONTRACTOR WITHOUT ADDITIONAL CHARGES.

E. ALL HVAC EQUIPMENT SHALL BE LABELED. INFORMATION ON LABELS SHALL INCLUDE; IDENTIFICATION NUMBER AND NAME SAME AS THE DRAWINGS, FLOW AND STATIC PRESSURE AND THE AREA TO WHICH THE UNIT SERVES. LABELS SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16 INCH HIGH.

1.05 SUBMITTALS

A. SHOP DRAWINGS: WITHIN 15 DAYS AFTER AWARD OF CONTRACT, AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE FABRICATED AND DELIVERED TO THE JOBSITE, SUBMIT COMPLETE SHOP DRAWINGS AND EQUIPMENT SUBMITTALS FOR ENGINEER TO REVIEW IN ACCORDANCE WITH THESE SPECIFICATIONS. SHOW ALL DETAILS OF ALL DUCTWORK, AND EQUIPMENT PADS.

B. PRODUCT DATA:

1. SUBMIT PDF COPIES OF ALL MANUFACTURER'S PRODUCT DATA SIMULTANEOUSLY WITH ALL SHOP DRAWING SUBMITTALS.
2. PRODUCT DATA TO INCLUDE ALL AIR CONDITIONING EQUIPMENT, HANGERS, FANS AND OTHER STANDARD ITEMS AS REQUIRED TO COMPLEMENT SHOP DRAWINGS FOR A SUBMITTAL INDICATING PRODUCTS TO BE USED ON THIS WORK.
3. MANUFACTURERS AND SUPPLIERS OF EQUIPMENT SHALL PROVIDE ALL DATA NECESSARY FOR COMPLIANCE WITH THE STATE OF CALIFORNIA ENERGY CONSERVATION STANDARDS. COMPLIANCE CERTIFICATION FOR ALL EQUIPMENT SHALL BE INCLUDED IN EQUIPMENT SUBMITTALS.

C. RECORD DRAWINGS: MAINTAIN THROUGHOUT THE PROGRESS OF THE WORK PROJECT RECORD DRAWINGS AND SUBMIT TO THE OWNER.

D. OPERATING MANUALS AND MAINTENANCE MANUALS:

1. SUBMIT PDF COPIES OF ALL OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS.
2. FULLY INSTRUCT OWNER'S OPERATING PERSONNEL AND DEMONSTRATE PERFORMANCE, OPERATION AND MAINTENANCE OF EQUIPMENT. AMOUNT OF TIME ALLOCATED FOR SAID INSTRUCTION AND DEMONSTRATION OF EQUIPMENT AND SYSTEMS SHALL BE PART OF THESE OBLIGATIONS. SUBMIT TO ENGINEER A LETTER SIGNED BY OWNER'S REPRESENTATIVE WHO WILL OPERATE SYSTEM STATING THAT HE HAS BEEN FULLY INSTRUCTED BY CONTRACTOR ABOUT OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEM.

E. GUARANTEES: IN ADDITION TO EQUIPMENT WARRANTIES, FURNISH A WRITTEN GUARANTEE AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR ONE YEAR. GUARANTEE SHALL INCLUDE REPAIR OF DAMAGE TO, OR REPLACEMENT OF, ANY PART OF EQUIPMENT OR PREMISES CAUSED BY LEAKS OR BREAKS IN PIPE OR EQUIPMENT PROVIDED UNDER THIS SECTION.

1.06 EQUIPMENT IDENTIFICATION

ALL ITEMS OF MECHANICAL EQUIPMENT, INCLUDING FANS, PUMPS,AND ELECTRICAL SWITCHES AND STARTERS FOR MECHANICAL EQUIPMENT AND GAUGES SHALL BE LABELED.

INFORMATION ON LABELS SHALL INCLUDE THE FOLLOWING:

A. IDENTIFICATION NUMBER AND NAME. GENERALLY, THIS NUMBER AND NAME SHALL BE THE SAME AS THAT SHOWN ON THE DRAWINGS OR IN THE SPECS.

B. IF THE ITEM IS A FAN, THE FLOW AND HEAD SHALL BE INDICATED.

C. VALVES SHALL BE TAGGED WITH THE AREA SERVED AND THEIR NORMAL OPERATING POSITIONS SHALL BE INDICATED.

D. WHERE THE MAIN UNIT IS SERVED BY THE VALVE IS APPARENT, ONLY THE VALVE FUNCTION NEEDS TO BE INCLUDED ON THE NAMEPLATE.

THE TYPES OF NAMEPLATES SHALL BE AS FOLLOWS:

A. VALVE TAGS SHALL BE 1/2" EMBOSSED ALUMINUM TAPES WITH IDENTIFICATION ON ONE SIDE FOR VALVES. TAGS FOR MAGNETIC STARTERS SHALL BE SCREWED TO THE METAL STARTER COVER. TAGS SHALL BE ADDRESSOGRAPH NO. B-5300.

B. EQUIPMENT NAMEPLATES SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16" HIGH.

VALVE TAGS SHALL BE CONNECTED TO VALVE STEMS BY STEEL RINGS OR CHAINS. SCREWS SHALL BE USED FOR EQUIPMENT LABELS. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A COMPLETE LIST OF ALL VALVES AND EACH ITEM OF EQUIPMENT TO BE IDENTIFIED WITH THE PROPER IDENTIFICATION.

PART 2 – PRODUCTS

DIFFUSERS, REGISTERS AND GRILLES

AIR DISTRIBUTION EQUIPMENT SHALL BE OF SIZES AND CAPACITIES INDICATED.

A. REGISTERS, GRILLES, AND DIFFUSERS OF THE SIZES SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN SHALL BE FURNISHED AND INSTALLED. ALL GRILLES, DIFFUSERS, AND REGISTERS SHALL BE COMPLETE WITH FRAMES WITH RUBBER GASKETS SUITABLE FOR THE AREA AND WALL CONSTRUCTION WHERE SHOWN ON THE DRAWINGS.

B. FINISH FOR ALL REGISTERS, DIFFUSERS, GRILLES, ETC., SHALL BE OFF-WHITE UNLESS OTHERWISE SELECTED BY THE OWNER. APPROVED MANUFACTURERS FOR ALL AIR DISTRIBUTION PRODUCTS SHALL BE PRICE INDUSTRIES, NAILOR, METAL AIR, TUTTLE & BAILEY, J&J, CARNES, HART AND COOLEY, OR ANEMOSTAT.

J. CEILING EXHAUST AND TRANSFER AIR GRILLES FOR SURFACE MOUNTING IN OTHER THAN LAY IN CEILINGS SHALL BE PRICE INDUSTRIES MODEL 80 OR APPROVED EQUIVALENT.

K. CEILING DIFFUSERS, GRILLES AND REGISTERS SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE SO THAT THEY ARE NOT DEPENDING ON THE CEILING FOR SUPPORT.

L. CEILING DIFFUSERS MAY BE ROUND NECKED OR EQUIVALENT SIZE SQUARE NECK. PROVIDE SQUARE TO ROUND NECK ADAPTER AS NECESSARY. IF SPACE DOES NOT ALLOW FOR A FULL 1.5*DIAMETER RADIUS TO BE PROVIDED, THEN A SHEET METAL BOOT SHALL BE PROVIDED.

2.02 DUCTS AND SHEET METAL WORK

A. PROVIDE DUCTS, PLENUMS, ACCESS DOORS, FRESH AIR INTAKES, AND EXHAUSTS AS INDICATED AND REQUIRED. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. PROVIDE PREFABRICATED SPIRAL LOCKSEAM DUCTS AND FITTINGS AND RECTANGULAR DUCTS OF GALVANIZED STEEL. ALUMINUM FLEXIBLE DUCTWORK OR GYPSUM BOARD DUCTWORK IS NOT ACCEPTABLE.

B. ALL CONNECTIONS TO MAIN DUCTS SHALL BE MADE WITH LOW LOSS FITTINGS.

C. FLAT DUCT SURFACES SHALL BE CRIMPED DIAGONALLY REGARDLESS OF SIZE. LONGITUDINAL JOINTS IN ALL DUCT SIZES MAY BE FLAT LOCK JOINTS. TRANSVERSE JOINTS AND INTERMEDIATE BRACING SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL OR GALVANIZED STRUCTURAL ANGLES IN ACCORDANCE WITH REQUIREMENTS OF ASHRAE GUIDE AND PUBLIC AUTHORITIES HAVING JURISDICTION.

D. TRANSVERSE JOINTS ON ALL DUCTS SHALL BE SEALED WITH MASTIC OR TAPE.

E. LONGITUDINAL JOINTS ON DUCTS WITH INTERNAL STATIC PRESSURES IN EXCESS OF 0.75 INCHES OF WATER PRESSURE SHALL BE SEALED WITH MASTIC OR TAPE.

F. LOCK JOINTS SHALL BE HAMMERED TO MAKE THEM AIRTIGHT. INSIDE OF DUCT SHALL PRESENT A SMOOTH SURFACE TO FLOW AIR.

G. CHANGES IN SIZE OF DUCTS SHALL INCREASE GRADUALLY WITH A SLOPE OF NOT MORE THAN 12 INCHES IN 5 FEET WHERE POSSIBLE, BUT NOT MORE THAN 12 INCHES IN 3 FEET IN ANY EVENT.

H. TURNS SHALL BE MADE WITH A THROAT RADIUS OF NOT LESS THAN THE DUCT WIDTH.

2.03 VOLUME DAMPERS

A. DAMPERS USED IN LOW VELOCITY BRANCH DUCTS TO CONTROL THE VOLUME OR AIR FLOW SHALL BE YOUNG LOCKING QUADRANT VOLUME DAMPER OR EQUAL. AN OPERATING HEAD SHALL BE PLACE ON THE SIDE OF THE DUCT AND SHALL BE LOCKED IN POSITION BY A SET KEY WHERE THE DAMPER IS ACCESSIBLE. WHERE THE DAMPER IS NOT ACCESSIBLE, YOUNG NO. 817A OR 817B VOLUME CONTROL DAMPER OR EQUAL, CONSISTING OF AN END BEARING OR MITER GEAR, COUPLING, 3/8-INCH SQUARE SHAFT, AND REGULATOR FOR OPERATING THE UNIT FROM THE CEILING SHALL BE PROVIDED.

2.05 EXHAUST FAN

A. INLINE EXHAUST FAN OF SIZE AND CAPACITY SHOWN ON DRAWINGS SHALL BE FURNISHED AND INSTALLED. FANS SHALL BE DIRECT DRIVE OF RPM SHOWN AND SHALL BE COMPLETE WITH FAN HOUSING, BACKDRAFT DAMPER AND MOTOR. NOISE LEVEL SHALL NOT EXCEED 3.8 SONES. AIR QUANTITIES SHALL BE CERTIFIED BY AMCA. FANS SHALL BE PENN, COOK, ACME, GREENHECK, JENN, PACE OR EQUAL OF BROAN. DUCT SHALL BE EXTENDED THROUGH THE WALL AND A WALL LOUVER SHALL BE PROVIDED AS REQUIRED. EXHAUST FANS SHALL BE INTERLOCKED WITH THE RESTROOM LIGHTS.

2.06 TURNING VANES

A. TURNING VANES SHALL BE FURNISHED AND INSTALLED IN ALL 90-DEGREE TURNS IN SUPPLY, RETURN, MIXED AIR AND FRESH AIR DUCTS, AND ELSEWHERE AS SHOWN ON THE DRAWINGS. MATERIAL OF TURNING VANES SHALL MATCH DUCTWORK. VANES ARE TO BE SINGLE BLADE, OF SIZE, SPACING, GAUGE, AND FABRICATION IN ACCORDANCE WITH SMACNA RECCOMENDATIONS.

2.07 ELECTRIC UNIT HEATER

A. ELECTRIC UNIT HEATER OF SIZE AND CAPACITY SHOWN ON DRAWINGS SHALL BE FURNISHED AND INSTALLED. UNIT HEATER SHALL BE AS SHOWN OR APPROVED EQUAL.

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MARK:	DATE:	DESCRIPTION:

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DRAWN BY: DB
CHECKED BY: JJ
ISSUED: 02.03.2023

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MECHANICAL SPECIFICATIONS

M002

PART 3 – EXECUTION

3.01 DISCREPANCIES

A. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE OWNER.

B. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

3.02 EQUIPMENT IDENTIFICATION

ALL MAJOR EQUIPMENT SHALL BEAR FIRMLY ATTACHED METAL NAMEPLATES WHICH STATE NAME OF MANUFACTURER, MODEL NUMBER AND ELECTRICAL DATA.

3.03 INITIAL LUBRICATION, ADJUSTING, AND FILLING SYSTEMS

BEFORE OPERATING ANY MECHANICAL SYSTEMS, EQUIPMENT BEARINGS SHALL BE LUBRICATED AND BOLTS, PULLEYS, AND OTHER MOVING PARTS CHECKED FOR ALIGNMENT AND TOLERANCES IN ACCORDANCE WITH MANUFACTURER'S OPERATING INSTRUCTIONS. VIBRATIONS AND NOISE SHALL BE SUPPRESSED.

3.04 CLEANING OF EQUIPMENT, MATERIALS AND PREMISES

CLEAN ENTIRE PREMISES OF UNUSED MATERIALS, RUBBISH, DEBRIS, GREASE SPOTS AND DIRT LEFT BY SUBCONTRACTOR. ALL EXPOSED PIPING, DUCTWORK, INSULATED MEMBERS, FIXTURES, AND EQUIPMENT INSTALLED UNDER THIS SECTION SHALL BE MADE READY FOR PAINTING.

3.05 EQUIPMENT AND MATERIAL

INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

3.06 ACCESSIBILITY

INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR, PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED. ACCESS PANELS SHALL BE THE RESPONSIBILITY OF RESPECTIVE SUBCONTRACTORS.

3.07 SYSTEM BALANCING

A. BALANCING WORK INCLUDED:
   1. COMPLETE TESTING AND BALANCING OF THE HVAC SYSTEM AS HEREIN SPECIFIED.

B. VERIFICATION OF CONDITIONS: PRIOR TO TESTING AND BALANCING, INSPECT EQUIPMENT AND MATERIALS AND ARRANGE WITH CONTRACTOR FOR SATISFACTORY CORRECTION OF ALL DEFECTS IN WORKMANSHIP AND/OR MATERIAL THAT COULD AFFECT THE WORK SPECIFIED HEREIN.

C. PROTECTION: AS SPECIFIED HEREIN.

D. SYSTEM OPERATION: CONTRACTOR SHALL PUT ALL PARTS OF SYSTEMS IN FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.

E. TEST DATA: SUBMIT COPY OF TEST DATA TO OWNER ON COMPLETION OF WORK UNDER THIS SECTION.

F. TEST AND BALANCE CONTRACTOR SHALL CERTIFY IN WRITING THAT SYSTEM HAS BEEN ADJUSTED AND BALANCED AND DESIGN CONDITIONS HAVE BEEN ATTAINED IN ALL AREAS OF THE BUILDING.

G. INSTRUMENTS: INSTRUMENTS USED BY CONTRACTOR SHALL BE ACCURATELY CALIBRATED AND MAINTAINED IN GOOD WORKING ORDER.

H. AIR DISTRIBUTION TESTING AND BALANCING:
   1. TEST AND RECORD MOTOR FULL LOAD AMPERS AND RPM.
   2. TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION AND DISCHARGE.
   3. ADJUST ALL EXHAUST AIR DUCTS TO PROPER DESIGN CFM.
   4. IN COOPERATION WITH THE CONTROL MANUFACTURER'S REPRESENTATIVE, THE SETTING ADJUSTMENT OF AUTOMATICALLY OPERATED CONTROLS TO OPERATE AS SPECIFIED, INDICATED AND/OR NOTED.

I. WITNESS: NOTIFY OWNER IN WRITING TWO WEEKS PRIOR TO TESTING AND BALANCING OF ALL MAJOR EQUIPMENT IN ORDER TO ARRANGE THAT OWNER,S REPRESENTATIVE WILL WITNESS THE TESTS.

3.09 OPERATION

PLACE SYSTEM IN OPERATION AND REGULATE AND ADJUST TO OWNER'S SATISFACTION. SYSTEMS SHALL OPERATE QUIETLY AND WITHOUT VIBRATION OR NOISE.

3.10 CERTIFICATION

UPON COMPLETION, THE CONTRACTOR SHALL INSPECT WORK OF THIS SECTION AND DELIVER TO OWNER A WRITTEN CERTIFICATION THAT INSTALLED MATERIALS AND WORKMANSHIP CONFORM TO SPECIFICATIONS.

– END –

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LAYTON CITY - HEATED RESTROOM
LAYTON, UT
LAYTON CITY PARKS AND RECREATION DEPARTMENT

MARK:	DATE:	DESCRIPTION:

PROJECT #:	820201
DRAWN BY:	DB
CHECKED BY:	JJ
ISSUED:	02.03.2023

MECHANICAL SPECIFICATIONS

M003

FAN SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	TYPE	LOCATION	TYPE	AIR: MAXIMUM AIRFLOW RATE (CFM)	AIR: STATIC PRESSURE (IN. WATER)	ELECTRICAL: OPERATI... (WATTS)	ELECTRICAL: FLA (AMP)	ELECTRICAL: MAXIMUM MOTOR SPEED (RPM)	ELECTRICAL: VOLT/PH/HZ	PHYSICAL: LENGTH/ WIDTH/ HEIGHT (IN)	PHYSICAL: WEIGHT (LBS)	NOTES
EF-1	GREENHECK SP-LP0511	EXHAUST	UNISEX	CEILING	100	0.35	11	0.29	939	115/1/60	10/10/4	10	(1)(2)(3)
EF-2	GREENHECK CSP-A290	EXHAUST	MEN'S	CEILING	220	0.33	81	0.83	1050	115/1/60	12/14/11	25	(1)(2)(3)
EF-3	GREENHECK CSP-A290	EXHAUST	WOMEN'S	CEILING	220	0.33	81	0.83	1050	115/1/60	12/14/11	25	(1)(2)(3)
EF-4	GREENHECK CSP-A290	EXHAUST	STORAGE	CEILING	220	0.33	81	0.83	1050	115/1/60	12/14/11	25	(1)(2)(3)

(1) ALL CAPACITIES AT 4,300 FEET ELEVATION.
(2) CONTROL: INTERLOCK WITH LIGHTS BY DIV 26.
(3) UNIT COMPLETE WITH GRILLE, GRAVITY BACK DRAFT DAMPER, INTEGRAL THERMAL OVERLOAD PROTECTION, ELECTRICAL DISCONNECT.

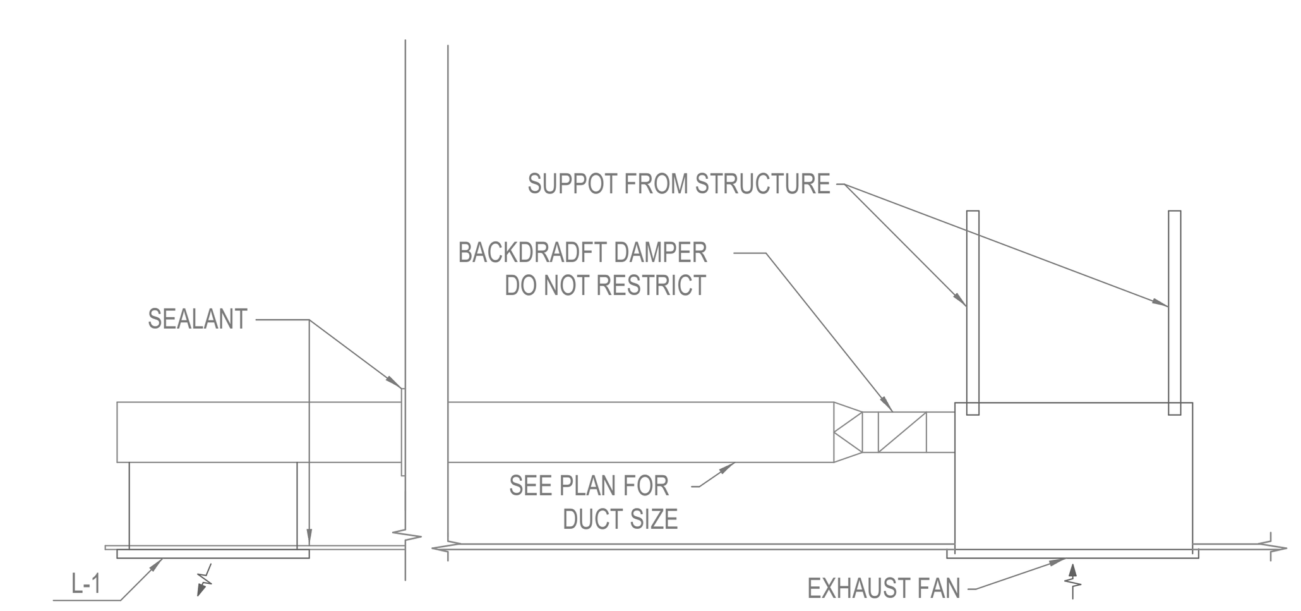
ELECTRIC UNIT HEATER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	USE TYPE	AIR: AIRFLOW RATE (CFM)	HEATING CAPACITY (BTU/H)	HEATING CAPACITY (KW)	ELECTRICAL: MOTOR SIZE (HP)	MOTOR SPEED (RPM)	VOLT/PH/HZ	PHYSICAL: CABINET DIMENSIONS LxWxH (IN)	WEIGHT (LBS)	NOTES
EUH-1	QMARK AWH4404F	MEN'S 129	ELECTRIC	HEATING	100	10236	3	1/8	1550	208/1/60	4x15.75x19.25	25	(1)(2)(3)
EUH-2	QMARK AWH4404F	WOMEN'S 130	ELECTRIC	HEATING	100	10236	3	1/8	1550	208/1/60	4x15.75x19.25	25	(1)(2)(3)
EUH-3	QMARK AWH4404F	STORAGE 128	ELECTRIC	HEATING	100	10236	3	1/8	1550	208/1/60	4x15.75x19.25	25	(1)(2)(3)
EUH-4	QMARK AWH3150F	UNISEX 131	ELECTRIC	HEATING	100	5118	1.5	1/8	1550	120/1/60	4x15.75x19.25	25	(1)(2)(3)

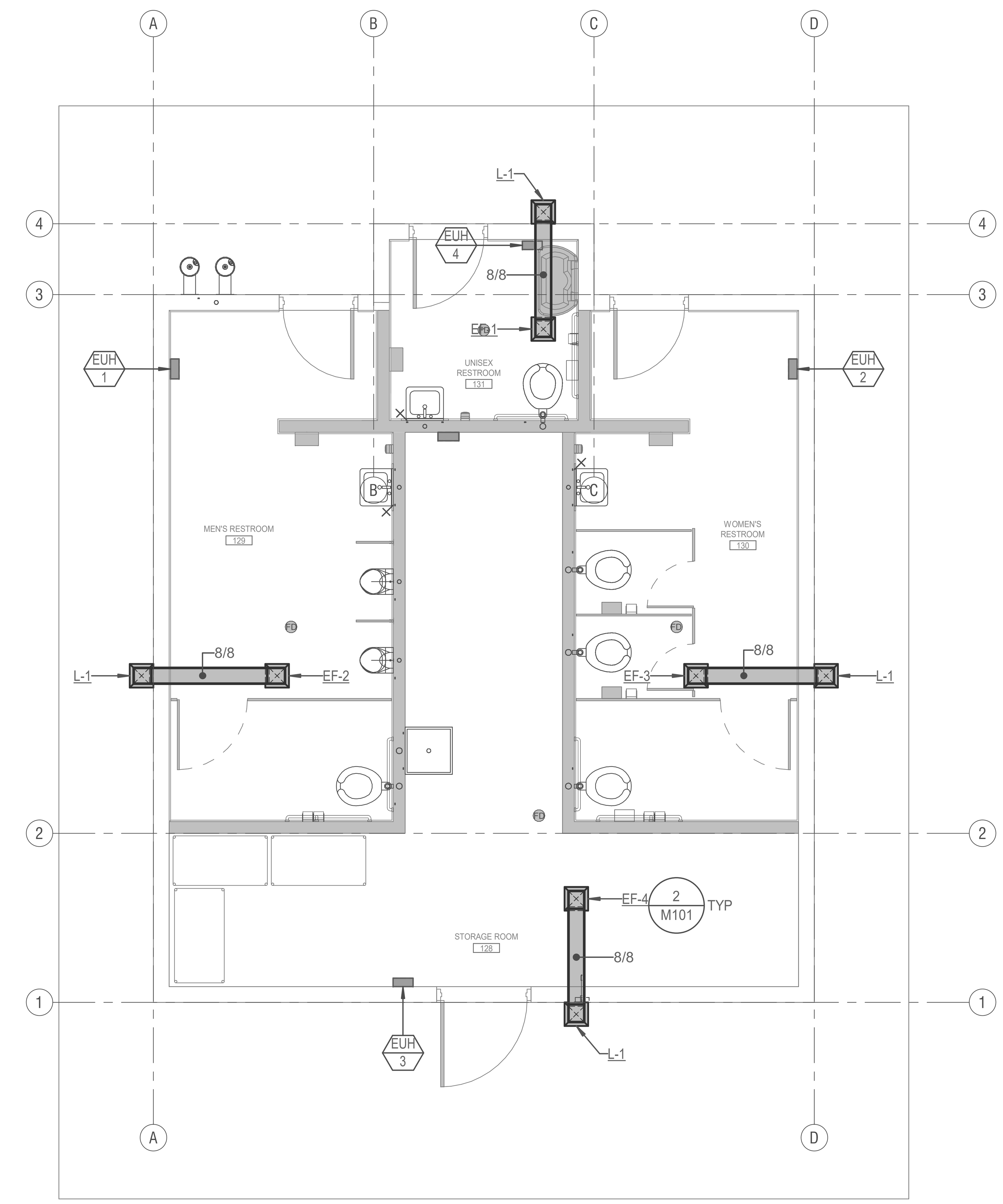
(1) CAPACITY BASED AT 4,300 FEET ELEVATION.
(2) COMPLETE WITH FACTORY MOUNTED DISCONNECT AND BUILT-IN THERMOSTAT. SET TO 60F. FUSE PROTECTION BY DIVISION 26.
(3) UNIT COMPLETE WITH SURFACE MOUNTED BOX AND ACCESSORIES.

GRILLES, REGISTERS AND DIFFUSERS

ID	MANUFACTURER	MODEL	MAX CFM	DESCRIPTION
L-1	EH PRICE	90	220	HEAVY-DUTY ALUMINUM GRILLE. HORIZONTAL STATIONARY 45 DEG DEFLECTION BLADES. 1/8" INSECT SCREEN. PROVIDE FACTORY CUSTOM POWDER COAT FINISH. SUBMIT COLOR TO ARCHITECT FOR APPROVAL.



2 M101 CEILING EXHAUST FAN DETAIL
NO SCALE



1 LEVEL 1 MECHANICAL PLAN
1/4" = 1'-0"

design west | architects
255 SOUTH 300 WEST LOGAN UT 84321
795 NORTH 400 WEST SALT LAKE CITY UT 84103

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90% REVIEW

MECHANICAL PLAN
M101

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND DIVISION 1, ARE A PART OF THIS SECTION AND THE CONTRACT FOR THIS WORK AND SHALL APPLY TO THIS SECTION AS FULLY AS IF REPEATED HEREIN.

1.02 SCOPE OF WORK

FURNISH ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL PLUMBING AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

A. WORK SPECIFIED IN THIS SECTION
   1. SANITARY SOIL, WASTE AND VENT SYSTEMS.
   2. DOMESTIC HOT AND COLD WATER SYSTEMS.
   3. DOMESTIC WATER HEATERS.
   4. FURNISH AND SET ALL SLEEVES FOR PIPES PASSING THROUGH WALLS AND FLOORS.
   5. PIPE COVERING, INSULATION AND WRAPPING.
   6. EXCAVATION AND BACKFILL.
   7. ROUGH-IN AND FINAL CONNECTIONS TO AIR CONDITIONING EQUIPMENT OF CONDENSATE DRAINS.
   8. ALL PLUMBING FIXTURES, WATER HEATERS, VALVES, AND OTHER MISCELLANEOUS ITEMS OR EQUIPMENT REQUIRED FOR A COMPLETE INSTALLATION.

1.03 QUALITY ASSURANCE

A. CODES AND STANDARDS
   1. ALL ITEMS INDICATED ON SITE, ARCHITECTURAL OR MECHANICAL DRAWINGS ARE TO BE PROVIDED COMPLETE FROM POINT OF CONNECTION TO FINISHED FIXTURE IN CONFORMANCE WITH ALL GOVERNING AUTHORITY REQUIREMENTS. NOTHING IN THESE DRAWINGS OR SPECIFICATIONS SHALL BE CONSTRUED TO PERMIT WORK IN VIOLATION OF GOVERNING CODES.
   2. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
      a. 2018 INTERNATIONAL PLUMBING CODE.
      b. 2018 INTERNATIONAL BUILDING CODE.
      c. 2018 INTERNATIONAL MECHANICAL CODE.
      d. 2018 INTERNATIONAL ENERGY CONSERVATION CODE.

1.04 PRODUCT HANDLING

A. PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION.

B. REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

1.05 SUBMITTALS

A. MANUFACTURER'S LITERATURE: WITHIN 35 DAYS AFTER AWARD OF CONTRACT AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE DELIVERED TO THE JOB SITE, SUBMIT SEVEN COMPLETE BROCHURES OF ALL MATERIALS AND EQUIPMENT, PER DIVISION 1 OF THE SPECIFICATIONS.

B. OTHER SUBMITTALS:
   1. SHOP DRAWINGS.
   2. STERILIZATION TEST REPORT.
   3. TEST DATA.

C. RECORD DRAWINGS: KEEP AN ACCURATE DIMENSIONED RECORD OF AS-BUILT LOCATIONS AND ELEVATIONS OF PIPING AND EQUIPMENT. ELEVATION OF BURIED PIPING WILL BE IN REFERENCE TO THE APPROVED BASE DATUM LISTED ON THE PLAN DOCUMENTS.

D. OPERATION AND MAINTENANCE INSTRUCTIONS: DELIVER TO ARCHITECT TWO COMPLETE SETS IN BOUND BOOKLET FORM OF WRITTEN OPERATING AND MAINTENANCE INSTRUCTIONS AND BROCHURES FOR EQUIPMENT SPECIFIED IN THIS SECTION. FULLY INSTRUCT OWNER'S MAIN PERSONNEL.

1.06 MISCELLANEOUS

A. EXAMINATION OF THE SITE: EXERCISE CARE IN EXAMINING THE SITE AND COORDINATE ALL WORK INDICATED ON THE DRAWINGS WITH EXISTING CONDITIONS. REPORT TO ARCHITECT IN WRITING CONDITIONS THAT WILL PREVENT PROPER PROVISIONS OF THIS WORK. VERIFY DEPTH AND LOCATION OF ALL SERVICE LINES WITH SERVICING COMPANIES HAVING JURISDICTION BEFORE EXCAVATING. BY SUBMISSION OF THE BID, THE CONTRACTOR WARRANTS THAT HE HAS HAS FAMILIARIZED HIMSELF WITH THE EXISTING CONDITIONS AND WILL PERFORM ALL WORK AS REQUIRED FOR HOOKUP AND AS REQUIRED BY THE CONTRACT DOCUMENTS AT NO ADDITIONAL.

B. PERMITS AND FEES: ARRANGE AND PAY FOR ALL PERMITS, INSPECTIONS, EXAMINATIONS, AND FEES REQUIRED BY ALL GOVERNING AGENCIES. DELIVER ALL CERTIFICATES OF INSPECTION TO OWNER.

C. SERVICE CONNECTIONS: MAKE ALL NECESSARY ARRANGEMENTS WITH APPLICABLE UTILITY COMPANY FOR CONNECTION TO EXISTING SERVICE LINES. PAY ALL FEES ASSOCIATED WITH WORK INCLUDING METERS AND HOOKUP CHARGE, UTILITY ASSESSMENT FEES, IF ANY, WILL.

D. DRAWINGS: COORDINATE ALL SPACE REQUIREMENTS WITH OTHER TRADES. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT, AND OTHER ITEMS AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE.

PART 2 - PRODUCTS

2.01 GENERAL

A. PIPE SLEEVES AND WRAPPING: PROVIDE POLISHED CHROMIUM PLATED AND BRASS SET SCREW FLANGES WHERE PLUMBING PIPING PASS THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS IN FINISHED PORTIONS OF BUILDING INCLUDING FLANGES ON PIPES AT FIXTURES. ALL SLEEVES IN CONCEALED AND EXTERIOR WALLS SHALL BE 20 GA. GALVANIZED IRON ONE INCH O.D. LARGER THAN THE PIPE, CAULKED IF BELOW GRADE IN A MOISTURE PROOF MANNER. ALL PIPES PENETRATING THROUGH FIRE WALLS AND FLOORS SHALL BE PROPERLY SAFED WITH DOW CORNING 3-6548 SILICONE RTV FOAM OR EQUAL. INSTALL PER MANUFACTURE'S DIRECTION.

B. PIPE IDENTIFICATION:
   1. PIPING IDENTIFICATION PER ANSI AND OSHA STANDARDS: EACH INDIVIDUAL PIPELINE SHALL BE MARKED FOR QUICK AND EASY IDENTIFICATION AS TO CONTENTS AND CHARACTER OF MATERIAL CARRIED IN THE PIPES BY SET ON SNA OR STR MARKER.
   2. MARKERS SHALL BE INSTALLED AND SPACED AT NOT MORE THAN 8 FT. INTERVALS AND SO LOCATED THAT MARKERS SHALL BE VISIBLE WHERE PIPING SYSTEM IS EXPOSED.
   3. COLOR SCHEME SHALL BE APPROVED. BASE COLOR FOR MARKERS SHALL BE AS FOLLOWS:

   DOMESTIC HOT WATER - YELLOW
   DOMESTIC COLD WATER - GREEN
   SANITARY SEWER - GREEN
   SANITARY VENT - GREEN

C. ONE MARKER SHALL BE INSTALLED AT EACH SIDE OF VALVES, SPECIAL FITTINGS AND AT BRANCH TAKE-OFF. IN FURRED SPACES INSTALL ONE BAND 2 FT. ABOVE FLOOR AND 19 IN. BELOW CEILING LINE.

D. MATERIALS: MATERIALS WHEN NOT OTHERWISE DEFINITELY SPECIFIED SHALL CONFORM TO THE APPLICABLE ASTM, ASME, AGA, AND ASA STANDARDS.

PIPE AND FITTING SCHEDULE

PIPE AND FITTINGS :

A. NO PIPE OF A FOREIGN MANUFACTURER WILL BE ACCEPTABLE.

B. ALL PIPING, FITTINGS, FLANGES, ETC. SHALL BE FREE FROM DEFECTS AND SHALL COMPLY WITH THE APPROPRIATE ASTM SPECIFICATIONS.

C. COPPER TUBING: ASTM B88, TYPE L OR K AS SPECIFIED.

D. PVC PIPE AND FITTINGS: ASTM D1785 CLASS 150 WITH ASTM D 2853 SOLVENT CEMENT JOINTS UNLESS OTHERWISE SPECIFIED. SCHEDULE 40. PVC PLASTIC PIPE FITTINGS: ASTM F 628, SCHEDULE 40.

E. ACRYLONITRILE BUTADIENE STYRENE (ABS) PLASTIC PIPE: ASTM D 2661, SCHEDULE 40, ASTM F 628, SCHEDULE 40. ABS PLASTIC PIPE FITTINGS: ASTM F 409, ACCESSIBLE AND REPLACEABLE, SOLVENT CEMENT AND THREADED TYPES, DRAIN PATTERN.

F. CAST IRON SOIL PIPE AND FITTINGS: ASTM A74

G. COPPER FITTINGS: WROUGHT COPPER, ANSI SPECIFICATION B16.22.

H. DOMESTIC HOT WATER, HOT WATER RETURN, AND COLD WATER PIPING SHALL BE TYPE L OR K HARD TEMPERED COPPER PIPE WITH WROUGHT-COPPER FITTINGS USING 95-5 SOLDER. PEX TUBE PIPING MAY BE USED IN LIEU OF COPPER ON SIZES 2-INCHES AND SMALLER. WHERE PIPING IS EXPOSED OUTSIDE OF PARTITIONS, USE TYPE L OR K HARD COPPER TUBING AND WROUGHT COPPER FITTINGS

I. ALL SOIL, WASTE, VENT, ROOF DRAIN AND ROOF DRAIN OVERFLOW PIPING SHALL BE ABS OR PVC PLASTIC PIPE, RATED FOR DOMESTIC WASTE AND VENT, WITH ABS OR PVC PLASTIC SOCKET TYPE DRAIN, WASTE AND VENT PATTERN FITTINGS. SOLVENT CEMENTED JOINTS. INSTALL ABS DRAINAGE PIPE AND FITTINGS ACCORDING TO ASTM D2661. INSTALL PVC DRAINAGE PIPE AND FITTINGS ACCORDING TO ASTM F891.

J. BALL VALVES, DOMESTIC WATER: BRONZE, FULLPORT, CLASS 150, THREADED.
GRINNELL 3750 OR 171N
NIBCO T-585
JAMESBURY 300

K. SOLDER:
   K.1. JOINTS IN COPPER PIPING ABOVE GRADE SHALL BE STAY SAFE 50 SOLDER OR 95-5 SOLDER SHALL BE SILFOS OR SILVERFLW FOR ALL REFRIGERANT PIPING JOINTS.

2.03 ROOF FLASHING

SANITARY VENT FLASHINGS: SEMCO 1100-3 OR 1100-5, WITH ONE-PIECE LEAD FLASHING AND COUNTERFLASHING SLEEVE.

2.04 PIPE SLEEVES

AT CONCRETE WALLS OR FLOORS, ADJUST-TO-CRETE, PARAMOUNT, HOLE-OUT OR SPERZEL CRETESLEEVE FLOOR SLEEVES SHALL EXTEND TO TOP OF CONCRETE CURBS FOR PIPING RISING THROUGH FLOORS . WALL SLEEVES SHALL BE FLUSH WITH FINISHED SURFACE. SLEEVES SHALL BE SIZED TO ALLOW 1/2 IN. CLEARANCE AROUND PIPE INSULATION. INSULATION AND COVERING SHALL BE CONTINUOUS THROUGH WALL AND FLOOR SLEEVES.

2.05 CLEANOUTS

A. FULL SIZE CLEANOUTS SHALL BE INSTALLED AT THE BASE OF EACH SOIL WASTE STACK. ALL OTHER CLEANOUTS SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS AND WHERE REQUIRED BY STATE, LOCAL OR NATIONAL PLUMBING CODES.

B. ALL CLEANOUTS SHALL BE INSTALLED IN LOCATIONS EASILY ACCESSIBLE FOR RODDING. CLEANOUTS IN WALLS SHALL BE JR SMITH 4402, IN FLOORS JR SMITH 4023. CLEANOUTS SHALL BE JR SMITH, ZURN, WADE, OR JOSAM.

2.06 PIPE INSULATION

A. ALL DOMESTIC HOT WATER AND COLD WATER PIPING SHALL BE COVERED WITH OWENS CORNING ASJ-25 FIBERGLASS PIPE INSULATION WITH VAPOR SEAL JACKET. INSULATION THICKNESS SHALL BE 1 INCH FOR COLD WATER AND 1 INCH FOR HOT WATER.

B. INSULATE ALL PIPING UNDER LAVATORIES ACCESSIBLE TO THE PHYSICALLY HANDICAPPED WITH HOT WATER SUPPLY AND 'P' TRAP PREFABRICATED INSULATION, HANDI LAV GUARD.

2.07 PIPE HANGERS

HANGERS SHALL BE SUPPLIED WITH FACTORY INSTALLED ISOLATION AND DI-CHROMATE FINISH.

PIPE 2 IN. AND SMALLER: GRINNEL F69. PIPE 2-1/2 IN. AND LARGER: GRINNEL F65. CONCRETE INSERTS: GRINNEL 281 ANAD 282. RISER CLAMPS FOR COPPER PIPING: GRINNEL 261P, PLASTIC COATED. RISER CLAMPS FOR OTHER PIPING: GRINNERL 261.

HANGER RODS SHALL CONFORM TO THE FOLLOWING: PIPE SIZE 2 IN. AND SMALLER: 3/8 IN. RODS. PIPE SIZE 2-1/2 IN. AND 3 IN.: 1/2 IN. RODS. PIPE SIZES LARGER THAN 3 INCHES: 5/8 IN. RODS.

2.09 PLUMBING FIXTURES

PLUMBING FIXTURE SHALL BE AS SCHEDULED OR APPROVED EQUAL.

SUPPLIES AND STOPS SHALL BE FROST, BRASSCRAFT, KOHLER, EASTMAN, US BRASS, ROVERT MFG OR EQUAL. P-TRAPS SHALL BE FROST, KOHLER, SANITARY DASH OR EQUAL.

ALL FIXTURES SHALL BE CAULKED TO THE FLOOR OR WALL WITH WATER RESISTANT WHITE BUTYL RUBBER CAULKING COMPOUND. TRIM FOR ALL FIXTURES SHALL BE CHROM PLATED AND ALL TRIM SHALL MATCH IN DESIGN. SUPPLY FAUCETS SHALL HAVE RENEWABLE SEATS AND BARRELS.

2.10 WATER HEATER

A WATER HEATER OF THE SIZE AND CAPACITY SHOWN ON THE DRAWINGS OR APPROVED EQUAL SHALL BE FURNISHED AND INSTALLED.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. INSPECTION: ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES, THE ORIGINAL DESIGN, AND THE REFERENCED STANDARDS.

B. DISCREPANCIES
   1. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE ARCHITECT.
   2. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.
   3. INTERFERENCES BETWEEN INSTALLED WORK OF VARIOUS TRADES DUE TO LACK OF COORDINATION SHALL BE RESOLVED BY ARCHITECT WHOSE DECISION IS FINAL. RELOCATE OR OFFSET ANY WORK AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES AT NO EXTRA COST TO THE OWNER WHEN SO DIRECTED BY THE ARCHITECT.

3.02 LOCATIONS AND SPACE REQUIREMENTS

A. CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACES AVAILABLE FOR INSTALLATION OF WORK UNDER THIS DIVISION. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. WORK SPECIFIED AND NOT CLEARLY DEFINED BY DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY TO ARCHITECT. IN EVENT CHANGES IN INDICATED LOCATIONS AND ARRANGEMENTS ARE DEEMED NECESSARY BY ARCHITECT, THEY SHALL BE MADE BY CONTRACTOR WITHOUT ADDITIONAL CHARGE PROVIDED THE CHANGE IS ORDERED BEFORE WORK IS INSTALLED AND NO EXTRA MATERIALS ARE REQUIRED.

B. VERIFY ALL SPACES, DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.

C. OBTAIN ALL NECESSARY ROUGH IN DATA AND DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.

D. MAINTAIN AMPLE HEADROOM CLEARANCES AND ACCESSIBILITY. MAINTAIN CEILING HEIGHTS.

E. CONSTANTLY CHECK WORK OF OTHER TRADES TO PREVENT INTERFERENCE WITH THIS INSTALLATION.

3.03 EXCAVATION AND BACKFILLING

PERFORM EXCAVATION AND BACKFILLING REQUIRED WORK UNDER THIS SECTION UNLESS OTHERWISE SPECIFIED. CONFORM TO REQUIREMENTS OF DIVISION 2, SOILS REPORT AND OF PUBLIC AUTHORITIES HAVING JURISDICTION.

3.04 SPECIALTY ITEMS

INSTALL AS INDICATED ON THE DRAWINGS, AS HEREIN SPECIFIED, AND AS RECOMMENDED BY MANUFACTURER.

3.05 STERILIZATION

design west | architects
255 SOUTH 300 WEST LOGAN UT 84321
795 NORTH 400 WEST SALT LAKE CITY UT 84103

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PLUMBING SPECIFICATIONS

P001

STERILIZE EACH UNIT OF WATER SUPPLY AND DISTRIBUTION SYSTEM WITH LIQUID CHLORIDE OR HYPOCHLORIDE BEFORE ACCEPTANCE FOR OPERATION IN ACCORDANCE WITH AWWA C601, "STANDARD FOR DISINFECTING WATER MAINS" WORK SHALL BE DONE BY CONTRACTOR AND, UNLESS OTHERWISE REQUIRED BY PUBLIC AUTHORITIES HAVING JURISDICTION, SHALL CONFORM TO THE FOLLOWING:

A. MATERIALS

1. LIQUID CHLORINE: U.S. ARMY SPECIFICATION 4-1. 2. HYPOCHLORIDE: LIQUID SHALL CONFORM TO FED. SPEC. O-C-11RA (INT. 4).

B. METHOD: AMOUNT OF CHLORINE SHALL PROVIDE A DOSAGE OF 50 PPM MINIMUM. INTRODUCE CHLORINATING MATERIALS INTO LINES AND DISTRIBUTION SYSTEM IN APPROVED MANNER. AFTER A CONTACT PERIOD OR 24 HOURS MINIMUM DURING WHICH PERIOD CHLORINE RESIDUAL SHALL BE MAINTAINED AT 5 PPM MINIMUM, FLUSH OUT SYSTEMS WITH CLEAN WATER UNTIL RESIDUAL CONTENT IS NOT GREATER THAN 0.2 PPM. FLUSH ENTIRE SYSTEM OPEN AND CLOSE VALVES IN LINES BEING STERILIZED SEVERAL TIMES DURING CONTACT PERIOD.

C. TEST REPORTS: FURNISH ONE COPY OF TEST REPORT OF COMPLETE AND ADEQUATE STERILIZATION TO ARCHITECT BEFORE FINAL ACCEPTANCE OF WORK. CERTIFICATES SHALL BEAR SIGNATURE OF AN OFFICIAL OF LABORATORY RESPONSIBLE FOR TEST. COST OF TESTING LABORATORY SERVICES SHALL BE INCLUDED IN THIS SUBCONTRACT.

3.06 ADJUSTING

UPON COMPLETION OF WORK AND AFTER CLEANING OF SYSTEM, FIXTURES AND EQUIPMENT, AND AUTOMATIC PARTS OF PLUMBING SYSTEM SHALL BE CAREFULLY ADJUSTED NORMAL OPERATION. ALL FLUSH VALVES AND FIXTURE STOPS SHALL BE CHECKED FOR PROPER OPERATION AND FINAL ADJUSTMENT.

3.07 HANGERS AND SUPPORTS

HOLD HORIZONTAL PIPE RUNS FIRMLY IN PLACE USING APPROVED STEEL AND IRON HANGERS, SUPPORTS, AND/OR PIPE RESTS UNLESS OTHERWISE INDICATED. SUSPEND HANGER RODS FROM CONCRETE INSERTS OR FROM APPROVED BRACKETS, CLAMPS OR CLIPS. HANG PIPES INDIVIDUALLY OR IN GROUPS IF SUPPORTING STRUCTURE IS ADEQUATE TO SUPPORT WEIGHT OF PIPING AND FLUID. EXCEPT FOR BURIED PIPING, HANG OR SUPPORT PIPE RUNS SO THAT THEY MAY EXPAND OR CONTRACT FREELY WITHOUT STRAIN TO PIPE OR EQUIPMENT.

1. HORIZONTAL STEEL PIPING: PROVIDE HANGERS OR SUPPORTS EVERY 10 FT. EXCEPT EVERY 8 FT. FOR PIPING 1-1/4 IN. AND SMALLER.

2. HORIZONTAL COPPER TUBING: FOR 2 IN. DIAMETER AND OVER, PROVIDE HANGERS EVERY 10 FT. ; FOR 1-1/2 IN. DIAMETER AND SMALLER, EVERY 6 FT.

3. HORIZONTAL CAST-IRON HUB AND SPIGOT PIPING: PROVIDE HANGERS OR SUPPORTS AT EACH HUB.

4. HORIZONTAL CAST-IRON NO-HUB PIPING: PROVIDE HANGERS OR SUPPORTS AT EACH SIDE OF NO-HUB FITTINGS. PROVIDE ANTI-SEPARATION BRACING AT EACH 90 DEGREE CHANGE OF DIRECTION.

5. VERTICAL PIPING: SUPPORT AT FLOOR WITH IRON PIPE CLAMPS.

BRANCHES: PROVIDE SEPARATE HANGERS OR SUPPORTS FOR BRANCH LINES 6 FT. OR MORE IN LENGTH.

SOUND AND ELECTROLYSIS ISOLATORS: PROVIDE AT ALL HANGERS AND SUPPORTS FOR HOT AND COLD DOMESTIC WATER LINES. SECURELY ATTACH PIPE TO WALLS, STUDS, ETC. ALL SUCH PIPING ISOLATED FROM STRUCTURE BY "TRISOLATORS".

3.08 TESTS

PERFORM TESTS TO ARCHITECT'S SATISFACTION. MAKE TESTS IN PRESENCE OF OWNER'S REP AND AT A TIME SUITABLE TO HIM IF REQUESTED . FURNISH NECESSARY LABOR AND EQUIPMENT AND BEAR COSTS FOR TESTING . COST OF REPLACING AND/OR REPAIRING DAMAGE RESULTING THEREFOR SHALL BE BORNE BY THIS CONTRACTOR. SHOULD THE CONTRACTOR REFUSE OR NEGLECT TO MAKE TESTS NECESSARY TO SATISFY THE ARCHITECT THAT REQUIREMENT OF SPECIFICATIONS AND DRAWINGS ARE MET, SUCH TESTS MAY BE MADE BY AN INDEPENDENT TESTING COMPANY AND THE CONTRACTOR CHARGED FOR ALL EXPENSES.

HYDROSTATIC TESTS: MAKE BY COMPLETELY FILLING PIPING SYSTEM WITH WATER AND ELIMINATING ACCUMULATIONS OF AIR SO THAT LEAKAGE, NO MATTER HOW SMALL, WILL BE APPARENT ON TESTING GAUGE IMMEDIATELY . MAINTAIN PRESSURE UNTIL PIPE UNDER TEST HAS BEEN EXAMINED, BUT IN NO CASE LESS THAN 24 HOURS. TEST SYSTEMS AT THE FOLLOWING PRESSURE.

SYSTEM	TEST PRESSURE
DOMESTIC COLD WATER	150 PSIG
DOMESTIC HOT WATER	150 PSIG

SANITARY SOIL, WASTE, VENT SYSTEM TESTS: BEFORE INSTALLATION OF FIXTURES, CAP END OF SYSTEM AND FILL LINES WITH WATER TO 10 FT. ABOVE THE SECTION BEING TESTED. (INCLUDING VENTS) AND ALLOW TO STAND FOR AT LEAST FIFTEEN (15) MINUTES BEFORE INSPECTION STARTS. MAKE TESTS IN SECTIONS IF NECESSARY OR CONVENIENT. HOWEVER, INCLUDE INTERCONNECTIONS BETWEEN NEW SECTIONS AND PREVIOUSLY TESTED SECTIONS IN THE NEW TEST.

REPAIR ALL LEAKAGES AND RETEST AS REQUIRED.

3.09 CLEANOUTS

PROVIDE CLEANOUTS WHERE INDICATED AND REQUIRED. UNLESS OTHERWISE INDICATED, CLEANOUTS SHALL BE ACCESSIBLE WITH EXTENSIONS TO GRADE, TO OUTSIDE OF BUILDINGS, OR TO FLOORS ABOVE AS INDICATED OR REQUIRED. DO NOT LOCATE CLEANOUTS IN PUBLIC LOBBIES AND PUBLIC CORRIDORS UNLESS APPROVED BY ARCHITECT.

MEMBRANES: WHERE WATERPROOFING MEMBRANE OCCURS UNDER FLOOR, BRING MEMBRANE TO CLEANOUT WITHOUT PUNCTURING, AND PERMANENTLY ANCHOR TO INTEGRAL ANCHORING FLANGE WITH A HEAVY CAST-IRON CLAMPING COLLAR AND RUSTPROOF BOLTS.

COVERS: SET CLEANOUT COVERS WITH ALL FINISHED WALL, FLOOR OR GRADE. IN ALL CASES SECURELY ANCHOR BY MEANS OF INTEGRAL LUGS AND BOLTS. WHERE SURFACING MATERIAL SUCH AS RESILIENT COVERING IS SPECIFIED, ASCERTAIN THICKNESS BEING USED AND SET CLEANOUT TOP SO FINISHED FLOOR IS SMOOTH.

USE ACORN 3500 THREAD COMPOUND.

3.10 PIPE INSTALLATION

MAKE PIPE RUNS STRAIGHT AND TRUE. SPRINGING OR FORCING PIPING INTO PLACE IS NOT PERMITTED . INSTALL IN MANNER TO PREVENT ANY UNDUE STRAIN ON EQUIPMENT. MAKE JOINTS SMOOTH AND UNOBSTRUCTED INSIDE AND OUT, AND REAM PIPE ENDS THOROUGHLY TO REMOVE BURRS. CONCEAL PIPING IN FINISHED PORTIONS OF THE BUILDINGS EXCEPT AS OTHERWISE DIRECTED OR INDICATED. CAP OR PLUG ENDS AND OPENINGS IN PIPE AND FITTINGS IMMEDIATELY TO EXCLUDE DIRT UNTIL EQUIPMENT IS INSTALLED OR FINAL CONNECTIONS ARE MADE.

INSTALL PIPING TO CLEAR BEAMS UNLESS SLEEVING IS INDICATED. CONSTANTLY CHECK WORK OF OTHER TRADES TO PREVENT INTERFERENCE WITH THIS INSTALLATION. OBTAIN APPROVAL FROM ARCHITECT IF CORING OR CUTTING OF CONCRETE WORK IS NECESSARY DUE TO FAILURE TO INSTALL REQUIRED SLEEVES PRIOR TO THE TIME OF CONCRETE POUR. COST OF CORING AND CUTTING WORK SHALL BE BORNE BY THE SUBCONTRACTOR.

EXPOSED PLATED OR ENAMELED PIPE: MAKE CONNECTIONS TO EQUIPMENT WITH SPECIAL CARE. SHOW NO TOOL MARKS OR THREADS.

DIELECTRIC UNIONS: MAKE CONNECTIONS BETWEEN TWO DISSIMILAR METAL PIPES WITH DIELECTRIC UNIONS.

UNIONS: PROVIDE A UNION ON ONE SIDE OF EACH SHUTOFF VALVE, AT BOTH SIDES OF AUTOMATIC VALVES, AT EQUIPMENT CONNECTIONS AND ELSEWHERE INDICATED OR REQUIRED, UNLESS FLANGES ARE INDICATED.

FLOOR, WALL AND CEILING PLATES: PROVIDE WHERE PIPES PIERCE FINISHED SURFACES.

NOISE: INSTALL SOIL, WASTE, AND WATER PIPING IN MANNER THAT PREVENTS ANY UNUSUAL NOISE FROM FLOW OF WATER UNDER NORMAL CONDITIONS.

SHUTOFF VALVES: PROVIDE WHERE INDICATED AND REQUIRED FOR ADEQUATE CONTROL OF SYSTEMS AND FOR ISOLATION OF FIXTURE GROUPS AND EQUIPMENT.

BURIED PIPING: INSTALL WITH MINIMUM 42 IN. COVERAGE UNLESS OTHERWISE INDICATED. LAY PIPING ACCURATELY TO GRADE WHERE INVERT ELEVATIONS ARE INDICATED. WHEN REQUIRED, PROVIDE THRUST BLOCKS PER MANUFACTURER'S RECOMMENDATIONS.

EQUIPMENT AND MATERIALS: INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

ACCESSIBILITY: INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR. PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED.

PIPE JOINTS: MAKE SCREWED JOINTS WITH A MINIMUM AMOUNT OF COMPOUND APPLIED TO THE MALE THREAD ONLY . ALL JOINTS SHALL BE MADE PER CODE REQUIREMENTS.

PROVIDE PIPE ISOLATION AT ALL HANGERS FOR NON-INSULATED MATERIALS.

PIPING ROUGH-IN FOR FIXTURES: SUPPORT OR SECURE TO BUILDING CONSTRUCTION OF FIRMLY ANCHORED WASTE PIPING SO THAT PIPES CANNOT BE DISPLACED. DO NOT SECURE TO WALLS. USE OF MAKESHIFT DEVICES, SUCH AS ROPE, WIRE, TAPE, ETC. IS PROHIBITED.

HORIZONTAL DRAINAGE PIPING SHALL BE INSTALLED IN UNIFORM ALIGNMENT AT UNIFORM SLOPES. THE MINIMUM SLOPE OF HORIZONTAL PIPE 4" OR LARGER IN DIAMETER MAY HAVE A SLOPE OF NOT LESS THAN 1% (1/8 INCH PER FOOT). THE MINIMUM SLOPE OF HORIZONTAL PIPE LESS THAN 4" MAY HAVE A SLOPE OF NOT LESS THAN 2% (1/4 INCH PER FOOT).

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LAYTON CITY - HEATED RESTROOM
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LAYTON CITY PARKS AND RECREATION DEPARTMENT

MARK: DATE: DESCRIPTION:

PROJECT #: 820201
DRAWN BY: DB
CHECKED BY: JJ
ISSUED: 02.03.2023

90% REVIEW

PLUMBING SPECIFICATIONS

P002

PLUMBING FIXTURE SCHEDULE

ID	FIXTURE	CW (IN)	HW (IN)	W (IN)	V (IN)	NOTES
FD-1	FLOOR DRAIN	-.-	-.-	2	1 1/2	FLOOR DRAIN: JR SMITH 2010-BP CAST IRON BODY, FLASHING COLLAR, NO HUB OUTLET, 5" NICKEL BRONZE STRAINER. PROVIDE DEEP SEAL TRAP AND TRAP GUARD TYPE TRAP SEAL DEVICE. ROUND STRAINERS IN UTILITY AREAS, SQUARE STRAINERS IN TOILET ROOMS.
L-1	LAVATORY	1/2	1/2	1 1/2	1 1/2	ADA LAVATORY: ACORN DURA-WARE MODEL 1953-1-XXX-H1-GT-TPT-TE WALL MOUNTED STAINLESS STEEL SECURITY LAVATORY WITH WALL ALL REQUIRED MOUNTING HARDWARE MINUSE THE FAUCET. SLOAN SF-2100 HARDWIRED POWERED DECK MOUNTED LOW BODY SENSOR FAUCET, 6 VDC STEP DOWN ADAPTOR, 0.5 GPM LAVATORY FAUCET AUTOMATIC CONTROL, DECK SPOUT, AND ADJUSTABEL VALVE TIMING. PROVIDE P-TRAP AND STOPS. PROVIDE WATTS LFMMV THERMOSTATIC MIXING VALVE TO MEET ASSE 1070 CHECK VALVES ON THE HOT AND COLD WATER INLETS.
SS-1	SERVICE SINK	3/4	1/2	3	2	SERVICE SINK: FIAT, MS3624, 36 X 24-INCH, MOLDED STONE. 18 GAUGE 304 STAINLESS STEEL STRAINER. 830AA FAUCET WITH VACUUM BREAKER, PAIL HOOK, INTEGRAL STOPS IN SHANKS, 5 FOOT RUBBER HOSE AND WALL HOOK.
DF-1	DRINKING FOUNTAIN	3/4	-.-	2	1 1/2	PLUBINGSUPPLY.COM MODEL 10485WM-SS ADA OUTDOOR STAINLESS STEEL WALL MOUNTED DRINKING FOUNTAIN WITH WALL MOUNTED BOTTLE FILLER. STAINLESS STEEL PUSH BUTTONS AND FOUNTAIN HEADS. CHROME FINISH. DROP WASTE PIPING IN WALL AND INSTALL P-TRAP BELOW GRADE.
HA-1	WATER HAMMER ARRESTOR	1	-.-	-.-	-.-	JR SMITH HYDROTROL WATER HAMMER ARRESTOR MODEL 5020.
WC-1	ADA WATER CLOSET	1	-.-	4	2	WATER CLOSET: ACORN PENAL-WARE 1696 SERIES WALL MOUNTED STAINLESS STEEL SECURITY WATER CLOSET WITH INTERGRAL SEAT AND WALL SLEEVE FOR BLOCK WALL AND MOUNTING HARDWARE; SLOAN ELECTRONICALLY ACTIVATED SOLENOID FLUSH VALVE WITH REMOTE TRANSFOMER.
WC-2	WATER CLOSET	1	-.-	4	2	WATER CLOSET: ACORN PENAL-WARE 1696 SERIES WALL MOUNTED STAINLESS STEEL SECURITY WATER CLOSET WITH INTERGRAL SEAT AND WALL SLEEVE FOR BLOCK WALL AND MOUNTING HARDWARE; SLOAN ELECTRONICALLY ACTIVATED SOLENOID FLUSH VALVE WITH REMOTE TRANSFOMER.
U-1	URINAL	3/4	-.-	2	1 1/2	URINAL: ACORN DURA-WARE 2158 WALL MOUNTED 304 STAINLESS STEEL ADA COMPLIANT URINAL WITH MOUNTING HARDWARE AND REAR SPUD. SLOAN ELECTRONICALLY ACTIVATED SOLENOID FLUSH VALVE WITH REMOTE TRANSFORMER. MOUNT FLUSH VALVE IN CHASE.
HB-1	HOSE BIB	3/4	-.-	-.-	-.-	HOSE BIB: ACORN HOSE VALVE MODEL 8121-CP WITH LOOSE KEY HANDLE, VACUUM BREAKER, POLISHED CHROME FINISH, AND 3/4" HOSE CONNECTION.
NFH-1	NON-FREEZE WALL HYDRANT	3/4	-.-	-.-	-.-	NON-FREEZE HYDRANT: SMITH 5609QT NON-FREEZE WALL HYDRANT FOR WALL THICKNESS SHOWN ON PLAN. BRONZE HYDRANT, 3/4-INCH CONNECTION WITH BRASS CASING, INTEGRAL SELF-DRAINING VACUUM BREAKER, AND LOOSE KEY.

1. ALL UNDER GROUND WASTE AND VENT SHALL BE 2" OR GREATER PER DRAWINGS.

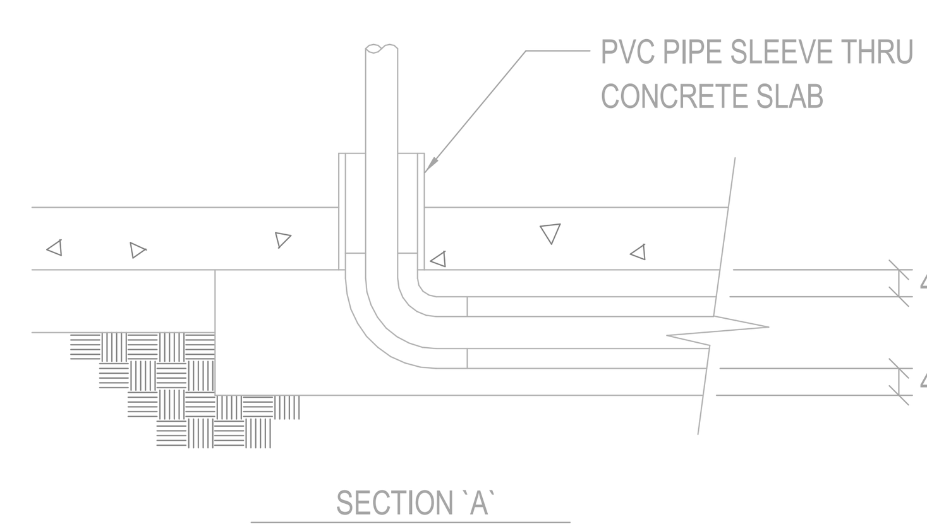
KEYED NOTES

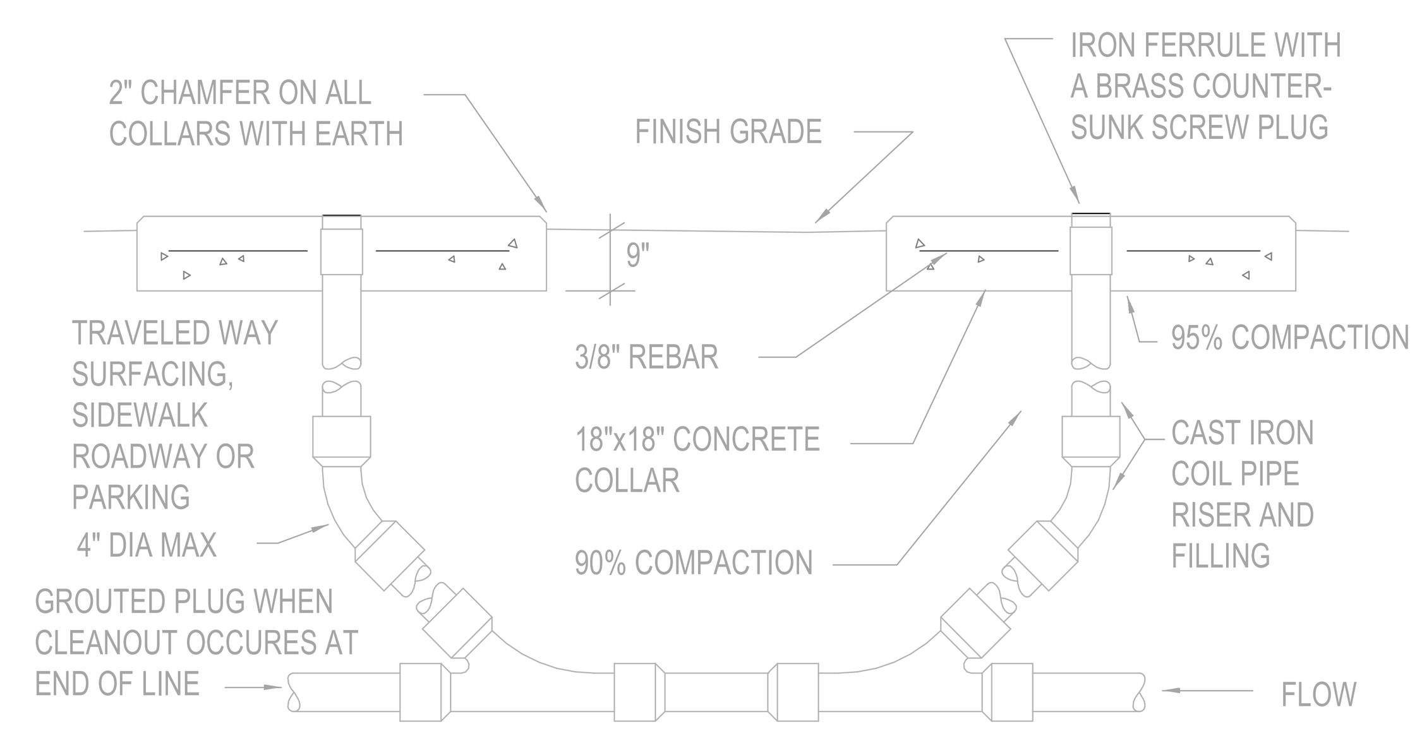
1. SEE CIVIL PLANS FOR CONTINUATION.
2. WATER HEATER.

ELECTRIC WATER HEATER SCHEDULE

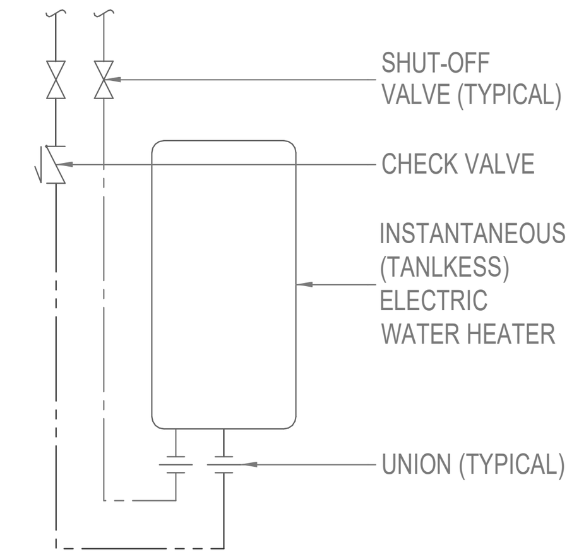
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	DISCHARGE WATER TEMPERATURE (F)	GPM	ELECTRICAL (KW)	ELECTRICAL V/PH	PHYSICAL HEIGHT/ WIDTH/ DEPTH (IN)	NOTES
WH-1	EEMAX EX190TC ML	STORAGE	TANKLESS	100	2.5	19	208/3	10.12/10.68/4.32	(1)

(1) MOUNT ELECTRIC WATER HEATER ON WALL.

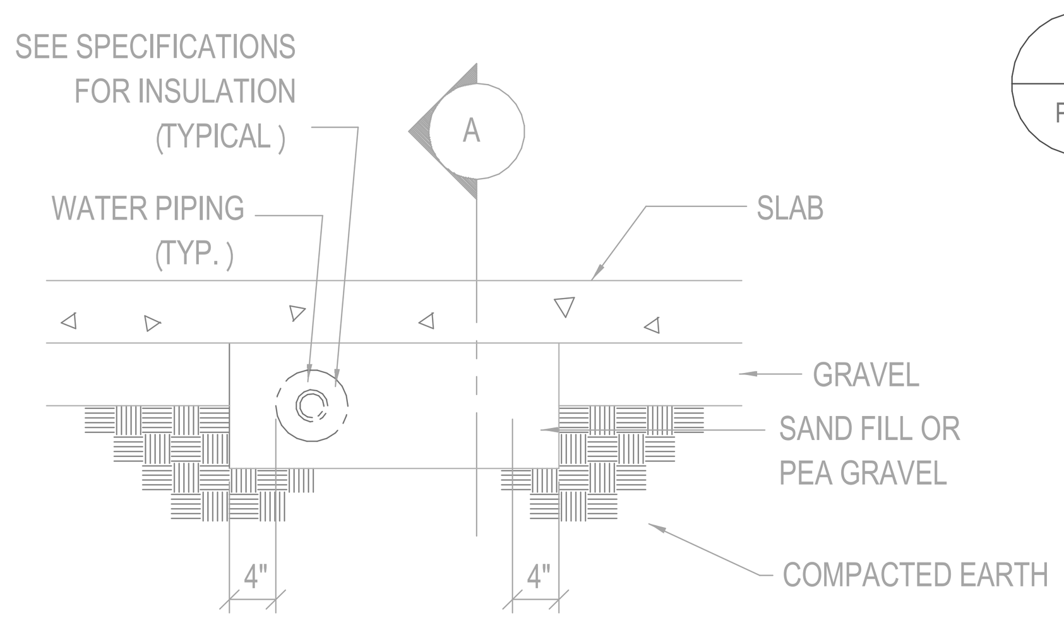




8 P101 DOUBLE CLEAN-OUT TO GRADE DETAIL (COTG)
NO SCALE

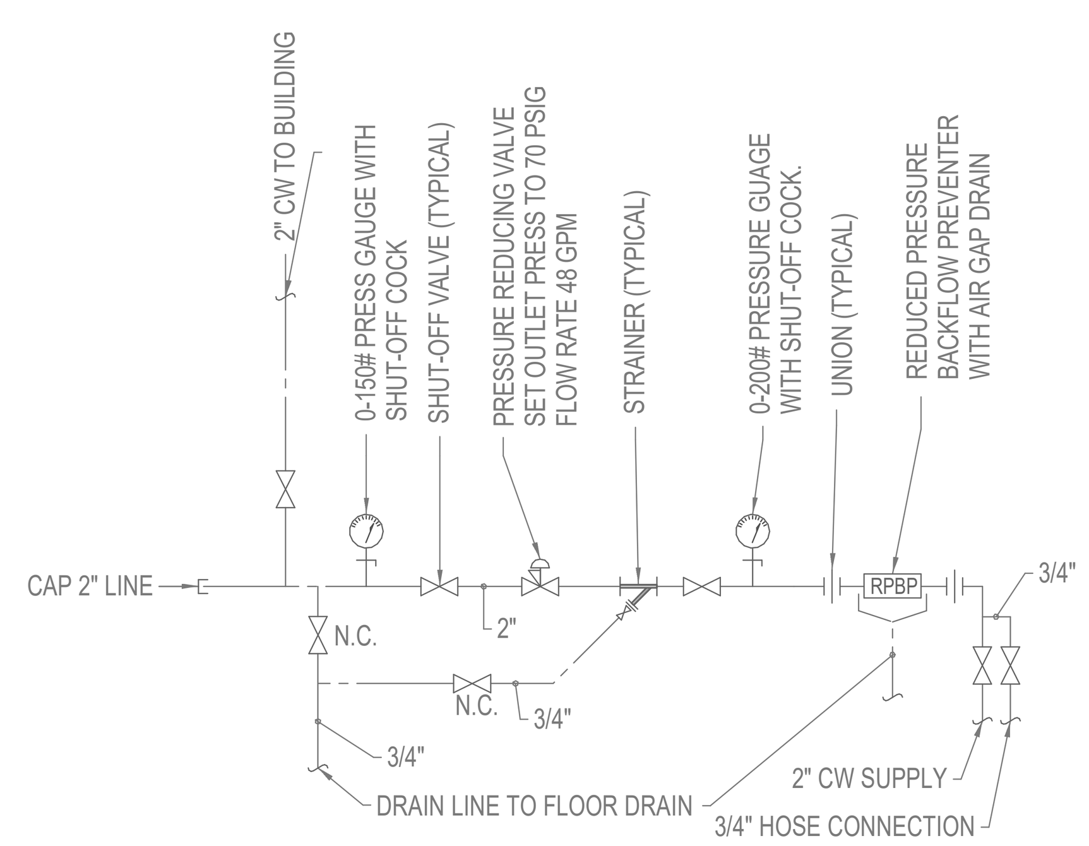


7 P101 ELECTRIC WATER HEATER DETAIL
NO SCALE

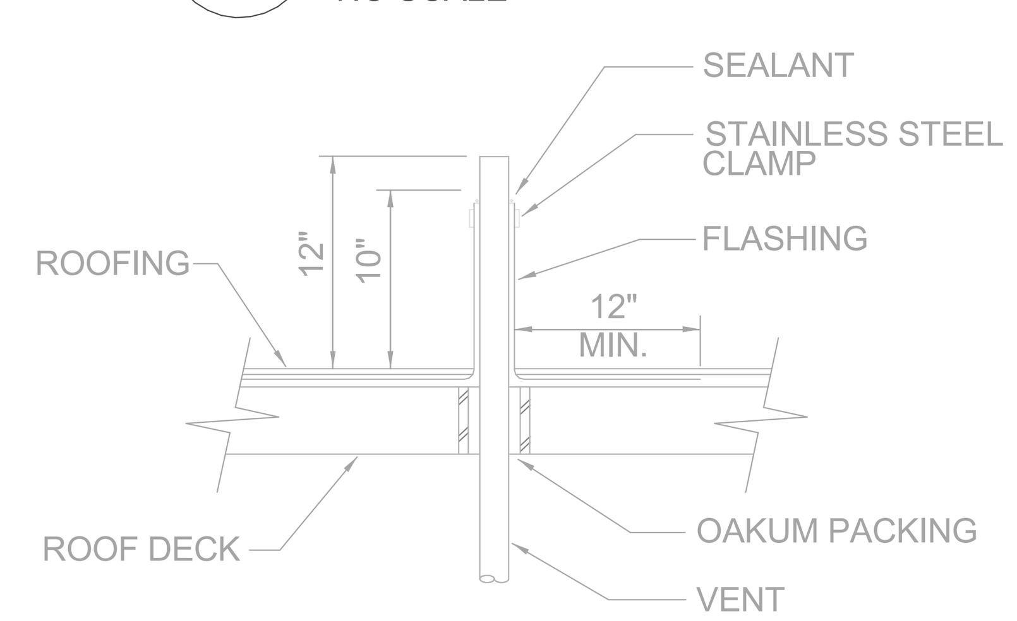


NOTE:
SAND FILL OR PEA GRAVEL TO BE A MINIMUM OF 4" AROUND PIPES. MATERIAL SHALL BE HAND TAMPED, RODDED, OR LIGHTLY COMPACTED DURING INSTALLATION. CARE SHOULD BE TAKEN NOT TO DEFORM OR OTHERWISE DAMAGE THE PIPING.

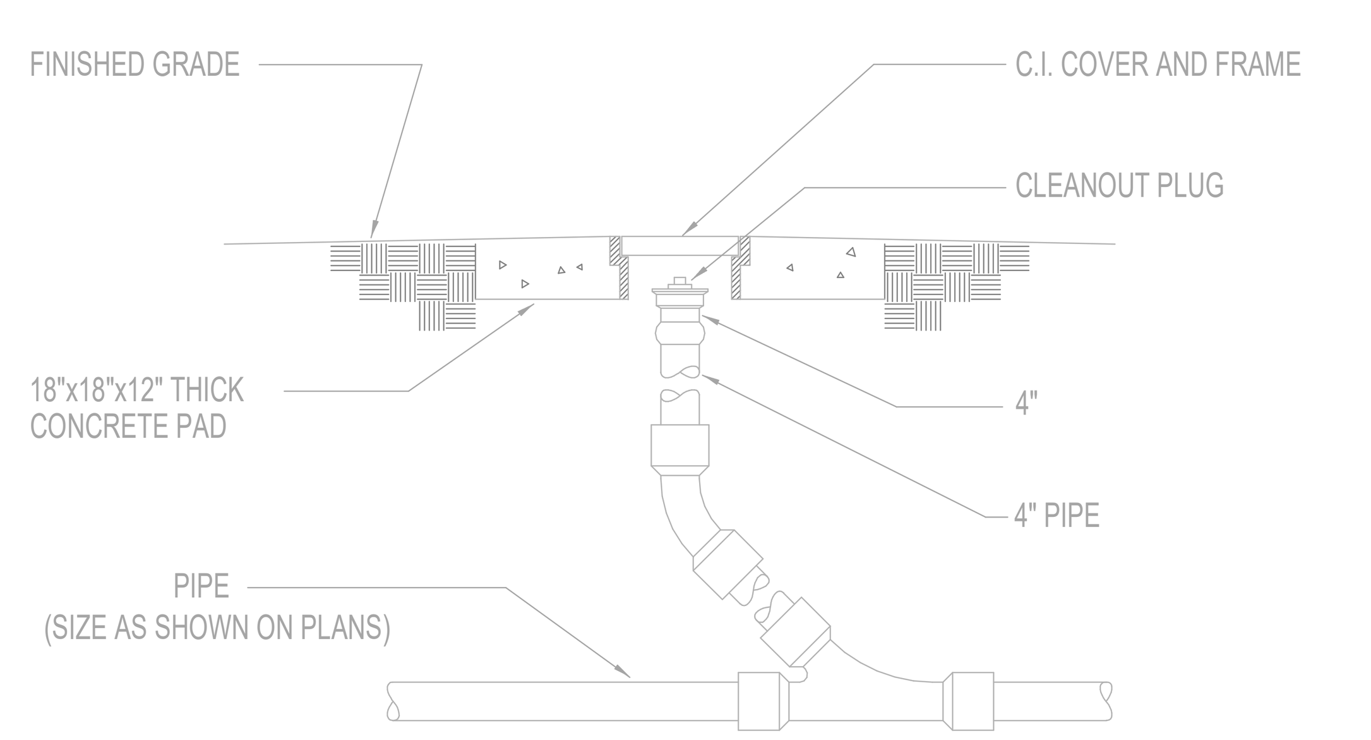
6 P101 UNDER SLAB WATER PIPING
NO SCALE



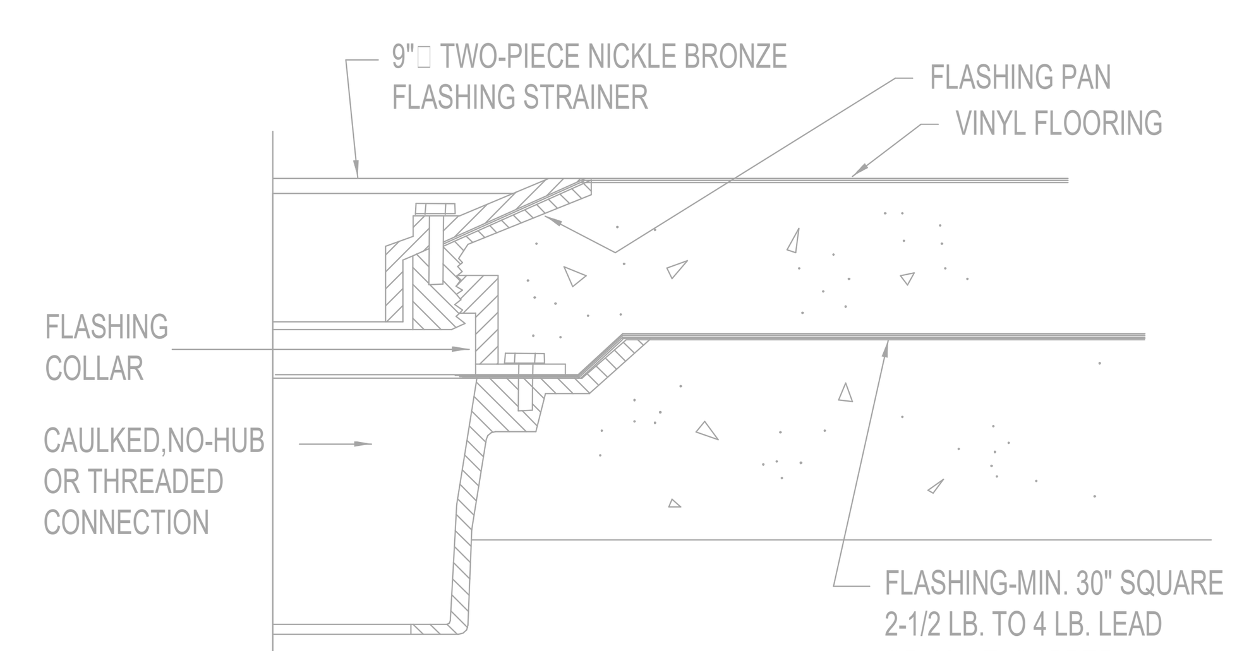
5 P101 WATER HEADER DETAIL
NO SCALE



4 P101 VENT THRU ROOF FLASHING & SLEEVING
NO SCALE

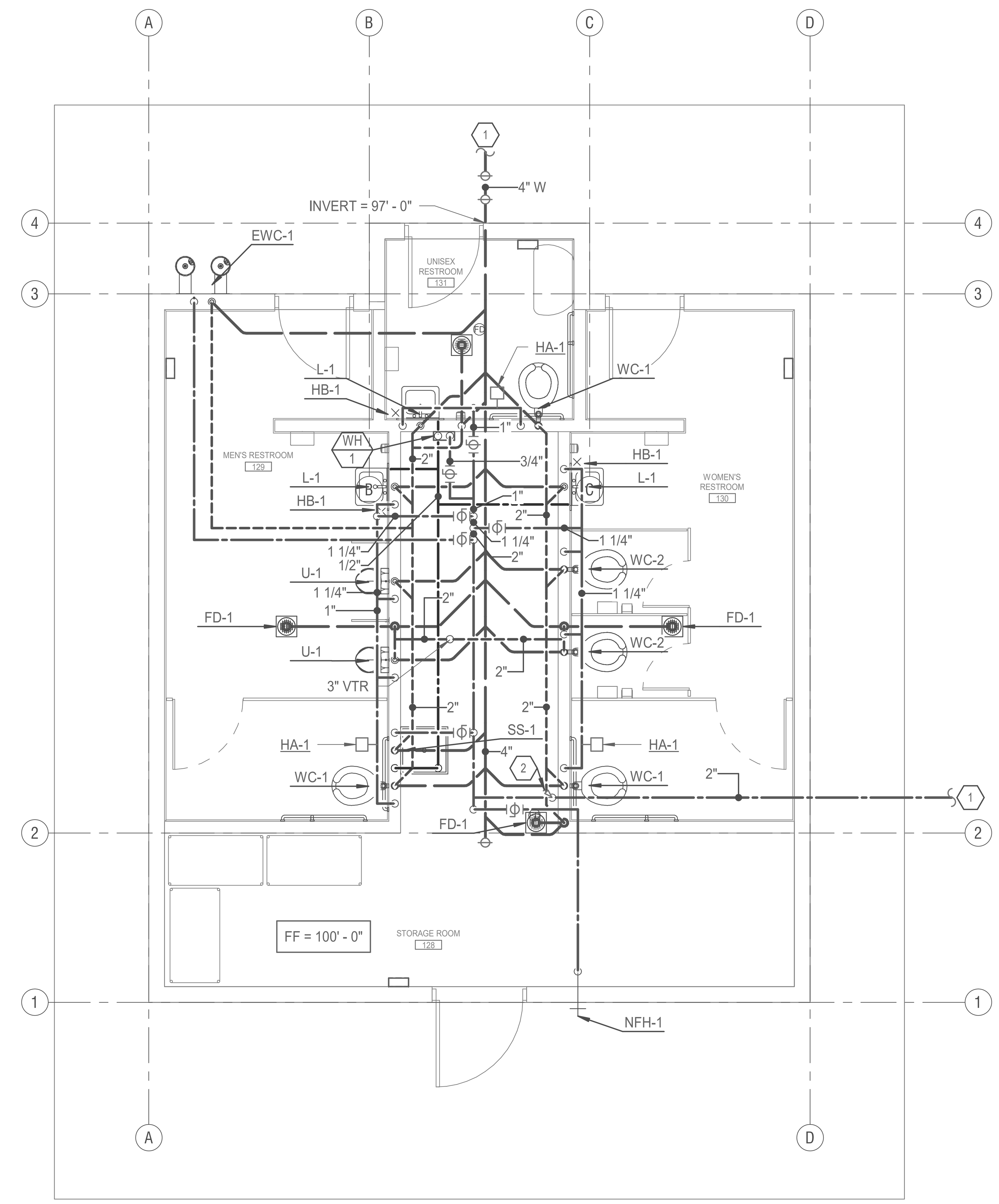


3 P101 CLEANOUT TO GRADE DETAIL (COTG)
NO SCALE



NOTE: PROVIDE FLASHING WHEN DRAIN IS INSTALLED IN A NON-MEMBRANE FLOOR

2 P101 FLOOR DRAIN
NO SCALE



1 LEVEL 1 PLUMBING PLAN
1/4" = 1'-0"

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PLUMBING PLAN
P101

GENERAL PROJECT NOTES

1. ALL ELECTRICAL INSTALLATIONS TO CONFORM TO THE LATEST NEC AND LOCAL CODES.
2. THE ELECTRICAL CONTRACTOR SHALL HAVE A COORDINATION MEETING WITH THE MECHANICAL CONTRACTOR, CONSTRUCTION SUPERINTENDANT AND ANY OTHER TRADES AS REQUIRED WITHIN SEVEN DAYS OF THE START OF THE JOB TO REVIEW CODE CLEARANCE REQUIREMENTS FOR PANELS, SWITCHES, AND OTHER ELECTRICAL GEAR SPECIFICALLY FOR THIS JOB. RECORD THE MEETING IN THE SUPERINDENT'S LOG. REPORT UNRESOLVED CONFLICTS TO THE ARCHITECT IMMEDIATELY.
3. THE CLARITY OF RECORD DRAWING CHANGES MADE BY THE CONTRACTOR SHALL BE EQUAL TO THE ORIGINAL DRAWINGS AS JUDGED BY THE ARCHITECT OR THE RECORD SET WILL BE RETURNED TO THE CONTRACTOR FOR CLARIFICATION.
4. DO NOT SCALE ELECTRICAL FLOOR PLANS. SEE ARCHITECTURAL DRAWINGS FOR ACCURATE DIMENSIONS AND FLOOR PLANS.
5. ELECTRICAL DEVICES CANNOT BE SHOWN TO SCALE AND SOMETIMES OVERLAP BUILDING ELEMENTS. REFER TO ARCHITECTURAL ELEVATIONS FOR ACCURATE MOUNTING LOCATIONS
6. ELECTRICAL CONTRACTOR SHALL CONTACT POWER COMPANY, TELEPHONE COMPANY, AND TV COMPANY WITHIN THE FIRST WEEK OF THE START OF CONSTRUCTION AND NOTIFY THEM OF THE PROBABLE DATE WHEN THE NEW ELECTRICAL, TELEPHONE, AND/OR TV SERVICE CONNECTION WILL BE NEEDED.
7. CONTRACTOR SHALL LOCATE AND INSTALL TRANSFORMER PAD PER POWER COMPANY SPECIFICATIONS. VERIFY PROPER CLEARANCES FROM BUILDING AND OTHER EQUIPMENT BEFORE INSTALLATION. THE LOCATION OF THE TRANSFORMER SHOWN ON THE PLANS IS AN APPROXIMATE LOCATION.
8. THE MAIN TELEPHONE AND TV SERVICES AS SHOWN ON THE DRAWINGS HAVE NOT BEEN COORDINATED WITH THE RESPECTIVE UTILITY COMPANIES DURING DESIGN. THE CONTRACTOR SHALL VERIFY THE TELEPHONE AND TV SERVICE AS SHOWN OR ANY CHANGES REQUIRED BY THE TELEPHONE COMPANY BEFORE INSTALLATION BEGINS. NOTIFY THE ARCHITECT IF CHANGES FROM THE DRAWING ARE REQUIRED.
9. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL PANEL CLEARANCES PER NEC 110.26 AND NOTIFY ALL OTHER TRADES ON THE JOB OF THESE CODE REQUIREMENTS.
10. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY WITH THE GENERAL CONTRACTOR ADEQUATE WALL DEPTH FOR MOUNTING FLUSH CIRCUIT BREAKER PANELS.
11. PANEL INDEXES SHALL INCLUDE ALL PERTINENT INFORMATION ON THE PANEL SCHEDULES INCLUDING INFORMATION ON LIGHTS AND OUTLETS. DO NOT SIMPLY COPY THE CIRCUIT DESCRIPTION COLUMN. INDEXES TO BE TYPEWRITTEN.
12. CONDUITS ENTERING MAIN PANEL FROM THE BOTTOM SHALL BE ARRANGED IN STRAIGHT ROWS FASTENED TO UNISTRUT. HOLES SHALL BE PUNCHED IN PANEL BOTTOM AND CONDUITS FASTENED BY TWO LOCKNUTS AND A CONDUIT BUSHING. CUTTING OUT THE BOTTOM OF THE PANEL IS NOT PERMITTED.
13. COORDINATE MOUNTING HEIGHT AND LOCATION OF ALL OUTLETS, SWITCHES, AUXILIARY EQUIPMENT, AND OTHER DEVICES WITH THE ARCHITECTURAL DRAWINGS. PRIOR TO INSTALLATION, REVIEW WITH THE GENERAL CONTRACTOR THE LOCATION OF MILLWORK AS A FINAL CHECK TO PREVENT COVERING OF ELECTRICAL ITEMS.
14. MOUNTING HEIGHT OF GENERAL PURPOSE OUTLETS AND SWITCHES SHALL BE 16" TO BOTTOM AND 48" TO TOP RESPECTIVELY UNLESS OTHERWISE NOTED.
15. ALL ELECTRICAL EQUIPMENT SHALL BE LOCATED SO AS NOT TO INTERFERE WITH WOOD TRIM AND MOLDINGS. THE ELECTRICAL CONTRACTOR SHALL REVIEW FINISH SCHEDULES AND ARCHITECTURAL DETAILS BEFORE ROUGH-IN OF OUTLET OR SWITCH BOXES TO PREVENT BOXES AND PLATES FROM BEING PLACED BEHIND OR IN TRIMS AND MOLDINGS. REFER SPECIAL CONDITIONS TO ARCHITECT PRIOR TO ROUGH-IN.
16. EMT IS NOT ALLOWED OUT OF DOORS.
17. CIRCUIT WIRE SIZES MUST, AT MINIMUM, MATCH NEC REQUIRED CONDUCTOR SIZES FOR CORRESPONDING OVERCURRENT PROCTECTIVE DEVICES. VERIFY WITH PANEL SCHEDULES BEFORE PULLING WIRE.
18. THE ELECTRICAL CONTRACTOR SHALL RUN BRANCH CIRCUIT CONDUITS IN ATTIC SPACES IN A NEAT AND WORKMANLIKE MANNER SO AS TO CONSERVE OPEN SPACES AS MUCH AS POSSIBLE. HVAC DUCTWORK AND PLUMBING SHALL HAVE LOCATION PRIORITY OVER BRANCH CIRCUIT CONDUIT RUNS.
19. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR, PULLED INTO THE CONDUIT WITH THE PHASE CONDUCTOR, IN ALL SERVICE, FEEDER, AND BRANCH CIRCUITS.
20. PROVIDE A NEUTRAL CONDUCTOR FOR EACH BREAKER TRIP HANDLE. NEUTRALS SHALL NOT BE SHARED BETWEEN BRANCH CIRCUITS.
21. ALL CIRCUITS TO BE MINIMUM #12 CU IN MINIMUM 3/4" CONDUIT UNLESS OTHERWISE NOTED.
22. WHERE ALLOWED BY CODE, MC CABLE IS AN APPROVED ALTERNATE TO CONDUCTORS IN CONDUIT FOR CONCEALED BRANCH CIRCUIT WIRING BETWEEN DEVICES, BUT NOT FOR HOME-RUNS. HOME RUNS TO BE RAN IN CONDUIT COMPLETE FROM PANEL TO FIRST DEVICE OR FIXTURE ON CIRCUIT.
23. DO NOT INSTALL MORE THAN THREE PHASE CONDUCTORS IN ANY HOME-RUN CONDUITS UNLESS SPECIFICALLY INDICATED ON DRAWINGS.
24. IDENTIFY ALL OUTLET COVER PLATES WITH THE PANEL AND CIRCUIT NUMBER.
25. A GFI OUTLET SHALL BE INSTALLED AT EACH LOCATION DESIGNATED BY "GFI" ON THE DRAWINGS. DOWNSTREAM PROTECTION BY A GFI OUTLET UPSTREAM IS NOT ALLOWED.
26. OUTLETS, SWITCHES, AND COVER PLATES TO BE COLOR CODED (BROWN, WHITE, IVORY, OR GRAY) TO THE WALL THEY ARE MOUNTED ON AS DIRECTED BY THE ARCHITECT.
27. ALL CONVENIENCE OUTLETS MUST BE MOUNTED FLUSH WITH THE COVER PLATE AND SECURED FIRMLY TO THE OUTLET BOX.
28. THE CONTRACTOR SHALL TAKE SPECIAL CARE TO MAKE SURE OUTLET BOXES ARE SET FLUSH WITH FINISH WALL SURFACES WHERE WALL PANELING OR ACOUSTICAL WALLS ARE INSTALLED OR WHERE OUTLETS ARE INSTALLED ON CARPETED RISERS.
29. ALL PATCH, REPAIR, REPAINT AND COVER UP REQUIRED AS A RESULT OF ELECTRICAL REMODEL IS TO BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR, BUT ACTUAL WORK IS TO BE PERFORMED BY QUALIFIED PERSONNEL.
30. COORDINATE LOCATION OF CEILING LIGHT FIXTURES WITH THE REFLECTED CEILING PLAN.
31. FIXTURE COUNTS SHOWN ON DRAWINGS ARE FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE TO VERIFY FIXTURE COUNTS AS PART OF BIDDING PROCESS.
32. COORDINATE LOCATION OF ALL CLOSET LIGHTS WITH MILLWORK. CENTER OUTLET BOX FOR LIGHT FIXTURE 6" FROM WALL ABOVE DOOR.
33. CONNECT EMERGENCY CIRCUIT OF EMERGENCY LIGHT BATTERY PACK TO UNSWITCHED LIGHTING CIRCUIT SERVING FIXTURES IN AREA. INSTALL EXTRA CONDUCTORS AS REQUIRED. WIRE SO LAMPS IN NORMAL MODE ARE CONTROLLED AS NOTED ON LIGHTING PLANS. PROVIDE ADDITIONAL BALLASTS AS REQUIRED.
34. WHERE LIGHT FIXTURES AS SPECIFIED AS COLOR PER ARCHITECT, THIS SHALL BE INTERPRETED AS A NON-STANDARD COLOR
35. EMERGENCY LIGHT BATTERY PACKS SHALL BE CONNECTED SO AS TO BE ABLE TO OPERATE IN THE TEST MODE WHEN THE NORMAL SWITCH LEG IS TURNED ON, AND SHALL ILLUMINATE ONE FIXTURE LAMP UNLESS OTHERWISE NOTED.
36. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL SWITCH LOCATIONS WITH THE GENERAL CONTRACTOR PRIOR TO ROUGH-IN TO PREVENT ANY SWITCHES FROM BEING LOCATED ON THE WRONG SIDE OF THE DOOR.
37. COORDINATE LOCATION OF LIGHT FIXTURES IN MECHANICAL ROOMS WITH MECHANICAL EQUIPMENT. DETERMINE FINAL FIXTURE LOCATIONS AFTER DUCTWORK INSTALLATION HAS BEEN COMPLETED. CHAIN SUSPEND FIXTURES UNDER DUCTWORK AND CONDUIT RACKS AS REQUIRED.
38. VERIFY FIXTURE COUNT WITH REFLECTED CEILING PLAN.
39. EXHAUST FANS FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.
40. REFER TO MECHANICAL PLANS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT.
41. ELECTRICAL CONTRACTOR SHALL FURNISH ALL MOTOR DISCONNECTS, STARTERS, AND CONTROL STATIONS FOR MECHANICAL EQUIPMENT UNLESS THE SAME IS FURNISHED AS AN INTEGRAL PART OF THE EQUIPMENT. VERIFY WITH MECHANICAL CONTRACTOR PRIOR TO BID.
42. THERMOSTAT AND CONTROL WIRING FOR MECHANICAL EQUIPMENT BY MECHANICAL CONTRACTOR.
43. WHERE AUTOMATIC SPRINKLER CONTROLS ARE SHOWN ON THE LANDSCAPE OR ARCHITECTURAL DRAWINGS, PROVIDE A FLUSH SINGLE-GANG J-BOX BEHIND THE CONTROL AND CONNECT TO THE NEAREST OUTLET CIRCUIT WITH AVAILABLE CAPACITY.
44. DISCONNECT SWITCHES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL ELECTRICAL SWITCHES AND MOTOR CONTROL FOR PROPER CODE CLEARANCES. NOTIFY ARCHITECT IMMEDIATELY OF ANY CONFLICTS WITH OTHER TRADES REGARDING PROPER EQUIPMENT CLEARANCES.
45. COORDINATE LOCATION OF THERMOSTATS, SENSORS, AND ATC JUNCTION BOXES WITH MECHANICAL CONTRACTOR BEFORE INSTALLATION.
46. BEFORE RUNNING CONDUITS, PLACING OUTLETS OR ORDERING EQUIPMENT, THE CONTRACTOR SHALL REVIEW THE SPECIFICATIONS AND DESIGN AND SHOP DRAWINGS OF THE OTHER TRADES SERVED BY THE CONDUIT, OUTLETS, AND/OR EQUIPMENT.
47. PROVIDE NEUTRAL CONNECTION TO 208/240/480V, SINGLE-PHASE EQUIPMENT. RUN SEPARATE GROUND WIRE TO ALL OUTDOOR UNITS AND BOND TO THE EQUIPMENT GROUND LUG.
48. ELECTRICAL CONTRACTOR SHALL INSTALL A PULL STRING IN ALL UNUSED POWER AND LIGHTING CONDUITS.
49. WHERE THERE ARE CONFLICTS IN THE DRAWINGS AND/OR SPECIFICATIONS THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO BID. WHERE NO NOTIFICATION IS GIVEN THE MORE STRINGENT INTERPRETATION (GENERALLY INTERPRETED TO BE THE MORE COSTLY) WILL BE ENFORCED.

ELECTRICAL LEGEND

ANNOTATIONS

X / XXX	DETAIL CALL-OUT; TOP "X" REFERS TO DETAIL NUMBER & BOTTOM "XXX" REFERS TO SHEET NUMBER
#	KEYED NOTE CALLOUT
#-#	EQUIPMENT CALLOUT
---- xCDy ----	COMMUNICATIONS RACEWAY: "x" CONDUITS OF "y" DIAMETER

LIGHTING FIXTURES

FIXTURE LUMEN INDICATOR / FIXTURE SIZE INDICATOR / FIXTURE TYPE — XXX - XXX (X) — FIXTURE ACCESSORY APPEND

	EMERGENCY LIGHT
	BATTERY PACK
	EXIT LIGHT: CEILING - FACE(S) AS SHOWN
	EXIT LIGHT: WALL - FACE(S) AS SHOWN
	EXIT LIGHT: FACE SIDE
	EXIT LIGHT: DIRECTIONAL ARROWS, DOUBLE FACE
	RECESSED FIXTURE
	STRIP LIGHT
	LINEAR FIXTURE
	EMERGENCY FIXTURE
	WALL MOUNT FIXTURE
	SUSPENDED FIXTURE

LIGHTING CONTROL

GENERAL CONTROLS

$_{DT}	OCCUPANCY SENSOR: DUAL TECHNOLOGY
$_{VS}	OCCUPANCY SENSOR: VACANCY SENSOR FUNCTION
$_{OS}	OCCUPANCY SENSOR: OCCUPANCY SENSOR FUNCTION
	PUSH BUTTON

LOCAL CONTROLS

$^{X}	SINGLE POLE SWITCH; "x" INDICATES SWITCH GROUP
$_{3}	THREE WAY SWITCH
$_{4}	FOUR WAY SWITCH
D_L	DIMMER SWITCH: LED; 600 W MINIMUM
_{VS}	WALL MOUNT OCCUPANCY SENSOR: VACANCY SENSOR FUNCTION
_{OS}	WALL MOUNT OCCUPANCY SENSOR: OCCUPANCY SENSOR FUNCTION

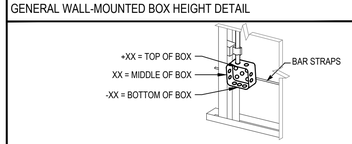
CENTRAL SYSTEM CONTROLS
(SEE LIGHTING CONTROL SCHEDULES FOR COMPLETE INFORMATION)

$_{LSX/SY}	DIGITAL LIGHTING CONTROL TOGGLE; SX = SWITCH CONTROL TYPE #1; SY = SWITCH CONTROL TYPE #2; ETC.
D_{LDX/DY}	DIGITAL LIGHTING CONTROL DIMMING SWITCH; DX = SWITCH CONTROL TYPE #1; DY = SWITCH CONTROL TYPE #2; ETC.

POWER AND DISTRIBUTION

	DISTRIBUTION PANEL
	PANELBOARD

GENERAL WALL-MOUNTED BOX HEIGHT DETAIL



REFER TO POWER, LIGHTING AND COMMUNICATIONS PLANS FOR SPECIFIC DIMENSIONS. SEE GENERAL NOTES AND SPECIFICATIONS WHERE NO HEIGHTS ARE INDICATED.

BRANCH CIRCUITING

	DUPLEX OUTLET
USB	DUPLEX RECEPTACLE WITH (2)USB; LEVITON T5832 SERIES OR EQUIVALENT
	DUPLEX OUTLET: GROUND FAULT INTERRUPTER
EWC	ELECTRIC WATER COOLER OUTLET: GFCI UNLESS NOTED
	DUPLEX OUTLET: EMERGENCY SOURCE - RED DEVICE AND PLATE UNLESS OTHERWISE SPECIFIED
WPIU	DUPLEX OUTLET: WEATHERPROOF-IN-USE COVER
	DOUBLE DUPLEX OUTLET
	DOUBLE DUPLEX OUTLET: EMERGENCY SOURCE - RED DEVICE AND PLATE UNLESS OTHERWISE SPECIFIED
	DOUBLE DUPLEX OUTLET: GROUND FAULT INTERRUPTER
WPCS, W1, W12, W2, W22, W22S	FLUSH IN USE BOX WALL. NUMERIC VALUES GIVEN FOR "P" AND "C" REPRESENT: P = QUANTITY OF DUPLEX RECEPTACLES C = QUANTITY OF DATA PORTS S = DESIGNATION REPRESENTS PROVISIONS FOR OWNER AUXILIARY SYSTEMS CONNECTIONS SEE FLOOR BOX SCHEDULE FOR FURTHER DESCRIPTION
	JUNCTION BOX
	DISCONNECT; NO OVER-CURRENT PROTECTION
	DISCONNECT WITH OVER-CURRENT PROTECTION (CIRCUIT BREAKER STYLE OR AS SPECIFIED)
$_{m}	MOTOR PROTECTIVE THERMAL SWITCH
	QUANTITY OF CONDUCTORS: SHORT LINES = PHASE /SWITCH, LONG LINES = NEUTRAL
	HOME-RUN
	CIRCUITING: LINE VOLTAGE
	CIRCUITING: CONTROL
	CIRCUITING: LINE VOLTAGE + DIMMING CONTROL

COMMUNICATIONS

	COMMUNICATIONS RACK
----CMJ ----	COMMUNICATIONS RACEWAY; OPEN D-RINGS OR J-HOOKS. SEE DETAILS AND SPECIFICATIONS
	COMMUNICATIONS OUTLET, 2-PORT DEVICE, COMMUNICATIONS BOX (SEE COMMUNICATIONS RACEWAY SCHEDULE); 1.25" CONDUIT; 4-PORT KEYSTONE FACEPLATE; (2)CAT 6A CABLES/JACKS

FIRE ALARM

FACP	FIRE ALARM CONTROL PANEL
ANN	FIRE ALARM REMOTE ANNUNCIATOR PANEL
NAC	NOTIFICATION APPLIANCE CIRCUIT PANEL
	SMOKE DETECTOR
FS	FIRE ALARM FLOW SWITCH
TS	FIRE ALARM TAMPER SWITCH
CM	FIRE ALARM CONTROL / RELAY MODULE
_{X}	FIRE ALARM STROBE; "X" = MINIMUM CANDELA RATING
_{X}	CEILING MOUNTED FIRE ALARM STROBE; "X" = MINIMUM CANDELA RATING
_{X}	FIRE ALARM HORN AND STROBE; "X" = MINIMUM CANDELA RATING
_{X}	CEILING MOUNTED FIRE ALARM HORN AND STROBE; "X" = MINIMUM CANDELA RATING
F	FIRE ALARM PULL STATION

SECURITY

SEC	SECURITY SYSTEM HEAD END EQUIPMENT
	CCTV CAMERA : WALL MOUNT
	CCTV CAMERA : DOME TYPE CEILING MOUNT
ES	ELECTRIC STRIKE (4SD J-BOX ABOVE CEILING; 1/2" CONDUIT STUB INTO DOOR FRAME)
CR	CARD READER (4SD J-BOX WALL; 4SD J-BOX ABOVE CEILING; 1/2" CONDUIT BETWEEN BOXES)
KP	KEYPAD (4SD J-BOX WALL; 4SD J-BOX ABOVE CEILING; 1/2" CONDUIT BETWEEN BOXES)

SHEET INDEX

ELECTRICAL ABBREVIATIONS

A	AMPERE	LTG	LIGHTING
AF	AMP FUSE	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MCB	MAIN CIRCUIT BREAKER
AFG	ABOVE FINISHED GRADE	MECH	MECHANICAL
AFI	ARC-FAULT CIRCUIT-INTERRUPTER	MFR	MANUFACTURER
AIC	AMPERE INTERRUPTING CAPACITY	MIN	MINIMUM
AL	ALUMINUM	MLO	MAIN LUGS ONLY
ARCH	ARCHITECT(URAL)	MTD	MOUNTED
AS	AMP SWITCH	NEC	NATIONAL ELECTRICAL CODE
AWG	AMERICAN WIRE GAUGE	NECA	NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION
BLDG	BUILDING	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
BKBD	BACKBOARD	NEUT	NEUTRAL
C	CONDUIT	NFC	NATIONAL FIRE CODE
CAB	CABINET	NC	NORMALLY CLOSED
CAT	CATALOG/CATEGORY	NIC	NOT IN CONTRACT
CB	CIRCUIT BREAKER	NL	NIGHT LITE
CKT	CIRCUIT	NO	NORMALLY OPEN
CLG	CEILING	NTS	NOT TO SCALE
CO	CONDUIT ONLY	OCP	OVERCURRENT PROTECTION
COMM	COMMUNICATION	P	POLE
CONN	CONNECTION	PH	PHASE
CU	COPPER	PNL	PANEL
DEMO	DEMOLITION/DEMOLISH	PWR	POWER
DISC	DISCONNECT	QTY	QUANTITY
DN	DOWN	RECEP	RECEPTACLE
DWG	DRAWING	REQ'D	REQUIRED
EA	EACH	RGSC	RIGID GALVANIZED STEEL CONDUIT
ELEC	ELECTRICAL	RM	ROOM
ELEV	ELEVATOR	SCHED	SCHEDULE
EMER, EM	EMERGENCY	SECT	SECTION
EMT	ELECTRICAL METALLIC TUBING	SP	SINGLE POLE
EOLR	END OF LINE RESISTOR	SN	SOLID NEUTRAL
EQUIP	EQUIPMENT	SPEC	SPECIFICATION
EX, EXIST	EXISTING	SW	SWITCH
FBO	FURNISHED BY OTHERS	SWBD	SWITCHBOARD
FCU	FAN COIL UNIT	SWGR	SWITCH GEAR
FF	FINISHED FLOOR	SYS	SYSTEM
FIXT	FIXTURE	TEMP	TEMPORARY
FLEX	FLEXIBLE METALLIC CONDUIT (STEEL)	TELE	TELEPHONE
FLUOR	FLUORESCENT	XFMR	TRANSFORMER
FT	FEET OR FOOT	T-STAT	THERMOSTAT
GFI	GROUND FAULT INTERRUPTER	TWP	TWISTED PAIR
GND	GROUND	TWSP	TWISTED SHEILDED PAIR
HP	HORSEPOWER	TYP	TYPICAL
HVAC	HEATING, VENTILATING & AIR CONDITIONING	UBC	UNIFORM BUILDING CODE
IG	ISOLATED GROUND	UL	UNDERWRITERS LABORATORY
IMC	INTERMEDIATE METAL CONDUIT	UMC	UNIFORM MECHANICAL CODE
IN	INCH(ES)	UNO	UNLESS NOTED OTHERWISE
ISC	SHORT CIRCUIT AMPERES, KA	V	VOLT OR VOLTAGE
JB, J-BOX	JUNCTION BOX	VA	VOLT AMPERE
KCMIL	THOUSAND CIRCULAR MILS	W	WATT
KVA	KILOVOLT AMPERE	W/	WITH
KW	KILOWATT	WG	WIRE GUARD
		WP	UL LISTED WEATHERPROOF, NEMA 3R or 4

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255 SOUTH 300 WEST
SALT LAKE CITY UT 84103
795 NORTH 400 WEST

LAYTON CITY - HEATED RESTROOM
LAYTON, UT
LAYTON CITY PARKS AND RECREATION DEPARTMENT

DESCRIPTION:
DATE:
MARK:

PERMIT SET

PROJECT #: 820201
DRAWN BY: D.PATTON
CHECKED BY: S.SWENSON
ISSUED: 03.06.2023

REGISTERED PROFESSIONAL ENGINEER
No. 294174
SHANE D. SWENSON
3/6/2023
STATE OF UTAH

ABBREVIATIONS G.P.N. LEGEND & SHEET INDEX

E001

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ELECTRICAL SPECIFICATIONS

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

1.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Electrical equipment shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
  - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

1.2 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.3 SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Sleeves for Rectangular Openings: Galvanized sheet steel.

1.4 SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
  - 1. Sealing Elements: EPDM or NBR interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
  - 2. Pressure Plates: Stainless steel. Include two for each sealing element.
  - 3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

1.5 ELECTRICAL ENCLOSURES

- A. Flush- and surface-mounted cabinets.
  - 1. Rated for environmental conditions at installed location.
    - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
    - b. Outdoor Locations: NEMA 250, Type 3R.
    - c. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
    - d. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

1.6 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. Comply with NECA 1.
- B. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- C. Right of Way: Give to piping systems installed at a required slope.

1.7 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- B. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- C. Seal space outside of sleeves with grout for penetrations of concrete and masonry
- D. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials.
- E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

1.8 FIRESTOPPING

- A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly.

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

1.1 CONDUCTORS AND CABLES

- A. Copper Conductors: Comply with NEMA WC 70.
- B. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN.

1.2 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

1.3 CONDUCTOR MATERIAL APPLICATIONS

- A. Branch Circuits: Copper. Solid or stranded for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

1.4 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Feeders: Type THHN-THWN, single conductors in raceway
- B. Branch Circuits, Including in Crawlspaces: Type THHN-THWN, single conductors in raceway.

1.5 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- E. Support cables according to Division 26 Section "Hangers and Supports for Electrical Systems."
- F. Identify and color-code conductors and cables according to Division 26 Section "Identification for Electrical Systems."

1.6 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

1.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
  - 1. Solid Conductors: ASTM B 3.
  - 2. Stranded Conductors: ASTM B 8.
  - 3. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

1.2 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

1.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad Zinc-coated steel; 3/4 inch by 10 feet in diameter.

1.4 APPLICATIONS

- A. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.
- B. Conductor Terminations and Connections:
  - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
  - 2. Connections to Ground Rods: Bolted connectors.
  - 3. Connections to Structural Steel: Welded connectors.

1.5 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all service, feeder, and branch circuits, in addition to those required by NFPA 70:

1.6 INSTALLATION

- A. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
- B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
  - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
  - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

1.1 PERFORMANCE REQUIREMENTS

- A. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- B. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems with galvanized metallic coatings and channel dimensions selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
  - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
  - 2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
  - 3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
  - 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
  - 5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
  - 6. Toggle Bolts: All-steel springhead type.
  - 7. Hanger Rods: Threaded steel.

1.3 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

1.4 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

1.5 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
  - 1. To Wood: Fasten with lag screws or through bolts.
  - 2. To New Concrete: Bolt to concrete inserts.
  - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
  - 4. To Existing Concrete: Expansion anchor fasteners.
  - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
  - 6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
  - 7. To Light Steel: Sheet metal screws.
  - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

SECTION 260533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

1.1 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: ANSI C80.1.
- B. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.
  - 1. Comply with NEMA RN 1.
  - 2. Coating Thickness: 0.040 inch, minimum.
- C. EMT: ANSI C80.3.
- D. FMC: Zinc-coated steel or aluminum.
- E. LFMC: Flexible steel conduit with PVC jacket.
- F. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
  - 1. Fittings for EMT: Steel or die-cast, set-screw or compression type.
  - 2. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch, with overlapping sleeves protecting threaded joints.
- G. Joint Compound for Rigid Steel Conduit: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

1.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

- A. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
- B. Fittings for RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

1.3 BOXES, ENCLOSURES, AND CABINETS

- A. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy or aluminum, Type FD, with gasketed cover.
- C. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- D. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, cast aluminum or galvanized, cast iron with gasketed cover.

1.4 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

- A. Description: Comply with SCTE 77.
  - 1. Color of Frame and Cover: Gray.
  - 2. Configuration: Units shall be designed for flush burial and have open bottom, unless otherwise indicated.
  - 3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
  - 4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
  - 5. Cover Legend: Molded lettering, "ELECTRIC."
  - 6. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.
- B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel or fiberglass or a combination of the two.

1.5 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
  - 1. Aboveground: Rigid steel conduit.
  - 2. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
  - 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
  - 4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
  - 5. Application of Handholes and Boxes for Underground Wiring:
    - a. Handholes and Pull Boxes in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Polymer concrete, SCTE 77, Tier 15 structural load rating.
    - b. Handholes and Pull Boxes in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Polymer concrete, frame and cover, SCTE 77, Tier 8 structural load rating.
    - c. Handholes and Pull Boxes Subject to Light-Duty Pedestrian Traffic Only: Polymer concrete, SCTE 77 with 3000-lbf vertical loading.
- B. Comply with the following indoor applications, unless otherwise indicated:
  - 1. Exposed, Not Subject to Physical Damage: EMT.
  - 2. Exposed and Subject to Physical Damage: Rigid steel conduit. Includes raceways in the following locations:
  - 3. Concealed in Ceilings and Interior Walls and Partitions: EMT.
  - 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
  - 5. Damp or Wet Locations: Rigid steel conduit.
  - 6. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, stainless steel in damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
  - 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

1.6 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Support raceways as specified in Division 26 Section "Hangers and Supports for Electrical Systems."
- E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.
- F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.
- G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.
- H. Raceways Embedded in Slabs:
  - 1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
  - 2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
  - 3. Change from RNC, Type EPC-40-PVC to rigid steel conduit before rising above the floor.
- I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.
- K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.
- L. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
  - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
  - 2. Where otherwise required by NFPA 70.

1.7 INSTALLATION OF UNDERGROUND CONDUIT

- A. Direct-Buried Conduit:
  - 1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earth Moving" for pipe less than 6 inches in nominal diameter.
  - 2. Install backfill per University requirements.
  - 3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with compaction.
  - 4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.

1.8 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.
- D. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.
- E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

SECTION 260548 - VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

1.1 PERFORMANCE REQUIREMENTS

- A. Seismic-Restraint Loading:
  - 1. Site Class as Defined in the IBC: D.
  - 2. Assigned Seismic Use Group or Building Category as Defined in the IBC: III.
    - a. Component Importance Factor: 1.0.
    - b. Component Response Modification Factor:
      - 1) Fixtures: 1.5
      - 2) Equipment: 2.5
      - 3) Conduit and Cables: 5.0.
    - c. Component Amplification Factor: 2.5.
  - 3. Design Spectral Response Acceleration at Short Periods (0.2 Second): 173%.
  - 4. Design Spectral Response Acceleration at 1.0-Second Period: 76%.

1.2 QUALITY ASSURANCE

- A. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.
- B. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- C. Seismic-restraint devices shall have horizontal and vertical load testing and analysis and shall bear anchorage preapproval OPA number from OSHPD, preapproval by ICC-ES, or preapproval by another agency acceptable to authorities having jurisdiction, showing maximum seismic-restraint ratings. Ratings based on independent testing are preferred to ratings based on calculations. If preapproved ratings are not available, submittals based on independent testing are preferred. Calculations (including combining shear and tensile loads) to support seismic-restraint designs must be signed and sealed by a qualified professional engineer.
- D. Comply with NFPA 70.

1.3 SEISMIC-RESTRAINT DEVICES

- A. General Requirements for Restraint Components: Rated strengths, features, and application requirements shall be as defined in reports by an agency acceptable to authorities having jurisdiction.
  - 1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum seismic forces to which they will be subjected.
- B. Channel Support System: MFMA-3, shop- or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.
- C. Mechanical Anchor: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchors with strength required for anchor and as tested according to ASTM E 488. Minimum length of eight times diameter.
- D. Adhesive Anchor: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

1.4 EXAMINATION

- A. Examine areas and equipment to receive seismic-control devices for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in of reinforcement and cast-in-place anchors to verify actual locations before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

1.5 SEISMIC-RESTRAINT DEVICE INSTALLATION

- A. Drilled-in Anchors:
  - 1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
  - 2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
  - 3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
  - 4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
  - 5. Set anchors to manufacturer's recommended torque, using a torque wrench.
  - 6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

1.1 INSTALLATION

- A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Apply identification devices to surfaces that require finish after completing finish work.
- C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- E. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trenchexceeds 16 inches (400 mm) overall.

1.2 IDENTIFICATION SCHEDULE

- A. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
  - 1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.
    - a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
    - b. Colors for 208/120-V Circuits:
      - 1) Phase A: Black.
      - 2) Phase B: Red.
      - 3) Phase C: Blue.
      - 4) Neutral: White with colored stripe to match associated phase
      - 5) Ground: Green
- B. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source.
- C. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
  - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
  - 2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
  - 3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.
- D. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.
- E. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- F. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.
  - 1. Comply with 29 CFR 1910.145.
  - 2. Identify system voltage with black letters on an orange background.
  - 3. Apply to exterior of door, cover, or other access.
- G. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
  - 1. Labeling Instructions:
    - a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.
    - b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
    - c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
    - d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

SECTION 260923 - LIGHTING CONTROL DEVICES

1.1 SUBMITTALS

- A. Product Data: For each type of product.
- B. Operation and maintenance data

1.2 OUTDOOR PHOTOELECTRIC SWITCHES

- A. Description: Solid state, with SPST dry contacts rated for 1800 VA, to operate connected load, complying with UL 773.
  - 1. Light-Level Monitoring Range: 1.5 to 10 fc, with an adjustment for turn-on and turn-off levels within that range.
  - 2. Time Delay: Thirty-second minimum, to prevent false operation.
  - 3. Lightning Arrester: Air-gap type.
  - 4. Mounting: Twist lock complying with NEMA C136.10, with base.

1.3 INDOOR OCCUPANCY SENSORS

- A. General Requirements for Sensors: Wall- or ceiling-mounted, solid-state indoor occupancy sensors with a separate power pack.
  - 1. Operation: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
  - 2. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor is powered from the power pack.
  - 3. Power Pack: Dry contacts rated for 20-A ballast load at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70.
  - 4. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.
  - 5. Bypass Switch: Override the "on" function in case of sensor failure.
  - 6. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc; turn lights off when selected lighting level is present.
- B. PIR Type: Ceiling mounted; detect occupants in coverage area by their heat and movement.
  - 1. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in..
  - 2. Detection Coverage (Room): Detect occupancy anywhere in a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.
  - 3. Detection Coverage (Corridor): Detect occupancy within 90 feet when mounted on a 10-foot- high ceiling.
- C. Dual-Technology Type: Ceiling mounted; detect occupants in coverage area using PIR and ultrasonic detection methods. The particular technology or combination of technologies that control on-off functions is selectable in the field by operating controls on unit.
  - 1. Sensitivity Adjustment: Separate for each sensing technology.
  - 2. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in., and detect a person of average size and weight moving not less than 12 inches in either a horizontal or a vertical manner at an approximate speed of 12 inches/s.
  - 3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.

1.4 SWITCHBOX-MOUNTED OCCUPANCY SENSORS

- A. General Requirements for Sensors: Automatic-wall-switch occupancy sensor, suitable for mounting in a single gang switchbox.
  - 1. Operating Ambient Conditions: Dry interior conditions, 32 to 120 deg F.
  - 2. Switch Rating: Not less than 800-VA fluorescent at 120 V, 1200-VA fluorescent at 277 V, and 800-W incandescent.

1.5 INSTALLATION

- A. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.
- B. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting sensors to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.
  - 1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit Owner's operations.
- C. Identify components and power and control wiring according to Section 260553 "Identification for Electrical Systems."

1.6 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
  - 1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation.
  - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

SECTION 262416 - PANELBOARDS

1.1 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For each panelboard and related equipment.

1.2 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.3 GENERAL REQUIREMENTS FOR PANELBOARDS

- A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Section 260548 "Vibration and Seismic Controls for Electrical Systems."
- B. Enclosures: Flush- and surface-mounted cabinets.
  - 1. Rated for environmental conditions at installed location.
  - 2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
  - 3. Directory Card: Inside panelboard door, mounted in transparent card holder.
- C. Phase, Neutral, and Ground Buses: Tin-plated aluminum or Hard-drawn copper, 98 percent conductivity.
- D. Conductor Connectors: Suitable for use with conductor material and sizes.
  - 1. Material: Tin-plated aluminum or Hard-drawn copper, 98 percent conductivity.
  - 2. Mechanical type.
  - 3. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
- E. Service Equipment Label: NRTL labeled for use as service equipment for panelboards with one or more main service disconnecting and overcurrent protective devices.
- F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- G. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

1.4 DISTRIBUTION PANELBOARDS

- A. Panelboards: NEMA PB 1, power and feeder distribution type.
- B. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
- C. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Plug-in or Bolt-on circuit breakers.
- D. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

1.5 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- B. Branch Overcurrent Protective Devices: Plug-in or Bolt-on circuit breakers, replaceable without disturbing adjacent units.
- C. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

1.6 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
  - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
  - 2. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
  - 3. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
    - a. Standard frame sizes, trip ratings, and number of poles.
    - b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
    - c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
    - d. Shunt Trip: 120 or 24-V (per system requirements) trip coil energized from separate circuit, set to trip at 75 percent of rated voltage.
    - e. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.

1.7 INSTALLATION

- A. Comply with mounting and anchoring requirements specified in Section 260548 "Vibration and Seismic Controls for Electrical Systems."
- B. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
- C. Install overcurrent protective devices and controllers not already factory installed.
  - 1. Set field-adjustable, circuit-breaker trip ranges.
- D. Install filler plates in unused spaces.
- E. Arrange conductors in gutters into groups and bundle and wrap with wire ties.
- F. Comply with NECA 1.

1.8 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260553 "Identification for Electrical Systems."
- B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

SECTION 262713 - ELECTRICITY METERING

1.1 SUMMARY

- A. Section includes equipment for electricity metering by utility company.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Dimensioned plans and sections or elevation layouts and wiring diagrams.
- C. Field quality-control reports.
- D. Operation and Maintenance Data.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.4 EQUIPMENT FOR ELECTRICITY METERING BY UTILITY COMPANY

- A. Meters will be furnished by utility company.
- B. Current-Transformer Cabinets: Comply with requirements of electrical-power utility company.
- C. Meter Sockets: Comply with requirements of electrical-power utility company.

1.5 INSTALLATION

- A. Comply with equipment installation requirements in NECA 1.
- B. Install meters furnished by utility company. Install raceways and equipment according to utility company's written requirements. Provide empty conduits for metering leads and extend grounding connections as required by utility company.
- C. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."
  - 1. Series Combination Warning Label: Self-adhesive type, with text as required by NFPA 70.

SECTION 262726 - WIRING DEVICES

1.1 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
  - 1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.2 GENERAL WIRING-DEVICE REQUIREMENTS

- A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.3 STRAIGHT-BLADE RECEPTACLES

- A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.
- B. Isolated-Ground, Duplex Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.
  - 1. Description: Straight blade; equipment grounding contacts shall be connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap. Isolation shall be integral to receptacle construction and not dependent on removable parts.

1.4 GFCI RECEPTACLES

- A. General Description:
  - 1. Straight blade, feed-through type.
  - 2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
  - 3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.
- B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1.5 LOW VOLTAGE SWITCHES

- A. Push-Button Switches: Modular, analog interface, for operating one or more relays and to work in conjunction with automatic controls.
  - 1. Match color and style specified in Section 262726 "Wiring Devices."
  - 2. Integral green LED pilot light to indicate when circuit is on.
  - 3. Internal white LED locator light to illuminate when circuit is off.
- B. Legend: Engraved or permanently silk-screened on wall plate. Use designations indicating load controlled.
- C. 24-volt; Powered from associated power pack serving controlled switching group

1.6 WALL PLATES

- A. Single and combination types shall match corresponding wiring devices.
  - 1. Plate-Securing Screws: Metal with head color to match plate finish.
  - 2. Material for Unfinished Spaces: Galvanized steel.
  - 3. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.
- B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum or thermoplastic with lockable cover.

1.7 FINISHES

- A. Device Color:
  - 1. Wiring Devices Connected to Normal Power System: As selected by owner unless otherwise indicated or required by NFPA 70 or device listing.
  - 2. Isolated Ground Devices: Orange.
- B. Wall Plate Color: For plastic covers, match device color.

1.8 INSTALLATION

- A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.
- B. Conductors:
  - 1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
  - 2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
  - 3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
  - 4. Existing Conductors:
    - a. Cut back and pigtail, or replace all damaged conductors.
    - b. Straighten conductors that remain and remove corrosion and foreign matter.
    - c. Pigtailing existing conductors is permitted, provided the outlet box is large enough.
- C. Device Installation:
  - 1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
  - 2. Connect devices to branch circuits using pigtails that are not less than 12 inches in length.
  - 3. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
- D. Dimmers:
  - 1. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

1.1 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

1.2 NONFUSIBLE SWITCHES

- A. Type GD, General Duty, Single Throw, 600 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- B. Accessories:
  - 1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
  - 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
  - 3. Lugs: Suitable for number, size, and conductor material.

1.3 MOLDED-CASE CIRCUIT BREAKERS

- A. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.
- B. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
- C. Features and Accessories:
  - 1. Standard frame sizes, trip ratings, and number of poles.
  - 2. Lugs: Suitable for number, size, trip ratings, and conductor material.
  - 3. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge lighting circuits.

1.4 INSTALLATION

- A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- B. Comply with NECA 1.

1.5 IDENTIFICATION

- A. Comply with requirements in Section 260553 "Identification for Electrical Systems."

SECTION 265100 - INTERIOR LIGHTING

1.1 ACTION SUBMITTALS

- A. Product Data: For each type of lighting fixture, arranged in order of fixture designation. Include data on features, accessories, and finishes.

1.2 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

1.3 GENERAL REQUIREMENTS FOR LIGHTING FIXTURES AND COMPONENTS

- A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.
- B. Metal Parts: Free of burrs and sharp corners and edges.
- C. Diffusers and Globes:
  - 1. Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
    - a. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.
    - b. UV stabilized.

1.4 LED LUMINAIRES

- A. Solid State Drivers and LED: Comply with DOE LM 79
  - 1. Total Harmonic Distortion Rating: Less than 10 percent
  - 2. Transient Voltage protection
  - 3. Power factor: 0.90 or higher
  - 4. Temperatures: Minus 40 deg F (minus 40 deg C) and higher
  - 5. Heat sink to remove heat from circuits
  - 6. L70 compliant to 70,000 hours minimum
  - 7. Color Rendering Index: 80 CRI minimum
  - 8. Dimmable
    - a. Dimming Range: 100 to 1 percent of rated lamp lumens
    - b. Input watts: Can be reduced to 20 percent of normal

1.5 EMERGENCY POWER UNIT

- A. Internal Type: Self-contained, modular, battery-inverter unit, factory mounted within lighting fixture body and compatible with ballast or driver. Comply with UL 924.
  - 1. Emergency Connection: Operate one lamp(s) continuously at an output of 1100 lumens each. Connect unswitched circuit to battery-inverter unit and switched circuit to fixture ballast or driver.
  - 2. Nightlight Connection: Operate one lamp continuously.
  - 3. Test Push Button and Indicator Light:
  - 4. Battery: Sealed, maintenance-free, nickel-cadmium type.
  - 5. Charger:
  - 6. Integral Self-Test:

1.6 EXIT SIGNS

- A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.
- B. Internally Lighted Signs:
  - 1. Lamps for AC Operation: LEDs, 50,000 hours minimum rated lamp life.
  - 2. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.

1.7 LIGHTING FIXTURE SUPPORT COMPONENTS

- A. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage.
- B. Wires for Humid Spaces: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gage.

1.8 INSTALLATION

- A. Lighting fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture.
- B. Comply with NFPA 70 for minimum fixture supports.

1.9 FIELD QUALITY CONTROL

- A. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery and retransfer to normal.

PERMIT SET

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255 SOUTH 300 WEST
LOGAN UT 84321

795 NORTH 400 WEST
SALT LAKE CITY UT 84103

LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

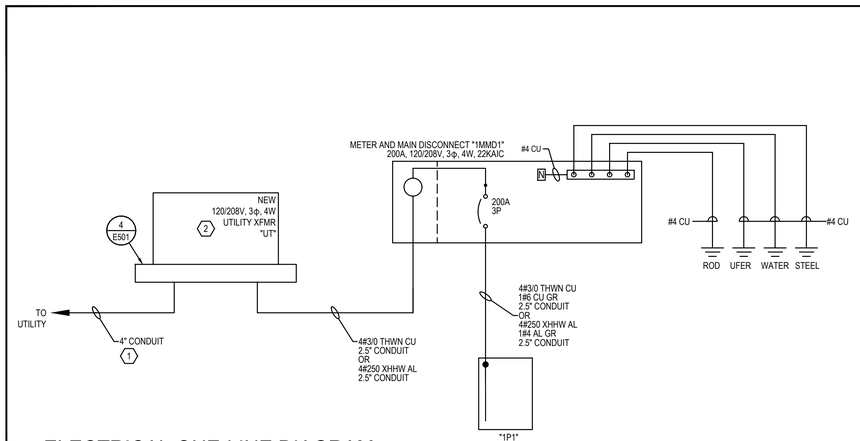
MARK:	DATE:	DESCRIPTION:

PROJECT #: 820201
DRAWN BY: D.PATTON
CHECKED BY: S.SWENSON
ISSUED: 03.06.2023

REGISTERED PROFESSIONAL ENGINEER
No. 294174
SHANE D. SWENSON
3/6/2022
STATE OF UTAH

ELECTRICAL SPECIFICATIONS

E002



A ELECTRICAL ONE-LINE DIAGRAM

SCALE: NO SCALE

⬡ KEYED NOTES

1. PRIMARY AND SECONDARY CONDUIT, TRENCHING, AND BACKFILL BY CONTRACTOR. CONDUCTORS BY UTILITY. CONTRACTOR COORDINATE CONNECTION POINT WITH LOCAL UTILITY REP.
2. EQUIPMENT PAD BY CONTRACTOR. EQUIPMENT BY UTILITY. CONTRACTOR COORDINATE LOCATION WITH LOCAL UTILITY REP.

GENERAL NOTES

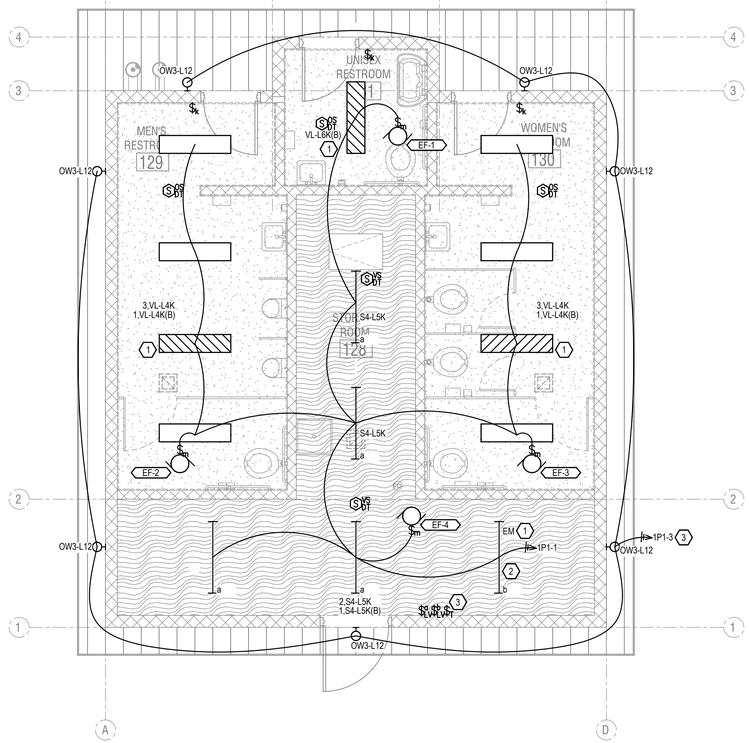
1. COMPLY WITH POWER UTILITY'S REQUIREMENTS FOR ALL UTILITY RELATED INSTALLATIONS. REVIEW CURRENT UTILITY STANDARDS MANUAL PRIOR TO BID. NOTIFY ENGINEER OF CONFLICTS PRIOR TO BID.
2. AIC RATINGS SHOWN INDICATE MINIMUM REQUIRED VALUES. SCCR RATINGS ARE TO MATCH OR EXCEED AIC RATINGS.
3. A FULL SIZE EQUIPMENT GROUNDING CONDUCTOR SIZED FOR THE OVERCURRENT PROTECTIVE DEVICE PROTECTING THE CIRCUIT IS REQUIRED IN EACH RACEWAY OR CABLE FOR PARALLELED CIRCUITS.
4. RUN PORTIONS OF GROUNDING ELECTRODE CONDUCTORS NOT CONCEALED IN BUILDING FINISHES IN CONDUIT.
5. FIELD MARK ALL SERVICE EQUIPMENT WITH REQUIRED BREAKER CLEARING TIME. CONTRACTOR VERIFY WITH MANUFACTURER'S PUBLISHED DATA FOR MAIN BREAKER.

⬡ SHEET KEYED NOTES

1. PROVIDE EM BATTERY BALLAST IN FIXTURES NOTED. CONNECT BATTERY TO UNSWITCHED CIRCUIT CONDUCTOR OF CIRCUIT SERVING FIXTURE. CONNECT LAMPS TO OPERATE WITH SWITCH(S) IN NORMAL MODE.
2. CONNECT FIXTURE TO MANUAL ONLY CONTROL PER NEC 110.26(D)
3. ROUTE CIRCUIT THROUGH DIGITAL TIMER SWITCH (HONEYWELL RPLS730 OR EQUIVALENT). LOCATE SWITCH ADJACENT TO PANEL AND LABEL "EXTERIOR LIGHTING OVERRIDE".
4. PROVIDE POWER TO AUTOMATIC FLUSH VALVE PER EQUIPMENT REQUIREMENTS.
5. PROVIDE POWER TO AUTOMATIC FAUCET PER EQUIPMENT REQUIREMENTS.
6. PROVIDE 4" CONDUIT TO COMMUNICATIONS UTILITY. TERMINATE IN 24"x24"x12" NEMA 3R, HINGED ENCLOSURE WITH PLYWOOD BACKBOARD.

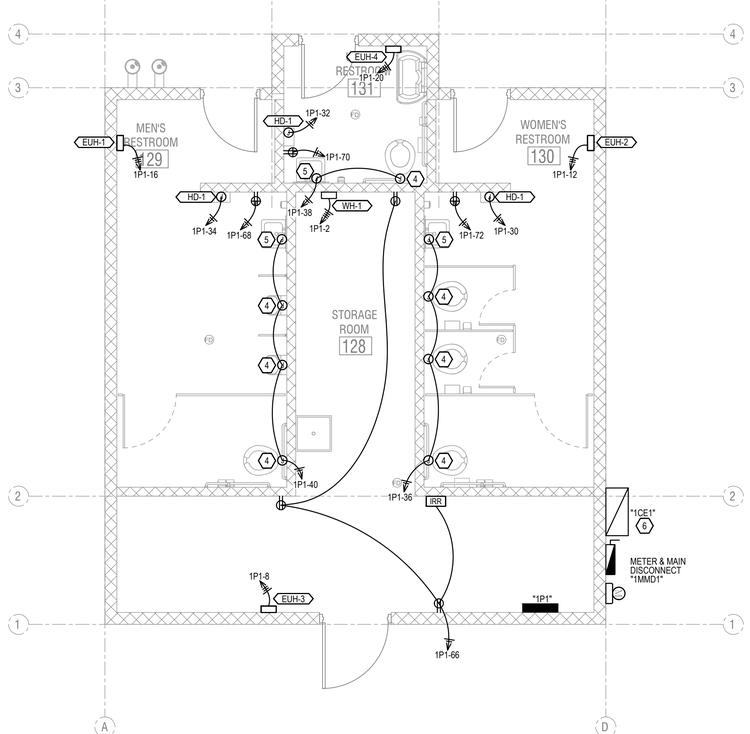
GENERAL SHEET NOTES

1. ARCHITECTURAL CEILINGS SHOWN FOR CONTRACTOR CONVENIENCE IN BIDDING INSTALLATION REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
2. CONTRACTOR TO FURNISH OCCUPANCY SENSORS WITH COVERAGE PATTERNS APPROPRIATE FOR THEIR INSTALLED LOCATIONS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO BID.
3. CONNECT OCCUPANCY SENSORS TO ENABLE ALL SWITCHES IN CONTROLLED SPACE.
4. CONNECT OCCUPANCY SENSORS, BATTERY BALLASTS, EXIT SIGNS, ETC. TO UNSWITCHED SOURCE CONDUCTOR.
5. ALL NEW LIGHTING CONTROLS (SWITCH, OCCUPANCY SENSORS, DIMMERS, ETC.) SHALL BE LITHONIA N-LIGHT, WATTSTOPPER DLM, DOUGLASS DIALOG OR OTHER SIMILIAR SYSTEM THAT ALLOWS SWITCHES AND SENSORS TO COMMUNICATE TO MEET MANUAL ON, AUTO OFF REQUIREMENTS OF ENERGY CODE.
6. ALL EMERGENCY LIGHTING BATTERIES SHALL PROVIDE A MINIMUM OF 90 MINUTES ILLUMINATION PER NEC 700.12(A) AND IBC 1006. SEE SPEC SECTION 265100 FOR ADDITIONAL REQUIREMENTS.
7. COORDINATE ALL SWITCH, OUTLET, LIGHT AND OTHER DEVICE LOCATIONS WITH ARCHITECTURAL ELEMENTS (CABINETS, WINDOWS ETC.) PRIOR TO ROUGH IN. REVIEW ARCHITECTURAL INTERIOR ELEVATIONS PRIOR TO ROUGH-IN OF EACH AREA FOR ADDITIONAL INFORMATION.



A1 LIGHTING PLAN

1/4" = 1'-0"



A3 POWER PLAN

1/4" = 1'-0"

design west | architects
255 SOUTH 300 WEST LOGAN UT 84321
795 NORTH 400 WEST SALT LAKE CITY UT 84103

LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

DESCRIPTION:

DATE:

MARK:

PROJECT #: 820201
DRAWN BY: D.PATTON
CHECKED BY: S.SWENSON
ISSUED: 03.06.2023

REGISTERED PROFESSIONAL ENGINEER
No. 294174
SHANE D. SWENSON
5/6/2022
STATE OF UTAH

PERMIT SET

ELECTRICAL PLANS

E100

3/3/2023 10:40 AM
LAST SAVED: 3-Mar-23
T:\Jobs\2023\017 Layton Restrooms\01 Drawings\05 Electrical\Site Source Project\Sheets\E100 ELECTRICAL PLANS.dwg

LIGHT FIXTURE SCHEDULE

	TYPE	MANUFACTURER/CATALOG NO.	DESCRIPTION	MOUNTING	POWER	LAMPS
	OW3- L12	LITHONIA WDGE2-LED-P1SW-40K-80CRI-VW-MVOLT-*-*-PIR1FC3V-SCBA OR EQUIVALENT	EXTERIOR WALL FIXTURE; LED LAMPING; TYPE 4 OPTICAL DISTRIBUTION; MULTI-VOLT, DIMMABLE DRIVER; EM BATTERY WHERE (B) OPTION INDICATED ON DRAWINGS; INTEGRAL PHOTOCELL/MOTION SENSOR WITH 30% NIGHT SETBACK AND MOTION OVERRIDE ON	WALL	10 W	1200 LUMEN NOMINAL LED 4000K
	S4- L5K S4- L5K(B)	LITHONIA CLX-L48-5000LM-SEF-FDL-MVOLT-GZ10-35K-80CRI-(PS1050)-SCBA HE WILLIAMS 75-4-L50-835-DIM-UNV OR EQUIVALENT	LED STRIP FIXTURE; MULTI-VOLT, ELECTRONIC, DIMMABLE DRIVER; DIFFUSE LENS; EM BATTERY WHERE NOTED ON DRAWINGS	SURFACE OR CABLE SUSPENDED WHERE NOTED	35 W	5000 LUMEN NOMINAL LED 3500K
	VL L4K VL- L4K(B)	LITHONIA VAP-4000LM-FST-WD-MVOLT-GZ10-40K-80CRI(-EM) OR EQUIVALENT	VANDAL RESISTANT, LINEAR FIXTURE; FROSTED LENS; MULTI-VOLT, ELECTRONIC, DIMMABLE DRIVER; EM BATTERY WHERE (B) OPTION INDICATED ON DRAWINGS;	SURFACE	33 W	4000 LUMEN NOMINAL LED 4000K
	VL L6K VL- L6K(B)	LITHONIA VAP-6000LM-FST-WD-MVOLT-GZ10-40K-80CRI(-EM) OR EQUIVALENT	VANDAL RESISTANT, LINEAR FIXTURE; FROSTED LENS; MULTI-VOLT, ELECTRONIC, DIMMABLE DRIVER; EM BATTERY WHERE (B) OPTION INDICATED ON DRAWINGS;	SURFACE	49 W	6000 LUMEN NOMINAL LED 4000K

CONTRACTOR AND LIGHTING SUPPLIER SEE (*) FOR MULTIPLE BALLAST REQUIREMENTS AND (+) FOR QUARTZ EM REQUIREMENTS

NOTES

LIGHT FIXTURE ACCESSORY SCHEDULE

	B	AS SPECIFIED	APPENDED TO FIXTURE TYPE; 1100 LUMEN EM BATTERY SUPPLY	AS SPECIFIED		PER FIXTURE TYPE

NOTES

-FIXTURE APPENDS ARE ADDED TO STANDARD FIXTURE TYPES. APPENDS ARE INTENDED TO MODIFY FIXTURE CATALOG NUMBERS GIVEN ABOVE AS NOTED IN APPEND DESCRIPTION

MECHANICAL EQUIPMENT SCHEDULE

SYM	DESCRIPTION	LOAD	VOLTS	PHASE	FIRE ALARM SHUTDOWN	CONTROL CIRCUITS BY	* STARTER BY	SAFETY DISCONNECT BY	REMARKS
HD- 1	HAND DRYER	12 FLA	120	1	NO	N/A	N/A	N/A	TYPICAL FOR MULTIPLE UNITS--SEE POWER PLAN FOR COUNTS AND LOCATIONS
EF- 1	EXHAUST FAN	11 W	120	1	NO	ELEC	EQUIP	ELEC	INTERLOCK FAN TO BE CONTROLLED WITH LIGHTING IN SPACE SERVED BY FAN
EF- 2	EXHAUST FAN	81 W	120	1	NO	ELEC	EQUIP	ELEC	INTERLOCK FAN TO BE CONTROLLED WITH LIGHTING IN SPACE SERVED BY FAN
EF- 3	EXHAUST FAN	81 W	120	1	NO	ELEC	EQUIP	ELEC	INTERLOCK FAN TO BE CONTROLLED WITH LIGHTING IN SPACE SERVED BY FAN
EF- 4	EXHAUST FAN	81 W	120	1	NO	ELEC	EQUIP	ELEC	INTERLOCK FAN TO BE CONTROLLED WITH LIGHTING IN SPACE SERVED BY FAN
EUH- 1	ELECTRIC UNIT HEATER	3 KW	208	1	NO	MECH	MECH	MECH	PROVIDE BREAKER CAPABLE OF BEING LOCKED IN THE OPEN POSITION
EUH- 2	ELECTRIC UNIT HEATER	3 KW	208	1	NO	MECH	MECH	MECH	PROVIDE BREAKER CAPABLE OF BEING LOCKED IN THE OPEN POSITION
EUH- 3	ELECTRIC UNIT HEATER	3 KW	208	1	NO	MECH	MECH	MECH	PROVIDE BREAKER CAPABLE OF BEING LOCKED IN THE OPEN POSITION
EUH- 4	ELECTRIC UNIT HEATER	1.5 KW	208	1	NO	MECH	MECH	MECH	PROVIDE BREAKER CAPABLE OF BEING LOCKED IN THE OPEN POSITION
WH- 1	ELECTRIC WATER HEATER	19 KW	208	3	NO	N/A	EQUIP	ELEC	PROVIDE BREAKER CAPABLE OF BEING LOCKED IN THE OPEN POSITION

* ELECTRICAL CONTRACTOR VERIFY SINGLE SPEED OR TWO SPEED STARTERS WITH MECHANICAL DRAWINGS.

PANEL 1P1 — TYPE NQOD — 3 Ø 4 WIRE — 120/208 VOLTS

- [X] NEW / [ ] EXISTING
- 1 NEMA RATING
- [ ] BOLT ON BREAKERS / [ ] ISOLATED GROUND BUS
- 120K SURGE PROTECT (SPD)

REMARKS
-*=VERIFY WITH EQUIPMENT NAMEPLATE AND/OR SUBMITTAL PRIOR TO GEAR RELEASE
-**=SEE SITE PLAN FOR CONDUIT SIZE AND STUB LOCATION

LOCATION: STORAGE ROOM — MOUNTING: [ ] FLUSH / [X] SURFACE

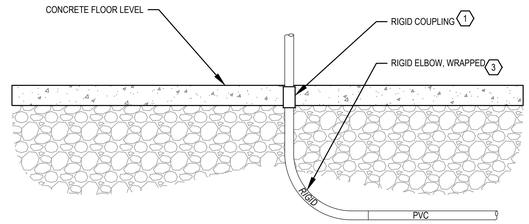
225 AMP MAIN LUGS / [X] BREAKER

No.	BRKR A	BRKR P	CIRCUIT DESCRIPTION	L	O	M	WIRE/CND P	WIRE/CND N	WIRE/CND G	WIRE/CND C	CIRC. LOAD	A	B	C	CIRC. LOAD	WIRE/CND P	WIRE/CND N	WIRE/CND G	WIRE/CND C	L	O	M	CIRCUIT DESCRIPTION	BRKR A	BRKR P	No.
1	20	1	LTG: BUILDING INTERIOR	15		4	12S	12S	12S	3/4S	777	7110			6333	4	4	8	1.25			1	ELECTRIC WATER HEATER	70L*	3	2
3	20	1	LTG: BUILDING EXTERIOR	7			12S	12S	12S	3/4S	70		6403		6333	4						1	-	-	-	4
5	20	1	SPARE											6333	6333	4						1	-	-	-	6
7	20	1	SPARE									1500			1500	12S	12S	12S	3/4S			1	ELEC UNIT HTR: STORAGE	20H*	2	8
9	20	1	SPARE										1500		1500	12S						1	-	-	-	10
11	20	1	SPARE											1500	1500	12S	12S	12S	3/4S			1	ELEC UNIT HTR: WOMEN	20H*	2	12
13	20	1	SPARE									1500			1500	12S						1	-	-	-	14
15	20	1	SPARE										1500		1500	12S	12S	12S	3/4S			1	ELEC UNIT HTR: MEN	20H*	2	16
17	20	1	SPARE											1500	1500	12S						1	-	-	-	18
19	20	1	SPARE									750			750	12S	12S	12S	3/4S			1	ELEC UNIT HTR: UNI	20H*	2	20
21	20	1	SPARE										750		750	12S						1	-	-	-	22
23	20	1	SPARE											0									SPARE	20	1	24
25	20	1	SPARE									0											SPARE	20	1	26
27	20	1	SPARE										0										SPARE	20	1	28
29	20	1	SPARE											1920	1920	10	10	10	3/4S			1	HAND DRYER: WOMEN	20H*	1	30
31	20	1	SPARE									1920			1920	10	10	10	3/4S			1	HAND DRYER: UNI	20H*	1	32
33	20	1	SPARE										1920		1920	10	10	10	3/4S			1	HAND DRYER: MEN	20H*	1	34
35	20	1	SPARE											480	480	12S	12S	12S	3/4S			4	WATER VALVES: WOMEN	20	1	36
37	20	1	SPARE									240			240	12S	12S	12S	3/4S			2	WATER VALVES: UNI	20	1	38
39	20	1	SPARE										480		480	12S	12S	12S	3/4S			4	WATER VALVE: MEN	20	1	40
41	20	1	SPARE											0									SPARE	20	1	42
43	20	1	SPARE									0											SPARE	20	1	44
45	20	1	SPARE										0										SPARE	20	1	46
47	20	1	SPARE											0									SPARE	20	1	48
49	20	1	SPARE									0											SPARE	20	1	50
51	20	1	SPARE										0										SPARE	20	1	52
53	20	1	SPARE											0									SPARE	20	1	54
55	20	1	SPARE									0											SPARE	20	1	56
57	20	1	SPARE										0										SPARE	20	1	58
59	20	1	SPARE											0									SPARE	20	1	60
61	20	1	SPARE									0											SPARE	20	1	62
63	20	1	SPARE										0										SPARE	20	1	64
65	20	1	SPARE											720	720	12S	12S	12S	3/4S	3	1		PLUGS: STORAGE	20	1	66
67	20	1	SPARE									180			180	12S	12S	12S	3/4S	1			PLUGS: RR-MEN	20	1	68
69	20	1	SPARE										180		180	12S	12S	12S	3/4S	1			PLUGS: RR-UNI	20	1	70
71	20	1	SPARE											180	180	12S	12S	12S	3/4S	1			PLUGS: RR-WOMEN	20	1	72
											TOTALS	13200	12733	12633											

AIC 22000
SCCR 22000
PARALLEL RUNS SEE ONE-LINE

FEEDER SEE ONE-LINE — AMPS/PHASE 110 106 105

BREAKER CODES
A=ARC-FAULT; G=GROUND FAULT; H=HACR; L=LOCKING HANDLE; S=SHUNT TRIP; R=RED PAINTED HANDLE
WIRE CODES
I=ADD'L ISO GROUND TO MATCH SAFETY GROUND; S=UNLESS OTHERWISE SPECIFIED
GENERAL CODES
*LIN=SEE ONE-LINE DIAGRAM

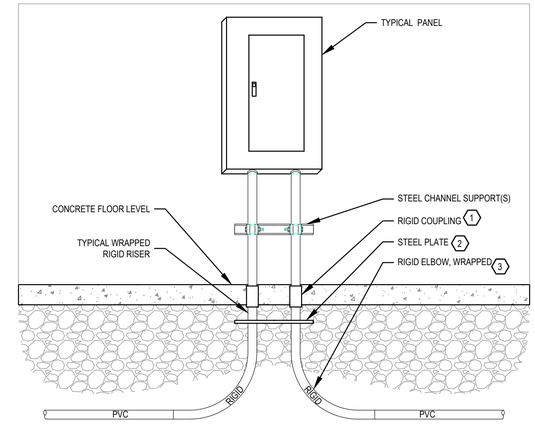


DETAIL KEYED NOTES

1. SET COUPLING FLUSH WITH FINISH FLOOR.
2. TRANSITION TO WRAPPED RIGID CONDUIT PRIOR TO RISING ABOVE FLOOR AS SPECIFIED.

3 CONDUIT STUB-UP DETAIL

SCALE: NO SCALE

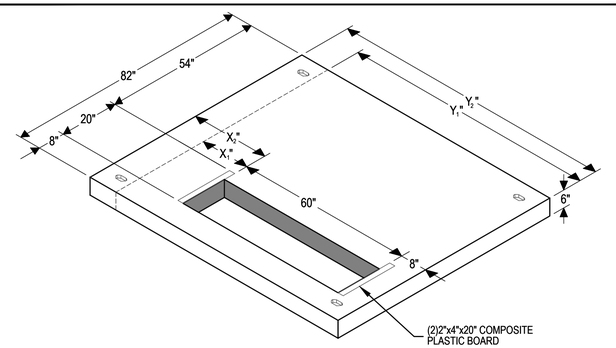


DETAIL KEYED NOTES

1. SET COUPLING FLUSH WITH FINISH FLOOR.
2. PROVIDE STEEL PLATE WITH SAME DIMENSIONS AS PANEL BOTTOM PLATE. PUNCH PLATE FOR CONDUITS ENTERING PANEL TO STRAIGHTEN/ORGANIZE CONDUITS PRIOR TO FINAL RISE INTO PANEL.
3. TRANSITION TO WRAPPED RIGID CONDUIT PRIOR TO RISING ABOVE FLOOR AS SPECIFIED.

2 EQUIPMENT CONDUIT RISER DETAIL

SCALE: NO SCALE

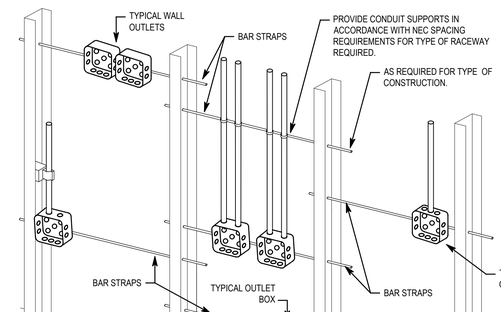


GENERAL NOTES

1. 1790021, PAD, FLAT, TRANSFORMER, THREE-PHASE, 15-25 KV, 75-500 KVA(Y_1 = 84"); 1008958, PAD, FLAT, TRANSFORMER, THREE-PHASE, 35 KV, 75-500 KVA(Y_2 = 96"). COORDINATE DIMENSIONS/PAD WITH UTILITY IN FIELD.
2. THE PAD SHALL BE CAPABLE OF SUPPORTING UP TO 10,000 LBS. THE SUPPLIER SHALL DETERMINE THE PROPER PLACEMENT OF STEEL REINFORCEMENT TO ENSURE COMPLIANCE WITH STRENGTH REQUIREMENTS. REINFORCEMENT SHALL CONSIST OF 4x4 - 6/6 STEEL REINFORCING MESH AND #4 THROUGH #6 STEEL REBAR, PLACED AS REQUIRED TO MEET THE LOAD REQUIREMENTS OF INDIVIDUAL EQUIPMENT BASE AND ENCLOSURE SPECIFICATIONS. MESH SHALL MEET THE REQUIREMENTS OF ASTM A-185. REBAR SHALL BE GRADE 60, AND SHALL MEET THE REQUIREMENTS OF ASTM A-615.
3. UNLESS OTHERWISE APPROVED BY PACIFICORP ENGINEERING, ALL DIMENSIONS AND PLACEMENT OF HARDWARE SHALL CONFORM TO THOSE SHOWN.
4. PACIFICORP WILL PROVIDE (2)1/2"x2" HOT-DIP GALVANIZED LAG SCREWS (S#7992810) AND (2)STAINLESS STEEL BELLEVILLE WASHERS TO FASTEN THE TRANSFORMER TO THE COMPOSITE BOARD. ADDITIONAL HARDWARE TO BE PROVIDED BY THE SUPPLIER INCLUDES:
5. PROVIDE (2)2"x4"x20" COMPOSITE BOARDS FOR A THREE-PHASE TRANSFORMER, CAST FLUSH WITH THE TOP OF THE PAD AT THE LOCATIONS.
6. PROVIDE (2)1-1/4"x2-1/2" STAINLESS STEEL HOLD-DOWN CLEATS WITH 1/4" LIFT AND 9/16"x1-1/2" HOLES.
7. PADS SHALL MEET ALL TESTS AND REQUIREMENTS CONTAINED IN ZG 301-GENERAL EQUIPMENT BASE AND ENCLOSURE REQUIREMENTS, ZG 311-CONCRETE REQUIREMENTS, AND THIS SPECIFICATION. PADS WILL ALSO COMPLY WITH APPLICABLE REQUIREMENTS IN LISTED WESTERN UNDERGROUND COMMITTEE GUIDES AND NATIONAL STANDARDS.
8. CONTRACTOR MAY OPT TO FIELD POUR PAD, OR TO PURCHASE PRE-FABRICATED PAD FROM RMP APPROVED VENDOR

4 3Ø FLAT PAD DETAIL

SCALE: NO SCALE



GENERAL NOTES

1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE IN A RATED FIRE SEPARATION WALL MUST BE SEPARATED BY A MINIMUM OF 24" HORIZONTAL DISTANCE.
5. IN NON-RATED WALLS, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY 16" FOR SOUND ATTENUATION.

1 TYPICAL ROUGH-IN REQUIREMENTS DETAIL

SCALE: NO SCALE

design west | architects
LOGAN UT 84321
255 SOUTH 300 WEST
795 NORTH 400 WEST
SALT LAKE CITY UT 84103

LAYTON CITY - HEATED RESTROOM

LAYTON, UT

LAYTON CITY PARKS AND RECREATION DEPARTMENT

DESCRIPTION:
DATE:
MARK:

PERMIT SET

PROJECT #: 820201
DRAWN BY: D.PATTON
CHECKED BY: S.SWENSON
ISSUED: 03.06.2023

REGISTERED PROFESSIONAL ENGINEER
No. 294174
SHANE D. SWENSON
3/6/2023
STATE OF UTAH

ELECTRICAL DETAILS & SCHEDULES

E501

3/3/2023 10:40 AM
LAST SAVED: 3-Mar-23
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ICON
Shelter Systems Inc

JOB NUMBER: 7906
JOB NAME: COMMONS PARK
JOB LOCATION: LAYTON, UT 84041

REVISION: B

A- INITIAL SUBMITTAL REVISION (DTH 3/23/2023)
B- CHANGED COLUMN (DTH 4/28/2023)

TABLE OF CONTENTS

DESIGN LOADS

CODE: 2018 INTERNATIONAL BUILDING CODE

TOTAL DEAD: 19.04 P.S.F.
FRAME DEAD: 13.04 P.S.F.
ROOF DEAD: 3.50 P.S.F.
COLLATERAL DEAD: 2.50 P.S.F.
ROOF LIVE LOAD: 20.00 P.S.F.
GROUND SNOW LOAD: 43.00 P.S.F.
ROOF SNOW LOAD: 36.12 P.S.F.
WIND SPEED: 115.00 M.P.H.
EXPOSURE: C
SEISMIC USE GROUP: I
SEISMIC SITE CLASS: D
SEISMIC DESIGN CATEGORY: D
SEISMIC ANALYSIS: SIMPLIFIED

NOTES

MATERIALS	(ASTM DESIGNATION)
TUBE STEEL (HSS HOLLOW STRUCTURAL SECTION)	A-500 GRADE B/C
WIDE FLANGE SECTIONS	A-992
STRUCTURAL STEEL PLATE	A-36, A-572 GRADE 50
ROOF PANELS (STEEL)	A-792
ANCHOR BOLTS	F1554 GRADE 55
CONNECTION BOLTS	F3125 GRADE A325

ALL WELDING CONFORMS TO THE LATEST EDITION OF AWS D1.1 OR D1.3 AS REQUIRED. ALL WELDING IS PERFORMED BY AWS CERTIFIED WELDERS. THERE IS NO FIELD WELDING REQUIRED, U.N.O.

IF THESE DRAWINGS ARE SEALED, THE SEAL APPLIES ONLY TO THE MATERIALS SUPPLIED BY ICON SHELTER SYSTEMS INC. AND IS NOT INTENDED AS THE SEAL OF THE ENGINEER OF RECORD FOR THE ENTIRE PROJECT.

DUE TO STANDARDIZED FABRICATION PARTS SHOWN MAY BE UPGRADED. REFER TO THE SHIPPING BILL OF MATERIALS FOR POSSIBLE SUBSTITUTIONS.

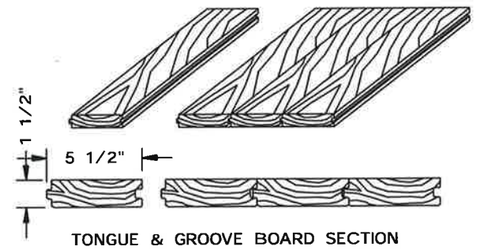
ICON SHELTER SYSTEMS INC. RECOMMENDS THAT THE PRIMARY FRAMING INSTALLER AND THE ROOF INSTALLER HAVE A MINIMUM OF FIVE (5) YEARS OF DOCUMENTED EXPERIENCE INSTALLING THIS TYPE OF PRODUCT.

HIGH STRENGTH BOLTING
ALL HIGH STRENGTH BOLTS ARE F3125 GRADE A325 BOLTS WITH HEAVY HEX NUTS. THE BOLTS ARE TO BE INSTALLED UTILIZING THE "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS" (8/1/2014) AS PREPARED BY RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC) FOR THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC). THE BOLTS SHALL BE INSTALLED AS SNUG TIGHTENED WHICH IS DEFINED AS THE TIGHTNESS THAT IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE PLIES INTO FIRM CONTACT, WHICH IS THE CONDITION WHEN THE PLANES OF CONTACT BETWEEN TWO PLIES ARE SOLIDLY SEATED AGAINST EACH OTHER, BUT NOT NECESSARILY IN CONTINUOUS CONTACT WITH UTILIZATION OF THE SNUG TIGHTENING METHOD, NO WASHERS ARE REQUIRED.
ALL CONNECTIONS ARE BEARING TYPE CONNECTIONS UNLESS NOTED OTHERWISE.

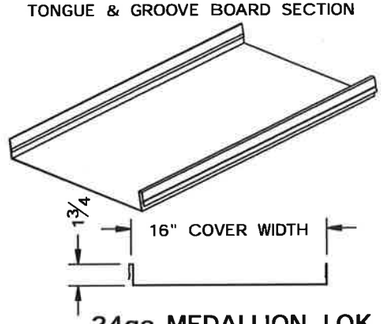
IT IS THE RESPONSIBILITY OF THE INSTALLER TO INSURE PROPER TIGHTNESS.

PROPER ERECTION OF THE FRAMING MEMBERS REQUIRES THE MAIN COLUMNS TO BE PLUMB & SQUARE. COLUMNS, RAFTER, AND TIE BEAM CONNECTIONS MUST BE TIGHTENED BEFORE INSTALLING THE PURLINS. PURLINS MUST BE PARALLEL TO THE TIE BEAMS AND EAVE BEAMS.

ROOF



TONGUE & GROOVE BOARD SECTION



24ga MEDALLION LOK
STANDING SEAM PANEL SECTION

FABRICATOR APPROVALS
CLARK COUNTY STEEL FABRICATOR NUMBER: 707
CITY OF LOS ANGLES FABRICATOR NUMBER: FB03254

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S.
DAYTON, III
STATE OF UTAH
5/1/23

THIS SEAL PERTAINS ONLY TO THE MATERIALS AND INFOMATION SHOWN ON THESE DRAWINGS. THIS SEAL DOES NOT SERVE AS - OR REPRESENT - THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSTRUED AS SUCH.

ICON
Shelter Systems Inc
DISTINCTIVE STEEL SHELTERS
WWW.ICONSHELTERS.COM

1455 LINCOLN AVE.
HOLLAND MI, 49423

616.396.0919
800.748.0985
616.396.0944 FX

COVER SHEET

DRAWN BY: DTH
DATE: 4/28/2023
JOB NO.: 7906
REVISION: A
BUILDING TYPE: OC72-9TS2C-P6
PROJECT NAME: COMMONS PARK
LAYTON, UT 84041

SHEET 1.0

PRINTED ON : 4/28/2023

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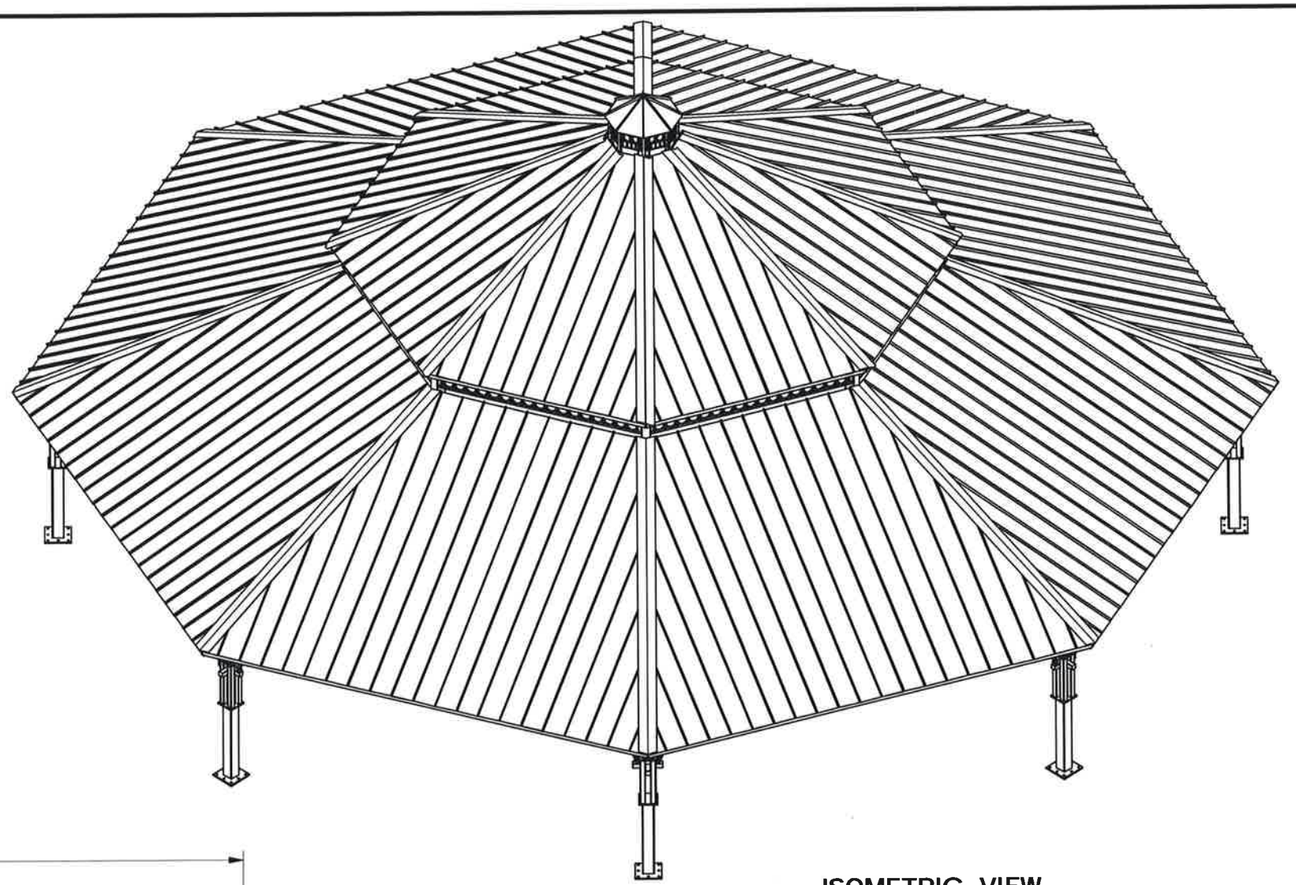
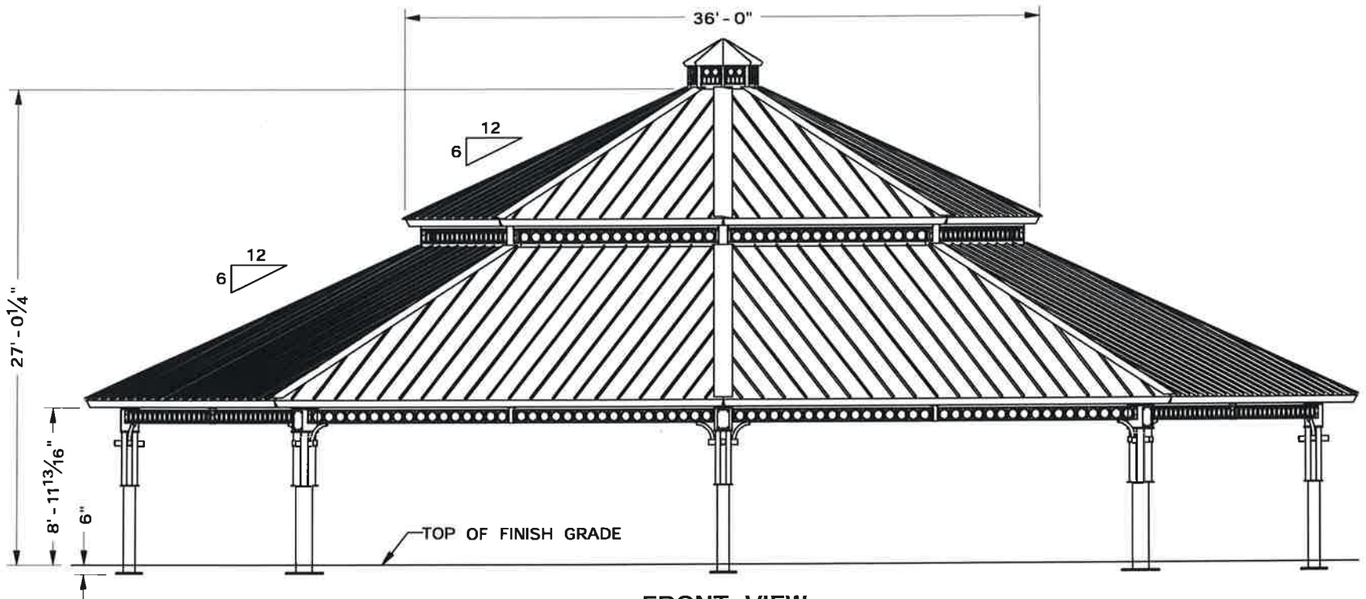


ISOMETRIC VIEW



FRONT VIEW

ICON
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DISTINCTIVE STEEL SHELTERS
WWW.ICONSHELTERS.COM

1455 LINCOLN AVE.
HOLLAND MI, 49423

616.396.0919
800.748.0985
616.396.0944 FX

ELEVATION

DRAWN BY: DTH

DATE: 4/28/2023

JOB NO.: 7906

REVISION: A

BUILDING TYPE: OC72-9TS2C-P6

PROJECT NAME: COMMONS PARK

LAYTON, UT 84041

SHEET 2.0

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S.
DAYTON, III
STATE OF UTAH
5/1/23

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PRINTED ON : 4/28/2023

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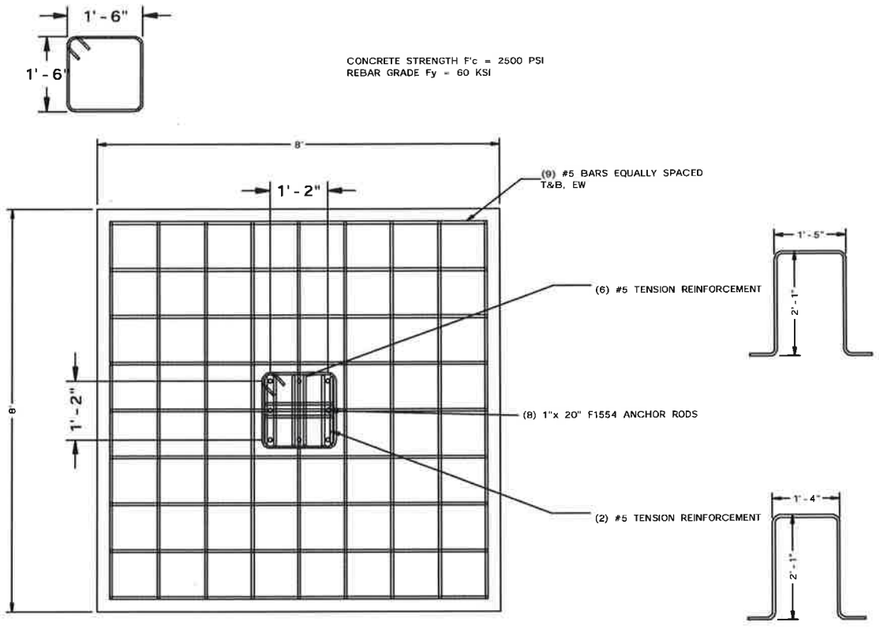
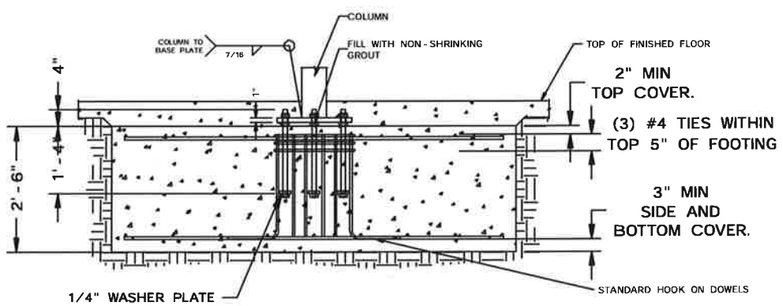
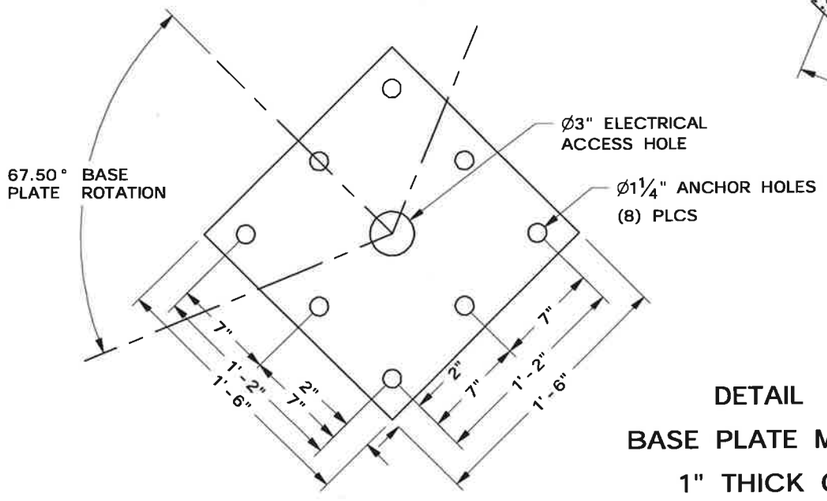


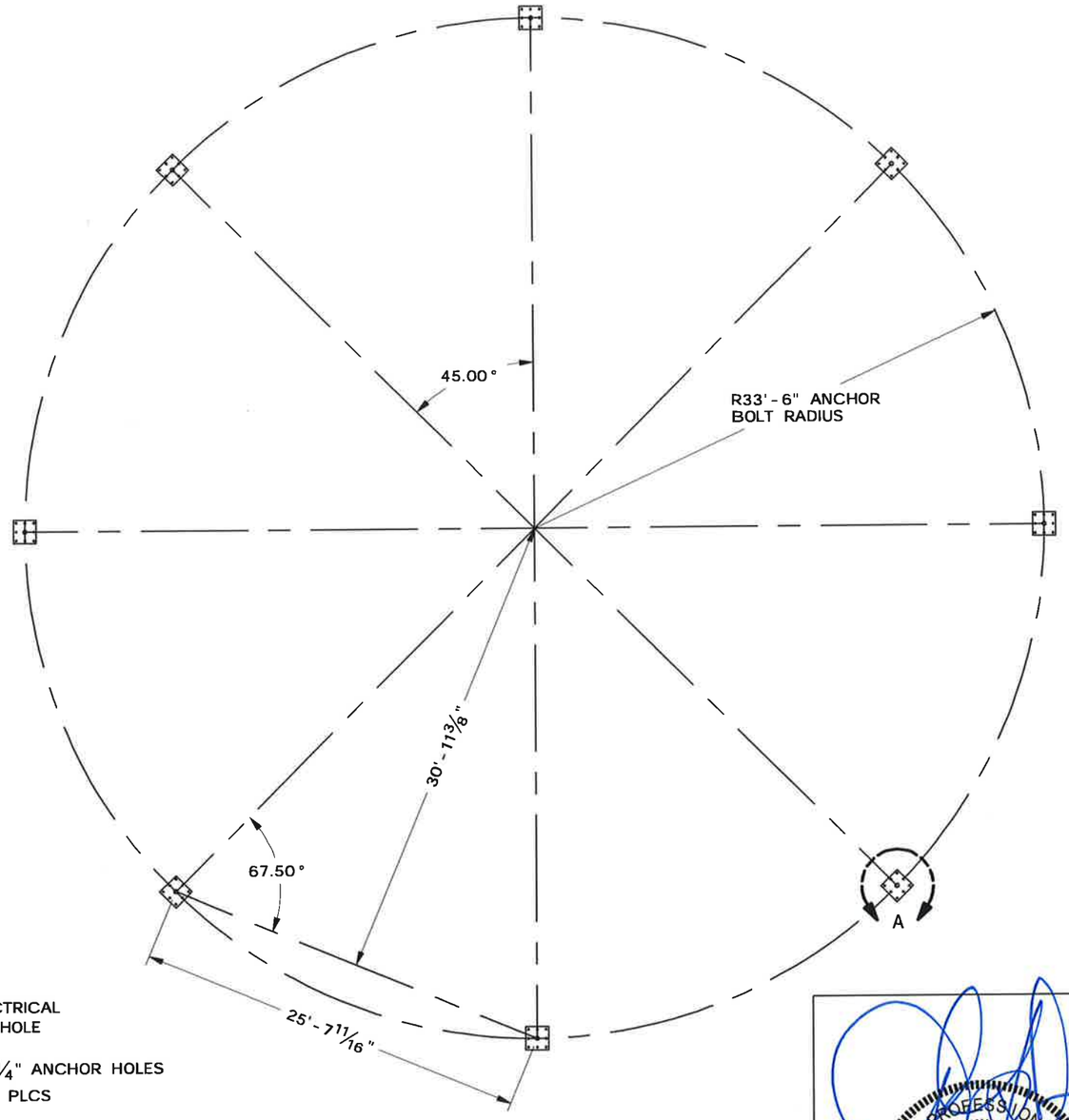




DETAIL A

BASE PLATE MATERIAL

1" THICK GR50



ANCHOR BOLT LAYOUT

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HOLLAND MI, 49423

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616.396.0944 FX

ANCHOR BOLT LAYOUT

DRAWN BY:	DTH
DATE:	4/28/2023
JOB NO.:	7906
REVISION:	A
BUILDING TYPE:	OC72-9TS2C-P6
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	3.0

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S. DAYTON, III
STATE OF UTAH
5/11/23

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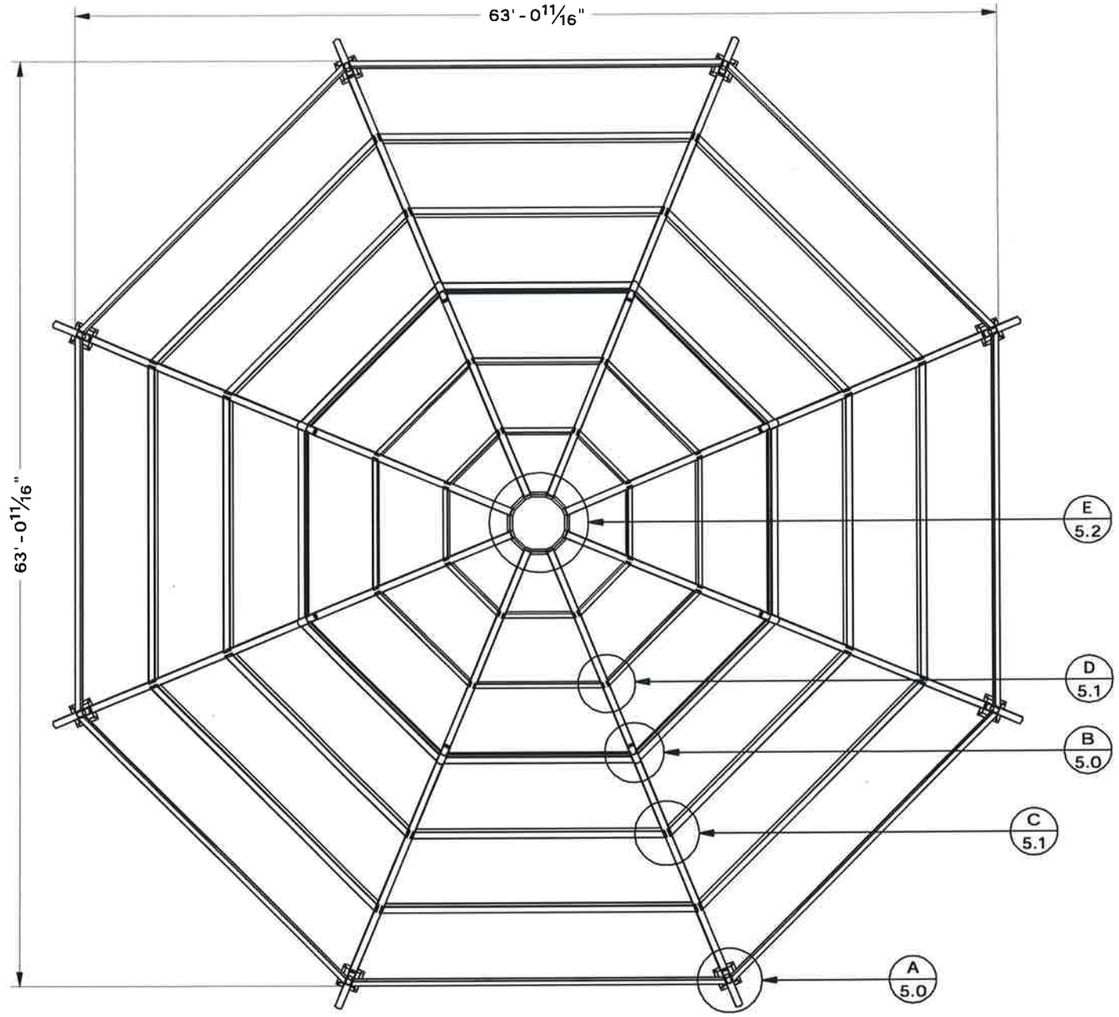

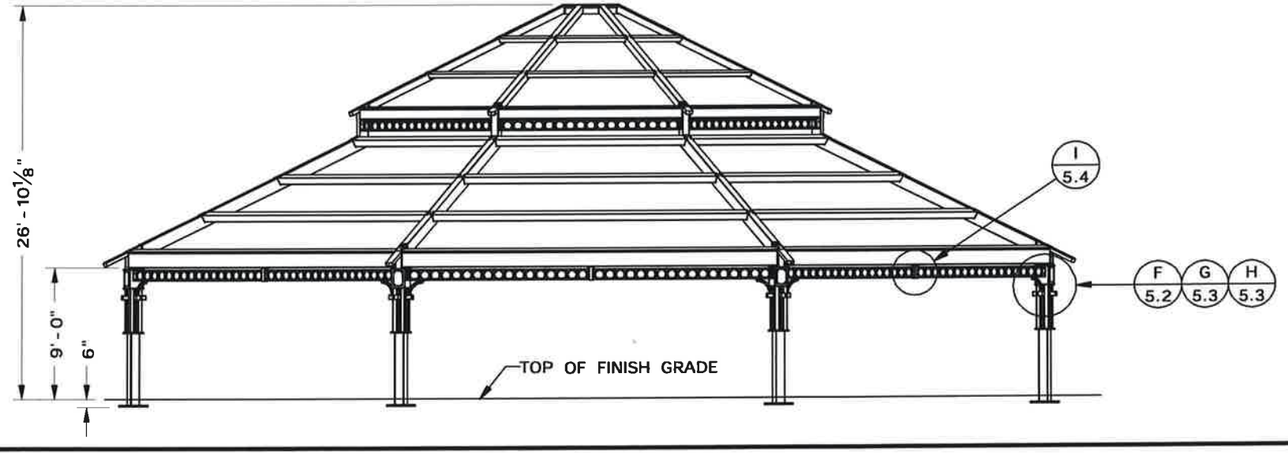

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FRAME LAYOUT

DRAWN BY: DTH

DATE: 4/28/2023

JOB NO.: 7906

REVISION: A

BUILDING TYPE: OC72-9TS2C-P6

PROJECT NAME: COMMONS PARK

LAYTON, UT 84041

SHEET 4.0

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S.
DAYTON, III
STATE OF UTAH
5/1/23

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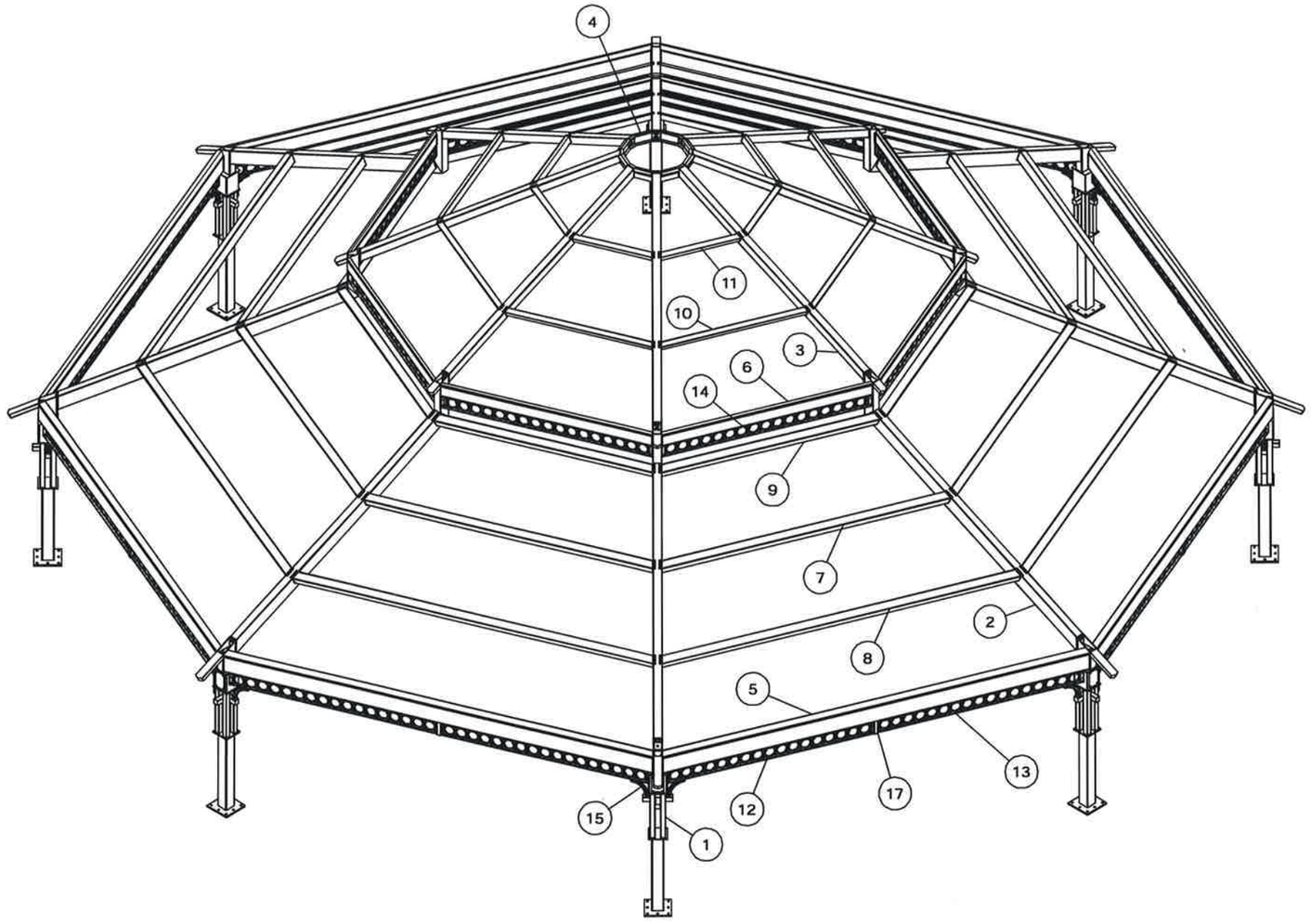
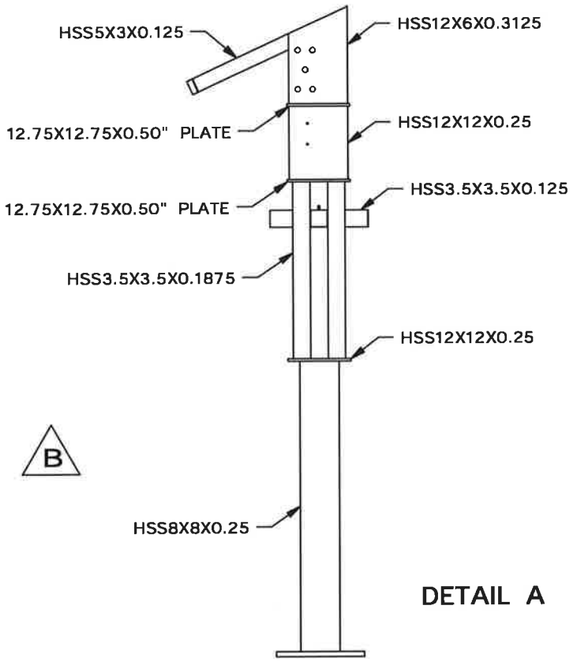
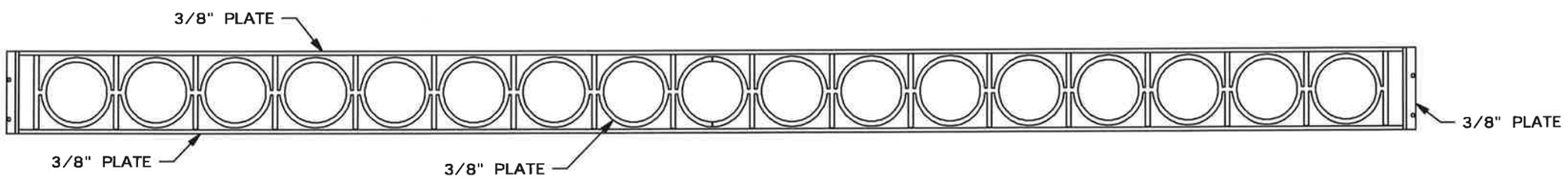


ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	LENGTH	UNIT WEIGHT
1	8		COLUMN 1	***DETAIL A***		530 lbmass
2	8		RAFTER RISER	HSS10X6X0.1875		416 lbmass
3	8		RAFTER	HSS6X6X0.1875		245 lbmass
4	1		COMPRESSION RING	C7X9.8		125 lbmass
5	8		TIE BEAM 1	HSS12X6X0.1875		655 lbmass
6	8		TIE BEAM 2	HSS8X3X0.1875		193 lbmass
7	8		PURLIN 1	HSS6X6X0.1875		250 lbmass
8	8		PURLIN 2	HSS6X6X0.1875		311 lbmass
9	8		PURLIN 3	HSS6X6X0.1875		188 lbmass
10	8		PURLIN 4	HSS4X4X0.125		57 lbmass
11	8		PURLIN 5	HSS4X4X0.125		31 lbmass
12	8		LOWER ORNAMENTATION ASM 1	***DETAIL B***		95 lbmass
13	8		LOWER ORNAMENTATION ASM 2	***DETAIL B***		95 lbmass
14	8		UPPER ORNAMENTATION ASM	***DETAIL B***		96 lbmass
15	16		CORBEL	HSS2X2X0.25		8 lbmass
16	8		ACCENT PLATE	1/4" PLATE		7 lbmass
17	8		STANCHION	HSS3X3X0.125		8 lbmass



B

DETAIL A



DETAIL B

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FRAME LAYOUT

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BUILDING TYPE:	OC72-9TS2C-P6
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	4.1

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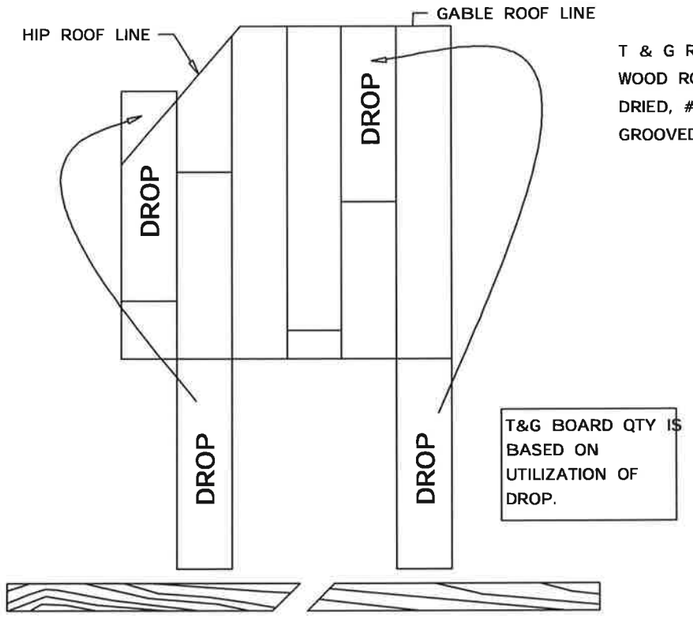
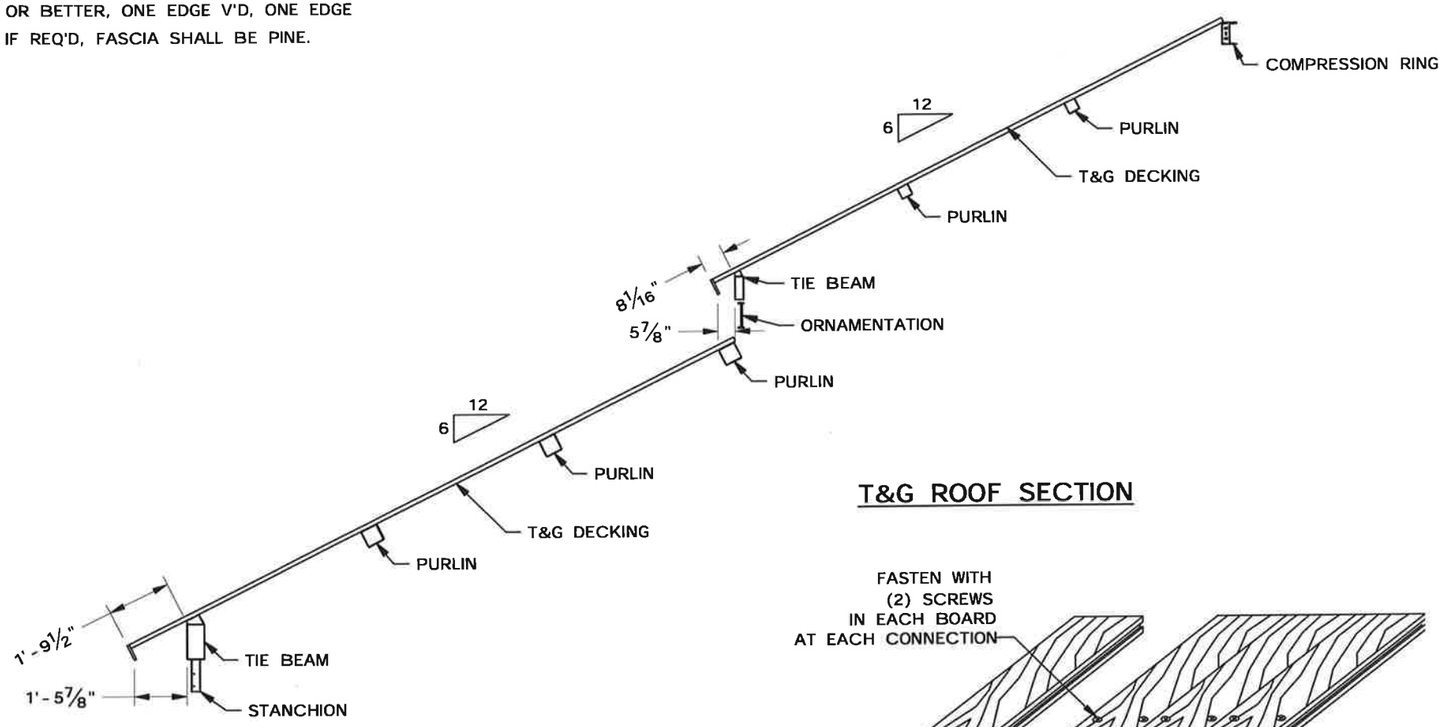


T & G ROOF DECK: 2X6 TONGUE AND GROOVE WOOD ROOF DECK, SOUTHERN YELLOW PINE, KILN DRIED, #2 OR BETTER, ONE EDGE V'D, ONE EDGE GROOVED. IF REQ'D, FASCIA SHALL BE PINE.

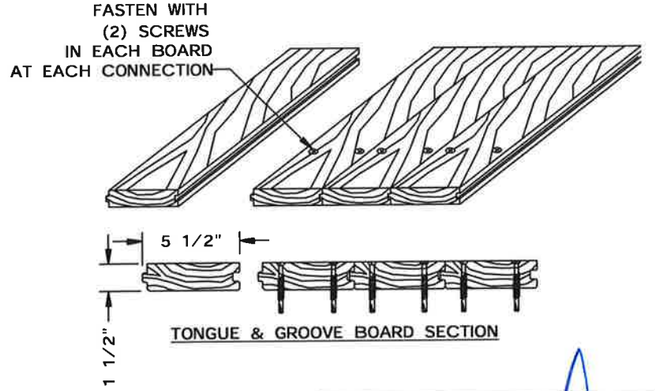
T&G BOARD QTY IS BASED ON UTILIZATION OF DROP.

SPLICING T&G BOARD

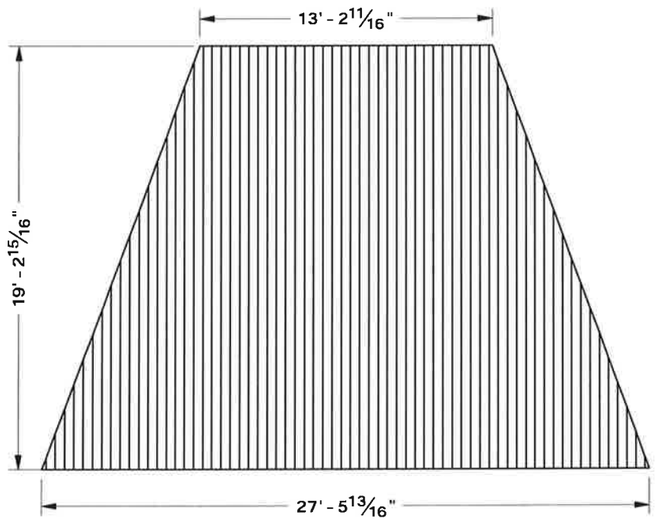
MITER ENDS OF T&G AT 45° WHEN SPLICING TWO BOARDS TOGETHER. STAGGER SPLICES ON ADJACENT BOARD AT LEAST 24" APART. SPLICES MAY OR MAY NOT FALL OVER TOP OF A PURLIN.



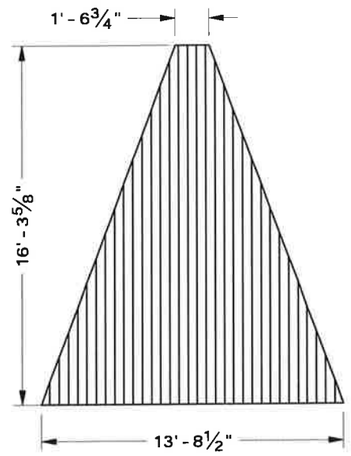
T&G ROOF SECTION



TONGUE & GROOVE BOARD SECTION



T&G ROOF LAYOUT - LOWER ROOF



T&G ROOF LAYOUT - UPPER ROOF

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T&G ROOF LAYOUT

DRAWN BY: DTH

DATE: 4/28/2023

JOB NO.: 7906

REVISION: A

BUILDING TYPE: OC72-9TS2C-P6

PROJECT NAME: COMMONS PARK

LAYTON, UT 84041

SHEET 6.0

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S.
DAYTON, III
STATE OF UTAH
5/1/23

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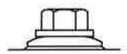
INSTALLED CORRECTLY	INSTALLED TOO TIGHT	INSTALLED TOO LOOSE
		
THE SEALING MATERIAL SLIGHTLY VISIBLE AROUND THE METAL WASHER	THE SEALING MATERIAL IS DEFORMED BEYOND THE EDGE OF THE METAL WASHER	THE SEALING MATERIAL IS NOT VISIBLE AROUND THE EDGE OF THE METAL WASHER

THE DETAILS SHOWN ARE SUGGESTIONS OR GUIDELINES ON HOW TO ERECT THE METAL ROOFING SYSTEM. THE INFORMATION SHOWN IS ACCURATE, BUT IT IS NOT INTENDED TO COVER ALL INSTANCES, BUILDING REQUIREMENTS, DESIGNS OR CODES. CHANGES TO THE DETAILS MAY BE REQUIRED DUE TO FIELD CONDITIONS.

THE ERECTOR SHOULD THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL INSTALLATION INSTRUCTION MATERIAL BEFORE STARTING WORK.

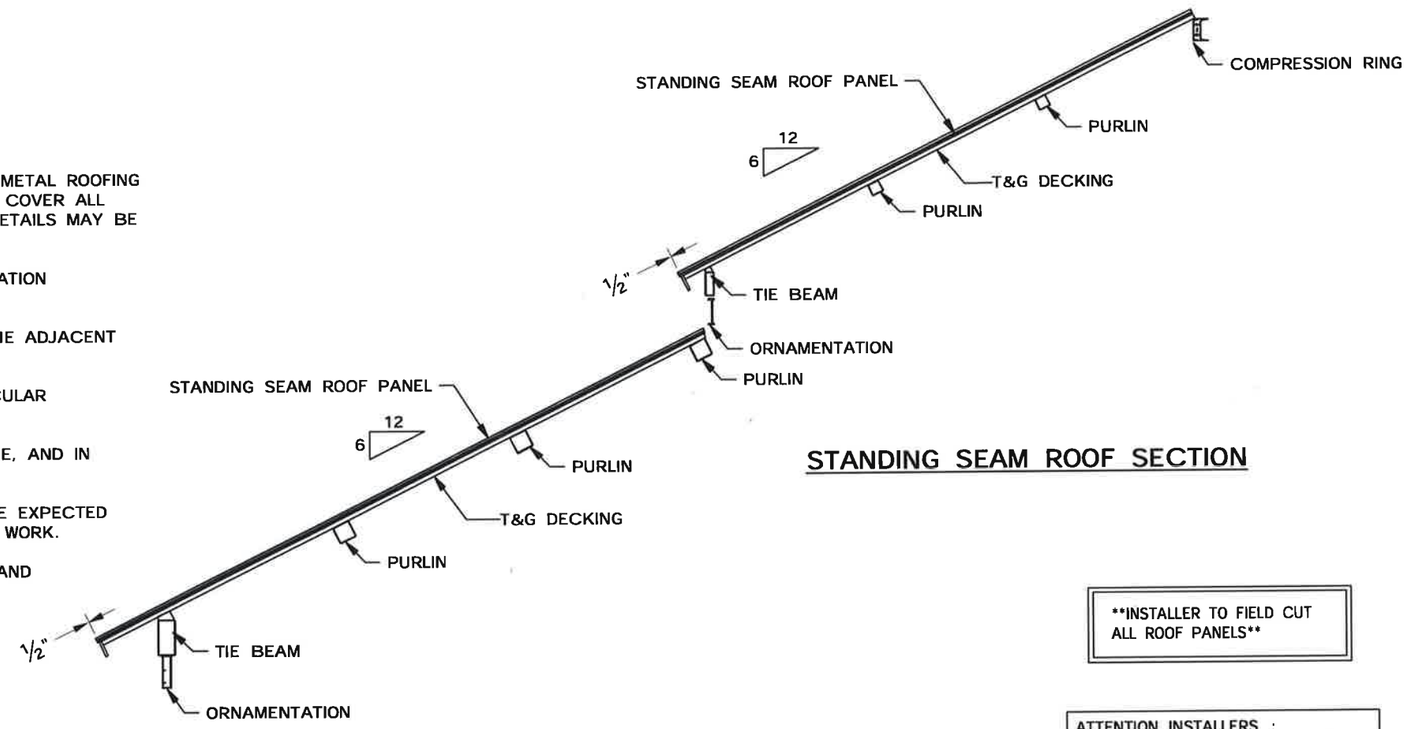
THE PANELS SHOULD BE INSTALLED PLUMB, STRAIGHT, AND ACCURATELY TO THE ADJACENT WORK.

ERECTORS SHALL BE RESPONSIBLE TO ENSURE THAT THE DETAILS MEET PARTICULAR BUILDING REQUIREMENTS AND TO ASSURE ADEQUATE WATER TIGHTNESS.

FOR THE BEST APPEARANCE ALL TRIM AND FLASHING SHALL BE INSTALLED TRUE, AND IN PROPER ALIGNMENT, WITH ALL EXPOSED FASTENERS EQUALLY SPACED.

SOME FIELD CUTTING AND/OR FITTING OF PANELS, TRIM AND FLASHING IS TO BE EXPECTED BY THE ERECTOR. MINOR FIELD CORRECTIONS ARE PART OF NORMAL ERECTION WORK.

THE INSTALLATION SHALL BE PERFORMED BY EXPERIENCED METAL CRAFTSMEN AND WORKMANSHIP SHALL MEET THE BEST INDUSTRY STANDARDS.

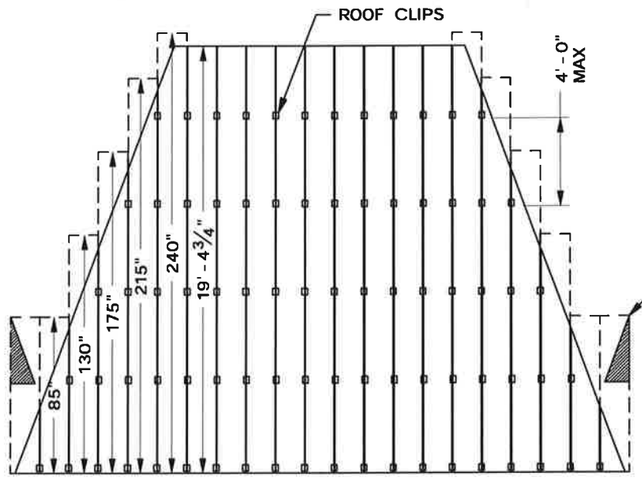


STANDING SEAM ROOF SECTION

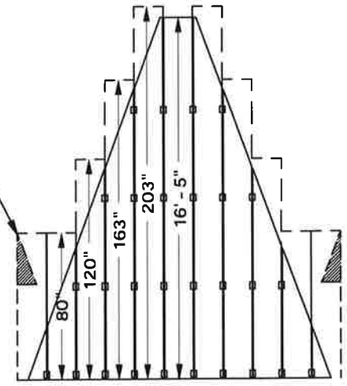
INSTALLER TO FIELD CUT ALL ROOF PANELS

ATTENTION INSTALLERS :
METAL SHAVINGS LEFT ON ROOF WILL QUICKLY RUST AND STAIN THE ROOF FINISH!

DRILLING OR INSTALLING ROOF FASTENERS WILL CAUSE METAL SHAVINGS. THESE SHAVINGS MUST BE CAREFULLY REMOVED AT THE END OF EACH DAY BY EITHER SWEEPING OR BRUSHING THE INSTALLED ROOF.



STANDING SEAM ROOF LAYOUT - LOWER ROOF



STANDING SEAM ROOF LAYOUT - UPPER ROOF

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HOLLAND MI, 49423

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616.396.0944 FX

SS ROOF LAYOUT

DRAWN BY:	DTH
DATE:	4/28/2023
JOB NO.:	7906
REVISION:	A
BUILDING TYPE:	OC72-9TS2C-P6
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	7.0

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S.
DAYTON, III
STATE OF UTAH
5/1/23

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ORDER OF INSTALLATION

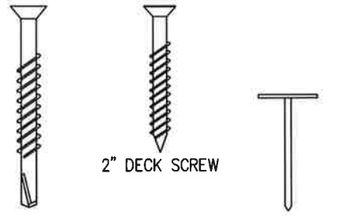
T&G BOARD
SEE DETAILS T-E1, T-P1, T-H1 & T-V1

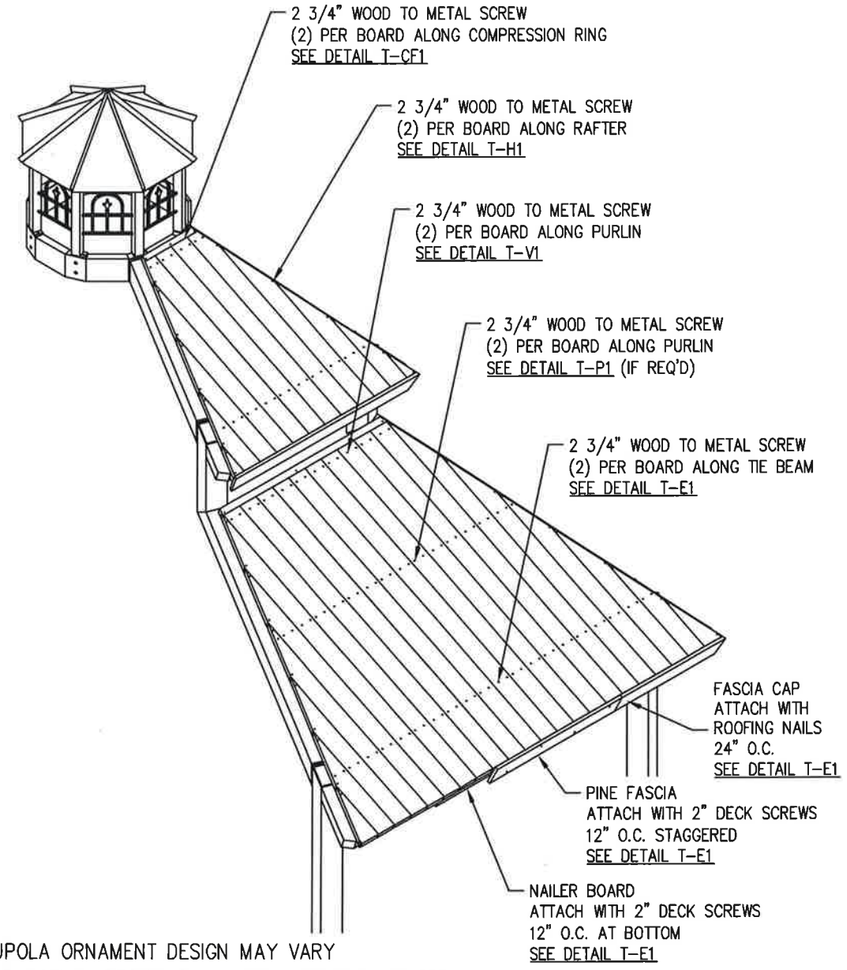
NAILER – RIP THREE PER T&G BOARD AS SHOWN
SEE DETAILS T-E1

1x6 PINE FASCIA
SEE DETAILS T-E1

FASCIA CAP
SEE DETAILS T-E1

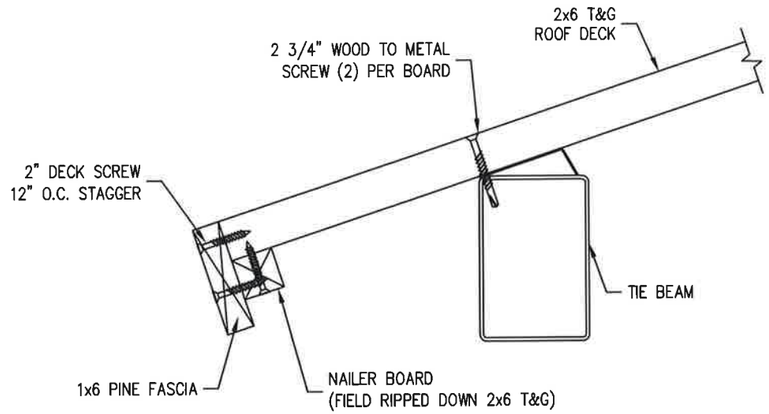
FASTENERS

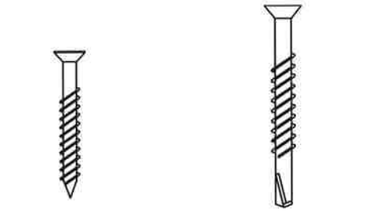


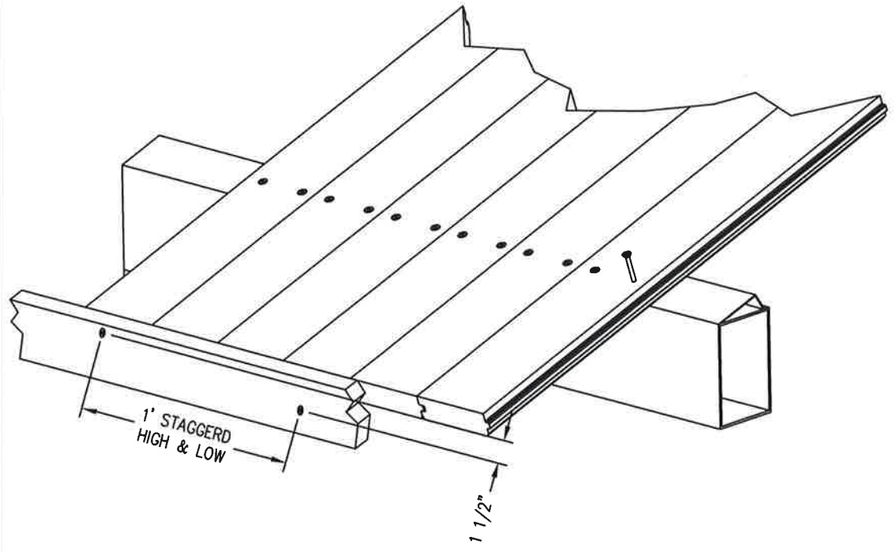


CUPOLA ORNAMENT DESIGN MAY VARY
FOR ACTUAL DESIGN SEE FRAME ASSEMBLY SHEET

T&G ROOF DECK INSTALLATION — ROOF







T&G ROOF DECKING @ TIE BEAM — T--E1

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ROOF DETAILS

REGISTERED PROFESSIONAL ENGINEER
No. 365248
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STATE OF UTAH
5/1/23

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PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	R1.0

DWG: Jobs\7906\R\~000049 - 7906.dwg

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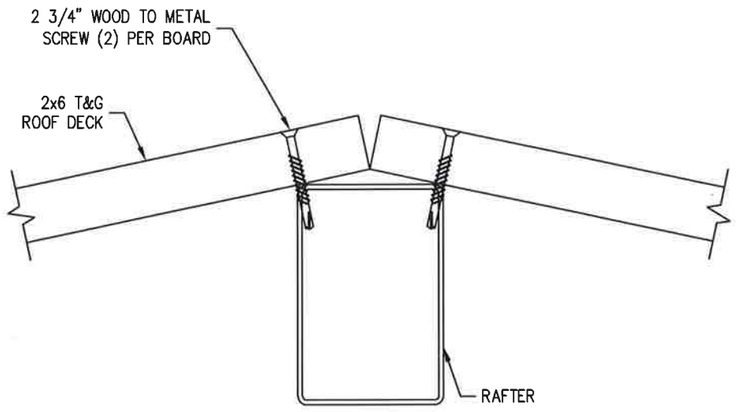
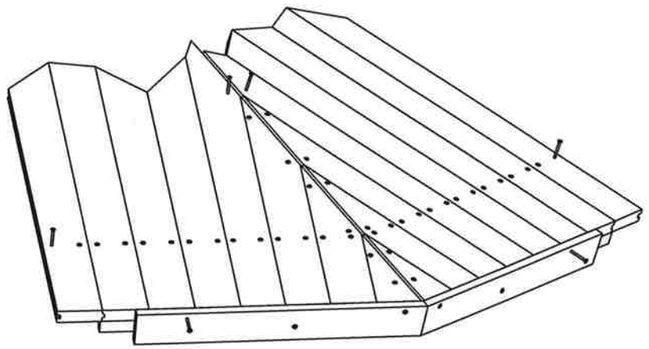
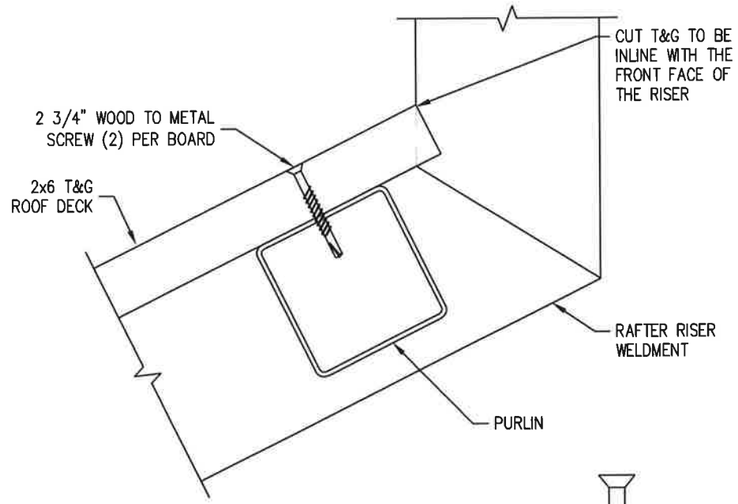


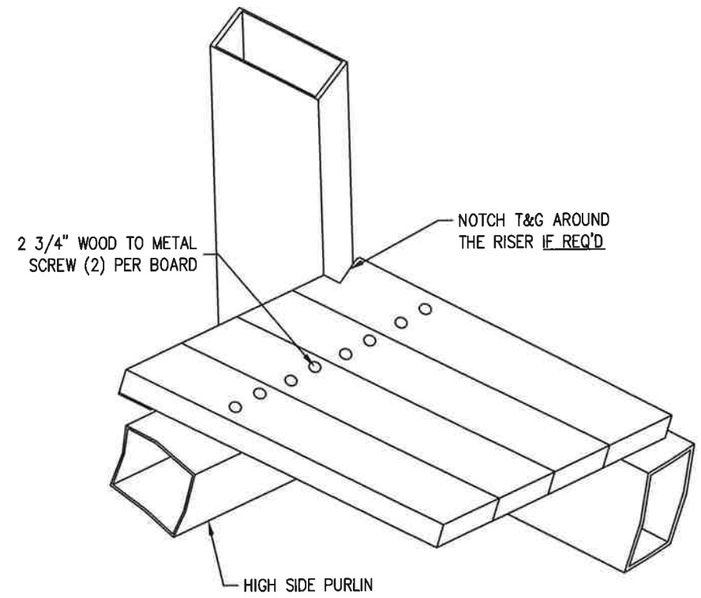
2 3/4" WOOD TO METAL
SCREW



T&G ROOF DECK CONNECTION @ RAFTER T-H1



2 3/4" WOOD TO METAL
SCREW



T&G ROOF DECK INSTALLATION @ HIGH SIDE T-V1

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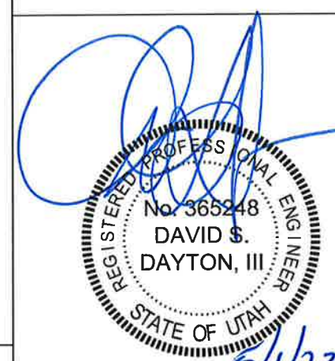
ROOF DETAILS



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BUILDING TYPE:	OC72-9TS2C-P6
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SHEET	R1.1

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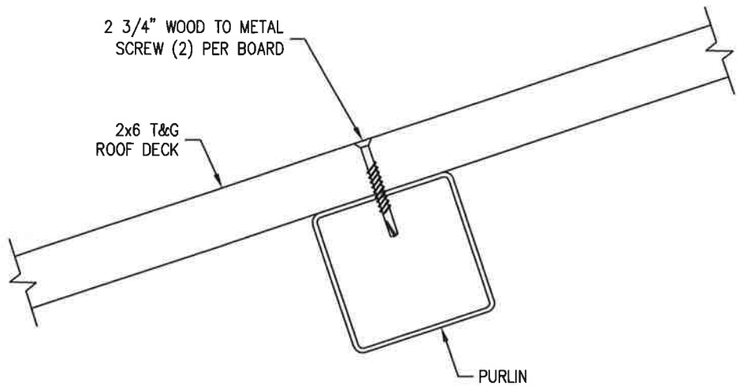
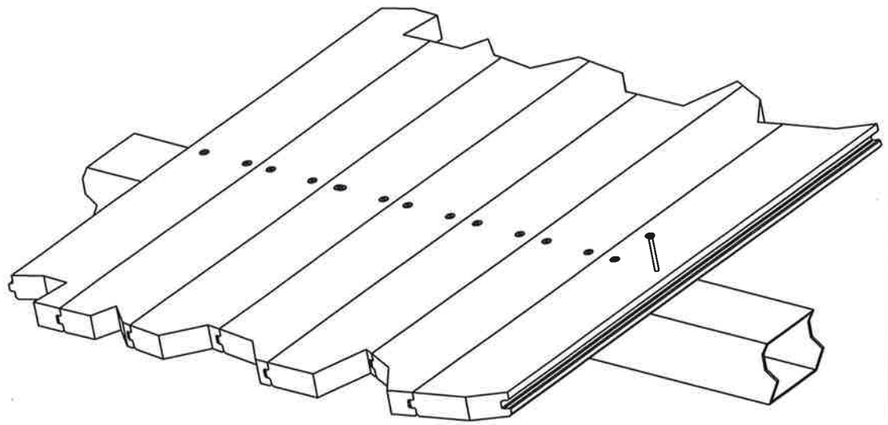


2 3/4" WOOD TO METAL
SCREW



T&G ROOF DECK CONNECTION DETAIL @ PURLIN

T-P1

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ROOF DETAILS

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SHEET	R1.2

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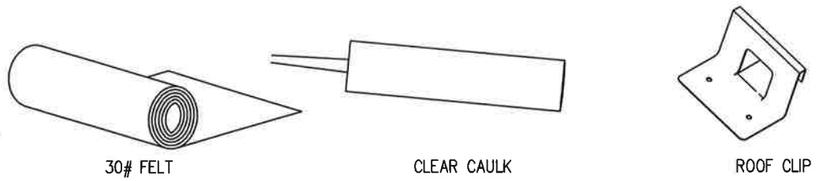
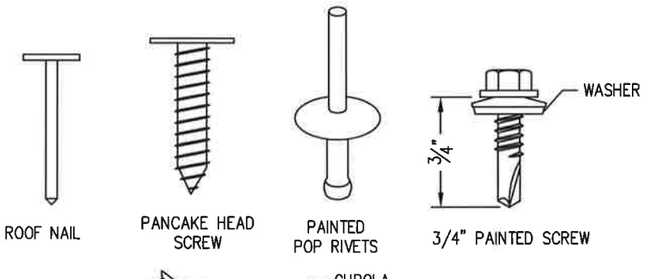
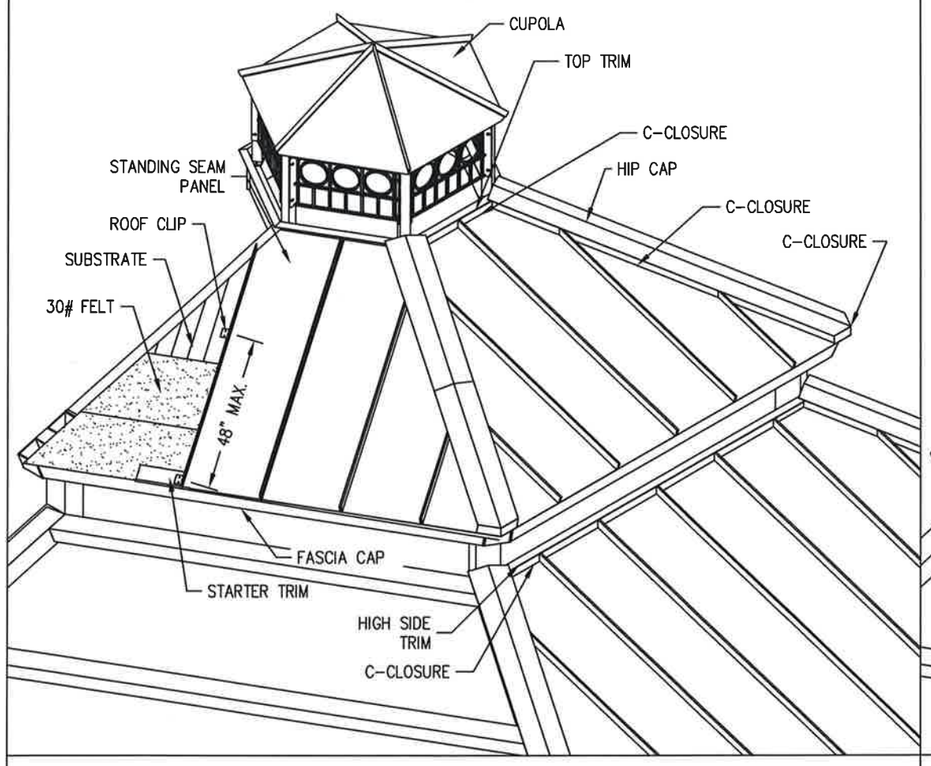
DWG: Jobs\7906\R1~000049 - 7906.dwg







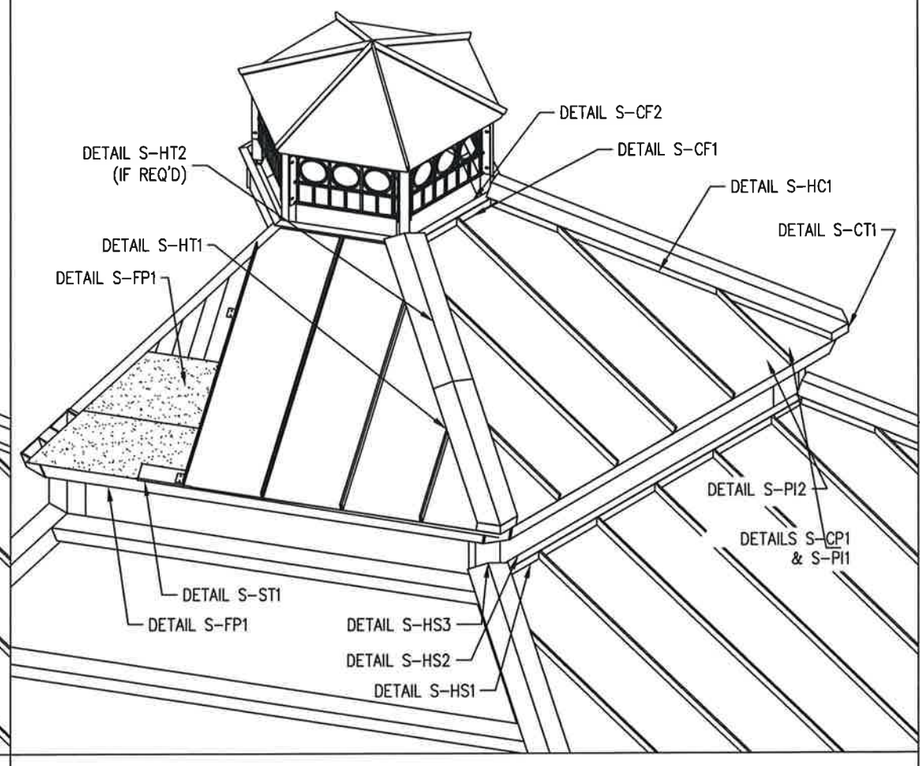
TRIM REFERENCE

THESE DETAILS ASSUME THAT ALL COMPONENTS OF THIS ROOF SYSTEM WILL BE INSTALLED PLUMB AND SQUARE. CAULK AND TRIM SHOULD ALSO BE INSTALLED TO INSURE WATER TIGHTNESS

READ ALL DETAILS IN THIS INSTALLATION MANUAL BEFORE STARTING

S-FP1 FELT PAPER & FASCIA CAP
S-ST1 STARTER TRIM
S-CP1 ROOF PANEL PREPARATION
S-PI1 FIRST ROOF PANEL
S-PI2 SECOND ROOF PANEL
S-HC1 C-CLOSURE @ HIP CAP
S-HS1 C-CLOSURE @ HIGH SIDE
S-HS2 HIGH SIDE TRIM
S-CF1 C-CLOSURE @ CUPOLA
S-CF2 TOP TRIM @ CUPOLA
S-CT1 CORNER TRIM
S-HT1 HIP CAP
S-HS3 HIP CAP @ RISER
S-HT2 LAPPING HIP CAP (IF REQ'D)

CUPOLA ORNAMENT DESIGN MAY VARY
FOR ACTUAL DESIGN SEE FRAME ASSEMBLY SHEET



ORDER OF INSTALLATION

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S. DAYTON, III
STATE OF UTAH
5/1/23

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ROOF DETAILS

DRAWN BY:	DTH
DATE:	4/28/2023
JOB NO.:	7906
REVISION:	B
BUILDING TYPE:	OC72-9TS2C-P6
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	R1.3

DWG: Jobs\7906\R1~000049 - 7906.dwg

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INSTALLATION OF FELT PAPER

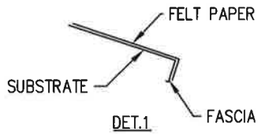
TO START MEASURE EAVE LENGTH AND CUT THE 30# FELT PAPER TO LENGTH + 6"

PLACE FELT ON ROOF AND WRAP THE PAPER OVER THE FASCIA SEE DET.1
ALLOW THE FELT TO LAY OVER THE HIP
SEE DET.2

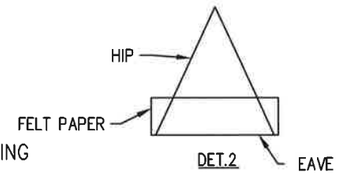
NAIL FELT DOWN WITH ROOFING NAILS 24" O.C.

CONTINUE INSTALLING FELT UP THE ROOF SECTION LAPPING THE PREVIOUSLY INSTALLED PIECE 6" SEE DET.3

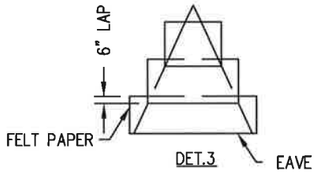
INSTALL THE FASCIA CAP BY SLIDING IT OVER THE WOOD FASCIA (FASTENERS USED TO ATTACH STARTER TRIM WILL SECURE FASCIA CAP)



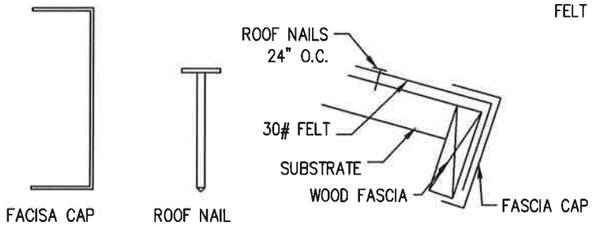
DET.1

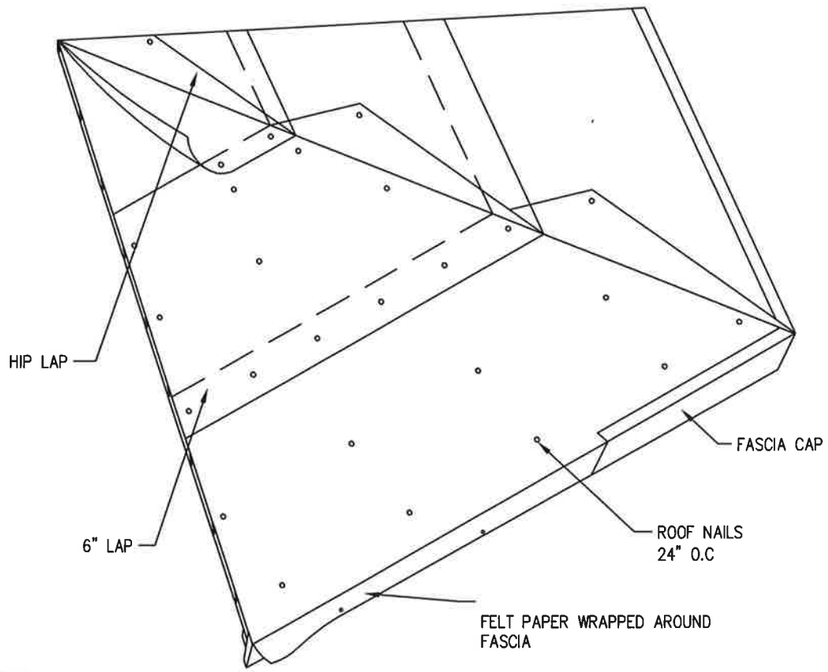


DET.2



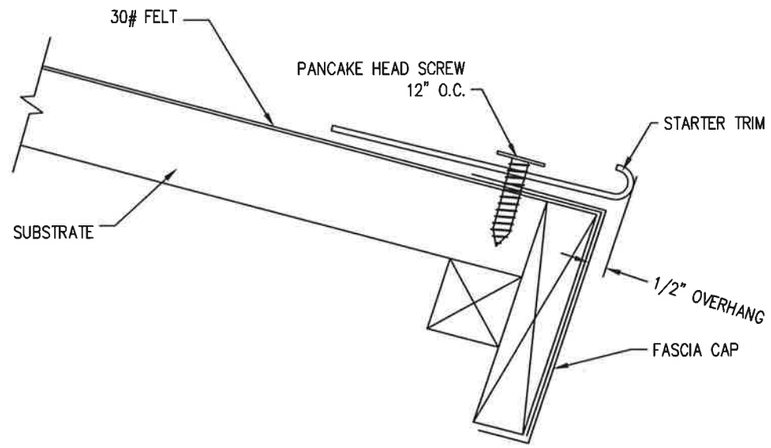
DET.3





FELT PAPER INSTALLATION S-FP1

INSTALL STARTER TRIM OVERHANGING THE EDGE OF THE FASCIA CAP 1/2". ATTACH STARTER TRIM WITH PANCAKE HEAD SCREWS 12" O.C.



STARTER INSTALLATION S-ST1

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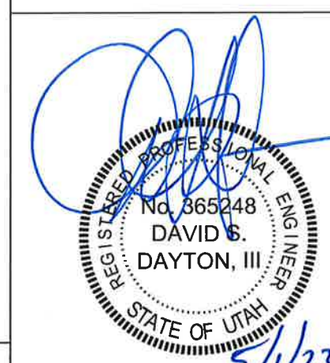
ROOF DETAILS

DRAWN BY:	DTH
DATE:	4/28/2023
JOB NO.:	7906
REVISION:	B
BUILDING TYPE:	OC72-9TS2C-P6
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	R1.4



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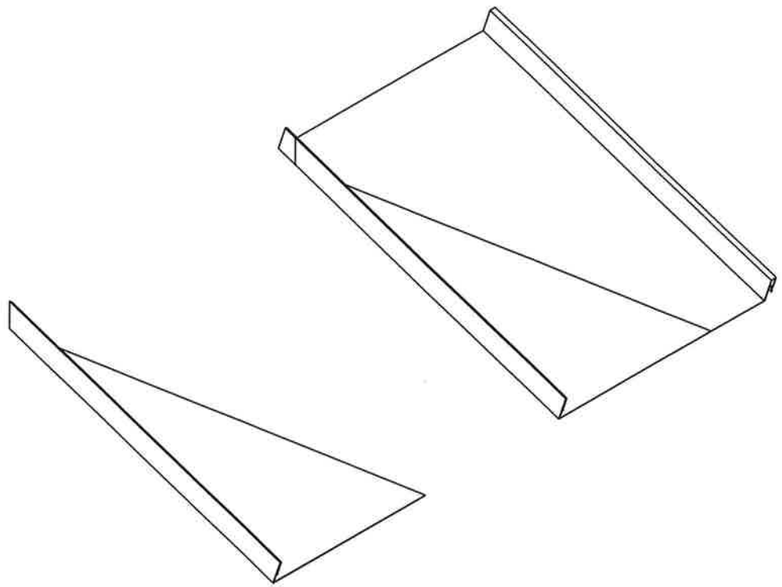
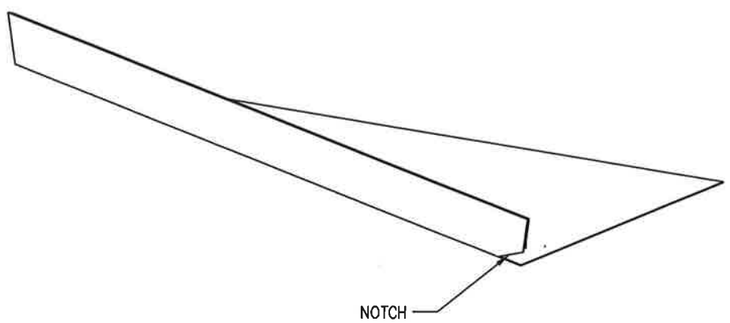
MEASURE, MARK & CUT THE FIRST ROOF PANEL

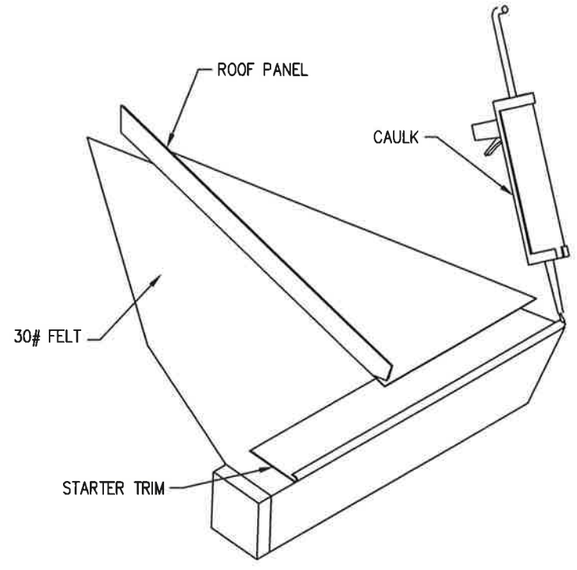


NOTCH RIB TO ALLOW PANEL TO SLIDE INTO STARTER TRIM



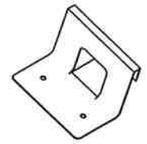
FIELD CUTTING ROOF PANELS S-CP1

AFTER THE ROOF PANEL HAS BEEN CUT TO SIZE (IF NECESSARY) AND NOTCHED, TEST FIT THE PANEL. THEN APPLY A 1/4" BEAD OF CAULK THE APPROXIMATE LENGTH OF THE PANEL. SLIDE THE PANEL INTO PLACE, AND SQUARE IT UP TO THE ROOF.



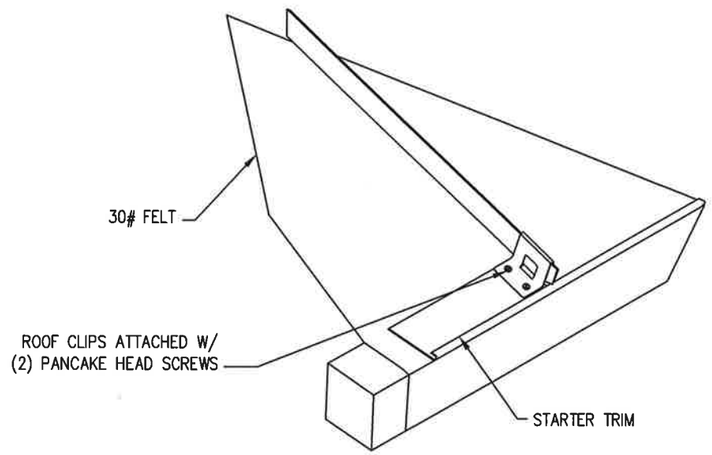
WITH THE ROOF PANEL IN PLACE AND SQUARE, INSTALL THE ROOF CLIPS WITH (2) PANCAKE HEAD SCREWS.

PANCAKE HEAD SCREW



ROOF CLIP (2) SCREWS

ROOF CLIPS SHOULD BE NO MORE THEN 48" APART



INSTALLATION OF FIRST ROOF PANEL S-PI1

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ROOF DETAILS

DRAWN BY:	DTH
DATE:	4/28/2023
JOB NO.:	7906
REVISION:	B
BUILDING TYPE:	OC72-9TS2C-P6
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	R1.5

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S. DAYTON, III
STATE OF UTAH
5/1/23

PRINTED ON: 4/28/2023

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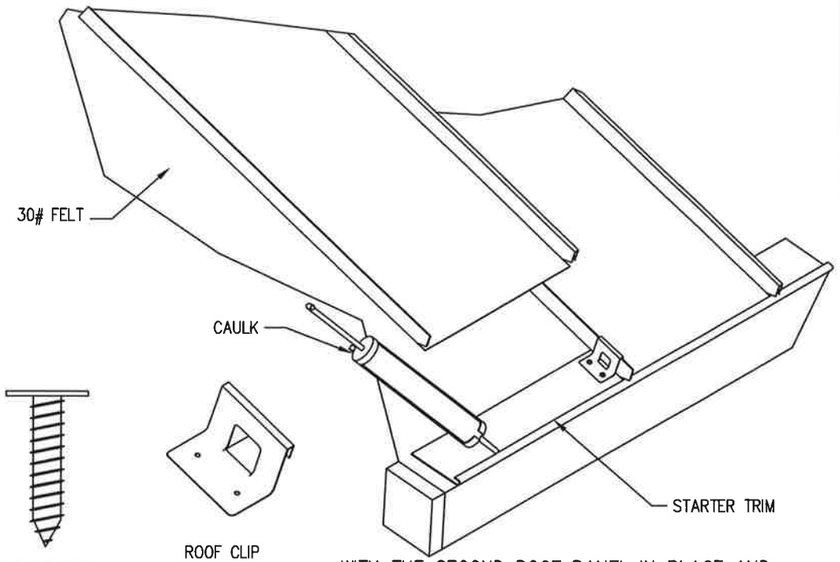
AFTER THE SECOND ROOF PANEL HAS BEEN CUT TO LENGTH (IF NECESSARY) AND NOTCHED, TEST FIT PANEL. THEN APPLY A 1/4" BEAD OF CAULK INSIDE THE STARTER TRIM

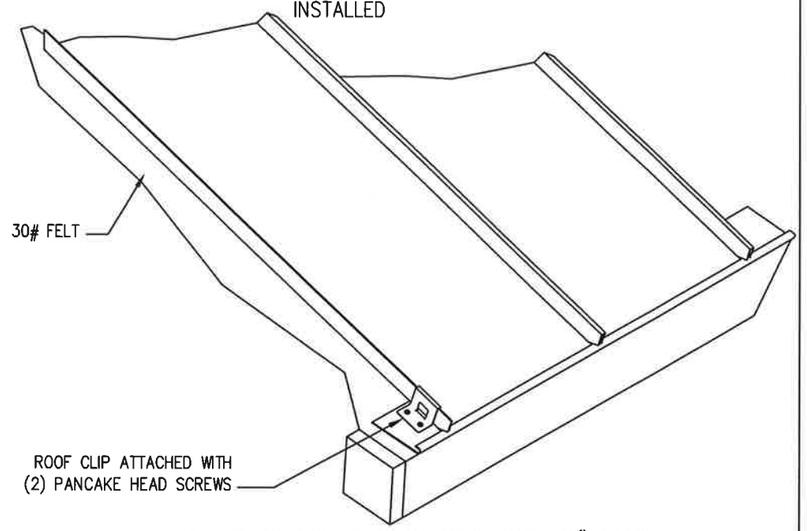
SLIDE THE SECOND ROOF PANEL IN PLACE AND SNAP IT OVER THE BATTEN OF THE FIRST PANEL




PANCAKE HEAD SCREW

ROOF CLIP (2) SCREWS

WITH THE SECOND ROOF PANEL IN PLACE AND SQUARE, INSTALL THE ROOF CLIPS WITH (2) PANCAKE HEAD SCREWS.
REPEAT THIS STEP UNTIL ALL ROOF PANELS ARE INSTALLED

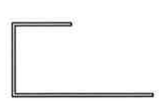


ROOF CLIPS SHOULD BE NO MORE THEN 48" APART

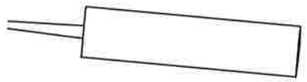
INSTALLATION OF SECOND ROOF PANEL — S-PI2

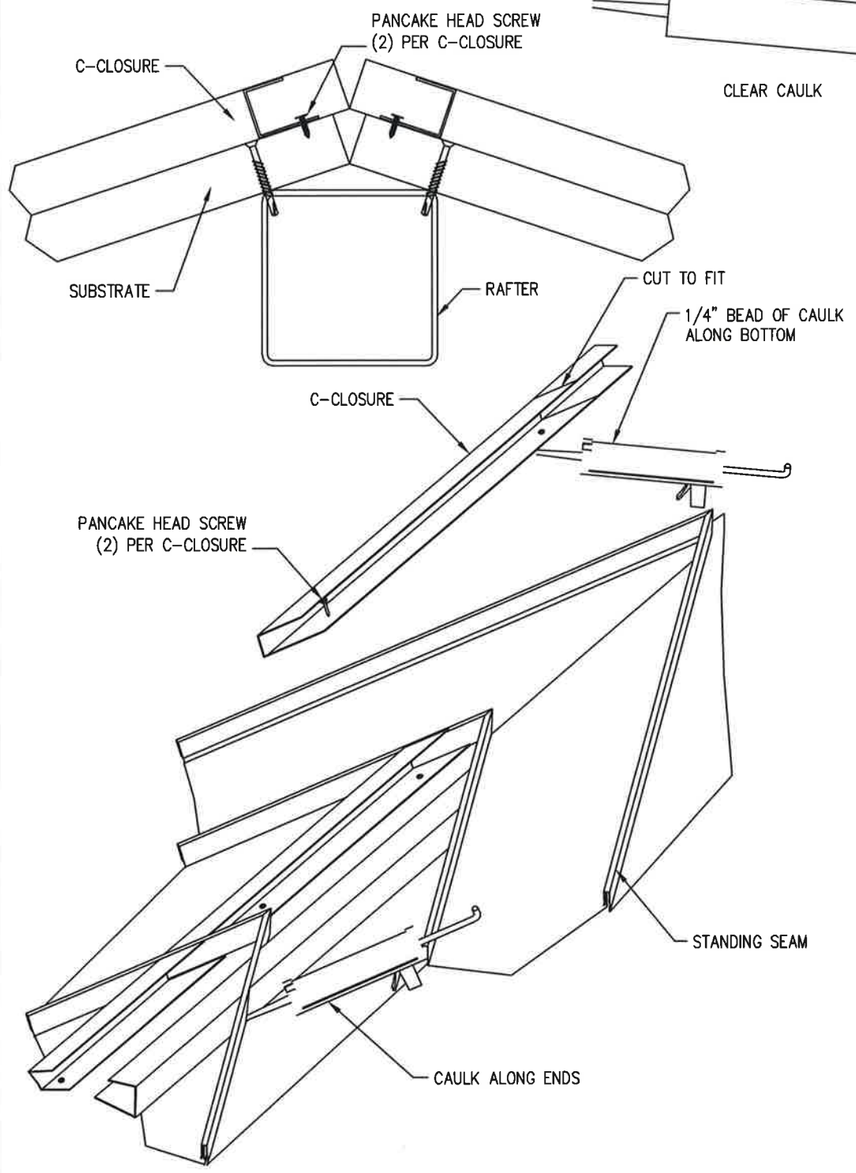
TO INSTALL C-CLOSURES ALONG THE HIP, MARK & CUT THE C-CLOSURE TO LENGTH

APPLY A 1/4" BEAD OF CAULK TO THE BOTTOM OF THE C-CLOSURE AND FASTEN IT TO THE ROOF WITH (2) PANCAKE SCREWS ALONG THE SUBSTRATE. THEN APPLY CAULK TO THE END OF THE C-CLOSURE FOR WATER TIGHTNESS


C-CLOSURE 10' LONG


PANCAKE HEAD SCREW


CLEAR CAULK



INSTALLATION OF HIP C-CLOSURE — S-HC1

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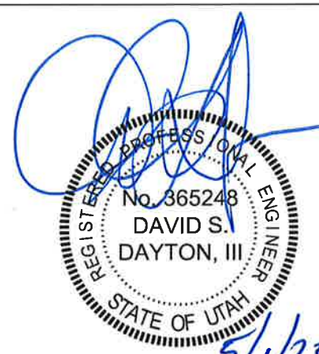
ROOF DETAILS



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DRAWN BY:	DTH
DATE:	4/28/2023
JOB NO.:	7906
REVISION:	B
BUILDING TYPE:	OC72-9TS2C-P6
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	R1.6

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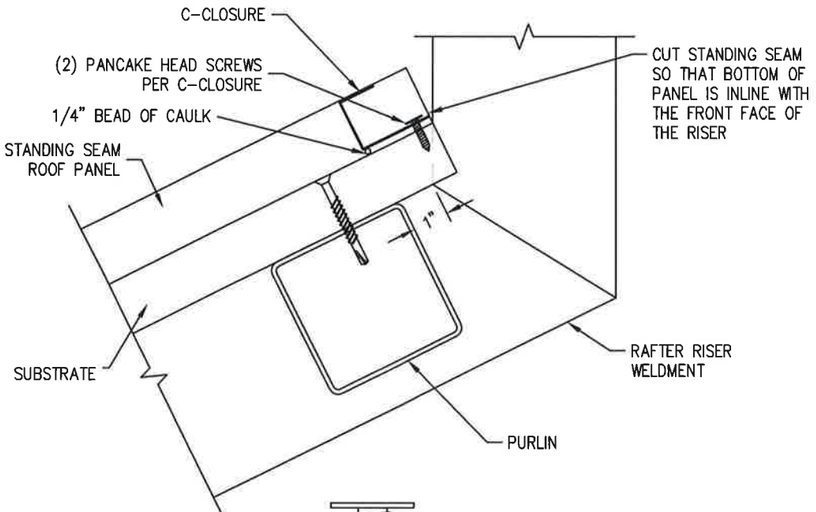
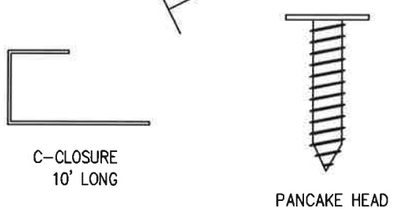
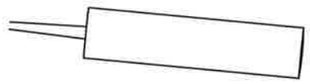
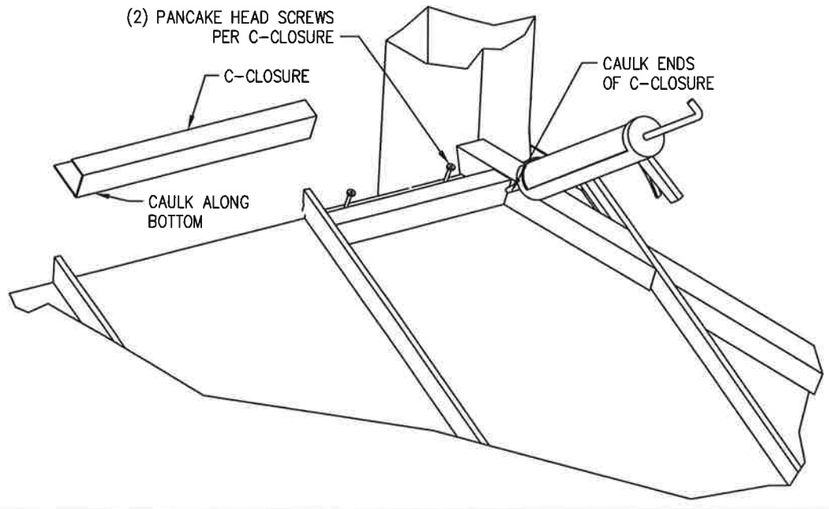
MEASURE AND CUT C-CLOSURE TO LENGTH.
APPLY 1/4" BEAD OF CAULK TO BOTTOM OF C-CLOSURE.
FASTEN TO ROOF ALONG THE HIGH SIDE WITH (2) PANCAKE HEAD SCREWS PER C-CLOSURE.
THEN CAULK ALONG ENDS FOR WATER TIGHTNESS.



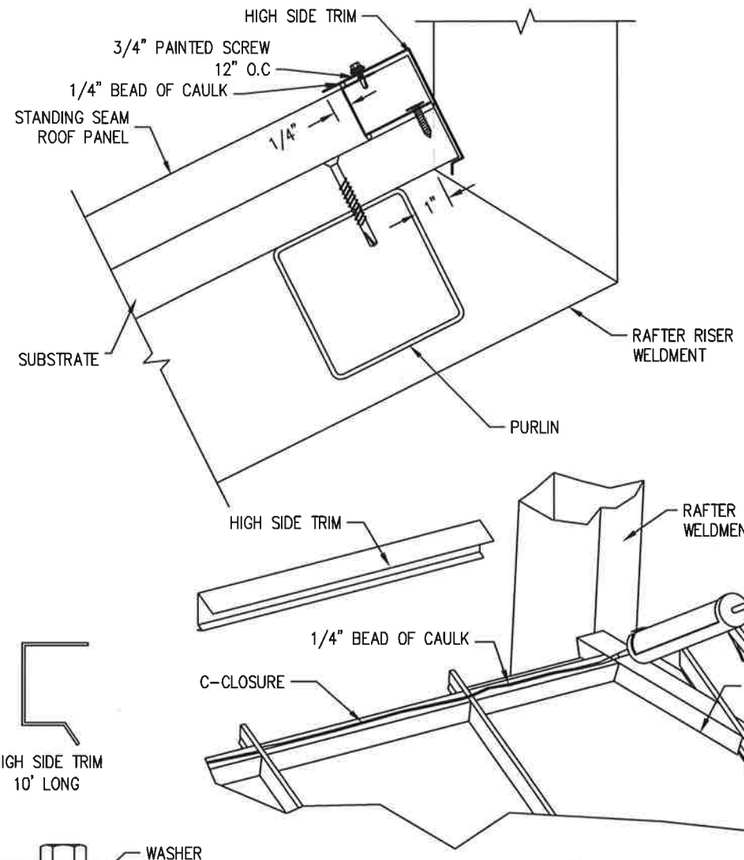


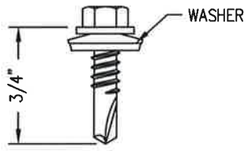


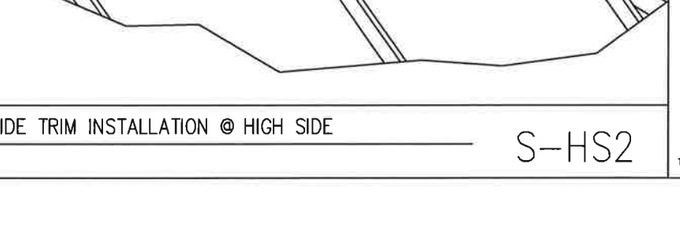


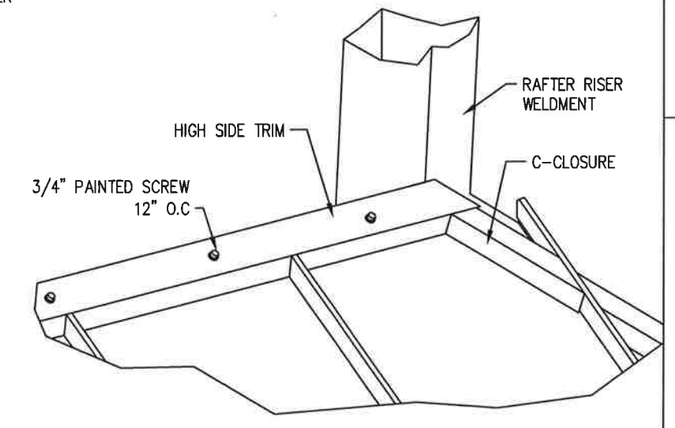
C-CLOSURE AT HIGH SIDE INSTALLATION — S-HS1

MEASURE AND CUT THE HIGH SIDE TRIM TO LENGTH.
APPLY 1/4" BEAD OF CAULK TO TOP OF C-CLOSURE.
FASTEN HIGH SIDE TRIM TO C-CLOSURES WITH 3/4" SCREWS 12" O.C.









HIGH SIDE TRIM INSTALLATION @ HIGH SIDE — S-HS2

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ROOF DETAILS

DRAWN BY:	DTH
DATE:	4/28/2023
JOB NO.:	7906
REVISION:	B
BUILDING TYPE:	~~OC72-9TS~~2C-P6
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	R1.7

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S. DAYTON, III
STATE OF UTAH
5/1/23

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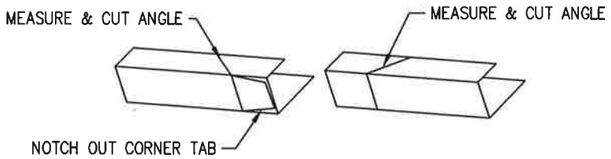
TO FINISH OFF THE END OF THE HIP, MAKE A CORNER CAP BY CUTTING TWO PIECES OF C-CLOSURE TO LENGTH

MEASURE AND CUT A MITER AND CORNER TAB ON (1) PIECE OF C-CLOSURE

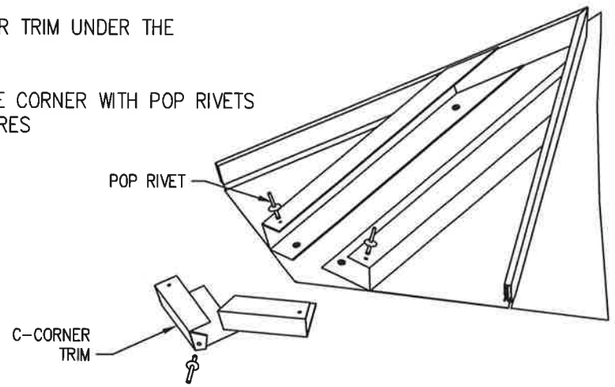
CUT AN OPPOSITE MITER ON THE SECOND C-CLOSURE

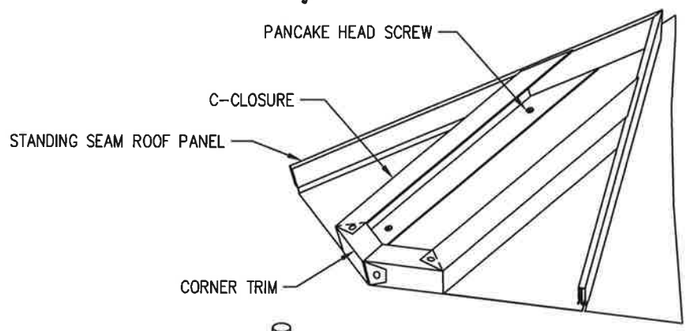


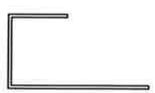
APPLY A 1/4" BEAD OF CAULK TO THE BOTTOM OF THE CORNER TRIM

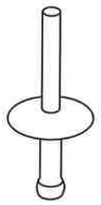
SLIDE THE CORNER TRIM UNDER THE C-CLOSURES

THEN ATTACH THE CORNER WITH POP RIVETS TO THE C-CLOSURES



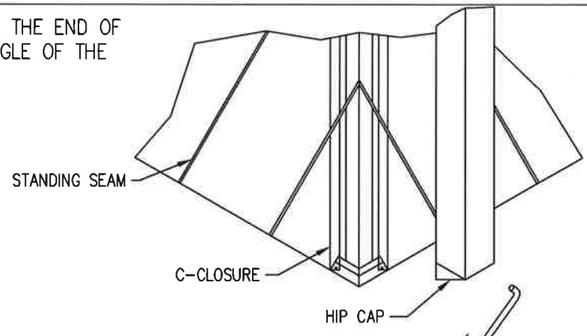



C-CLOSURE
10' LONG

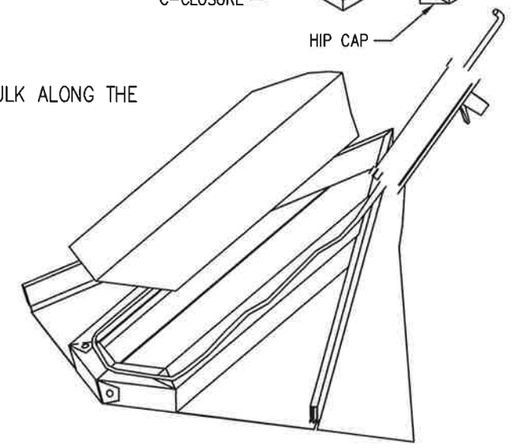

PAINTED POP RIVET

INSTALLATION OF CORNER TRIM S-CT1

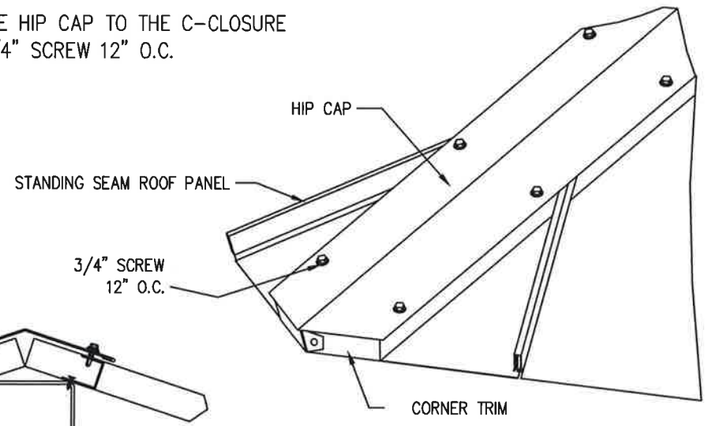
TO INSTALL THE HIP CAP, BEVEL THE END OF THE HIP CAP TO MATCH THE ANGLE OF THE ROOF



NEXT APPLY A 1/4" BEAD OF CAULK ALONG THE TOP OF THE C-CLOSURES

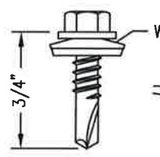


THEN FASTEN THE HIP CAP TO THE C-CLOSURE WITH PAINTED 3/4" SCREW 12" O.C.

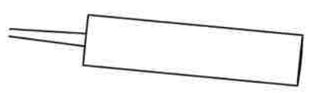



C-CLOSURE
10' LONG


HIP CAP
10' LONG



3/4" PAINTED SCREW


CLEAR CAULK

INSTALLATION OF HIP CAP S-HT1

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800.748.0985
616.396.0944 FX

ROOF DETAILS

DRAWN BY:	DTH
DATE:	4/28/2023
JOB NO.:	7906
REVISION:	B
BUILDING TYPE:	OC72-9TS2C-P6
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	R1.8

REGISTERED PROFESSIONAL ENGINEER
No. 365248
DAVID S.
DAYTON, III
STATE OF UTAH
5/1/23

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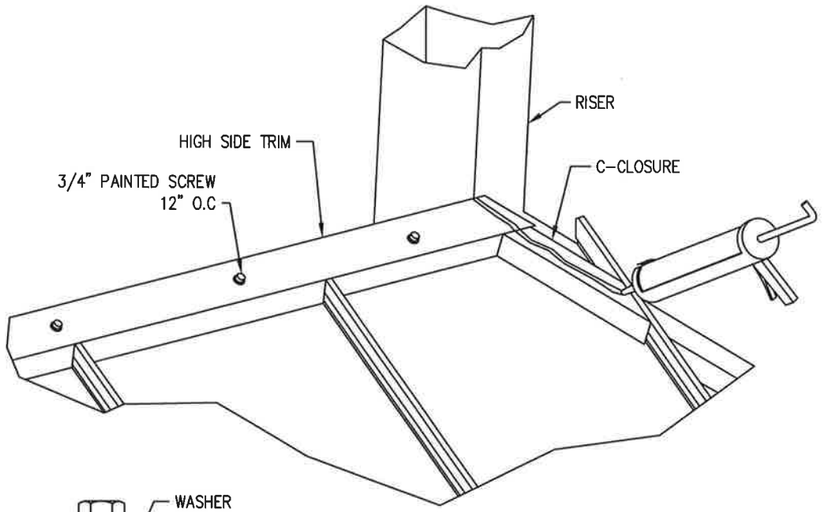
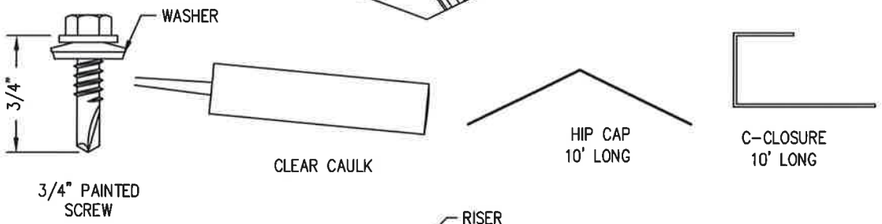
DWG: Jobs\7906\R1~000049 - 7906.dwg

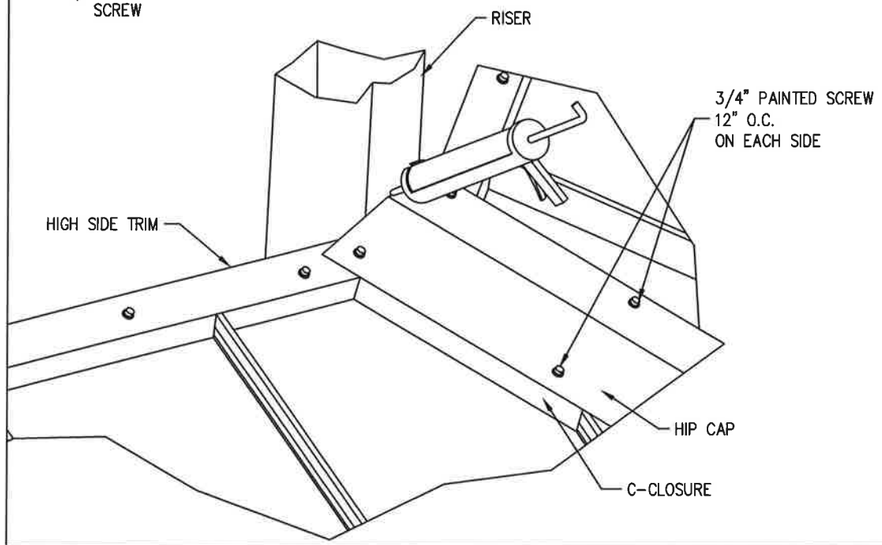
PRINTED ON: 4/28/2023

MEASURE AND CUT THE HIP CAP TO LENGTH.
APPLY 1/4 BEAD OF CAULK TO TOP OF C-CLOSURE.
FASTEN HIP CAP TO C-CLOSURES WITH 3/4" SCREWS 12" O.C.

THE HIP CAP SHOULD BE TIGHT AGAINST THE RISER.
APPLY CAULK TO THE HIP CAP ALONG THE RISER FOR WATER TIGHTNESS

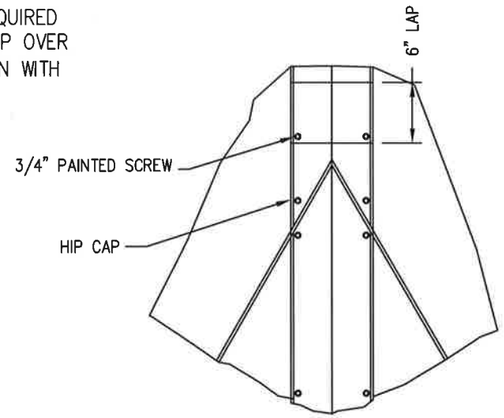


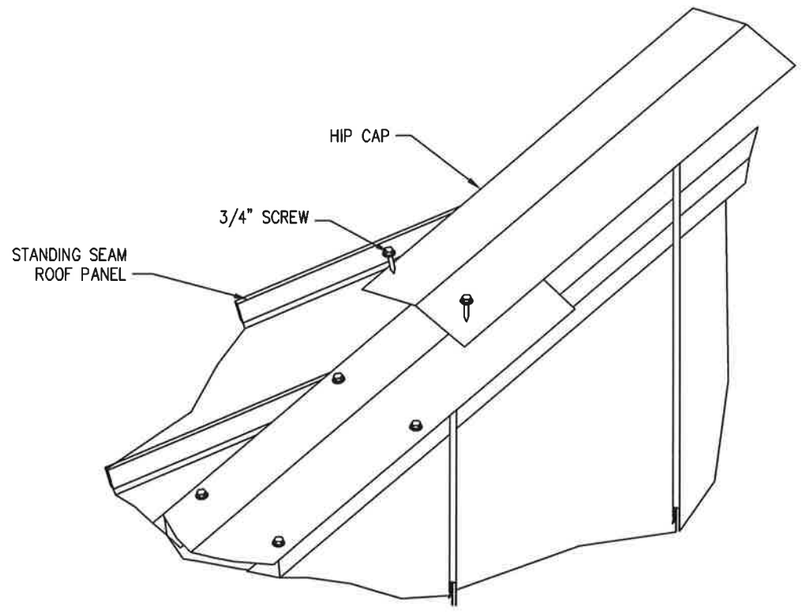


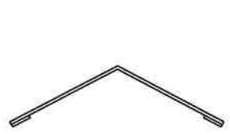


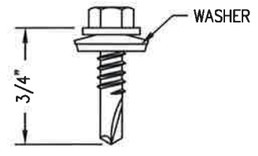
HIP CAP INSTALLATION AT RISER — S-HS3

IF MULTIPLE PIECES OF HIP CAP ARE REQUIRED THEN LAP THE SECOND PIECE OF HIP CAP OVER THE FIRST PIECE 6". CAULK AND FASTEN WITH 3/4" PAINTED SCREWS.









MULTIPLE HIP CAPS — S-HT2

ICON
Shelter Systems Inc
DISTINCTIVE STEEL SHELTERS
WWW.ICONSHELTERS.COM

1455 LINCOLN AVE.
HOLLAND MI, 49423

616.396.0919
800.748.0985
616.396.0944 FX

ROOF DETAILS

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5/1/23
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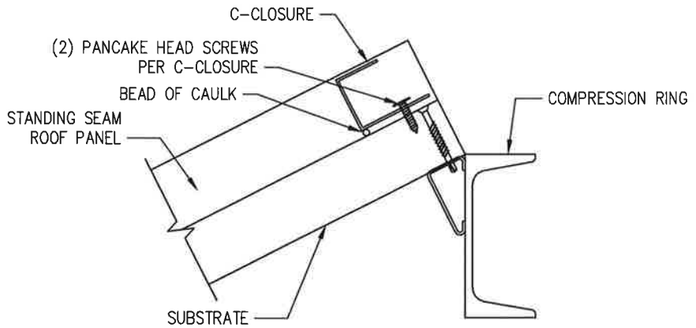
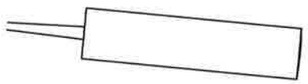
PROJECT NAME:	COMMONS PARK LAYTON, UT 84041
SHEET	R1.9

PRINTED ON: 4/28/2023

DWG: Jobs\7906\R1~000049 - 7906.dwg

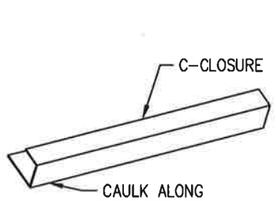
MEASURE AND CUT C–CLOSURE TO LENGTH.
APPLY BEAD OF CAULK TO BOTTOM OF C–CLOSURE.
FASTEN TO ROOF ALONG THE COMPRESSION RING WITH (2) PANCAKE HEAD SCREWS PER C–CLOSURE.
THEN CAULK ALONG ENDS FOR WATER TIGHTNESS.

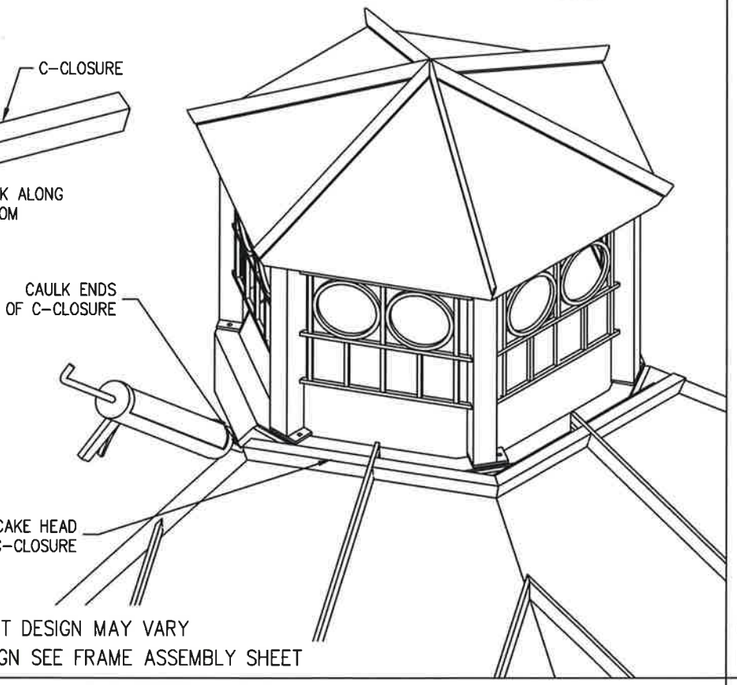



CLEAR CAULK


C–CLOSURE 10' LONG


PANCAKE HEAD SCREW

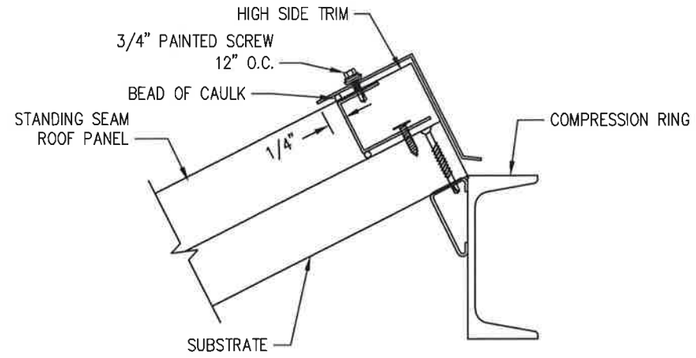




CUPOLA ORNAMENT DESIGN MAY VARY
FOR ACTUAL DESIGN SEE FRAME ASSEMBLY SHEET

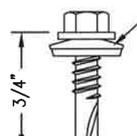
C–CLOSURE AT CUPOLA — S–CF1

MEASURE AND CUT HIGH SIDE TRIM TO LENGTH.
APPLY A BEAD OF CAULK ALONG THE TOP OF THE C–CLOSURES.
FASTEN HIGH SIDE TRIM TO C–CLOSURE WITH 3/4" PAINTED SCREWS 12" O.C.
TRIM HIP CAP TO FIT AT CUPOLA CORNER.
THEN CAULK FOR WATER TIGHTNESS.

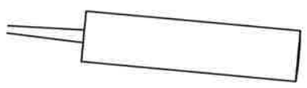


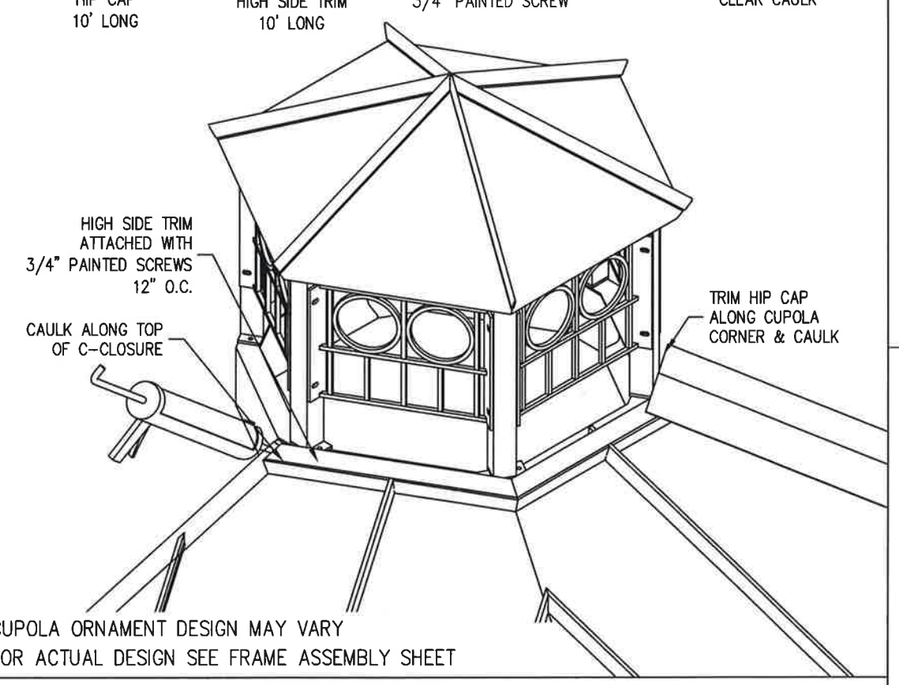

HIP CAP 10' LONG


HIGH SIDE TRIM 10' LONG



3/4" PAINTED SCREW


CLEAR CAULK



CUPOLA ORNAMENT DESIGN MAY VARY
FOR ACTUAL DESIGN SEE FRAME ASSEMBLY SHEET

FLASHING AT CUPOLA — S–CF2

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SHEET	R2.0

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