CONTRACT DOCUMENTS
AND SPECIFICATIONS FOR

SALEM CITY
POWER DEPARTMENT BUILDING
SITE WORK

Project Engineer

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SALEM CITY
POWER BUILDING SITE WORK
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Geotechnical Investigation – Salem City Office / Warehouse Building, GeoStrata Job No. 1435-001

TECHNICAL SPECIFICATIONS:

AMERICAN PUBLIC WORKS ASSOCIATION (APWA) Utah Chapter Manual of STANDARD SPECIFICATIONS – 2017 EDITION

SALEM CITY SUBDIVISION, DEVELOPMENT, AND GENERAL CONSTRUCTION STANDARDS MANUAL & SALEM CITY STANDARD CONSTRUCITON STANDARDS DETAILS

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NOTICE INVITING BIDS

Salem City requests bids from experienced contractors to complete the site work for a new 160'x70' building for the power department located at 460 West 1500 North as **SALEM CITY - POWER BUILDING SITE WORK**. Construction work, in general, consists of excavation of 2,500 cubic-yards of earthen material, excavation for footings, providing materials and labor to install structural fill, sewer connection, 1500-gallon oil separator, sampling manhole, culinary water connection, water meter, backfill the building and grade the site. The work must be ready for concrete footings by **October 27, 2020**.

Sealed bids will be received at the Salem City Offices, 30 West 100 South, Salem, Utah 84653 until 1:00 PM, October 7, 2020, at which time the proposals will be publicly opened and read aloud.

Copies of the Contract Documents, Specifications and Plans will be available online no later than October 2, 2020 on the Salem City website, found at http://www.salemcity.org/contract-bids.htm.

INFORMATION FOR BIDDERS

SECURING DOCUMENTS

Copies of the Contract Documents, Specifications and Plans will be available online no later than October 2, 2020 on the Salem City website, found at http://www.salemcity.org/contract-bids.htm.

PROPOSAL

Bids to receive consideration shall be made in accordance with the following instructions:

Before submitting a bid, bidders shall carefully read the Plans and Specifications, visit the site of the work and fully inform themselves as to all existing conditions and limitations of the project. Submission of a Proposal shall be considered prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the Plans, Specifications, and other Contract Documents.

Bids shall be properly executed upon the Proposal attached to and made part of these Contract Documents. Numbers shall be stated both in writing and in figures where so required, and the signatures of all persons signing shall be in longhand. The completed forms shall be without interlineations, alterations, or erasures. In case of a difference in written words and figures in a Proposal, the amount stated in written words shall govern unless obviously in error.

A proposal may be considered irregular and may be rejected as non-responsive if:

Any of the bid prices are significantly unbalanced to the potential detriment of Salem City. In such cases, Salem City, through its representative, may require the apparent low bidder to detail in writing how the prices were determined and to justify the basis of the unit prices or lump sum amount before making a decision if the proposal is irregular.

Bids shall not contain any recapitulations of the work to be done. Alternative proposals will not be considered unless called for. No oral, telegraphic, telephonic, or modified proposals will be considered.

Bids shall be delivered to Salem City on or before the day and hour set for the opening of bids in the Notice Inviting Bids as published. Bids shall be enclosed in a sealed envelope bearing the title of the work and the name of the bidder. It is the SOLE responsibility of the bidder to see that his bid is received in proper time. Any bids received after the scheduled closing time for receipt of bids will be returned to the bidder unopened.

All bids shall be made in accordance with applicable statutes of the State of Utah, APWA's Manual of Standard Specifications, APWA's Manual of Standard Plans, Salem City Standards and Specifications, applicable local laws, and as specified in this Book of Specifications.

BID SECURITY

Each Proposal shall be accompanied by a certified check, cashier's check, or bid bond acceptable to the Owner in an amount equal to at least 5 percent (5%) of the Proposal, payable without condition to the Owner as a guarantee that the bidder, if awarded the Contract, will promptly execute such Contract in accordance with the Proposal and in manner and form required by these Contract Documents and will furnish good and sufficient bond for the faithful performance of the same. The bid securities of the three (3) lowest bidders will be retained until the Contract is signed and satisfactory bonds furnished, or other disposition made thereof. The bid securities of all bidders except the three (3) lowest will be returned promptly after the canvass of bids.

COMPETENCY OF BIDDERS

In selecting the lowest responsible bidder, consideration will be given to the general competency of the bidder for the performance of the work covered by the bid. To this end, each bid shall be supported by a statement of the bidder's experience as of recent date on the form entitled "INFORMATION REQUIRED OF BIDDER", bound herein. No bid for the work will be accepted from a Contractor who does not hold an active Contractor's license in good standing applicable to the type of work bid upon at the time of opening bids.

No contract award will be made to a Contractor whose firm and Project Superintendent have not satisfactorily completed projects of similar type, complexity and comparable value and whose firm and Project Superintendent have not been in the contracting business for similar work for at least three (3) years. In addition, the Project Superintendent meeting this experience criterion shall be dedicated to the project. After an award of the contract, no substitution of the Project Superintendent will be allowed without the written approval by the Owner.

WITHDRAWAL OF BID

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

CONTRACT AND BONDS

The successful bidder, simultaneously with the execution of the Contract, will be required to furnish a Payment Bond in an amount equal to one hundred percent (100%) of the Contract price and a faithful Performance Bond in an amount equal to one hundred (100%) of the Contract price. Said Bonds shall be secured from a surety company satisfactory to the Owner.

The form of Contract, which the successful bidder as Contractor will be required to execute, and the forms of Bonds which the bidder will be required to furnish are included in the Contract Documents and should be carefully examined by the bidder. The Contract and the Bonds will be executed in three original counter-parts. The Performance Bond shall extend through the warranty period as specified in the General Conditions.

All bidders are required to have payment and performance bonds underwritten by a Surety Company approved by the U.S. Department of the Treasury (Circular 570, latest edition).

INTERPRETATION OF PLANS AND DOCUMENTS

If any person contemplating submitting a bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans, Specifications, or other proposed Contract Documents, or finds discrepancies in or omissions from the Plans or Specifications, he may submit to Salem City a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the proposed documents will be made only by Addendum duly issued and a copy of such Addendum will be mailed or delivered to each person receiving a set of such documents. The Owner will not be responsible for any other explanations or interpretations of the proposed documents.

ADDENDA

Any Addenda issued during the time of bidding, forming a part of the documents loaned to the bidder for the preparation of his bid, shall be covered in the bid and shall be made a part of the Contract.

EXECUTION OF CONTRACT

The successful bidder shall execute and return the contract to the Owner no later than 10 days after the date of the Notice of Award.

AWARD OR REJECTION OF BIDS

Owner reserves the right to reject any and all bids or schedules of bids, to waive any and all informalities not involving price, time or changes in the work, and the right to disregard all nonconforming, nonresponsive, unbalanced or conditional bids. The Owner further reserves the right to reject the bid of any bidder if Owner believes that it would not be in the best interest of the project to make an award to that bidder, whether because the bid is not responsive or the bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Owner may conduct such investigations, as Owner deems necessary to assist in the evaluation of any bid and to determine the responsibility, qualifications and financial ability of the bidder to perform and furnish the work.

The award, if made, will be within 10 days after the opening of bids.

BIDDERS INTERESTED IN MORE THAN ONE BID

No person, firm, or corporation shall be allowed to make, file, or to be interested in more than one (1) bid for the same work unless alternate bids are called for.

ASSIGNMENT OF CONTRACT

No assignment by the Contractor of any contract to be entered into hereunder, or any part thereof, or of funds to be received thereunder by the Contractor, will be recognized by the Owner unless such assignment has had prior approval of the Owner and the Surety has been given due notice of such assignment in writing and has consented thereto in writing.

SPECIAL NOTICE

Bidders are required to inform themselves fully of the conditions relating to construction and labor under which the work will be or is now being performed, and the Contractor must employ, as far as possible, such methods and means in carrying out his work as will not cause any interruption or interference to any other contractor.

PLANS AND SPECIFICATIONS TO SUCCESSFUL BIDDER

The bidder may purchase additional sets of Plans and Specifications at the costs listed on page NIB-1 from Epic Engineering, P.C.

CONSTRUCTION SCHEDULING

Bids will be presented to the City Council for approval on October 7, 2020, at which time selection of the Contractor will be ratified. Notice of Award and Notice to Proceed will be given after this date.

TIME OF COMPLETION

The Contractor shall commence work after receiving written Notice to Proceed from the Engineer on behalf of the Owner and shall be ready for footings no later than **October 27, 2020**. Backfill on the interior of the building shall be coordinated with the concrete contractor and shall be timely in completion of all concrete work as promptly as possible. Backfill on the outside and grading of the exterior shall take place as timely as possible to facilitate erection of the building.

The Contractor shall at all times during the continuance of the Contract prosecute the work with such force and equipment as are sufficient to complete it within the time segments specified.

NONPERFORMANCE OF WORK TASKS BY THE CONTRACTOR

If the Contractor fails, neglects, or refuses to perform work tasks necessary for the completion of the total job; to replace defective work; or to repair or resurface, in a manner that is acceptable to the Owner and Engineer, public

rights-of-way disturbed by his work which are a nuisance, a hazard, or which impedes or endangers vehicular traffic and the public, the Owner may serve written notice upon the Contractor of his intention to have the work performed by others. Unless within three (3) days after the service of such notice, the Contractor has made such arrangement and scheduled the accomplishment of said work tasks to the satisfaction of the Owner and Engineer, the Owner will proceed to have the work accomplished by others and deduct the costs thereof from amounts due the Contractor.

PERMITS AND LICENSES

The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes and give all notices necessary and incidental to the due and lawful prosecution of the work. Any permits from Salem City shall be completed by the Contractor but the fee(s) shall be forgone due to contracting with the City.

All construction, within Salem City property shall be performed by a contractor licensed and bonded in the State of Utah. A permit shall be secured by the contractor from Salem City at least 48 hours before initiating construction. Salem City shall be notified by the contractor at least 3 working days before the planned construction is to commence and also before starting whenever construction is delayed for any reason. The contractor shall pay all charges, fees, and taxes and give all notices necessary and incidental to the lawful prosecution of the contract. These costs shall not be paid for directly but considered incidental to other items of work.

Bidders shall have a valid contractor's license for the type of work required on this Contract.

Should additional information be desired prior to bid submittal, please direct all questions via email to Project Engineer, Joseph N. Santos, PE. (Joe Santos) jsantos@epiceng.net.

Neither the Engineer nor Salem City shall be held responsible for any oral instructions. Any changes to the Plans and Specifications will be in the form of an Addendum which will be furnished to all plan holders.

LIQUIDATED DAMAGES

Liquidated damages shall be one-thousand dollars ($1,000) per calendar day beyond October 27, 2020 for preparation for footings.

INSTRUCTIONS FOR PREPARING PROPOSAL

BID ITEMS

Payment of the bid price, as stated in the Contractor's Proposal, for the completed work shall be compensation in full for the furnishing of all overhead labor, materials, devices, equipment, and appurtenances included in the work as are necessary to complete the total work under this Contract in a good, neat, and satisfactory manner as indicated on the Plans, as described in the Specifications, and as otherwise implied or required to fulfill the objective of the work. Each item, fixture, piece of equipment, work, etc., as indicated on the Plans, or specified anywhere in these Documents, shall be completed with all necessary connections and appurtenances for the satisfactory use and operation of said item, and the total system or systems.

Any and all patents and license fees for the right to use equipment or processes included in this Contract shall be included in the bid price. The Contractor shall submit to the Engineer an itemized list of all such fees, indicating the amount of each and to whom paid.

Cost of painting, testing, and other incidental operations, profit, and overhead cost, including the cost of supervision, temporary field offices, move-in, move-out, insurance, taxes, equipment not a permanent part of the job, and other incidental items, shall be included in the bid price.

The bid shall be based upon certain manufacturer's items, for which the bidder shall indicate the designated manufacturers in the spaces if provided in the proposal.

If the bidder proposes an alternate manufacturer that has not been named in the Specifications under the item to be designated, the bidder shall, if requested, submit data to the Engineer for review after the bidding and before the Award of the Contract. The equipment proposed to be furnished by the bidder from an alternate manufacturer shall conform to the specific requirements of the bid item, and any one of the specified manufacturers' items shall serve as a standard of quality for the item.

If the equipment proposed to be furnished by the bidder from an alternate manufacturer does not and/or cannot be made, in the opinion of the Engineer, to conform to the Requirements of these Specifications, then the bidder shall furnish the equipment of a manufacturer that does meet these requirements at no extra cost to the Owner.

The Owner may require additional detailed information regarding the equipment which the bidder proposes for certain bid items. If this additional information is requested from the bidder, it must be furnished in complete detail before the Award of the Contract. The information must be in sufficient detail so that the Engineer can evaluate the bidder's Proposal on the items.

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

In cases where an item is not listed under designated items of equipment in the Proposal, and where material or equipment is designated on the Plans or in the Specifications by a trade or manufacturer's name, it is so designated primarily to establish standards of quality, finish, appearance, and performance. It is not the intent to limit the choice of materials and equipment to the specific product designated. Requests relative to substitutions permitted under the conditions provided by this paragraph for materials or equipment specifically designated on the Plans or in the Specifications shall be made in writing, after Award of the Construction Contract, and such requests shall be accompanied by complete data on which the Engineer can 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 the designated product in composition, size, arrangement, performance, etc., and, in addition, the request shall be accompanied by documentary evidence of equality in price and delivery or evidence of difference in price and delivery. Data on price shall be in the form of certified quotations from suppliers of both the designated and proposed items. All items accepted for substitution shall be subject to all applicable provision of the Specifications.

Bids shall not contain any recapitulations of the work to be done. Alternative proposals will not be considered unless called for. No oral, or telephonic modifications or withdrawals of Proposals will be considered.

If anyone is in doubt as to the true meaning of any part of the Plans, Specifications, or other portions of the Contract Documents, or finds discrepancies in, or omissions from the Plans or Specifications, such person may submit to the Engineer a request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the Contract Documents will be made only by an Addendum duly issued and a copy of such Addendum will be mailed or delivered to each person receiving a set of such Documents. The Owner will not be responsible for any other explanation of interpretations of the Documents.

If the Proposal is made by an individual, it shall be signed and the full name and address shall be given; if it is made by a firm, it shall be signed with the co-partnership name by a member of the firm, who shall also provide a signature, and the name and address of each member shall be given; and if it is made by a corporation, the name of the corporation shall be signed by its duly authorized officer or officers.

PROPOSAL

Place:_____
Date: _____

Salem City
30 West 100 South
Salem, Utah 84653

In compliance with your invitation for bids and all conditions of the Contract Documents for the construction of the SALEM CITY - POWER BUILDING SITE WORK, the undersigned _____, a corporation organized under the laws of the State of _____, a partnership consisting of _____ or individuals trading as _____of the City of _____, hereby proposes and agrees to furnish any and all materials, labor, construction equipment, services, and transportation required for performing all work for the construction described in the NOTICE INVITING BIDS and to construct the same and install the material therein for the Owner in a good and workmanlike and substantial manner acceptable to the Owner, through its Engineer, or properly authorized agents, and strictly pursuant to and in conformity with the Specifications and Plans prepared by the Engineer for the Owner, and with such modification of the same and other documents that may be made by the Owner, through its Engineer, or properly authorized agents, as provided herein, at the following lump sum and unit prices for the work described in the bid schedule.

The undersigned hereby declares that he has visited the site and has carefully examined the Contract Documents, consisting of one volume, relating to the work covered by the above bid or bids.

The Bid Security (Certified Check, Cashier's Check, or Bid Bond) attached, payable to the Owner in the sum of not less than five percent (5%) of the lump sum bid for the complete project, is to become the property of the Owner in the event the Contract and Bonds are not executed within the time set forth, as liquidated damages for the delay and additional work caused thereby.

The project shall be ready for footing by October 27, 2020.

The undersigned hereby declares, as bidder, that the only persons or parties interested in this PROPOSAL as principals are those named herein; that no elected official or employee of the Owner is in any manner interested directly or indirectly in this PROPOSAL or in the profits to be derived from the Contract proposed to be taken, other than as permitted by law; that this bid is made without any connection with any other person or persons making a separate bid for the same purpose; that the bid is in all respects fair and without collusion or fraud; that the bidder has read the NOTICE INVITING BIDS and the INFORMATION FOR BIDDERS hereto attached, and agrees to all the stipulations contained therein; that he has examined the form of Contract attached hereto, and the Specifications, and he proposes and agrees that if his bid as submitted, and as more fully described in the attached sheets, be accepted, he will contract in the form so attached to furnish the items and perform work called for in accordance with the provisions of said form of Contract and the Specifications and to deliver the same within the time stipulated therein; and that he will accept in full payment, therefore, the prices named in this PROPOSAL.

The bidder further agrees that, upon receipt of written notice of the acceptance of this PROPOSAL, within 10 calendar days after the date of opening of the bids, he will execute the Contract in accordance with the PROPOSAL as accepted and furnish the required bond within 10 days from date of mailing of said notice of acceptance to him at his address as given below, or within such additional time as may be allowed by the Owner; and that upon his failure or refusal to do so within said time, then the certified or cashier's check or bid bond accompanying this bid shall be cashed or enforced and the money payable pursuant thereto shall be forfeited to and become the property of the Owner as liquidated damages for such failure or refusal; provided, that if said bidder shall execute the Contract and furnish the required bonds within the aforesaid time, his certified or cashier's check, if furnished, shall be returned to him within three days thereafter, and the bid bond, if furnished, shall become void.

BID SCHEDULE

All applicable sales taxes, State, and/or Federal, and any other special taxes, patent rights, or royalties are included in the price quoted in this Proposal. Figures are to be typewritten or clearly and legibly printed in ink. LS is equal to lump sum, LF is equal to linear feet, EA is equal to each, CY is equal to cubic-yard, SY is equal to square-yard.

Bid Schedule: SALEM CITY – POWER BUILDING SITE WORK

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	MOBILIZATION, BONDING & PERMITTING	1	LS		
2	LAND DISTURBANCE PERMIT, SWPPP & BMPs	1	LS		
3	EXCAVATION OF EARTHEN MATERIAL TO SUB-GRADE	1	LS		
4	FOOTING EXCAVATION	460	LF		
5	FOOTING STRUCTURAL FILL	460	LF		
6	4” SEWER CONNECTION & LATERAL	1	LS		
7	1500 GALLON OIL SEPERATOR	1	LS		
8	48” SAMPLING MANHOLE	1	LS		
9	1-1/2” CULINARY WATER CONNECTION & LATERAL	1	LS		
10	1” CULINARY WATER METER	1	LS		
11	INTERIOR STRUCTURAL FILL	1,050	CY		
12	1” CLEAN GRAVEL FOR INTERIOR SLAB	210	CY		
13	EXTERIOR STRUCTURAL FILL USING PROCESSED ON-SITE MATERIAL	750	CY		
14	EXTERIOR STRUCTURAL FILL USING IMPORT MATERIAL	250	CY		
15	STABILIZATION USING GEOTEXTILE FABRIC AND 18-INCHES OF PIT RUN	700	SY		
TOTAL BID (FIGURES)					
TOTAL BID (IN WORD FORM)					

Bidder is cautioned to read carefully the INFORMATION FOR BIDDERS Section of these Contract Documents and the INSTRUCTIONS FOR PREPARING PROPOSAL relating to what is to be furnished under each item of the PROPOSAL and to submittal of bid.

Bidder understands and agrees that the Owner reserves the right to reject any or all bids or schedules and to waive any informality in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids. Bidder acknowledges receipt of the following addenda:

The undersigned bidder shall acknowledge receipt of the following addenda, if any.
Addenda No(s).

Respectfully submitted,

_____

_____
Bidder

(Corporate Seal)
If bid is by corporation

By: _____
Title

_____
Witness: if bidder is an individual
Bidder's post office address:

Name and address of all members of the firm or names and titles of all officers of the corporation

Name and Title:

_____

_____

Bidder's post office address (if applicable):

_____

_____

Bidder's address:

_____

_____

_____

Bidders phone number: _____

SEAL

MEASUREMENT AND PAYMENT

GENERAL

The method of measurement and payment for the various items comprising the completed work follows: Payment for the items shall be compensation in full for the furnishing of all overhead, labor, material, tools, equipment, and appurtenances necessary to complete the work in a good, neat, and satisfactory manner as indicated on the Plans or as specified, with all connections, testing, painting, cleanup, and related work completed. Each item, fixture, piece of equipment, etc., shall be complete with all necessary connections and appurtenances for the satisfactory use and/or operation of said item. No additional payment, including work done by the contractor for his convenience, shall be made for work related to each item unless specifically noted or specified. Measurement shall be in place in the completed work with no allowance for waste.

BID SCHEDULE: SALEM CITY – POWER BUILDING SITE WORK

ITEM 1: MOBILIZATION, BONDING & PERMITTING

Measurement for payment for mobilization, bonding & permitting shall be a lump sum bid price. Mobilization, bonding and permitting shall include the cost of necessary bonding, permits and mobilization of equipment and personnel, and the removal of all equipment, trash, debris, etc. at the completion of the project. No more than 50% of mobilization, bonding and permitting shall be paid until work has commenced in earnest and will be made at the time of the first partial payment. A minimum of 25% of mobilization shall be retained until the contractor has removed all equipment, tools, debris, etc. from the site at the completion of the job.

ITEM 2: LAND DISTRUBANCE PERMIT, SWPPP & BMPs

Measurement for payment for land disturbance, SWPPP & BMPs shall be a lump sum bid price. This includes the cost of completing all requirements, constructing and maintaining the Storm Water Pollution Prevention Plan (SWPPP). No more than 50% of traffic control shall be paid until work has commenced in earnest and will be made at the time of the first partial payment. A minimum of 25% of mobilization shall be retained until the contractor has removed all non-permanent material, debris, etc. from the site at the completion of the job.

ITEM 3: EXCAVATION OF EARTHEN MATERIAL TO SUB-GRADE (PLAN QUANTITY)

Measurement for payment for excavation of earthen material to sub-grade shall be cubic-yard bid price per plan quantity. Such payment shall be compensation in for the equipment, labor, moving excavated material, handling, hauling, and proper care of excavated material as shown on the plans.

ITEM 4: FOOTING EXCAVATION

Measurement for payment for excavating the footing shall be per the linear-foot as measured on the perimeter of the foundation walls. Payment shall be made at the linear foot bid price. Payment shall be compensation in full for the equipment, labor, moving excavated material, handling, hauling, and proper care of excavated material.

ITEM 5: FOOTING STRUCTURAL FILL

Measurement of payment for installation of structural fill shall be at the linear-foot as measured on the perimeter of the foundation walls. Payment will be made at the unit price bid per linear-foot. Payment will be compensation in full for installing the structural fill per the geotechnical study; including labor, equipment to prepare bottom of excavation, placement of structural earthen material, compaction, and preparing surface footings.

ITEM 6: 4" SEWER CONNECTION & LATERAL

Measurement and payment for sewer lateral shall be per lump sum. Payment shall be compensation in full to connect to the existing sewer line and extend it to the new building and sampling manhole including; time, labor, equipment, material, fittings, excavating, removal of obstructions, backfilling, compaction, placing, and cleanup.

ITEM 7: 1500 GALLON OIL SEPERATOR

Measurement for payment for installation of oil separator shall be a lump sum. Payment will be made at the lump sum price. Payment will be compensation in full for all work, preparation, supplying, and connecting to building and sampling manhole.

ITEM 8: 48" SAMPLING MANHOLE

Measurement for payment for installation of oil separator shall be a lump sum. Payment will be made at the lump sum price. Payment will be compensation in full for all work, preparation, supplying, and connecting to oil separator and sewer lateral.

ITEM 9: 1-1/2" CULINARY WATER CONNECTION & LATERAL

Measurement and payment for culinary water lateral shall be per lump sum. Payment shall be compensation in full to connect to the existing water line and extend it to the water meter including; time, labor, equipment, material, fittings, excavating, removal of obstructions, backfilling, compaction, placing, testing, and cleanup.

ITEM 10: 1" CULINARY WATER METER

Measurement and payment for culinary water meter shall be per lump sum. Payment shall be compensation in full to connect to the water lateral as well as the building supply including; time, labor, equipment, material, fittings, excavating, removal of obstructions, backfilling, compaction, placing, testing, and cleanup. Water meter shall be supplied by Salem City but shall be installed by Contractor.

ITEM 11: INTERIOR STRUCTURAL FILL

Measurement of payment for installation of structural fill shall be at the cubic-yard as measured with truck load tickets. Payment will be made at the unit price bid per cubic-yard. Payment will be compensation in full for installing the structural fill per the geotechnical study; including labor, equipment to prepare bottom of excavation, placement of structural earthen material, compaction, protection of footings and foundation.

ITEM 12: 1" CLEAN GRAVEL FOR INTERIOR SLAB

Measurement of payment for installation of clean gravel shall be at the cubic-yard as measured with truck load tickets. Payment will be made at the unit price bid per cubic-yard. Payment will be compensation in full for providing and installing the clean gravel in preparation of the concrete slab; including labor, equipment, placement of gravel, grading, earthen material, compaction, protection of footings and foundation.

ITEM 13: EXTERIOR STRUCTURAL FILL USING PROCESSED ON-SITE MATERIAL

Measurement of payment for installation of structural fill using processed on-site material shall be at the cubic-yard as documented on-site. Payment will be made at the unit price bid per cubic-yard. Payment will be compensation in full for processing the structural fill and installing on-site; including labor, equipment to handle, process, transport, placement, compaction, and grading.

ITEM 14: EXTERIOR STRUCTURAL FILL USING IMPORT MATERIAL

Measurement of payment for installation of structural fill shall be at the cubic-yard as measured with truck load tickets. Payment will be made at the unit price bid per cubic-yard. Payment will be compensation in full for installing the structural fill per the geotechnical study; including labor, equipment to prepare bottom of excavation, placement of structural earthen material, compaction, protection of utilities, exterior of footings and foundation.

ITEM 15: STABILIZATION USING GEOTEXTILE FABRIC AND 18-INCHES OF PIT RUN

Measurement of payment for stabilization of subgrade or footing foundation shall be at the square-yard as agreed upon with the engineer prior to installation. Payment will be made at the unit price bid per square-yard. Payment will be compensation in full for installing the geotextile fabric and pit run earthen material per the geotechnical study; including labor, equipment to, placement, installation, compaction, and stabilization prior to installing structural fill.

* * * END OF MEASUREMENT AND PAYMENT * * *

BID BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____ as Principal, and _____ as Surety, are held and firmly bound unto Salem City, hereinafter called "Owner", in the sum of

_____dollars,

(not less than 5 percent of the total amount of the bid)

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 Principal has submitted a bid to said Owner to perform all work required under the bidding schedule of the Owner's Specifications entitled SALEM CITY - POWER BUILDING SITE WORK.

NOW THEREFORE, if said Principal is awarded a contract by said Owner and, within the time and in the manner required under the heading "Instructions to Bidders" bound with said Specifications, enters into a written contract on the form of Agreement bound with said Specifications and furnished the required bonds, one to guarantee faithful performance and the other to guarantee payment for labor and materials, 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 Owner and judgement is recovered, said Surety shall pay all costs incurred by said Owner in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this ____ day of _____, 20___.

_____(SEAL) _____(SEAL)
(Principal) (Surety)

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

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

INFORMATION REQUIRED OF BIDDER

SALEM CITY
POWER BUILDING SITE WORK

GENERAL INFORMATION

The bidder shall furnish the following information. Failure to comply with this requirement will render the Proposal informal and will cause its rejection. Additional sheets shall be attached as required.

(1) Contractor's name and address:

_____

_____

_____

(2) Contractor's telephone number: _____

(3) Contractor's license: Primary classification: _____

State License No.: _____

(4) Number of years as a contractor in construction work of this type: _____

(5) Names and titles of all officers of contractor's firm:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

(6) Name of person who inspected site of proposed work for your firm:

Name: _____ Date of Inspection: _____

NOTE - THE FOLLOWING INFORMATION SHALL BE PROVIDED AS SEPARATE ATTACHMENTS AND SHALL BE SUBMITTED WITH BID:

(7) Individual experience resume of person who will be designated chief construction superintendent.

(8) The bidder must demonstrate the ability to perform at least seventy-five (75%) percent of the work without subcontracting. Information on the bidder's ability to staff the project, both in the field and in his office, and the bidder's ability to directly supply major construction equipment to the project shall be submitted for review with the bidder's proposal.

AGREEMENT

THIS AGREEMENT, made and entered into this __ day of_____, 20__, by and between Salem City, hereinafter called "Owner", and _____ hereinafter called "Contractor".

WITNESSETH, that the parties hereto do mutually agree as follows:

ARTICLE I: For and in consideration of the payments and agreements hereinafter mentioned to be made and performed by said Owner, said Contractor agrees with said Owner to perform and complete in a workmanlike manner all work required under the bidding schedule(s) of said Owner's Specifications entitled SALEM CITY - POWER BUILDING SITE WORK in accordance with the Specifications and drawings therefore, to furnish at his own expense all labor, materials, equipment, tools, and services necessary therefore, except such materials, equipment, and services as may be stipulated in said Specifications to be furnished by said Owner, and to do everything required by this Agreement and said Specifications and drawings.

ARTICLE II: For furnishing all said labor, materials, equipment, tools, and services, furnishing and removing all plant, temporary structures, tools, and equipment, and doing everything required by this Agreement and the said Specifications and drawings; also for all loss and damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen difficulties which may arise during the prosecution of the work until its acceptance by said Owner, and for all risks of every description connected with the work, also for all expenses resulting from the suspension or discontinuance of work, except as in the said Specifications are expressly stipulated to be borne by said Owner; and for completing the work in accordance with the requirements of said Specifications and drawings, said Owner will pay and said Contractor shall receive, in full compensation therefor, the price(s) named in the above-mentioned proposal(s) dated _____,
Alternative _____, Schedule(s) _____.

ARTICLE III: The Owner hereby contracts with said Contractor to perform the work according to the terms of this Agreement for the above-mentioned price(s), and agrees to pay the same at the time, in the manner, and upon the conditions stipulated in the said Specifications; and the said parties for themselves, their heirs, executors, administrators, successors, and assignees, do hereby agree to the full performance of the covenants herein contained.

ARTICLE IV: The Notice Inviting Bids, Information for Bidders, Instructions to Bidders, Proposal, Performance and other bonds, Notice of Award, Notice to Proceed, Information Required of Bidder, Information for Preparing Proposal, General Conditions, Specifications, drawings, and all addenda issued by the Owner with respect to the foregoing prior to the opening of bids, are hereby incorporated in and made part of this agreement.

ARTICLE V: The parties herein each agree that should they default in any of the covenants or agreements contained herein, the defaulting party shall pay all costs and expenses, including a reasonable attorney's fee which may arise or accrue from enforcing this agreement, or in pursuing any remedy provided hereunder or by the statutes or other laws of the State of Utah, whether such costs and expenses are incurred with or without suit or before or after judgement period.

ARTICLE VI: The Owner and Contractor agree that should any dispute, which may arise between them with respect to the performance or completion of the work or the payments due from the Owner to the Contractor, all parties will use the dispute resolution procedure described below:

Mediation

The parties agree to engage in mediation as a first step toward the resolution of issues which may arise between the Owner and the Contractor which the parties are unable to resolve between themselves after discussions between the Owner, Engineer, and the Contractor. The parties agree to participate in mediation up to a period of six (6) hours for each specific topic of disagreement and to share equally the cost of such mediation. Each party may or may not be represented by counsel at the election of each party and the mediator shall be selected by the following procedure.

1. The owner shall prepare a list of five (5) proposed mediators and shall submit the proposed mediator list to the Contractor. If the Contractor finds one (1) of the five (5) nominated mediators acceptable, that mediator shall be the mediator conducting the mediation between the parties. If none of the five (5) individuals are acceptable to the Contractor, the Contractor shall prepare a list of five (5) proposed mediators to the owner. If the owner finds one (1) of the proposed mediators acceptable, that individual shall be the mediator conducting the mediation between the parties.

The parties shall cooperate in good faith to select a mediator and may engage in up to four (4) rounds of nomination of mediators to select a mediator. In the event the parties are unable to select a mediator, the parties shall proceed directly to arbitration.

Arbitration

The parties shall submit the matter to formal bidding arbitration under the Construction Industry Rules of the American Arbitration Association. The arbitration shall be conducted by a panel of three (3) arbitrators who shall be selected as provided by the Construction Industry Rules of the American Arbitration Association; the decision of the arbitrators shall be binding.

IN WITNESS WHEREOF, the parties hereto have caused this Contract to be executed the day and year first above written.

OWNER
SALEM CITY

Attest: _____ By: _____
Signature Signature

_____ _____
Title Title

(Seal)

CONTRACTOR

_____

Attest: _____ By: _____
Signature Signature

_____ _____
Title Title

(Seal)

LABOR AND MATERIAL BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____ as Contractor, and _____ as Surety, are held firmly bound unto Salem City hereinafter called "Owner", in the sum 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 with said Owner to perform all work required under the bidding schedule of the Owner's Specifications entitled SALEM CITY - POWER BUILDING SITE WORK.

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

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 14, Chapter 1, Utah Code Annotated 1953, as amended, and all liabilities on this bond shall be determined in accordance with said provisions to the extent as if it was copies at length herein.

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

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS,

That as Contractor, and

as Surety, are held firmly bound unto Salem City hereinafter called "Owner", in the sum 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 with said Owner to perform all work required under the bidding schedule of the Owner's Specifications entitled SALEM CITY - POWER BUILDING SITE WORK.

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 force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 14, Chapter 1, Utah Code Annotated 1953, as amended, and all liabilities on this bond shall be determined in accordance with said provisions to the extent as if it was copies at length herein.

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)

_____ _____

(Contractor) (Surety)

By: _____ By: _____

(Signature) (Signature)

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

NOTICE OF AWARD

SALEM CITY
POWER BUILDING SITE WORK

TO: _____

_____

_____

PROJECT DESCRIPTION SALEM CITY - POWER BUILDING SITE WORK.

Salem City has considered the BID submitted to you for the above described WORK in response to its Notice Inviting Bids and Instructions to Bidders.
You are hereby notified that your BID has been accepted for items in the amount of
$ _____ (Dollars).
You are required by the Instructions to Bidders to execute the Contract and furnish the required Contractor's Performance Bond and Payment Bond and certificates of insurance within ten calendar days from the date of this Notice to you.
If you fail to execute said Contract and to furnish said bonds within ten 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 NOTICE OF AWARD to the Owner.

Dated this___ day of _____, 20___.

OWNER

By: _____

Title: _____

ACCEPTANCE OF NOTICE OF AWARD

By: _____

Title: _____

Date: _____

NOTICE TO PROCEED

SALEM CITY
POWER BUILDING SITE WORK

TO: _____ DATE: _____

_____ PROJECT: _____

_____ _____

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

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE to
PROCEED is hereby acknowledged by
_____,
this the _____ day of _____ 20 ___ .

By: _____

Title: _____

CONTRACTOR'S APPLICATION FOR PAYMENT

To: _____

From: _____

_____

Project: SALEM CITY - POWER BUILDING SITE WORK
Payment Request No.: _____
Period: _____ through _____

1. Contract Time	_____	Calendar Days
2. Time Elapsed	_____	Calendar Days
3. Remainder	_____	Calendar Days
4. Work Completed	_____	Percent
5. Time Elapsed Percent	_____	Percent

6. Original Contract Amount		$_____
7. Approved Change Order No's	_____	$_____
8. Adjusted Contract Amount		$_____

	Previous Period	This Period
9. Total Value to Date	9a_____	9b _____
10. Total Retainage to Date	10a_____	10b_____
11. Value This Request	11a_____	11b_____
12. Retainage This Request	12a_____	12b_____
13. Reduction of Retainage	13a_____	13b_____

14. NET PAYMENT AMOUNT TO CONTRACTOR _____

We certify the above is a true statement of work done.

CONTRACTOR - _____

BY: _____

TITLE: _____

DATE: _____

ENGINEER - Epic Engineering, P.C.

BY: _____

TITLE: _____

DATE: _____

OWNER -SALEM CITY

BY: _____

TITLE: _____

DATE: _____

(Instructions on Next Page)

PAYMENT REQUEST INSTRUCTIONS

ITEM

2. Elapsed Calendar Days from Date of Notice to Proceed.

3. Item 1 Minus Item 2

4. Divide Item 9b by Item 8 and Multiply by 100

5. Divide Item 2 by Item 1 and Multiply by 100

9a. Item 9b from Previous Payment Request

10a. Item 10b from Previous Payment Request

11a. Item 11b from Previous Payment Request

12a. Item 12b from Previous Payment Request

13a. Item 13b from Previous Payment Request

9b. Total Value of Work Completed to Date of this Request (Attach Payment Breakdown).

10b. 10% of Item 9b Unless Percent Reduction is Allowed by Owner.

11b. Item 9b Minus Item 9a.

12b. Item 10b Minus Item 10a.

13b. Amount Authorized by Owner.

14. Item 11b Minus Item 12b Plus Item 13b.

CHANGE ORDER

ORDER NO. _____

DATE _____

CONTRACT FOR: SALEM CITY - POWER BUILDING SITE WORK

OWNER: Salem City

TO: _____
(Contractor)

You are hereby requested to comply with the following changes from the Contract Documents, Plans and Specifications:

Description of Changes (Supplemental Plans & Specifications Attached)	Item	Decrease Contract Price	Increase Contract Price

_____

JUSTIFICATION: _____

_____

The amount of the Contract Price will be (____) by the sum of: ($ _____).

The Contract Price including this and previous Change Orders will be:

_____ ($ _____).

This document will become a modification to the Contract and all provision will apply hereto.

Requested _____ _____
(Contractor) (Date)

Recommended _____ _____
(Engineer) (Date)

Approved _____ _____
(Owner) (Date)

AFFIDAVIT OF PAYMENT

SALEM CITY

To All Whom it May Concern:

WHEREAS, the undersigned Contractor has furnished labor and materials under a contract dated for the project named SALEM CITY - POWER BUILDING SITE WORK of which Salem City is the Owner.

NOW, THEREFORE, this _____ day of _____, 20 ___, the undersigned Contractor hereby certifies that, except as listed below, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or his property might in any way be held responsible.

EXCEPTIONS: (If none, write "none". If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each Exception.)

_____

Contractor (Name of sole ownership, corporation or partnership)

Affix corporate
seal here

_____

(Signature of Authorized Representative)

Title: _____

CONSENT OF SURETY FOR FINAL PAYMENT

SALEM CITY

Project Name: SALEM CITY - POWER BUILDING SITE WORK

Location: Salem City – 460 West 1500 North

Type of Contract: Unit Price

Amount of Contract _____

In accordance with the provisions of the above-named contract between the Owner and the Contractor, the following named surety:

_____

_____

_____

on the Payment Bond of the following named Contractor:

_____

_____

_____

hereby approves of final payment to the Contractor, and further agrees that said final payment to the Contractor shall not relieve the Surety Company named herein of any of its obligations to the following named Owner (as set forth in said Surety Company's bond):

_____

_____

_____

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand and seal this _____ day of _____, 20 ___.

_____

(Name of Surety Company)

_____

(Signature of Authorized Representative)

_____

(Name of Authorized Representative)

Title: _____

GENERAL CONDITIONS - PART 1

DEFINITIONS

Wherever in these Specifications, or in other Contract Documents, the following terms are used, the intent and meaning shall be interpreted as shown below. Additional definitions and abbreviations pertaining to this project will be found in Special Conditions, Section 010091.

1-1 DEFINITIONS

ADDENDUM: A supplement to any of the Contract Documents issued, in writing, after advertisement of but prior to the opening of bids for a Contract.

ADVERTISEMENT: The public announcement, as required by law, inviting bids for work to be performed or materials to be furnished.

AWARD: The formal action of the governing body in accepting a proposal.

BID SECURITY: Refers to the certified check, cashier's check, or surety bond, which is required to be submitted with the Proposal to insure execution of the Contract and the furnishing of the required bonds.

BIDDER: Any individual, firm, co-partnership, or corporation submitting a Proposal for the work contemplated, acting directly or through a duly authorized agent.

CALANDER DAY: Every day shown on the calendar.

CHANGE ORDER: A written order issued by the Owner ordering the Contractor to make changes in the work or to perform extra work, and setting forth conditions for payment and adjustment in time of completion.

CITY: A municipal corporation, organized and existing under and by virtue of the laws of the State.

CLERK: The word "Clerk" refers to the duly authorized person who performs the duties of Clerk of the Contracting Agency.

CONTRACT: The written instrument executed by the Contractor and the Owner by which the Contractor is bound to furnish all labor, equipment, and materials and to perform the work specified, and by which the Owner is obligated to compensate the Contractor therefore at the prices set forth therein. The Contract Documents are herewith by reference made a part of the Contract as if fully set forth therein.

CONTRACT DOCUMENTS: The words "Contract Documents" include the Notice Inviting Bids, Information for Bidders, General Conditions, Special Conditions, Specifications, Measurement and

Payment or Instructions for Preparing Proposal, Proposal, Contract, Payment Bond, Performance Bond, Plans, and Addenda thereto.

CONTRACT TIME: The number of calendar days for completion of the Work, including authorized time extensions. In case a calendar date of completion is specified in the proposal in lieu of the number of calendar days, the Work shall be completed by that date. The Contract Time shall be computed by excluding the first and including the last day; and if the last day be Sunday or a legal holiday, that shall be excluded.

CONTRACTING AGENCY: The legal entity that has contracted for the performance of the work or for whom the work is being performed.

CONTRACTOR: The person or persons, co partnership, or corporation who has or have entered into a contract with the Owner as a party or parties of the first part or his or their legal representatives.

DAYS: Unless otherwise designated, days will be understood to mean calendar days.

DESIGN ENGINEER: The firm or person and his properly authorized assistants, designated by the Owner to prepare Plans and Specifications for the work.

ENGINEER: The firm or person and his properly authorized assistants, designated by the Owner to inspect construction of the work for compliance with the Plans and Specifications.

EQUIPMENT: (Construction) - All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of work. (Installed) - All material or articles used in equipping a facility as furnishings or apparatus to fulfill a functional design.

EXTRA WORK: An item of work not provided for in the Contract as awarded but found essential to the satisfactory completion of the Contract within its intended scope.

LABORATORY: The established materials testing laboratory of the Contracting Agency's Engineering Department, or other laboratories acceptable to or authorized by the Engineer to test materials and work involved in the Contract.

MATERIALS: The word "materials" includes, in addition to material incorporated in the project, equipment and other material consumed in the performance of the work.

NOTICE OF AWARD: A letter from the Owner advising a bidder that his Proposal has been accepted.

NOTICE TO CONTRACTORS: Refers to the standard forms inviting Proposals or bids.

NOTICE TO PROCEED: A directive issued by the Owner, authorizing the Contractor to start the work

or improvements required in the Contract.

OWNER: The word "Owner" refers to the individual, company, municipality or other legal entity that has contracted for the work or for whom the work is being performed.

OWNER'S REPRESENTATIVE OR OWNER'S AGENT: The authorized representative of the Owner, which may be an individual or a firm, the Engineer, or his assistants assigned to the project work, the project site, or any part thereof during the performance of the work by the Contractor and until final acceptance.

PAYMENT BOND: A bond furnished by the Contractor and an acceptable surety, conditioned upon the Contractor promptly paying all monies due persons supplying labor or material to be used in prosecution of the Contract.

PERFORMANCE BOND: A bond furnished by the Contractor and an acceptable surety, conditioned on the faithful performance and completion of the work covered by the Contract.

PLANS: All drawings or reproductions thereof pertaining to details of the work and which are made a part of the Contract Documents.

SPECIAL CONDITIONS: The special conditions and requirements, applicable to the work, that are not covered in detail under other sections of these Contract Documents.

SPECIFICATIONS: The directions, provisions, and requirements for performing the work, as contained in the Contract Documents.

SUBCONTRACTOR: The word "subcontractor" includes those having a direct contract with the Contractor and those who furnish material worked into a special design according to the Plans and Specifications for this work, but do not include those who merely furnish material not so worked.

SURETY: Refers to the person or firm with whom the Contractor joins in assuming the liability for the performance of the Contract by issuing the bonds required by law.

TOWNSHIP, CITY, TOWN, OR DISTRICT: A subdivision of the County used to designate or identify the location of the proposed work.

WORK: The word "work" or "improvement" includes any or all of the improvements mentioned and authorized to be made, and the construction, reconstruction, and repair of all, or any portion of such improvements, and all labor, services, incidental expenses, and material necessary or incidental thereto.

GENERAL CONDITIONS - PART 2

BIDDING REQUIREMENTS AND CONDITIONS

2-1 SUBMITTING BIDS

No bid will be considered unless it is made upon the Proposal forms contained in and submitted with the book of Contract Documents. No book of Contract Documents shall be disassembled.

No bid shall be considered which is deemed as an irregular Proposal. Proposals may be considered irregular and may be rejected by the Owner if they show any alterations of form, unauthorized additions, unauthorized conditional or alternate bids, incomplete bids, obviously unbalanced prices, erasures, or irregularities of any kind.

No bid will be considered unless accompanied by the Bid Security in the type and amount set forth in Information for Bidders.

Bids shall be submitted in a sealed envelope. The outside, upper left-hand corner of the ENVELOPE shall be marked as follows:

Bid of _____, Contractor

Project Name _____

Proposals will be received until the hour and date set for the opening thereof, and must be, by that time, in the hands of officials so designated in Notice Inviting Bids. Proposals received after the time set for opening of bids will be returned to the bidders unopened.

The bids will be publicly opened and read at the time and place designated in the Notice Inviting Bids.

The Owner reserves the right to reject any or all bids when deemed advisable for the public good.

2-2 EXAMINATION OF PLANS AND SITE OF WORK

The bidder is required to examine carefully the site of the proposed work, the Plans, Specifications, Special Conditions, Proposal, Contract Agreement, and Bond forms before submitting a Proposal. Submission of a Proposal shall be considered prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the Plans, Specifications, and other Contract papers.

2-3 DISQUALIFICATION OF BIDDERS

More than one Proposal for the same work from an individual, a firm or partnership, a corporation, or an association under the same or different names, will not be accepted. Reasonable ground for believing that any bidder is interested in more than one Proposal for the same work, will cause the rejection of all Proposals for the work in which such a bidder is interested. Any or all Proposals will be rejected if there is reason for believing that collusion exists among any of the bidders.

2-4 ADDENDA

Any Addenda issued during the time of bidding, forming a part of the Documents issued to the bidder for the preparation of his bid, shall be covered in the bid and shall be made a part of the Contract.

GENERAL CONDITIONS - PART 3

AWARD AND EXECUTION OF CONTRACT

3-1 AWARD

The Owner, through its duly authorized body or agent, will award the Contract to the lowest responsible bidder, or all bids will be rejected, as soon as practicable after the date of opening of bids.

A Notice of Award will be sent to the successful bidder by certified mail.

The lowest net will determine the low bid total arrived at by combining the bidder's lump sum and unit price totals or lump sum base bid price and the bid prices of the alternates that are selected and accepted by the Owner. The Owner may accept or reject any or all alternates.

3-2 EXECUTION OF CONTRACT

The successful bidder shall, within the time specified in Information for Bidders, execute the Contract and simultaneously therewith furnish the required Payment Bond and Performance Bond, in the amounts indicated in the Information for Bidders, and shall file insurance policies and/or certificates of insurance as required herein.

3-3 CONTRACTOR'S INSURANCE

GENERAL: On all projects, the Contractor shall carry all insurance required by Federal, State, County, and local laws. The Contractor shall procure and maintain, during the life of the Contract, adequate fire, workmen's compensation, public liability, and property damage insurance. The specific requirements for insurance as set forth in these General Conditions, shall be considered as minimum requirements.

The Contractor shall furnish satisfactory proof of carriage of insurance, or satisfactory proof of an approved self-insured program, and shall submit to the Owner, before work on the Contract starts, certificates of all insurance policies, bonds, or self-insured programs. Neither the Contractor, nor any subcontractor, shall commence work under this Contract until the Owner has approved all required insurance policies. The certificates of insurance shall be attached to the Contract by the Owner and filed in the Owner's office.

Certificates of said policies shall provide that if the said policy or policies be canceled by the insurance company during the term of the Contract, that thirty (30) days written notice prior to cancellation will be given the Owner. The Owner will retain insurance certificates. Insurance certificates shall set forth the following information and shall be signed by an authorized representative of the insurance company:

Name and address of the insured.

The location of the operations to which the insurance applies.

The number of the policy and the type or types of insurance in force thereunder on the date borne by the certificate.

The expiration date of the policy and the limit or limits of liability thereunder on the date borne by the certificate.

A statement that the insurance covered by the certificate applies to all of the operations on and at the site of the project, which are undertaken by the insured during the life of the Contract.

Public liability and Comprehensive General Liability, completed operations broad form property damage insurance shall include elevator liability, water damage liability, and automobile liability including no owned and rented cars.

A statement that all coverage is on an occurrence basis rather than an accident basis.

A statement that "explosion, collapse, and underground" coverage is included.

A provision that the policy or policies may not be canceled or reduced in coverage until at least thirty (30) days after written notice has been sent to the Owner.

A statement that a cross liability or sever ability of interests clause is included (unless a separate policy covering the Owner is provided).

In lieu of an insurance certificate setting forth all the required information concerning the coverage's, a copy of the complete policy or policies may be furnished to the Owner.

COMPENSATION INSURANCE: The Contractor shall take out and maintain Workmen's Compensation Insurance for all his employees employed at the site of the project during the life of his Contract. In case any work is sublet, the Contractor shall require each subcontractor to provide Workmen's Compensation Insurance for his employees unless the Contractor covers such employees. The above coverage is required unless such employees are covered by the protection afforded by the Contractor under a self-insurance plan or with a private carrier approved by the State Industrial Commission.

In the event any class of employees engaged in hazardous work under this Contract is not protected by the Workmen's Compensation Statute, the Contractor shall provide, and shall cause the subcontractor to provide special insurance for the protection of such employees not otherwise protected.

COMPREHENSIVE GENERAL LIABILITY AND PROPERTY DAMAGE INSURANCE: The Contractor shall procure, and maintain during the life of his Contract, such comprehensive general liability and property damage insurance necessary to protect him, the Owner and EPIC Engineering, or any subcontractor performing work under his Contract, from all claims for bodily injury, including accidental death and property damage claims arising from operations under this Contract, whether such operations are

the Contractor's or the subcontractors'.

The Owner and EPIC Engineering shall be named as additional primary insured's without offset against their existing insurance, and the certificate of insurance shall include reference to such provisions.

Unless otherwise specifically required by the Special Conditions, the minimum limits of comprehensive general liability and property damage liability shall be as follows:

Comprehensive general liability insurance for injuries, including accidental death, to any one person in an amount not less than	$1,000,000
Subject to the same limits on account of one occurrence, in a total amount not less than	$1,000,000
Broad form property damage insurance in an amount not less than	$1,000,000

Such policy shall not exclude coverage for the following:

Injury to or destruction of any property arising out of the collapse of/or structural injury to any building or structure due:

To grading of land excavation, borrowing, filling, backfilling, tunneling, pile driving, cofferdam work, or caisson work; or

To moving, shoring, underpinning, raising, or demolition of any building or structure, or removal or rebuilding of any structural support thereof.

Injury to or destruction of wires, conduits, pipes, mains, sewers, or other similar property or any apparatus in connection therewith, below the surface of the ground, if such injury or destruction is caused by and occurs during the use of mechanical equipment for the purpose of grading of land, paving, excavating, drilling; or injury to or destruction of any property at any time resulting therefrom.

Motor vehicle public liability and property damage insurance to cover each automobile, truck, and other vehicle used in the performance of the Contract in an amount of not less than One Million Dollars ($1,000,000) for one person, and One Million Dollars ($1,000,000) for more than one person, and property damage in the sum of One Million Dollars ($1,000,000) resulting from any one occurrence which may arise from the operations of the Contractor in performing the work provided for herein.

If the Owner is added as an additional insured, the policy or policies shall contain a cross liability or sever ability of interest clause. As an alternative, the Contractor may secure, in the name of the Owner, and pay for an Owner's Protective Policy for the minimum limits required. In this event, the original policy shall be filed with the Owner in lieu of a certificate of insurance.

3-4 NOTICE TO PROCEED

The Contractor or subcontractor shall not start work on any part of the project until the Owner has issued a Notice to Proceed. The Notice to Proceed will be sent to the Contractor by Certified mail or delivered to him in person.

3-5 ASSIGNMENT OF PAYMENTS

Claims for monies due or to become due the Contractor may be assigned to a bank, trust company, or other financing institution, and may thereafter be further assigned and re-assigned to any such institution. Any such assignment or re-assignment may be made to one (1) party as agent or trustee for two (2) or more parties participating in such financing.

No assignment by the Contractor of any Contract to be entered into hereunder, or of any part thereof, or of funds to be received thereunder by the Contractor will be recognized by the Owner unless such assignment has had prior consent of the Owner and the Surety has been given due notice of such assignment in writing and has consented thereto in writing.

GENERAL CONDITIONS - PART 4

COMMENCEMENT, PROSECUTION, AND PROGRESS

4-1 COMMENCEMENT

The Contractor or subcontractor shall commence work on or before the tenth (10th) day after receiving the Notice to Proceed, and shall complete all work under the Contract within the period of time specified in the Special Conditions. Notice to Proceed will be issued not later than thirty (30) days after the Contract has been awarded unless otherwise agreed upon in writing, or as may be specified in the Special Conditions.

4-2 SUBCONTRACTORS

Subcontracts shall be in accordance with, and the following provisions shall bind the Contractor:

All subcontracts shall be subject to review and acceptance by the Owner.

All subcontracts shall be in writing and shall provide that all work to be performed thereunder shall be performed in accordance with the terms of the Contract.

True copies of any and all subcontracts shall be furnished to the Owner; however, prices may be omitted.

Subcontractors shall conform to the regulations governing employment of labor.

The subcontracting of any part of the work will in no way relieve the Contractor of his responsibility or liability or obligation under the Contract.

All subcontracts and purchase orders for equipment shall state and establish guaranteed delivery dates, at such times as determined by the Contractor, that will allow the Contractor to complete the project within the Contract time.

4-3 CONTRACTOR'S REPRESENTATIVE AND EMERGENCIES

The Contractor shall at all times be present at the work in person or represented by a competent superintendent who shall supervise and direct the work and shall be authorized by the Contractor to receive and fulfill instruction from the Owner's Representative.

The Contractor shall, at all times during working hours, be represented in all matters pertaining to this project by one, and only one, fully competent and experienced general superintendent. Instructions and information given by the Engineer to the Contractor's superintendent on the work shall be considered as having been given to the Contractor. Before any work is done at the jobsite, the Contractor shall give written notice to the

Engineer stating who the Contractor's superintendent will be, giving his home address and telephone number. The Engineer shall be informed in writing prior to any change of general superintendent. A statement naming more than one representative at a time to be in charge and depending upon which is present at the time will not be acceptable.

Emergencies may arise during the progress of the work, which may require special effort or require extra shifts of 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.

4-4 CONTRACT DOCUMENTS

The Contractor shall keep on the work a copy of the Contract Documents and shall at all times give the Engineer access thereto.

The Notice Inviting Bids, Information for Bidders, Special Conditions, Specifications, Plans, and all supplementary documents are intended to be complete, and complementary and to prescribe a complete work. If any omissions are made of information necessary to carry out the full intent and meaning of the Contract Documents, the Contractor shall immediately call the matter to the attention of the Engineer for furnishing of detail instructions. In case of discrepancies, the Specifications shall govern over the Plans. Figured dimensions shall govern over scaled dimensions.

Any drawings or Plans listed anywhere in the Specifications or Addenda thereto shall be regarded as a part thereof and of the Contract. Anything mentioned in these Specifications and not indicated on the Plans, or anything indicated on the Plans and not mentioned in these Specifications, shall be in the same force and effect as if indicated or mentioned in both.

4-5 ADDENDA, REVISIONS AND SUPPLEMENTARY DRAWINGS

The work shall conform to such other drawings relating thereto as may be furnished by the Owner prior to the opening of Proposals, and to such drawings in explanation of details or minor modifications as may be furnished from time to time during construction including such minor modifications as the Owner may consider necessary during the prosecution of the work.

Scaled dimensions shall not be used in the construction of the work.

4-6 ERRORS AND OMISSIONS

The written dimensions on the Plans are presumed to be correct, but the Contractor shall be required to check carefully all dimensions before beginning the work. If any errors or omissions are discovered, the Engineer shall be so advised in writing and will make the proper corrections. Any such adjustments made by the Contractor without prior review and acceptance shall be at his own risk, and the settlement of any complications or disputed expenses arising from such adjustment shall be made by the Contractor, at his own expense.

4-7 QUALIFICATIONS FOR EMPLOYMENT

No person under the age of sixteen (16) years for normal occupations, no person under the age of eighteen (18) years in hazardous occupations, and no person currently serving a sentence in a penal or correctional institution shall be employed to perform any work under this Contract.

No person whose age or physical condition is such as to make his employment dangerous to his health or safety, or to the health and safety of others, shall be employed to perform any work under this Contract provided, however, this condition shall not operate against the employment of physically handicapped persons who, otherwise employable, may safely be assigned to work which they can ably perform.

4-8 CHARACTER OF WORKMEN

Whenever, in the opinion of the Engineer, any superintendent, foreman, or workman employed by the Contractor or his subcontractors is disrespectful, intemperate, disorderly, or otherwise objectionable, he shall, at the written request of the Engineer, be removed and not again employed on the work without the written consent of the Engineer.

4-9 SUSPENSION OF WORK

The Contractor shall suspend the work wholly or in part for such period as he may deem necessary due to unsuitable weather or to such other conditions as are considered unfavorable for the suitable prosecution of the work.

In case of suspension of work from any cause whatever, the Contractor shall be responsible for all materials and shall store them properly if necessary and shall provide suitable drainage and erect temporary structures where necessary.

4-10 DELAYS AND EXTENSION OF TIME

The Contractor may be entitled to an extension of Contract time if the work has been suspended pursuant to the preceding article, in whole or in part, or where other conditions occur which delayed progress and which are clearly beyond the control of the Contractor, provided that in either case the Contractor is not at fault and is not negligent under the terms of the Contract. Extension of time shall be as determined by the Owner. No extension of time will be granted for bad weather days. Bad weather days have been taken in account in the establishment of the contract completion date.

The Owner may grant an extension of time after the expiration of the time originally fixed in the Contract or as previously extended, and the extension so granted shall be deemed to commence and be effective from the date of such expiration. Any extension of time shall not release the sureties upon any bond required under the Contract.

4-11 TERMINATION FOR BREACH OF CONTRACT

If the Contractor refuses or fails to prosecute the work or any separable part thereof with such diligence as will ensure its completion within the time specified herein, or any extension thereof, or fails to complete such work within time, or if he or any of his subcontractors should violate any of the provisions of the Contract, the Owner may serve written notice upon the Contractor and his surety of their intention to terminate the Contract, said notice to contain the reasons for such intention to terminate the Contract, and unless within ten (10) days after the service of such notice such violations shall cease and satisfactory arrangements for the corrections thereof be made, the Contract shall, upon the expiration of said ten (10) days cease and terminate.

In the event of any such termination, the Owner shall immediately serve written notice thereof upon the Surety and the Contractor, and the Surety shall have the right to take over and perform the contract; provided, however, that if the Surety within fifteen (15) days after the serving upon it of a notice of termination does not give the Owner written notice of his intention to take over and perform the Contract, or does not commence performance thereof within thirty (30) days from the date of serving said notice, the Owner may take over the work and prosecute the same to completion by contract or by any other method the Owner may deem advisable for the account and at the expense of the Contractor, and his surety shall be liable to the Owner for any excess cost or other damage occasioned the Owner thereby, and in such event the Owner may, without liability for so doing, take possession of and utilize in completing the work such materials, appliances, plants and other property belonging to the Contractor that may be on the site of the work and be necessary therefor. For any portion of such work that the Owner elects to complete by furnishing employees, materials, tools and equipment, the Owner shall be compensated for such in accordance with the schedule of compensation for force account work in the section on payment for changes in the work.

The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to the Owner.

4-12 METHODS AND APPLIANCES

The methods and equipment adopted by the Contractor shall be such as will secure a satisfactory quality of work and will enable the Contractor to complete the work in the time agreed upon. The selection and use of these methods and appliances is the responsibility of the Contractor.

4-13 DATE OF ACTUAL COMPLETION

The date upon which the project will be considered as complete shall be that date upon which the Owner accepts the work.

4-14 FINAL ACCEPTANCE

After the Contractor has completed to the best of his knowledge all the work under this Contract, including all of the Contractor's testing and cleanup, the Contractor shall then inform the Engineer by written memorandum that the work has been completed. The Contractor shall then request a final inspection by the Engineer. The

Engineer will then make an inspection. If items are found by the Engineer to be incomplete or not in compliance with the Contract requirements, the Engineer will inform the Contractor of such items. After the Contractor has completed these items, the procedure shall then be the same as specified above for the Contractor's statement of completion and request for final inspection.

After all work under the Contract has been completed, as determined by the Engineer, and after the Owner's final seven-day (7-day) test operation if such is required, the Engineer will recommend in writing to the Owner that final acceptance of the entire work under this Contract be made as of the date of the Engineer's final inspection. The Owner will make final acceptance promptly after receiving the Engineer's recommendation.

Unless otherwise specified under Special Conditions, no partial acceptance of any portion of the work will be made and no acceptance other than the final acceptance of the overall completed project will be made. No inspection or acceptance pertaining to specific parts of the project shall be construed as final acceptance of any part until the overall final acceptance by the Owner is made.

4-15 CONSTRUCTION SAFETY PROGRAM AND REGULATIONS

The Utah Occupational Safety and Health Act and the conditions set forth in the Occupational Safety & Health Standards (OSHA) shall constitute the outline for the Safety program to be adhered to during the course of the project. A copy of these publications shall be available at the jobsite for reference.

4-16 TRAFFIC CONTROL

Traffic control shall be as specified under Special Conditions.

4-17 SANITATION

The Contractor shall provide suitable and adequate sanitary conveniences for the use of all persons employed on the project. All sanitary conveniences shall conform to the regulations of the public authority having jurisdiction over such matters. At the completion of the project, all such sanitary conveniences shall be removed and the premises left in a sanitary condition.

4-18 WATER

The Contractor shall supply adequate pure cool drinking water with individual drinking cups for the use of employees on this construction. The quality of drinking water shall meet the "Standards for Public Water Supplies" specified in the State Health Department Code.

It shall be the responsibility of the Contractor to provide and maintain at his own expense an adequate supply of water for his use for construction and to install and maintain necessary supply connections and piping for same. Before final acceptance of the completed project, all temporary connections and piping installed by the Contractor shall be removed.

For project water refer to Section 010522 WATER in the special conditions.

4-19 PROTECTION OF WORK AND CLEANING UP

The Contractor shall be responsible for the protection of all work until its completion and final acceptance, and he shall at his own expense, replace damaged or lost material, or repair damaged parts of the work, and the Contractor and his Sureties shall be liable therefor.

The Contractor shall remove from the vicinity of the completed work all plant, surplus material, or equipment belonging to him or used under his direction during construction. All surplus excavated material, concrete, plaster, and debris of all kinds shall be removed from the Owner's premises, streets, or portions of building or property at or adjacent to the site of the work excepting that select material which may be required for refilling or grading the surface. Salvage material shall be stored at areas designated by the Engineer. Where an area is indicated to be "cleared," all weeds, vegetation, shrubs, and trees shall be removed unless they are specifically noted as not to be removed.

4-20 GUARANTEE OF WORK

The Contractor shall guarantee the work against defective materials or workmanship for a period of one (1) year from the date of its final acceptance under this Contract except where longer guarantee periods are specifically stated. It shall be the Contractor's responsibility to insure himself that manufacturer and supplier warranties are in compliance with the terms of these Contract Documents.

All work, which has been rejected, shall be remedied, or removed and replaced, by the Contractor at his own expense, with work conforming to the Plans and Specifications. Any defective material or workmanship, which may be discovered before final acceptance or within one (1) year thereafter, shall be corrected immediately by the Contractor at his own expense, notwithstanding that it may have been overlooked in previous inspections and estimates. Failure to inspect work at any stage shall not relieve the Contractor from any obligation to perform sound and reliable work as herein described. It is the Contractor's ultimate responsibility to deliver at the time of final acceptance a complete project that complies in all details with these Contract Documents. All items shall be ready to operate.

Any omission or failure on the part of the Engineer to discover or notify the Contractor of or to condemn defective work or material at the time of construction shall not be deemed an acceptance, and the Contractor will be required to correct defective work or material prior to final acceptance.

The Engineer will endeavor to locate any errors or defective materials or workmanship and call them to the attention of the Contractor prior to subsequent work being performed. However, the Engineer is under no obligation to do so and the Contractor shall hold neither the Owner nor the Engineer liable because the Engineer prior to subsequent work does not discover errors or defective material or workmanship.

During the one (1) year guarantee period, should the Contractor fail to remedy defective material and/or workmanship, or to make replacements within five (5) days after written notice by the Owner, it is agreed that the Owner may make such repairs and replacements and the actual cost of the required labor and materials shall be chargeable to and payable by the Contractor.

In the event it is necessary for the Owner to file suit to enforce any liability of the Contractor pursuant to this section GUARANTEE OF WORK, the Owner shall be entitled to recover from the Contractor, in addition to all other amounts found due and owing, a reasonable sum as and for attorney fees.

4-21 CONTINGENCIES

All loss or damage arising from obstruction or difficulties which may be encountered in the prosecution of the work, from the action of the elements, or from any act or omission on the part of the Contractor or any person or agent employed by him shall be borne by the Contractor.

4-22 LIQUIDATED DAMAGES

It is agreed by the parties to the Contract that in case all the work called for under the Contract is not completed before or upon the expiration of the time limits set forth in the Contract Documents, damage will be sustained by the Owner, and that it is and will be impracticable to determine the actual damage which the Owner will sustain in the event of and by reason of such delay, and it is therefore agreed that the Contractor will pay to the Owner an amount specified in the Special Conditions for each calendar day between the completion date required by the Contract, and the date of final acceptance by the Owner, as liquidated damages and not as penalty. It is further agreed that the amounts stipulated are reasonable estimates of the damages that would be sustained by the Owner and the Contractor agrees to pay such liquidated damages as herein provided. In case the liquidated damages are not paid, the Contractor agrees that the Owner may deduct the amount thereof from any money due to or that may become due the Contractor by progress payments or otherwise under the Contract, or if said amount is not sufficient, recover the total amount.

The Contractor shall not be assessed with liquidated damages during any delay in the completion of the work caused by acts of God, acts of criminals, acts of the Owner, acts of the public utilities, fire, floods, epidemics, quarantine restrictions, labor strikes that delay the critical sequence of the work, and unusually severe weather or delays of subcontractors due to such causes, provided that the Contractor shall notify the Owner in writing the causes of such delay as stated hereinbefore.

4-23 NOTICE AND SERVICE THEREOF

Any Notice to the Contractor from the Owner relative to any part of this Contract shall be in writing and considered delivered and the service thereof completed when said Notice is posted, by Registered mail, to the said Contractor at his last given address, or delivered in person to said Contractor or his authorized representative on the work.

GENERAL CONDITIONS - PART 5

SCOPE OF WORK

5-1 INTENT OF PLANS AND SPECIFICATIONS

The intent of the Plans and Specifications is to prescribe a complete work or improvement, which the Contractor shall perform in a manner acceptable to the Engineer and in full compliance with the terms of the Contract. The Contractor shall provide the Owner with a complete and operable work or improvement, even though the Plans and Specifications may not specifically call out all items or items of work required of the Contractor to complete his tasks, incidental appurtenances, materials, and the like.

The Contractor shall perform the work in accordance with the lines, grades, cross sections, and dimensions indicated on the Plans and detailed drawings.

Unless otherwise specified in the Special Conditions, the Contractor shall furnish all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and incidentals, including, but not limited to, dust and traffic control measures, and to perform all work involved in executing the Contract in a satisfactory and workmanlike manner within the time specified.

5-2 CHANGES IN THE WORK

The Owner, without invalidating the Contract and without notification of Sureties, may order extra work, make changes by altering, or delete any portion of the work as specified herein, or as deemed necessary or desirable by the Owner. All such work shall be executed under the conditions of the original Contract except that any claim for extension of time and additional costs caused thereby shall be adjusted at the time of ordering such change or extra work.

In giving instructions, the Engineer shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purposes of the work. No extra work or change shall be made unless in pursuance of a written order by the Engineer, and no claim for an addition to the total amount of the Contract shall be valid unless so ordered, except in an emergency endangering life or property.

It is mutually understood that it is inherent in the nature of municipal construction that some changes in the Plans and Specifications may be necessary during the course of construction to adjust them to field conditions, and that it is of the essence of the Contract to recognize a normal and expected margin of change. The Owner shall have the right to make such changes, from time to time, in the Plans, in the character of the work, and in the termini of the project as may be necessary or desirable to ensure the completion of the work in the most satisfactory manner without invalidating the Contract.

Any change ordered by the Owner which involves installation of work essential to complete the Contract, but for which no basis of payment is provided for herein, said payment therefore shall be subject to negotiation.

Upon demand of either the Contractor or the Owner an equitable adjustment satisfactory to both parties shall be made in the basis of payment for extra work. The prices agreed upon and any agreed upon adjustment in Contract time shall be incorporated in the written order issued by the Owner, which shall be written so as to indicate acceptance on the part of the Contractor as evidenced by his signature. In the event prices cannot be agreed upon, the Owner reserves the right to terminate the Contract as it applies to the items in question and make such arrangements as it may deem necessary to complete the work, or it may direct the Contractor to proceed with the items in question on a force account basis as provided hereinafter.

5-3 FORCE ACCOUNT

LABOR: For all labor and for foremen in direct charge of the specific operations the Contractor shall be paid:

The actual cost of wages paid by him but at rates not to exceed those for comparable labor currently employed on the project.

The actual cost of industrial accident or Workmen's Compensation Insurance.

The actual cost of social security taxes and unemployment compensation insurance.

The actual amounts paid by the Contractor by reason of an employment Contract generally applicable to his employees.

An amount equal to fifteen percent (15%) of the actual cost of wages and other costs listed above to cover the Contractor's profit and overhead.

In case a subcontractor performs work, the said fifteen percent (15%) will be added only once to the actual cost of the work, however, the Contractor may add ten percent (10%) to the Subcontractor's price to cover his own overhead.

TOOLS AND EQUIPMENT: For any machine power tools and special or heavy equipment used, the Contractor shall be paid in accordance with the latest approved Schedule of Equipment Rental Rates. In the event that any of the equipment to be used is not shown in said schedule, the rental rate for such equipment shall be as agreed upon in writing before the work is started. No percentage shall be added to equipment rental rates and no allowance shall be made for the use of small tools and minor items of equipment, which shall be considered as part of the overhead. As used herein, such tools and equipment are defined as individual tools or pieces of equipment having a replacement value of Fifty Dollars ($50.00) each or less.

MATERIALS: For all materials accepted by the Engineer and used in the work the Contractor shall be paid the actual cost of such material, including transportation charges, to which cost shall be added a sum equal to fifteen percent (15%) thereof.

SUPERVISION AND OVERHEAD: No allowance shall be made for general superintendence. The cost of supervision and overhead is presumed to be included in the fifteen percent (15%) added in accordance with the above.

RECORDS: The Contractor's representative and the Engineer shall compare the records of the work performed as ordered on a force account basis as the end of each day on which such work is performed. Copies of these records shall be made on suitable forms provided for this purpose and signed by both the Engineer and the Contractor's representative. All claims for work done on a force account basis shall be certified and submitted to the Engineer by the Contractor, and such statements shall be filed with the Engineer not later than the fifth (5th) day of the month following that in which the work was actually performed.

5-4 EXTRA WORK

New or additional work will be classed as extra work when determined by the Engineer that such work is not covered by the Contract.

5-5 CHANGE ORDER

The value of such work or change shall be determined and paid for with a Change Order in one of the following ways unless paid by force account:

By unit prices mutually agreed upon by the Owner and Contractor.

By a lump sum based upon the Contractor's estimate and the Engineer's review and acceptance of the estimate. The Contractor shall do such extra work and furnish material and equipment therefor upon receipt of an accepted Contract Change Order or other written order of the Owner, and in the absence of such Contract Change Order or other written order of the Owner, the Contractor shall not be entitled to payment for such extra work. Payment for extra work required to be performed pursuant to the provisions of this section, in the absence of an executed Contract Change Order, will be made by force account as provided herein, or as agreed to by the Contractor and the Owner. However, in no case shall work be undertaken without written notice from the Owner to proceed with the work.

5-6 CLAIMS FOR EXTRA WORK

If the Contractor claims that any instructions involve extra cost under this Contract, he shall give the Owner written notice thereof within forty-eight (48) hours after the receipt of such instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property, and the procedure shall then be as provided for under CHANGES IN THE WORK. No such claim shall be valid unless so made.

GENERAL CONDITIONS - PART 6

CONTROL OF WORK

6-1 WORK SCHEDULE

Prior to the commencement of the work the Contractor shall prepare and submit to the Engineer for review, a written schedule covering the general sequence of the work to be performed. The work schedule, after review and acceptance by the Engineer, shall not be changed without written consent of the Engineer. The Contractor shall assume the full responsibility for performing the work in an orderly procedure under the Contract.

The construction schedule shall serve as an index of progress prosecution as contemplated by the Contractor. In the event the actual construction progress varies substantially from the scheduled progress, the Engineer will require and the Contractor shall be required, within ten (10) days written notice, to provide a revised construction schedule, giving in detail the particular changes in production as estimated by the Contractor to complete the work within the specified Contract Time. Time is of the essence in this regard.

6-2 AUTHORITY OF THE ENGINEER

The Engineer will decide all questions, which may arise as to the quality and acceptability of materials furnished and work performed; all questions, which may arise as to the interpretation of the Plans and Specifications; and all questions as to the satisfactory and acceptable fulfillment of the Contract on the part of the Contractor.

Written permission must be obtained from the Engineer to perform any work after regular hours, on Sundays, or on legal holidays. Work performed at these times shall be done at no additional expense to the Owner.

6-3 FORMAL PROTEST

If the Contractor considers any work demanded of him to be outside the requirements of the Contract, or if he considers any instructions, ruling, or decision of the Engineer to be unfair, he shall, within ten (10) days after any such demand is made, or instruction, ruling or decision is given, file a written protest with the Engineer, stating clearly and in detail his objections and the reasons therefor. Except for such protests as are made of record in the manner and within the time above stated, the Contractor shall be deemed to have waived and does hereby waive all claims for Extra Work, damages and extensions of time resulting from demands, instructions, rulings and decisions of the Engineer.

Upon receipt of any such protest from the Contractor, the Engineer shall review the demand, instructions, rulings, or decisions objected to and shall promptly advise the Contractor in writing of his final decision, which shall be binding, unless within ten (10) days thereafter the Contractor shall file with the Owner a formal protest against said final decision of the Engineer. The Owner shall consider and render a final decision of any such protest within thirty (30) days of receipt of it.

6-4 PLANS

The Contract Plans consist of general drawings. These indicate such details as are necessary to give a comprehensive idea of the construction contemplated. All authorized alterations affecting the requirements and information given on the Contract Plans shall be in writing. The Contract Plans shall be supplemented by such working or shop drawings prepared by the Contractor as are necessary to adequately control the work. No change shall be made by the Contractor in any working or shop drawing after it has been accepted by the Engineer.

The Contractor shall keep a copy of the Plans and Specifications at the jobsite, and shall at all times give the Engineer access thereto. Any drawings or plans listed in the Detailed Specifications shall be regarded as a part thereof and the Engineer will furnish from time to time such additional drawings, plans, profiles, and information as he may consider necessary for the Contractor's guidance.

All authorized alterations affecting the requirements and information given on the accepted Plans shall be in writing. No changes shall be made of any Plan or drawing after the same has been accepted by the Engineer, except by consent of the Engineer in writing.

6-5 CONFORMITY WITH PLANS AND ALLOWABLE DEVIATIONS

Finished surfaces in all cases shall conform to lines, grades, cross sections, and dimensions shown on the accepted Plans. The Engineer will in all cases determine allowable deviations, other than specified tolerances, from the accepted Plans and working drawings.

6-6 COORDINATION AND INTERPRETATION OF PLANS AND SPECIFICATIONS

The Plans, Specifications, General Conditions, Special Conditions, Contract Change Orders, and all supplementary documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be coordinated and to describe and provide for a complete work.

Should it appear that the work to be done or any of the matters relative thereto are not sufficiently detailed or explained in these Specifications, General Conditions, Special Conditions, or the Plans, the Contractor shall apply to the Engineer for such further explanations as may be necessary and shall conform to them as part of the Contract. In the event of any doubt or question arising regarding the true meaning of these Specifications, the Special Conditions, or the Plans, reference shall be made to the Engineer, whose decision thereon shall be final. In the event of any discrepancy, between any drawing and the figures written thereon, the figures shall be taken as correct.

In the event of there being a conflict between one Contract Document and any of the other Contract Documents, the Document highest in precedence shall control and supersede the Document which is contrary to it. The order of precedence of the Contract Documents is as follows:

FIRST: Supplemental Agreements, the last in time being the first in precedence.

SECOND: The formal Contract.

THIRD: Notice Inviting Bids.

FOURTH: Information for Bidders.

FIFTH: Special Conditions (DIVISION 1).

SIXTH: Specifications (DIVISIONS 2 through 15).

SEVENTH: Construction Drawings / Plans.

EIGHTH: Supplemental General Conditions (when included).

NINTH: General Conditions.

TENTH: Contractor Proposal.

6-7 ORDER OF WORK

When required by the Contract Documents, the Contractor shall follow the sequence of operations as set forth therein.

Full compensation for conforming to such requirements will be considered as included in the prices paid for Contract items of work and no additional compensation will be allowed therefor.

6-8 INSPECTION

The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether or not the work as performed is in accordance with the requirements and intent of the Specifications and Contract. If the Engineer requests it, the Contractor at any time before acceptance of the work shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standards required by the Specifications. Should the work thus exposed or examined prove acceptable, the uncovering or removing and the replacing of the covering or making good of the parts removed, will be paid for as provided under CHANGES IN THE WORK, but should the work so exposed or examined prove unacceptable the uncovering or removing and the replacing of the covering or making good of the parts removed shall be at the Contractor's expense. Inspection or supervision by the Engineer shall not be considered as direct control of the individual workman and his work. The direct control shall be solely the responsibility of the Contractor's foremen and superintendent.

The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill his Contract as

herein provided, and unsuitable materials may be rejected notwithstanding that such work and materials may have been previously overlooked and accepted or estimated for payment.

Should any work be covered up before acceptance or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination at the Contractor's expense.

6-9 LINES AND GRADES

Profiles and elevations are indicated on the Plans. Elevations are referred to a datum as indicated on the Plans. All work under this Contract shall be built in accordance with the lines and grades indicated on the Plans. These lines and grades may be modified as provided in the Contract. The establishment of the lines and grades shall be as set forth under Special Conditions.

GENERAL CONDITIONS - PART 7

MATERIALS AND WORKMANSHIP

7-1 GENERAL

All equipment, materials, and articles incorporated in the work covered by this Contract shall be new and subject to review and acceptance by the Engineer unless otherwise specifically provided for in the Contract Documents.

Where equipment, materials, or articles are referred to in the Specifications as "or equal," or "equal to" any particular standard, the Engineer shall decide the question of equality.

Wherever any standard published specification is referred to, the latest edition or revision, including all amendments, shall be used unless otherwise specified. Materials of a general description shall be the best of their several kinds, free from defects, and adapted to the use for which provided. The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the American Society for Testing and Materials, where applicable. All material shall be new and of the specified quality and equal to the accepted samples, if samples have been submitted.

All work shall be done and completed in a thorough, workmanlike manner notwithstanding any omission from these Specifications or from the Plans; and it shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instructions before proceeding with the work. The Engineer may, by appropriate instructions, correct errors and supply omissions, which instructions shall be as binding upon the Contractor as though contained in the original Specifications or Plans.

7-2 SUBSTITUTION OF MATERIAL OR EQUIPMENT

Where material or equipment is designated on the Plans or in the Specifications by a trade or manufacturer's name, it is so designated primarily to establish standards of quality, finish, appearance, and performance. It is not the intent to limit the choice of materials and equipment to the specific product designated. However, requests relative to substitutions for materials or equipment specifically designated on the Plans and in the Specifications will not be considered until after award of the Contract. Requests relative to substitutions for materials or equipment specifically designated on the Plans or in the Specifications shall be made in writing, and such requests shall be accompanied by complete data on which the Engineer can make determination on the merits of the proposed substitution. The written request shall state how the product proposed for a substitution compares with or differs from the designated product in composition, size, arrangement, performance, etc., and in addition, the request shall be accompanied by documentary evidence of equality in price and delivery or evidence of difference in price and delivery. Data on price shall be in the form of certified quotations from suppliers of both the designated and proposed items. All items accepted for substitution shall be subject to all applicable provisions of the Specifications. All specific requirements of the Specifications must be adhered to, and all necessary modifications shall be made in the articles specified by trade name, type, or model of manufacturer's equipment to make it conform to the specific requirements of the Specifications and the actual conditions under which the product is required to be used. Should a substitution

be allowed under the foregoing provisions, and should the item subsequently prove to be defective or otherwise unsatisfactory for the service for which it was intended, the Contractor, shall without cost to the Owner, and without obligation on the part of the Engineer, replace the item with the material originally specified.

7-3 SAMPLE AND TESTING

All materials to be incorporated in the work shall be subject to sampling, testing, and acceptance. Samples furnished by the Contractor shall be representative of the materials to be used. The Engineer may select samples or may require that samples be delivered to and tested at a laboratory designated by the Engineer at no additional cost to the Owner.

All sampling and testing of materials shall be done in accordance with the latest designated standard methods of AASHTO or ASTM, or in accordance with special methods designated in the Specifications.

Sieves used in determining the grading of samples of aggregates, select material, and other graded materials, shall conform to ASTM Designation E 11. Sieves 1/4-inch and larger shall have square openings and are designated by the size of opening in inches. Sieves smaller than 1/4-inch shall have square openings and are designated by number.

7-4 FABRICATED MATERIALS AND SHOP DRAWINGS

Fabricated materials and shop drawings shall be handled as set forth in the Special Conditions.

7-5 MATERIALS FURNISHED BY THE OWNER

The Contractor as indicated in the Special Conditions shall obtain all materials and/or services furnished by the Owner. The cost of handling and placing Owner furnished materials shall be included in the price paid for the Contract item involving such material.

7-6 STORAGE OF MATERIALS

The Contractor shall provide proper storage facilities and exercise such measures as will insure the preservation of the specified quality and fitness of all materials and equipment to be used in the work. Stored materials shall be located so as to provide reasonable access for inspection. That portion of the right-of-way not required for public travel may be used for storage purposes unless prohibited by other provisions of the project Specifications. The Contractor at no cost shall provide any additional space required to the Owner. Protection of materials and equipment stored on the site shall be the responsibility of the Contractor. The Owner reserves the right to direct the Contractor to provide proper means of protection for materials if such is deemed advisable by the Engineer; however, the exercise of or failure to exercise this right shall not be deemed to relieve the Contractor of his primary responsibility for protecting the material and equipment. The Contractor shall provide suitable warehouses or other adequate means of protection for such of the materials and equipment as requires storage or protection. The Contractor shall store and care for the materials and equipment in the most suitable manner to protect them from distortion, rain, dust, or other damage. The cost

of replacing any material or equipment damaged in storage shall be borne by the Contractor, and the fact that material or equipment has been damaged after partial payment has been made shall not relieve the Contractor of his primary responsibility. No motor shall be left uncovered or unprotected.

7-7 REJECTED MATERIALS

Materials not conforming to the requirements of the Specifications, whether in place or not, may be rejected. Rejected materials shall be removed immediately from the site of the work unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used unless accepted by the Engineer. If the Contractor fails to remove and replace rejected material, the Owner has authority to do so and to deduct the cost thereof from any monies due or to become due the Contractor.

GENERAL CONDITIONS - PART 8

LEGAL RELATIONS AND RESPONSIBILITY

8-1 LAWS TO BE OBSERVED

The Contractor is presumed to know, and at all times shall observe and comply with, all Federal and State laws and local ordinances, workmen's compensation, occupational disease, and unemployment compensation laws together with the payment of all premiums and taxes therefore; also all laws, ordinances, and regulations in any manner affecting the conduct of the work, and shall indemnify and save harmless the Owner and its representatives against any claim arising from the violation of such laws, bylaws, ordinances, or regulations, whether by the Contractor himself or by the Contractor's employees. The Contractor's particular attention is drawn to the cognizance of, but not limited to, the laws in the four (4) following paragraphs.

8-2 HOURS OF LABOR

Eight (8) hours shall constitute a day's work on all works or undertakings carried on or aided by the State, County or Municipal governments; and the Legislature shall pass laws to provide for the health and safety of employees in factories, smelters, and mines (Section 6, Article XVI, Constitution of the State of Utah).

8-3 ALIEN LABOR

No person not a citizen or ward of the United States shall be employed upon or in connection with any State, County, or municipal works or employment provided that nothing herein shall be construed to prevent the working of prisoners by the State or by any County or municipality thereof on street or road work or other public work.

8-4 LABOR DISCRIMINATION

Attention is directed to Utah Code Annotated, Title 34, Chapter 35, entitled "Utah Antidiscrimination Act."

When Federal funds are to pay a portion of the cost of this project, then the bidders shall also comply with the applicable paragraph in the Special Conditions.

8-5 PERMITS AND LICENSES

Except as otherwise provided in the Specifications it is the duty of the Contractor to procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work.

8-6 PATENTED DEVICES, MATERIALS, AND PROCESSES

The Contractor shall indemnify and save harmless the Owner and its duly authorized representatives from all

liabilities, judgments, costs, damages, and expenses which may result from the infringement of any patents, trademarks, and copyrights by reason of the use of any proprietary materials, devices, equipment, or processes incorporated in or used in the performance of the work under this Contract.

8-7 SURVEY LAND MONUMENTS

Survey land monuments and property marks shall not be moved or otherwise disturbed by the Contractor until an authorized agent, of the agency having jurisdiction over the land monuments or property marks setting, has witnessed or otherwise referenced their location, and only then in accordance with the requirements of the agency having jurisdiction.

8-8 PROTECTION OF PERSON AND PROPERTY

The Contractor shall adopt every practical means and comply with all laws, ordinances, and regulations in order to minimize interferences to traffic, and inconveniences, discomfort and damage to the public, including the provision of adequate dust control measures. All obstructions to traffic shall be guarded.

If an unsafe condition arises or exists during the progress of the work, or if the Owner has reason to believe that an unsafe condition exists, the Contractor shall suspend the work wholly or in part for such period as may be necessary to correct the unsafe condition.

The Contractor shall not trespass upon private property and shall be responsible for all injury or damage to persons or property, directly or indirectly, resulting from his operations in completing this work. He shall comply with the laws and regulations of the Owner, County, and State, relating to the safety of persons and property, and will be held responsible and required to make good any injury or damage to persons or property caused by carelessness or neglect on the part of the Contractor or subcontractor(s), or any agent or employee of either during the progress of the work and until its final acceptance.

The Contractor shall protect against injury any pipes, sewer conduits, electrical conduits, lawns, gardens, shrubbery, trees, fences, or other structures or property, public and/or private, encountered in this work except as stipulated elsewhere herein. The Contractor shall be responsible and liable for any injury to such pipe, structures, and property.

8-9 UTILITIES SHOWN ON THE PLANS

Regardless of what utilities are shown on the Plans, it shall be the Contractor's responsibility to verify these locations and any additional lines, which may exist through consulting with the Owner, utility companies, and/or "Blue Stake."

Existing utilities are indicated on project Plans in accordance with the best information available. The Contractor shall notify all Owners of utilities when his work is in progress and shall make such arrangements as are necessary to make any emergency repair to any utility, in a manner satisfactory to the owner of a damaged utility line, including individual or house service utility lines.

No extra compensation will be made for the repair of any individual or house service utility or utility lines damaged by the Contractor's labor forces or equipment, nor for any damage incurred through neglect or failure to provide protective barriers, lights and other devices or means required to protect such existing utilities.

The Contractor shall expose all sanitary and storm sewers, water, gas, electric, telephone utility lines, and other underground structures which might interfere with the construction of the project, in order to permit survey location prior to construction.

The work necessary to the raising, lowering or relocating of a utility, which work is not so indicated on the Plans shall be at the owner's expense. The necessary work may be done by the owner of the utility or by the Contractor, at the option of the owner of the utility. All work shall be in accordance with the standards of the owner of the utility.

The Contractor shall resolve crossing and clearance problems concerning all utility structures with the utility company concerned.

8-10 UTILITIES NOT SHOWN ON THE PLANS

If utility lines are encountered which are not indicated on the Plans, other than individual or house service utility lines, and which the Owner, utility companies, and/or "Blue Stake" are unaware of their existence, and these lines are damaged or work is required to clear same, then the Contractor will be paid for any extra work involved on his part on a cost plus basis, as set forth elsewhere herein.

In most cases, individual or house service utility lines are not shown on the Plans. It shall be the Contractor's responsibility to locate and protect these individual or house services. If, due to the Contractor's operations, any of these lines are damaged, he shall repair or replace these lines in a manner satisfactory to the owner of the utility at no extra cost to the owner. In addition, the cost of location, protection, and working around these individual or house service utility lines shall be included in the Contractor's bid for the work under this Contract.

8-11 DRIVEWAYS AND WALKS

Inconvenience caused by digging across driveways shall be kept to a minimum by restoring the serviceability of the driveway as soon as possible. Before blocking driveways, the Contractor shall notify the property owner. The Contractor shall replace or repair any damage done to driveways and walks to not less than the condition existing prior to the Contractor's work. If it is necessary to leave an excavation open across driveways or sidewalks, the Contractor shall provide temporary relief in the form of steel plates over the excavation.

Temporary paving replacement in front of business establishments shall be placed immediately following backfill and shall remain in place until the condition of the backfill is suitable for permanent pavement replacement.

Direct access shall be provided at all times to fire engine houses, fire hydrants, hospitals, police stations, and at all other agencies or services where emergencies may require immediate access to same.

8-12 TREES AND SHRUBBERY

The Contractor insofar as practicable shall protect all trees and shrubbery within the right-of-way or easements.

In the event shrubbery or trees must be trimmed, or removed, the Contractor shall notify the property owner to do so within a reasonable time prior to construction. All shrubbery or trees not removed by the property owner shall be trimmed or removed by the Contractor and hauled from the job at the Contractor's expense.

All trees, shrubs, hedges, brush, etc. designated on the Plans, or by the Engineer for removal, shall be completely removed and disposed of as indicated on the Plans or specified.

8-13 IRRIGATION DITCHES AND STRUCTURES

The Contractor shall contact the owners of any ditches, irrigation lines, and appurtenances, which interfere with the work and shall make arrangements for dry-up or scheduling of water deliveries. The Contractor shall be liable for any damage due to irrigation facilities damaged by his operations and shall repair such damaged facilities to an "equal or better than" original condition.

8-14 ROADS AND FENCES

Streets and roads subjected to interference by the prosecution of this work shall be kept open and maintained by the Contractor until the work is completed.

All fences located in easements, when damaged or temporarily removed, shall be restored to a condition equal to or better than the original condition. Such fences shall be restored at the Contractor's expense.

8-15 PROTECTION OF ANTIQUITIES

Attention is called to State and Federal laws pertaining to the protection and preservation of sites or objects of archaeological, anthropological, pale ontological or historic interest.

It shall be a provision of every contract that when features of archaeological, anthropological, pale ontological or historic interest are encountered or unearthed in material pits, the roadway prism, or other excavation the Contractor shall stop work in the immediate vicinity of such feature, protect it from damage or disturbance, and report promptly to the State and local officials having jurisdiction. Work shall not be resumed in the immediate area until the authorities having jurisdiction that study or removal of the feature or features has been completed advise the Contractor. The Contractor will be allowed an appropriate contract time extension as provided in these GENERAL CONDITIONS for construction time lost.

8-16 RESPONSIBILITY FOR DAMAGE CLAIMS

The Contractor and his Surety shall indemnify and save harmless the Owner and its officers, agents, and representatives from all suits, actions, loss, damage, expense, costs, or claims of any character or nature brought on account of any injuries or damages sustained by any person or property arising out of the work done in fulfillment of the construction of the improvement under the terms of this agreement, or on account of any act of omission by the Contractor or his agents, or from any claims or amounts arising or recovered under workmen's compensation laws or any other law, bylaw, or ordinance, order, or decree.

8-17 NONRESPONSIBILITY OF THE OWNER

The Contractor must pay indebtedness incurred for any cause in connection with this work, and the Owner is hereby relieved at all times from any indebtedness or claim other than payments under terms of the Contract.

8-18 PROPERTY RIGHTS IN MATERIAL

Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the material used after they have been attached or affixed to the work or the soil and accepted. All such materials shall become the property of the Owner upon being so attached or affixed and accepted.

GENERAL CONDITIONS - PART 9

PAYMENT TO CONTRACTORS

9-1 GENERAL

The basis of payment for construction of a project shall be in full for all work actually performed in accordance with the Plans and Specifications, and shall include all labor and materials incorporated in the completed work.

Upon final inspection and acceptance of the work, the Owner will pay the Contractor the amount earned under the Contract, as stipulated herein.

9-2 PAYMENT

For and in consideration of the faithful performance of the work, the Owner will pay to the Contractor the amount earned as computed from the actual quantities of work performed under the Contract and to make such payment in the manner and at the time(s) specified, as follows:

Within thirty (30) days after final acceptance of the work completed under the Contract, the Engineer shall render to the Owner and to the Contractor, a final estimate that shall show the amount of work performed according to the Contract. Within forty (40) days after the final completion and final acceptance of the work under the Contract, the Owner will pay to the Contractor all amounts due him under the provisions of the Contract, except that before the final payment will be made, the Contractor shall satisfy the Owner by affidavit that all bills for labor and materials incorporated in the work have been paid, and shall complete and submit to the Engineer a Certification relinquishing any and all claims or right of lien under, in connection with, or as a result of the work under the Contract.

The basis of payment shall be in full for all work actually performed in accordance with these Specifications, and shall include all labor and materials incorporated in the completed work.

9-3 PARTIAL PAYMENT

Once each month the Owner will make a partial payment to the Contractor on the basis of an estimate prepared by the Contractor and accepted by the Engineer for work completed through the last day of the preceding calendar month. The estimate will cover the work performed by the Contractor during the preceding calendar month plus the invoice cost of material suitably stored at the site of the project if the Contractor desires payment for material stored. The Owner will retain 10 percent (10%) of the amount of each such estimate and material cost until final completion and acceptance of all work covered by this Contract.

Cost of material stored will be based on vendors' invoices, which shall be listed by the Contractor. A copy of each such invoice shall accompany the first estimate in which payment is requested for material covered by

the invoice. This list shall be revised and brought up-to-date by the Contractor for each estimate. The revised list shall show the total amount of each invoice, the invoice amount that has been incorporated in the work, and the remaining invoice amount that is stored for which payment is requested that month. Only those materials that will become an integral part of the final completed project may be included for partial payment as material stored.

If required by the Proposal or Special Conditions, the Contractor shall furnish a detailed breakdown of the lump sum Contract Price, showing unit prices and quantities for use in preparing the monthly estimate. No partial payment will be made until this breakdown is presented by the Contractor and has been reviewed and accepted by the Engineer.

Partial payments for jobsite delivered material or equipment will in no way reduce the Contractor's responsibility for such material or equipment until it has been installed.

9-4 PAYMENT OF ITEMS IN PROPOSAL

Only those items listed in the Proposal are Pay Items.

Compensation for all work necessary for the completion of the project or improvement shall be included by the bidder in the price bid for the items shown in the Proposal.

9-5 PAYMENT FOR "EXTRA WORK" AND FOR "CHANGES IN THE WORK"

Payment for "Changes in the Work" and for "Claims for Extra Work" will be made as stated in Part 5 of these GENERAL CONDITIONS.

SPECIAL CONDITIONS

DIVISION 1

010010 PROJECT DESCRIPTION

It is the Owner's intent to construct the improvements associated with the site work for a new 160'x 70' building and building site.

010011 SUMMARY OF WORK

The work includes any combination but not limited of the following:

Excavation of 2,500 cubic-yards of earthen material, excavation for footings, providing materials and labor to install structural fill, sewer connection, 1500-gallon oil separator, sampling manhole, culinary water connection, water meter, backfill the building and grade the site. The work must be ready for concrete footings by October 27, 2020

010012 LOCATION OF PROJECT

The project is located 460 West 1500 North, Salem City, Utah.

010013 SPECIFICATIONS

If referenced specifications differ from provided specifications, the more stringent requirements and specifications apply.

010014 WORK BY OTHERS

The contractor will be coordinating and working with the concrete contractor, the Owner, utilities, and others that may be working within the project area while the Work is in progress. If scheduling conflicts occur, the Contractor shall schedule his work in conjunction with these other organizations to minimize mutual interference.

010016 RESPONSIBILITY OF CONTRACTOR

If any part of the Work depends for proper execution or results upon the work of others, the Contractor shall inspect and promptly report to the Engineer any apparent discrepancies or defects in such work of others that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the work of others as fit and proper except as to defects which may develop in the work of others after execution of the Work by the Contractor.

010018 COORDINATION OF WORK

The Contractor shall maintain overall coordination for the execution of the Work. Based on the Construction Schedule prepared in accordance with these Specifications, he shall obtain from each of his subcontractors a similar schedule and shall be responsible for all parties maintaining these schedules or for coordinating required modifications.

010019 WORK SEQUENCE AND CONSTRAINTS

1. The Contractor shall obtain an excavation permit from Salem City. The City will forgo the fee on this permit as the Contractor will be contracted with the City for the project. The Contractor shall comply with all the provisions associated with the excavation permit.
2. All Utility Locations are approximate. Contractor shall be responsible for notifying Blue Stakes for location of all utilities. 1-800-662-4111.
3. Contractor shall protect all existing utilities (Water, Sanitary Sewer, Storm-Sewer, Gas, Telephone, Electrical, Irrigation, and access to Roads, etc.) during construction and ensure they remain in place and operational, unless otherwise noted.
4. Restore or preserve all existing fences, roads, ditches, and driveways.
5. Contractor is responsible for providing as-built drawings, prior to final payment.
6. Safe construction procedures and working clearances are to be maintained at all times while working near power lines.
7. Contractor shall field verify location of existing utilities.
8. The contractor shall verify all dimensions before starting work and shall immediately notify the Engineer of any discrepancies.

010020 CONSTRUCTION STAKES, LINES, AND GRADES

The Work shall be executed in accordance with the lines and grades indicated in the Contract Documents. Distances and measurements, except elevations and structural dimensions, shall be made on horizontal planes. Construction staking will be provided by owner. It is the Contractor's responsibility to coordinate with survey requests with a minimum of 48-hour notice.

Survey line and grade control shall be provided by Owner at general grading and for the footings once subgrade is achieved.

The Contractor shall consistently check line and grade and in the event, they do not meet specified limits described hereinafter, the work shall be immediately stopped, the Engineer notified, and the cause remedied before proceeding with the work.

The Contractor is responsible to maintain and protect in place the survey control, staking and markings. The Contractor will be responsible for any restaking that is required due to any negligence.

010021 LINES AND GRADES

All work under this Contract shall be built in accordance with the lines and grades as indicated in the Contract Documents. Distances and measurements except elevations and structural dimensions are given and made on horizontal planes.

010091 DEFINITIONS AND TERMS

Whenever in these Specifications, or in other Contract Documents, the following terms are used, the intent and meaning shall be interpreted as follows:

DESIGN ENGINEER: Epic Engineering P.C., 50 East 100 South, Heber City, UT 84032 (435) 654-6600, attention: Joseph N. Santos.

ENGINEER: Epic Engineering P.C., 50 East 100 South, Heber City, UT 84032 (435) 654-6600, attention: Joseph N. Santos.

OWNER: City of Santaquin, 275 West Main Street, Santaquin, UT, 84655.

WORKING DAY: Any calendar day, except:

A. Contract designated holidays or days restricted in the contract.

B. Days when the Contractor is specifically required by the contract or letter from the Engineer to suspend operations through no fault of the Contractor.

C. Days when the Engineer determines that inclement weather or adverse conditions interfere with the progress of the work.

1) When the Engineer determines that inclement weather prevents the Contractor from working for at least 50 percent of the normal working day.

2) The day may be considered a working day exception even though conditions may improve and the major portion of the day could be considered suitable for operations if weather stops the Contractor's crew from beginning work at the normal starting hour and the crew is released as a result.

D. Submittals and notification requirements are based on a standard 5-day work week.

010092 ABBREVIATIONS

AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials (formerly AASHO)
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers' Association, Inc.
AGMA	American Gear Manufacturers' Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gauge
AWS	American Welding Society
AWWA	American Water Works Association
CRSI	Concrete Reinforcing Steel Institute
FS	Federal Specification
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NFPA	National Fire Protection Association
PS	Product Standard
SAE	Society of Automotive Engineers
SSPC	Steel Structures Painting Council
UL	Underwriters' Laboratories, Inc.

010210 PRECONSTRUCTION CONFERENCE

Upon receipt of the Notice to Proceed, or at an earlier time if mutually agreeable, the Engineer will arrange a pre-construction conference to be attended by the Contractor's superintendent, the Owner, the Engineer or his representative, and others involved in the execution of the Work.

The purpose of this conference shall be to establish a working understanding between the parties and to discuss the Construction Schedule, shop drawing submittals and processing, cost breakdown of major lump sum items, applications for payment and their processing, and such other subjects as may be pertinent for the execution of the Work.

010220 PROGRESS MEETINGS

The duration of the project is such that these meetings shall be conducted as needed, and shall be attended by the Contractor's superintendent and representatives of all subcontractors, utilities, and others that are active in the execution of the Work. The purpose of these meetings shall be to coordinate with other contractors, expedite the work of any subcontractor or other organization that is not up to schedule, resolve conflicts, and in general, coordinate and expedite the execution of the Work.

The agenda of progress meetings shall include review of progress and schedule, of payment request, of narrative report, of the latest Construction Schedule update, and of the record documents.

010221 PROGRESS AND SCHEDULE REVIEW

The progress of the Work and the Construction Schedule shall be reviewed to verify:

A. Actual start and finish dates of completed activities since the last progress meeting.

B. Duration and progress of all activities not completed.

C. Reason, time, and cost data for Change Order work that is to be incorporated into the Construction Schedule or payment request form.

D. Payment due to the Contractor based on percentage complete of items in the submitted payment request form.

E. Reason and duration of required revisions.

010222 REVIEW OF PAYMENT REQUEST

The Contractor shall have his copy of the payment request form and all other data required by the Contract Documents filled in and completed prior to the progress meeting. The Engineer will process Contractor's payment request after satisfactory review of the narrative report and schedule update.

010226 REVIEW OF SCHEDULE UPDATE

After each monthly update, the Contractor shall submit to the Engineer one print of the last accepted Construction Schedule, marked up in red in accordance with the monthly review meeting; and one sepia, and three blue line copies incorporating the updated schedule information.

010300 SUBMITTALS

In ample time for each to serve its purpose and function, the Contractor shall submit to the Engineer such schedules, reports, drawings, lists, literature samples, instructions, directions, and guarantees as are specified or reasonably required for construction, operation, and maintenance of the Work.

010313 WEEKLY ACTIVITIES PLAN

On the last working day of every week Contractor shall notify the Engineer of the Contractor's Plan of Activities for the following two weeks. The Plan of Activities shall describe the activity and location of the activity. The notification can be verbal unless requested in writing for the Plan of Activities to be submitted in written form.

010314 REVISIONS TO CONSTRUCTION SCHEDULE

The Contractor shall submit a revised Construction Schedule within five days of the occurrence of any of the following:

A. When delay in completion of any activity or group of activities indicates an overrun of the Contract time or control point requirement, by 30 working days or ten percent (10 percent) of the remaining duration, whichever is less.

B. Delays in submittals, deliveries, or work stoppage are encountered which make replanning or rescheduling of the work necessary.

C. The schedule does not represent the actual prosecution and progress of the project as being performed in the field.

Acceptance of the revised Construction Schedule and all supporting data is contingent upon compliance with other related requirements specified before in this DIVISION 1 and any other previous agreements or requirements with or by the Engineer.

The cost of revisions to the Construction Schedule resulting from Contract changes will be included in the cost for the change in the Work, and will be based on the complexity of the revision or Change Order, man-hours expended in analyzing the change, and the total cost of the change.

The cost of revision to the Construction Schedule not resulting from authorized changes in the Work shall be the responsibility of the Contractor.

010320 SHOP DRAWINGS, SCHEDULES, AND SAMPLES

Shop drawings, layout diagrams, catalog data, test reports, and information in sufficient detail to show complete compliance with all specified requirements shall be furnished to the Engineer covering but not limited to the items under Materials and Equipment List.

The Contractor, at his own expense, shall make such changes in the required drawings as may be necessary to conform to the Contract Documents. After completion of such checking, verification, and revising, the Contractor shall stamp and sign the drawings indicating his approval and submit the shop drawings and pertinent data to the Engineer for review. Prior to the Engineer's review of such drawings, any work which the Contractor may do on the fabrications covered by the same shall be at his own risk, as the Owner will not be responsible for any expense or delays incurred by the Contractor for changes to make the same conform to the Contract Documents.

010322 SUBMITTAL

Shop drawings and data (six copies) shall be submitted to the Engineer to allow him to retain one (1) copy of each submittal. The submittal shall clearly indicate the specific area of the Contract Documents for which the submittal is made. Two copies received by him will be returned to the Contractor's representative at the jobsite. The Engineer's notations of the action, which he has taken, will be noted on these returned copies.

Each submittal shall be provided with the following:

1. A signature by the Contractor indicating he has reviewed the submittal.

2. The specification section number regarding this submittal.

3. A list of "ALL" deviations from the specifications and the reasons for the deviation.

4. The local suppliers or distributors and their names, phone numbers and contact people.

5. Each specification item submittal shall be given a successive submittal number.

The above drawings, lists, prints, samples, and other data shall become a part of the Contract Documents, and a copy of the same shall be kept with the jobsite Contract Documents, and the fabrications furnished shall be in conformance with the same. However, the Engineer's review of the above drawings, lists, prints, specifications, samples, or other data shall in no way release the Contractor from his responsibility for the proper fulfillment of the requirements of this Contract nor for fulfilling the purpose of the installation nor from his liability to replace the same, should it prove defective or fail to meet the specified requirements.

010323 MATERIAL AND EQUIPMENT SCHEDULES

The Engineer may not require drawings of minor or incidental fabricated materials and equipment. The Contractor shall furnish the Engineer tabulated lists of such fabrications and equipment, showing the names of the manufacturers and catalog numbers, together with samples or general data as may be required to permit determination as to their acceptability for incorporation in the Work.

010400 QUALITY CONTROL

All materials and equipment shall be new and of the specified quality and equal to the samples found to be acceptable by the Engineer, if samples have been submitted. The Work shall be done and completed in a thorough, workmanlike manner, notwithstanding any omission in the Contract Documents; and it shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instructions before proceeding with the Work. The Engineer may, by appropriate instructions, correct errors and supply omissions, which instructions shall be as binding upon the Contractor as though contained in the original Contract Documents.

At the option of the Engineer, materials and equipment to be supplied under this Contract will be tested and inspected either at their place of origin or at the site of the Work. The Contractor shall give the Engineer written notification well in advance of actual readiness of materials and equipment to be tested and inspected at point of origin. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the materials and equipment nor shall such tests and inspections preclude retesting or reinspection at the site of the Work.

Materials and equipment, which will require testing and inspection at the place of origin, shall not be shipped prior to such testing and inspection.

010410 AUTHORITY AND DUTIES OF OWNER'S REPRESENTATIVE (INSPECTOR)

Owner's Representative (Inspector) employed by the Owner or Engineer shall be authorized to inspect all work done and materials and equipment furnished. Such inspection may extend to all or any part of the Work, and to the preparation, fabrication, or manufacture of the materials and equipment for the Work. The Inspector will not alter or waive the provisions of the Contract Documents.

The Inspector will keep the Engineer informed as to the progress of the Work being done. Such deficiencies or defects in Work, which may have been observed, will be called to the Contractor's attention. The Inspector will not inspect Contractor's means, methods, techniques, sequences, or procedures for construction. The Inspector will not approve or accept any portion of the Work, issue instructions contrary to the intent of the Contract Documents, or act as foreman for the Contractor. The Inspector will conduct on-site observations of the Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents. The Inspector will report to Engineer whenever Inspector believes the Work is faulty, defective, does not conform to the Contract Documents, or has been damaged; or whenever there is defective material or equipment; or whenever the Inspector believes the Work should be uncovered for

observation or the Work requires special testing. In no event will the Inspector supervise, control, or direct the Contractor's safety precautions or programs; or inspect for safety conditions on the site, or of persons thereon, whether Contractor's employees or others.

010411 INSPECTION

Materials, equipment, and workmanship shall be subject to the inspection of, and rejection by, the Engineer, if not in conformance with the Contract Documents. Defective materials, equipment, or work shall be removed from the premises by the Contractor, whether in place or not, and shall be replaced with new and acceptable materials, equipment, or work. Repair of defective materials, equipment, or work shall be subject to the Engineer's acceptance.

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

The Contractor shall at all times maintain proper facilities and provide safe access to all parts of the Work, to the shops wherein the Work is in preparation, and to all warehouses and storage yards wherein materials and equipment are stored, for purposes of inspection by the Engineer. Should any Work be covered up before the Engineer has had the opportunity to observe such Work, it shall, if required by the Engineer, be uncovered for examination at the Contractor's expense.

010420 SAMPLES AND TESTS

At the option of the Engineer, the source of supply of materials for the Work shall be subject to tests and inspection before the delivery is started and before such materials are used in the Work. Representative preliminary samples of the character and quality prescribed shall be submitted by the Contractor or producer of materials to be used in the Work in sufficient quantities or amounts for testing or examination.

All tests of materials furnished by the Contractor shall be made in accordance with the commonly recognized standards of national technical organizations, and such special methods and tests as are prescribed in the Contract Documents.

010421 SAMPLING

The Contractor shall furnish such samples of materials as are requested by the Engineer, without charge. No material shall be used until the Engineer has had the opportunity to test or examine such materials. Samples will be secured and tested whenever necessary to determine the quality of the material. Samples and test specimens prepared at the jobsite, such as concrete test cylinders, shall be taken or prepared by the Engineer in the presence and with the assistance of the Contractor.

010422 TESTING

Testing as directed by the Engineer shall be provided by owner. Contact testing at least 24 hours in advance before the tests need to be done. The contractor may complete their own quality assurance tests or verification at no expense to the Owner or Engineer.

In the event the Contractor protests a failing test of material in place or to be used, he shall take additional samples as herein specified and have additional tests run at his own expense. In the event the original test proves to have been in error, the Contractor shall be reimbursed for his direct costs of sampling and testing.

010423 TEST STANDARDS

All sampling, specimen preparation, and testing of materials shall be in accordance with the standards of nationally recognized technical organizations.

The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the American Society for Testing Materials, UDOT standards, etc., where applicable.

010522 WATER

The City shall provide water to the contractor out of existing hydrants at no cost for usage during construction activities. The Contractor shall be responsible to submit for and maintain a fire hydrant water usage permit from Salem City. Salem City will forgo the permit fee. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water.

010525 TEMPORARY LIGHTING

The Contractor shall provide temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by Utah OSHA standards. As permanent lighting facilities are completed they may be used in lieu of temporary facilities, provided however, that bulbs, lamps, or tubes of such facilities used by the Contractor shall be replaced prior to final acceptance of the Work.

010527 SANITARY CONVENIENCES

The Contractor shall provide suitable and adequate sanitary conveniences for the use of all persons at the site of the Work. Such conveniences shall include chemical toilets or water closets and shall be located at appropriate locations at the site of the Work. All sanitary conveniences shall conform to the regulations of the public authority having jurisdiction over such matters. At the completion of the Work, all such sanitary conveniences shall be removed and the site left in a sanitary condition.

With respect to sanitation facilities, if the Work is Federally funded the Contractor shall cooperate with and follow directions of representatives of the Public Health Service and the State. State and County Public

Health Service representatives shall have access to the Work, whether it is in preparation or progress, and the Contractor shall provide facilities for such access and inspection.

010528 ACCIDENT PREVENTION

The Contractor shall exercise precaution at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, and of building and construction codes shall be observed. Machinery, equipment, and other hazards shall be guarded or eliminated.

First aid facilities and information posters conforming at least to the minimum requirements of the Occupational Safety and Health Administration shall be provided in a readily accessible location or locations.

The Contractor shall make all reports as are, or may be, required by any authority having jurisdiction, and permit all safety inspections of the work being performed under this Contract. Before proceeding with any construction work, the Contractor shall take the necessary action to comply with all provisions for safety and accident prevention.

010534 BARRICADES

Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations from one hour before sunset each day to one hour after sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded in such a manner as to prevent persons from falling, walking, or otherwise entering any excavation in any street, roadway, parking lot, treatment plant, or any other area, public or private.

010540 WARNING DEVICES AND BARRICADES

The Contractor shall adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices shall, as a minimum, conform to the requirements of Utah/OSHA.

010542 HAZARDS IN PROTECTED AREAS

Excavations on project sites from which the public is excluded shall be marked or guarded in a manner appropriate for the hazard.

010544 PROTECTION OF EXISTING ITEMS

The Contractor shall protect all existing structures, trees, shrubs, and other items on the project site that are to be preserved, by substantial barricades or other devices commensurate with the hazard, from injury or destruction by vehicles, equipment, workmen, or other agents.

010550 PROJECT SECURITY

The project is located within a City owned property that is fenced and gated. The gate is locked at a minimum of nightly. The Contractor shall coordinate with City staff for access through the gate however the Contractor shall make adequate provision for the protection of the Work area against fire, theft, and vandalism, and for the protection of the public against exposure to injury.

010551 FIRST AID

First aid facilities and information posters conforming to requirements of OSHA and other applicable Laws and Regulations shall be provided in readily accessible locations.

010552 FIRE EXTINGUISHERS

Sufficient number of fire extinguishers of the type and capacity required to protect the Work and ancillary facilities shall be provided in readily accessible locations.

010560 TRAFFIC CONTROL

There should be no need for Traffic Control nor Maintenance of Traffic however if the need arises then all will be handled according to Specifications, Manual On Uniform Traffic Control Devices (MUTCD) guidelines, and shall be approved Salem City, or any other authoritative departmental officials.

010570 SPECIAL CONTROLS

The Contractor shall take all reasonable means to minimize inconvenience and injury to the public by dust, noise, diversion of storm water, or other agencies under his control.

010571 DUST CONTROL

The Contractor shall take whatever steps, procedures, or means as are required to prevent abnormal dust conditions being caused by his operations in connection with the execution of the Work, and on any unpaved road which the Contractor or any of his subcontractors are using, excavation or fill areas, demolition operations, or other activities. Control shall be by sprinkling, use of dust palliatives, modification of operations, or any other means acceptable to agencies having jurisdiction.

010573 NOISE ABATEMENT

In inhabited areas, particularly residential, operations shall be performed in a manner to minimize unnecessary noise generation. In residential areas, special measures shall be taken to suppress noise generated by repair and service activities during the night hours.

010575 DRAINAGE CONTROL

In excavation, fill, and grading operations care shall be taken to disturb the pre-existing drainage pattern as little as possible. Particular care shall be taken not to direct drainage water onto private property or into streets or drainage ways inadequate for the increase flow. Drainage means shall be provided to protect the Work.

It is the Contractors responsibility to submit, manage and maintain a Land Disturbance Permit with Salem City. Salem City will forgo the fee for the Land Disturbance Permit.

It is the Contractor's responsibility to submit, manage and maintain a Storm Water Pollution Prevention Plan with the State of Utah.

010700 PROJECT CLOSEOUT

It is the intent of these Contract Documents that the Contractor shall deliver a complete and operable facility capable of performing its intended functions and ready for use.

010710 CLEANING

Throughout the period of construction, the Contractor shall keep the Work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the Work, all unused and rejected materials, surplus earth, concrete, plaster, and debris, excepting select material which may be required for refilling or grading.

010711 FINAL SITE CLEAN UP

Upon completion of the Work, and prior to final acceptance, the Contractor shall remove from the vicinity of the Work, surplus material, and equipment belonging to him or used under his direction during construction.

010715 WASTE DISPOSAL

The Contractor shall dispose of surplus materials, waste products, and debris and shall make necessary arrangements for such disposal.

Ditches, washes, or drainage-ways shall not be filled if this action may create water control problems.

Disposal operations shall not create unsightly or unsanitary nuisances. The Contractor shall not maintain surplus materials, waste products, and debris on the project that poses a safety hazard.

010720 PROJECT RECORD DOCUMENTS

The Contractor shall maintain at the site, available to the Owner and Engineer, one copy of the Contract Documents, Drawings, Shop Drawings, Change Orders, and other modifications in good order and marked to record all changes made during construction. These documents shall be delivered to the City upon completion of the Work.

During the progress meetings, such record documents shall be reviewed to ascertain that all changes have been recorded.

010730 TOUCH-UP AND REPAIR

The Contractor shall touch up or repair finished surfaces on roadways, fixtures, or installations that have been damaged prior to final acceptance. Surfaces on which such touch-up or repair cannot be successfully accomplished shall be completely refinished or in the case of hardware and similar small items, the item shall be replaced.

010740 WARRANTY PERIOD

The Contractor shall warranty the construction for one-year after final acceptance. Prior to closing the warranty period, a warranty period walk though will be held with the City and Contractor and a warranty punch list will be generated. Upon the Contractor completing to the City's acceptance the project will be finalized and accepted by the City.

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Geotechnical Investigation
Salem City Office / Warehouse Building
460 West 1500 North
Salem, Utah

GeoStrata Job No. 1435-001

January 29, 2019

Prepared for:

Salem City
30 West 100 South
Salem, Utah 84653

Attention: Mr. Clark Crook

Learn More

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Salem City Office / Warehouse Building
460 West 1500 North
Salem, Utah

GeoStrata Job No. 1435-001

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January 29, 2019

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1.0 EXECUTIVE SUMMARY

This report presents the results of a geotechnical investigation conducted for the proposed Salem City Office and Warehouse building to be located at approximately 460 West 1500 North in Salem, Utah. The purposes of this investigation was to assess the nature and engineering properties of the subsurface soils at the site and to provide recommendations for general site grading and the design and construction of foundations, slabs-on-grade, and exterior concrete flatwork.

Based on the subsurface conditions encountered at the site, it is our opinion that the subject site is suitable for the proposed development provided that the recommendations contained in this report are incorporated into the design and construction of the project.

Subsurface conditions were investigated through the advancement of 3 boreholes to depths of 21½ to 51½ feet below existing site grade. Based on our observations and geologic literature review, the subject property is overlain by approximately 2 to 2½ feet of undocumented fill consisting of medium brown, very moist Clayey SAND (SC) with gravel. It is anticipated that this fill material was placed on the site at the time of construction of the wastewater treatment ponds and service building adjacent to the site covered by this geotechnical report. The soils encountered underlying the undocumented fill soils consisted of 6 to 8 feet of native, hard, moist to very moist, light to dark gray Fat CLAY (CH) with occasional black or white mottling. The layer also exhibits minor pinholes throughout as well as the occasional trace of organics. This unit persists to a depth of approximately 7½ to 10 feet. Underlying these Fat CLAY soils, we encountered very stiff to hard, moist, gray Lean CLAY (CL) with occasional white mottling and iron staining. These soils persisted to the full depth of our explorations (51½ feet). Groundwater was observed encountered in borehole B-1 at 46 feet below the existing site grade. Groundwater was apparent at depths of 11 and 15 feet in boreholes B-2 and B-3, respectively. The presence of an irrigation canal adjacent to boreholes B-2 and B-3 is believed to be the source of the shallow groundwater in these areas.

Conventional spread and strip footings founded on a minimum of 48 inches of properly placed and compacted structural fill may be used to support the proposed structure. All undocumented fill, topsoil, organic soils, or otherwise deleterious soils should be removed in areas where they would underlie the proposed footing elements. The footings may then be established on a minimum of 48 inches of structural fill and proportioned for a maximum net allowable bearing capacity of 1,700 psf.

Based on our review of the observed soils encountered at depth at the subject site, the site is underlain by cohesive fine-grained soils containing 76.5 to 100% fines. Cohesive, fine-grained soils are typically not susceptible to liquefaction therefore GeoStrata considers the site to have a low potential to be impacted by liquefaction settlement.

Specific considerations and recommendations concerning lateral earth pressures, pavement considerations, and soil corrosion are provided within the body of this report.

NOTE: The scope of services provided within this report are limited to the assessment of the subsurface conditions at the subject site. The executive summary is provided solely for purposes of overview and is not intended to replace the report of which it is part and should not be used separately from the report.

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2.0 INTRODUCTION

2.1 PURPOSE AND SCOPE OF WORK

This report presents the results of a geotechnical investigation conducted for the proposed Salem City Office and Warehouse building to be located at approximately 460 West 1500 North in Salem, Utah. The purposes of this investigation were to assess the nature and engineering properties of the subsurface soils at the site and to provide recommendations for general site grading and the design and construction of foundations, slabs-on-grade and exterior concrete flatwork.

The scope of work completed for this study included a site reconnaissance, subsurface exploration, soil sampling, laboratory testing, engineering analyses, and preparation of this report. Our services were performed in accordance with our proposal and signed authorization, dated September 5, 2018.

The recommendations contained in this report are subject to the limitations presented in the **Limitations** section of this report (Section 7.1).

2.2 PROJECT DESCRIPTION

The rectangular-shaped property is located on the southwestern corner of the Salem City wastewater detention pond site located approximately at 460 West 1500 North in Salem, Utah (see Plate A-1, *Site Vicinity Map*). Our understanding of the proposed development is based on information provided by the client. Based on this information, we understand that the development as planned will consist of a slab-on-grade, single- to two-story, steel-framed warehouse and office structure on approximately 0.81 acres. We understand that the two-story portion of the structure will be used as office space, whereas the single-story portion of the structure will be utilized as a warehouse area containing several relatively heavy transformers and other similar electrical equipment. For the purposes of this report we have assumed structural loads on the order of 5 kips per lineal foot with estimated column loads of 30 kips.

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3.0 METHOD OF STUDY

3.1 FIELD INVESTIGATION

As a part of this investigation, subsurface soil conditions were explored by advancing 3 exploratory boreholes to depths ranging from 21½ to 51½ feet below the existing site grade. The approximate locations of the explorations are shown on Plate A-2 *Exploration Location Map* in Appendix A. Exploration points were placed to provide optimum coverage of the site. Logs of the subsurface conditions, as encountered in the explorations, were recorded at the time of excavation by a qualified geotechnical engineer and are presented on Plates B-1 to B-3 in Appendix B. A *Soil Symbols Description Key* used in the borehole logs is included as Plate B-4.

The boreholes were advanced using a B-80 Mobile Drill. Both bulk and relatively "undisturbed" soil samples were obtained in the borehole explorations. Relatively "undisturbed" soil samples were obtained with use of a modified 3-inch diameter California sampler as well as through the use of Shelby Tubes. Disturbed samples were obtained through the use of a standard Split Spoon sampler. All samples were transported to our laboratory for testing to evaluate engineering properties of the various earth materials observed. The soils were classified according to the *Unified Soil Classification System* (USCS) by the Geotechnical Engineer. Classifications for the individual soil units are shown on the attached Borehole Logs.

3.2 LABORATORY INVESTIGATION

Geotechnical laboratory tests were conducted on selected relatively undisturbed and bulk soil samples obtained during our field investigation. The laboratory testing program was designed to evaluate the engineering characteristics of onsite earth materials. Laboratory tests conducted during this investigation include:

- Grain Size Distribution Analysis (ASTM C136)
- Percent of Fines by Washing (ASTM D1140)
- Atterberg Limits (ASTM D4318)
- 1-D Consolidation Test (ASTM D2435)
- In-situ Moisture and Density Test
- Laboratory Compaction Characteristics of Soil (ASTM D698)
- California Bearing Ratio (CBR) Test (ASTM D1883)
- Water-soluble sulfate concentration for cement type recommendations
- Resistivity and pH to evaluate corrosion potential of ferrous metals in contact with site soils

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The results of laboratory tests are presented on the borehole logs in Appendix B (Plates B-1 to B-4), the test result plates presented in Appendix C (Plates C-2 to C-10) and in the *Summary of Laboratory Test Results* Table (Plate C-1).

3.3 ENGINEERING ANALYSIS

Based on the proposed construction at the site, the following engineering analyses were performed:

- Bearing capacity of foundation soils
- Foundation and slab settlement
- Lateral earth pressures against foundations and retaining walls
- Lateral resistance against sliding
- Excavation Stability

Engineering analyses were performed using soil data obtained from the laboratory test results and empirical correlations from material density, depositional characteristics and classification. Appropriate factors of safety were applied to the results consistent with industry standards and the accepted standard of care.

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4.0 GENERALIZED SITE CONDITIONS

4.1 SURFACE CONDITIONS

At the time of our subsurface investigation the subject property existed as a vacant lot adjacent to an existing maintenance and treatment building to the east and the wastewater treatment ponds to the north. The lot was lightly-vegetated with low grasses and weeds, with piles of undocumented fill soils stockpiled along the northern boundary of the property south of the ponds. The site is relatively flat, having a maximum topographic relief of approximately 4 feet, and is located at an elevation of 4,530 feet above sea level. Access to the property is along 460 West which is a paved, two lane roadway.

4.2 SUBSURFACE CONDITIONS

As previously mentioned, the subsurface soil conditions were explored at the subject property by advancing 3 boreholes on the subject site to depths ranging from 21½ to 51½ feet below the existing site grade. Subsurface soil conditions were logged at the time of the investigation and are included in Appendix B (Plates B-1 through B-3). The near-surface geologic units are mapped on the 1:24,000 scale Spanish Fork Quadrangle Map (Solomon and others, 2007) as consisting of Holocene- to upper Pleistocene-aged Spring and Marsh (Qsm) deposits associated with springs, ponds, seeps, and wetlands that existed after the regressive phase of the Bonneville lake cycle. However, based on the soil and groundwater conditions encountered during our investigation discussed below, that it is considered likely that the site is underlain by Pleistocene fine-grained lacustrine deposits (Qlf).

4.2.1 Soils

Based on our observations and geologic literature review, the subject site is overlain by approximately 2 to 2½ feet of undocumented fill consisting of medium brown, very moist Clayey SAND (SM) with gravel. The soils encountered underlying the undocumented fill soils consisted of 6 to 8 feet of native, hard, moist to very moist, light to dark gray Fat CLAY (CH) with occasional black or white mottling. The layer also exhibits minor pinholes throughout as well as the occasional trace of organics. This unit persists to a depth of approximately 7½ to 10 feet before it graded into a unit of very stiff to hard, moist, gray Lean CLAY (CL) with occasional white mottling and iron staining. In borehole B-1, another material appeared to occur below the water table at 50 feet consisting of very soft, wet, dark gray Lean CLAY (CL) with sand. This layer persisted to the bottom of the borehole.

4.2.2 Groundwater Conditions

Groundwater was encountered in borehole B-1 at a depth of 46 feet below the existing site grade. However, groundwater unit was encountered at a depth of 11 and 15 feet below the existing surface in boreholes B-2 and B-3, respectively. It was noted during our laboratory testing that the soils obtained from depths as shallow as 7½ feet had moisture contents ranging from 28.2 to 31.3 percent (87.2 to 92.3 percent saturation). These values indicate that groundwater may exist at depths as shallow as 5 feet below the existing site grade.

At the time of our field investigation, an unlined irrigation canal was observed along the southern boundary of the subject property; it is possible that infiltration from this canal may result in even higher localized groundwater conditions depending on the time of year. In addition, seasonal fluctuations in precipitation, surface runoff from adjacent properties, or other on or offsite sources may increase moisture conditions; groundwater conditions can be expected to raise several feet seasonally. The contractor should anticipate utilizing a dewatering system for any trenches extending beyond 5 feet in depth or possibly shallower.

4.2.3 Moisture Sensitive Soils

Collapse (often referred to as "hydro-collapse") is a phenomena whereby undisturbed soils exhibit volumetric strain and consolidation upon wetting under increased loading conditions. Collapsible soils can cause differential settling of structures and roadways. Collapsible soils do not necessarily preclude development and can be mitigated by over-excavating porous, potentially collapsible soils and replacing with engineered fill and by controlling surface drainage and runoff. For some structures that are particularly sensitive to differential settlement, or in areas where collapsible soils are identified at great depth, a deep foundation system should be considered.

Soils that have a potential to collapse under increased loading and moisture conditions are typically characterized by a pinhole structure and relatively low unit weights. In general, potentially collapsible soils are observed in fine-grained soils that include clay and silt, although collapsible soils may include sandy soils. Results of our laboratory testing indicated that the subsurface soils have a low collapse potential, with the collapse potential ranging from -0.13 to 0.08 percent upon wetting. As such, it is anticipated that collapsible soils will not significantly impact the proposed development.

Swelling is a phenomenon whereby a fine-grained, high plasticity soil (e.g. a Fat CLAY (CH)) expands when wetted. Conversely, expansive soils can also shrink upon drying which would

result in a decrease in bearing capacity and increased settlement potential. The swell/collapse tests performed did not show significant swell potential, but the sample used for the CBR ratio test showed 3.4% swell. This increased swell result can be attributed to the remolding of the soil for the CBR sample. The potential for swell/shrinkage can only be eliminated with the complete removal of the Fat CLAY (CH) on site. This may not be feasible given the thicknesses of these subgrade soils. In order to minimize the potential swelling of expansive soils, moisture should not be allowed to infiltrate these soils. Additional recommendations concerning site grading designed to reduce the potential for moisture reaching the Fat CLAY (CH) soils may be found in Section 6.6 of this report.

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5.0 GEOLOGIC CONDITIONS

5.1 GEOLOGIC SETTING

The site is located at an elevation of approximately 4,530 feet above mean sea level within the southern portion of Utah Valley. The Utah Valley is a deep, sediment-filled structural basin of Cenozoic age flanked by the Wasatch Range to the east and the Lake Mountains, East Tintic Mountains, and the West Hills to the West (Hintze, 1980). The Wasatch Range is the easternmost expression of pronounced Basin and Range extension in north-central Utah.

The near-surface geology of Utah Valley is dominated by sediments deposited within the last 30,000 years by Lake Bonneville (Scott and others, 1983). As the lake receded, streams began to incise large deltas formed at the mouths of major canyons along the Wasatch Range, and the eroded material was deposited in shallow lakes and marshes in the basin and in a series of recessional deltas and alluvial fans. Sediments toward the center of the valleys are predominately deep-water deposits of clay, silt and fine sand. However, these deep-water deposits are in places covered by a thin post-Bonneville alluvial cover. Surface sediments at the project site are mapped as Holocene- to upper Pleistocene-aged spring and marsh (Qsm) deposits associated with springs, ponds, seeps, and wetlands. The area is also described as one with mixed marsh and fine-grained Lake Bonneville deposits (Qlf). We believe that, based on the soil and groundwater conditions encountered during our investigation discussed below, it is considered likely that the site is underlain by upper-Pleistocene fine-grained lacustrine deposits.

5.2 SEISMICITY AND FAULTING

The site lies within the north-south trending belt of seismicity known as the Intermountain Seismic Belt (ISB) (Hecker, 1993). The ISB extends from northwestern Montana through southwestern Utah. An active fault is defined as a fault that has had activity within the Holocene (<11ka). No active faults are mapped through or immediately adjacent to the site (Black and others, 2003, and Constenius, et al., 2011). The site is located approximately 1 mile east of the northern strand of the Nephi section of the Wasatch Fault Zone and 3½ miles west of the Provo section of the Wasatch Fault Zone. The Provo section is one of the longest sections of the Wasatch Fault Zone (Hecker, 1993) and is estimated to be approximately 43 miles long with a reported rupture length of 37 miles and a maximum potential to produce earthquakes up to magnitude (M_S) 7.5 to 7.7 (Black and others, 2003).

The site is also located approximately 9 miles east of the mapped Utah Lake Faults and Folds

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(ULFF). The ULFF consists of several northeast to northwest trending faults and folds located beneath Utah Lake and are reported to have been active in the past 15 ka (Black et al, 2003). However, since the ULFF is at the bottom of a large lake these faults are poorly understood – as such, the USGS does not include ULFF in their fault database for seismic hazard analysis. Analysis of the ground shaking hazard along the Wasatch Front suggests that the Wasatch Fault Zone is the single greatest contributor to the seismic hazard in the Salt Lake City region. Each of the faults listed above show evidence of Holocene-aged movement and is therefore considered active.

Seismic hazard maps depicting probabilistic ground motions and spectral response have been developed for the United States by the U.S. Geological Survey as part of NEHRP/NSHMP (Frankel et al, 1996). These maps have been incorporated into both *NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures* (FEMA, 1997), the *International Building Code* (IBC) (International Code Council, 2015), and the *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE/SEI 7-16). Spectral responses for the Maximum Considered Earthquake (MCE_R) are shown in the table below. These values generally correspond to a two percent probability of exceedance in 50 years (2PE50) for a "firm rock" site. To account for site effects, site coefficients which vary with the magnitude of spectral acceleration are used. Based on our field exploration, it is our opinion that this location is best described as a Site Class D. The spectral accelerations are shown in the table below. The spectral accelerations are calculated based on the site's approximate latitude and longitude of 40.0711° and -111.6859° respectively and the USGS Seismic Design Maps web-based application. Based on IBC, the site coefficients are F_a=1.00 and F_v=1.55. From this procedure the peak ground acceleration (PGA) is estimated to be 0.51g.

MCE_R Seismic Response Spectrum Spectral Acceleration Values for IBC Site Class D[a]

Site Location: **Latitude = 40.0711° N** **Longitude = -111.6859° W**	**Site Class D Site Coefficients:** **Fa = 1.00** **Fv = 1.55**
Spectral Period (sec)	**Response Spectrum Spectral Acceleration (g)**
0.2	$S_{MS}=(F_a*S_S=1.00*1.27) = 1.27$
1.0	$S_{M1}=(F_v*S_1=1.55*0.45) = 0.69$

[a] IBC 1613.3.4 recommends scaling the MCE values by 2/3 to obtain the design spectral response acceleration values; values reported in the table above have not been reduced.

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5.3 LIQUEFACTION

Certain areas within the Intermountain region also possess a potential for liquefaction during seismic events. Liquefaction is a phenomenon whereby loose, saturated, granular soil deposits lose a significant portion of their shear strength due to excess pore water pressure buildup resulting from dynamic loading, such as that caused by an earthquake. Among other effects, liquefaction can result in densification of such deposits causing settlements of overlying layers after an earthquake as excess pore water pressures are dissipated. The primary factors affecting liquefaction potential of a soil deposit are: (1) level and duration of seismic ground motions; (2) soil type and consistency; and (3) depth to groundwater.

Referring to the map titled "*Liquefaction Potential Map for a Part of Utah County, Utah*" published by the Utah County Planning and Development Services Division, the subject site is located within an area currently designated as "high" for liquefaction potential. "High" liquefaction potential means that there is a 50% probability of having an earthquake within a 100-year period that will be strong enough to cause liquefaction. Therefore, we evaluated the potential for liquefaction at the site based on procedures presented at the 1996 NCEER and 1998 NCEER/NSF liquefaction workshops (Youd et al., 2001) and in general accordance with *Guidelines for Analyzing and Mitigating Liquefaction Hazards in California* published by the Southern California Earthquake Center (SCEC) (Martin and Lew, 1999). Our analysis considered the MCE as the design-level seismic event (an event with a 2 percent probability of occurrence in 50 years, or an event having a 2,475-year average return period). This is a slight deviation from the Martin and Lew 1999 recommendations, which recommends that the 10 percent in 50 years ground motion (10PE50/ARP 475 years), or *Design Basis Earthquake* (DBE) should be used for analysis. The MCE seismic event is estimated to produce a PGA of 0.51g (see Section 5.2). Our analysis also considered the deaggregated moment magnitude for the site (the earthquake magnitude having the greatest contribution to the hazard), which is estimated to be 7.1 Mw (https://earthquake.usgs.gov/hazards/interactive/).

Based on our laboratory analysis, the subsurface soils encountered contain fines content from 76 to 100 percent and clay percentages ranging from 40 to 50 percent. As a result, our liquefaction analysis indicates that none of the soil units encountered in our exploration boreholes will be susceptible to liquefaction during a seismic event.

6.0 ENGINEERING ANALYSIS AND RECOMMENDATIONS

6.1 GENERAL CONCLUSIONS

Based on the subsurface conditions encountered at the site, it is our opinion that the subject site is suitable for the proposed construction provided that the recommendations contained in this report are incorporated into the design and construction of the project. The recommendations presented in this report are based on our understanding of the proposed project, the subsurface conditions observed during field exploration, the results of laboratory testing, and our engineering analyses. If subsurface conditions other than those described herein are encountered in conjunction with construction, and/or if design and layout changes are initiated, we must be informed so that the recommendations herein can be reviewed and revised as changes or conditions may require.

Based on our observations, the subject site is overlain by 2 to 3 feet of undocumented fill soils likely associated with the construction of the adjacent wastewater treatment ponds. The undocumented fill soils would need to be over-excavated in all areas underlying footing elements and concrete slabs-on-grade. It is recommended that all undocumented fill soils be removed from areas underlying the proposed pavement sections. GeoStrata understands it may be uneconomic to over-excavate these soils in all areas under the proposed pavements sections, and as such, it is recommended that as a minimum, 12-inches of the undocumented fill soils be over-excavated and re-compacted as structural fill in all areas underlying the proposed pavement section. The Client should be aware that by leaving any amount of undocumented fill under the proposed pavement section, they accept an increased risk of premature failure and increased maintenance of the pavement. The only way to eliminate this potential is to over-excavate the entire undocumented fill section.

Due to the presence of relatively compressible soils near the estimated foundation bearing elevation, it is recommended that the foundations of the proposed structures consist of conventional spread and/or strip footings founded on a minimum of 48 inches of properly placed and compacted structural fill which extends to suitable native soils. Foundations constructed on the 48 inches of structural fill may be proportioned for a maximum allowable bearing capacity of 1,700 psf. Additional recommendations concerning footing construction and design may be found within the following paragraphs.

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6.2 EARTHWORK

Prior to the placement of foundations, general site grading is recommended to provide proper support for foundations, exterior concrete flatwork, concrete slabs-on-grade, and asphalt pavement sections. Site grading is also recommended to provide proper drainage and moisture control on the subject property and to aid in preventing differential movement in foundation soils as a result of variations in moisture conditions.

6.2.1 General Site Preparation and Grading

In areas beneath footings and concrete flat work, topsoil should be stripped and stockpiled for use in landscape areas or disposal. Debris, vegetation, undocumented fill, roots, loose, soft or other deleterious materials should also be removed and replaced with structural fill. If over-excavation is required, the excavation should extend a minimum of one foot laterally for every foot of depth of over-excavation. The exposed subgrade should be proof-rolled with heavy equipment to identify loose, soft or otherwise disturbed soils. If soft soils are observed, they should be stabilized in accordance with our recommendations in the Soft Soil Stabilization Section (Section 6.2.2); if loose soils are observed, they should be compacted as recommended in Section 6.2.4.

Based on our observations in boreholes advanced for the site investigation, there are approximately 2 to 2½ feet of undocumented fill soils overlying the proposed development. These deposits should be removed prior to placement of structural fill, structures, and concrete flatwork. Recommendations concerning undocumented fill and paved areas may be found in Section 6.8 of this report.

A GeoStrata representative should observe the site preparation and grading operations to assess that the recommendations presented in this report are complied with.

6.2.2 Soft Soil Stabilization

All exposed subgrade surfaces beneath footings, structures, areas of concrete flatwork, and pavement should be proof rolled with a piece of heavy wheeled construction equipment considering access limitations. If soft or pumping soils are encountered, these soils should be stabilized prior to construction of foundations, slab-on-grade, and pavement sections. Stabilization of the subgrade soils can be accomplished using a clean, coarse angular material worked into the soft subgrade. We recommend the material be greater than 3 inches in nominal diameter, but less than 6 inches. Locally available pit-run gravel may be suitable but should contain a high percentage of particles larger than 3 inches and have less than 7 percent fines

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(material passing the No. 200 sieve). A pit-run gravel may not be as effective as a coarse, angular material in stabilizing the soft soils. The stabilization material should be worked (pushed) into the soft subgrade soils until a firm relatively unyielding surface is established. Once a firm, relatively unyielding surface is achieved, the drainage area may be brought to final design grade using structural fill.

In large areas of soft subgrade soils, stabilization of the subgrade may not be practical using the method outlined above. In these areas it may be more economical to place a woven geotextile fabric against the soft soils covered by 18 inches of coarse, sub-rounded to sub-angular material over the woven geotextile. An inexpensive non-woven geotextile "filter" fabric should also be placed over the top of the coarse fill prior to placing structural fill to reduce infiltration of fines from above. The woven geotextile should be Propex 315ST or approved equivalent. The filter fabric should consist of Propex 401 or an approved equivalent.

We recommend that a GeoStrata representative be on-site to assess the exposed foundation soils. We also recommend that the geotechnical engineer be allowed to review the grading plans when they are prepared in order to evaluate their compatibility with these recommendations.

6.2.3 Excavation Stability

Based on Occupational Safety and Health Administration (OSHA) guidelines for excavation safety, trenches with vertical walls up to 5 feet in depth may be occupied, however, the presence of fill soils, loose soils, or wet soils may require that the walls be flattened to maintain safe working conditions. When the trench is deeper than 5 feet, we recommend a trench-shield or shoring be used as a protective system to workers in the trench. Based on our soil observations, laboratory testing, and OSHA guidelines, native soils at the site classify as Type C soils. Deeper excavations, if required, should be constructed with side slopes no steeper than one and one-half horizontal to one vertical (1.5H:1V). If wet conditions are encountered, side slopes should be further flattened to maintain slope stability. Alternatively shoring or trench boxes may be used to improve safe work conditions in trenches. The contractor is ultimately responsible for trench and site safety. Pertinent OSHA requirements should be met to provide a safe work environment. If site specific conditions arise that require engineering analysis in accordance with OSHA regulations, GeoStrata can respond and provide recommendations as needed.

We recommend that a GeoStrata representative be on-site during all excavations to assess the exposed foundation soils. We also recommend that the Geotechnical Engineer be allowed to

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review the grading plans when they are prepared in order to evaluate their compatibility with these recommendations.

6.2.4 Structural Fill and Compaction

All fill placed for the support of structures, flatwork or pavements, should consist of structural fill. Due to the high plasticity of the on-site Fat CLAY (CH), we recommend that native on-site materials not be used as structural fill. The native soils can, however, be used in landscape areas and in areas which will not be used to support a structural load or for a slab on grade.

Imported structural fill should consist a relatively well-graded granular soil with a maximum of 50 percent passing the No. 4 sieve and a maximum fines content (minus No.200 mesh sieve) of 25 percent. Fill material potion finer than the No. 40 sieve should have a liquid limit (LL) less than 35 and a plasticity index (PI) less than 25.

Grain Size	Percent Passing
4-inch	100
2-inch	85 to 100
No. 4	15 to 50
No. 200	< 25
Liquid Limit (LL)	<35
Plasticity Index (PI)	<25

All structural fill should be free of vegetation, debris or frozen material, and should contain no inert materials larger than 4 inches in nominal diameter. All structural fill soils should be approved by the Geotechnical Engineer prior to placement. Earth materials not meeting the aforementioned criteria may be suitable for use as structural fill; however, such material should be evaluated on a case-by-case basis and should be approved by the Geotechnical Engineer prior to use. These requirements for structural fill meet the needs of the site; however, regulating entities including special service districts, cities etc. may require the use of a predefined structural fill for use in their utility corridors/trenches. The contractor should be aware of the special requirements of structural fill by these regulating entities.

All structural fill should be placed in maximum 6-inch loose lifts if compacted by small hand-operated compaction equipment, maximum 8-inch loose lifts if compacted by light-duty rollers, and maximum 10-inch loose lifts if compacted by heavy duty compaction equipment that is

capable of efficiently compacting the entire thickness of the lift. We recommend that all structural fill be compacted on a horizontal plane, unless otherwise approved by the geotechnical engineer. Structural fill should be compacted to at least 95% of the maximum dry density, as determined by ASTM D1557. The required compaction should be increased to 98% for fills greater than 5 feet in thickness. The moisture content should be at or slightly above the optimum moisture content at the time of placement and compaction. Also, prior to placing any fill, the excavations should be observed by the geotechnical engineer to observe that any unsuitable materials or loose soils have been removed. In addition, proper grading should precede placement of fill, as described in the **General Site Preparation and Grading** subsection of this report (Section 6.2.1).

Fill soils placed for subgrade below exterior flat work and pavements, should be within 3% of the optimum moisture content when placed and compacted to at least 95% of the maximum dry density as determined by ASTM D1557. All utility trenches backfilled below the proposed structure, pavements, and flatwork concrete, should be backfilled with structural fill that is within 3% of the optimum moisture content when placed and compacted to at least 95% of the maximum dry density as determined by ASTM D1557. All other trenches, in landscape areas, should be backfilled and compacted to at least 90% of the maximum dry density (ASTM D1557).

The gradation, placement, moisture, and compaction recommendations contained in this section meet our minimum requirements but may not meet the requirements of other governing agencies such as city, county, or state entities. If their requirements exceed our recommendations, their specifications should override those presented in this report.

6.3 FOUNDATIONS

Due to the presence of moderately compressible soils in the near-surface soil profile, the foundation for the proposed structure may consist of conventional strip and/or spread footings founded on a minimum of 48 inches of properly placed and compacted structural fill. Any structural fill utilized to bring the site back up to design grade may count towards this requirement as long as it meets the criteria stated in Section 6.2.4 of this report. In addition, under no circumstances should foundation elements be established on undocumented fill soils. If these soils are encountered, then they should be over-excavated until undisturbed, native soils are encountered, then the site may be brought back up to design grade using properly placed and compacted structural fill. As noted earlier in the report, the over-excavated zone should extend a minimum of 1 foot laterally for every foot of depth. Strip and spread footings should be a

minimum of 18 and 36 inches wide, respectively, and exterior shallow footings should be embedded at least 30-inches below final grade for frost protection and confinement. Interior footings not subject to frost should be embedded at least 18 inches below final grade to provide confinement.

Conventional strip and spread footings founded on properly placed and compacted structural fill may be proportioned for a maximum net allowable bearing capacity of **1,700 psf**. The net allowable bearing capacity may be increased (typically by one-third) for temporary loading conditions such as transient wind and seismic loads. All footing excavations should be observed by the Geotechnical Engineer prior to footing placement.

For design of mat foundation and slabs, we recommend that a modulus of subgrade reaction of 50 pci be utilized. This modulus is dependent on the soil elastic properties, an estimate of which was made based on standard penetration blow counts and shear wave velocities.

Settlements of properly designed and constructed conventional footings, founded as described above, are anticipated to be less than 1.0 inch. Differential settlements should be on the order of ½ the total settlement over 30 feet.

6.4 CONCRETE SLAB-ON-GRADE CONSTRUCTION

We understand that it is planned to construct concrete pads within the proposed structure to support transformers and other electrical equipment which are anticipated to produce relatively heavy loads. We further understand that it is desired to limit frost heave beneath these structures. As such, it is recommended that all concrete slabs-on-grade should be constructed over at least 30 inches of compacted gravel overlying undisturbed native soils. Disturbed native soils should be compacted to at least 95% of the maximum dry density as determined by ASTM D-1557 (modified proctor) prior to placement of gravel. The gravel should consist of road base or clean drain rock with a ¾-inch maximum particle size and no more than 12 percent fines passing the No. 200 mesh sieve. The gravel layer should be compacted to at least 95 percent of the maximum dry density of modified proctor or until tight and relatively unyielding if the material is non-proctorable. All concrete slabs should be designed to minimize cracking as a result of shrinkage. Consideration should be given to reinforcing the slab with welded wire, re-bar, or fiber mesh.

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6.5 EARTH PRESSURE AND LATERAL RESISTANCE

Lateral forces imposed upon conventional foundations due to wind or seismic forces may be resisted by the development of passive earth pressures and friction between the base of the footing and the supporting subgrade. The native soils are not recommended for use as structural fill. Imported structural fill should be utilized. In determining the frictional resistance, a coefficient of friction of 0.44 should be used for granular structural fill against gravel.

Ultimate lateral earth pressures from *granular* backfill acting against buried walls and structures may be computed from the lateral pressure coefficients or equivalent fluid densities presented in the following table:

Condition	Lateral Pressure Coefficient	Equivalent Fluid Density (pounds per cubic foot)
Active*	0.28	33
At-rest**	0.47	56
Passive*	7.32	879
Seismic Active***	0.68	82
Seismic Passive***	-3.21	-385

* Based on Coulomb's equation
** Based on Jaky
*** Based on Mononobe-Okabe Equation

These coefficients and densities assume level, granular backfill with no buildup of hydrostatic pressures. The force of the water should be added to the presented values if hydrostatic pressures are anticipated. If sloping backfill is present, we recommend the geotechnical engineer be consulted to provide more accurate lateral pressure parameters once the design geometry is established.

Walls and structures allowed to rotate slightly should use the active condition. If the element is constrained against rotation, the at-rest condition should be used. These values should be used with an appropriate factor of safety against overturning and sliding. A value of 1.5 is typically used. Additionally, if passive resistance is calculated in conjunction with frictional resistance, the passive resistance should be reduced by ½.

For seismic analyses, the *active* and *passive* earth pressure coefficient provided in the table is based on the Mononobe-Okabe pseudo-static approach and only accounts for the dynamic

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horizontal thrust produced by ground motion. Hence, the resulting dynamic thrust pressure *should be added* to the static pressure to determine the total pressure on the wall. The pressure distribution of the dynamic horizontal thrust may be closely approximated as an inverted triangle with stress decreasing with depth and the resultant acting at a distance approximately 0.6 times the loaded height of the structure, measured upward from the bottom of the structure.

The coefficients shown assume a vertical wall face. Hydrostatic and surcharge loadings, if any, should be added. Over-compaction behind walls should be avoided. Resisting passive earth pressure from soils subject to frost or heave, or otherwise above prescribed minimum depths of embedment, should usually be neglected in design.

6.6 MOISTURE PROTECTION AND SURFACE DRAINAGE

As mentioned previously, due to moderate swell potential of the on-site soils, it is critical that planning and care should be implemented in the site drainage and design of surface water conveyance. Moisture should not be allowed to infiltrate the soils in the vicinity of the foundations. We recommend the following mitigation measures be implemented at the building location.

- The ground surface within 10 feet of the entire perimeter of the building should slope a minimum of five percent away from the structure. Alternatively, a slope of 5% is acceptable if the water is conveyed to a concrete ditch that will convey the water to a point of discharge that is at least 10 feet from the structures.
- Roof runoff devices (rain gutters) should be installed to direct all runoff a minimum of 10 feet away from the structure and preferably day-lighted to the curb where it can be transferred to the storm drain system. Rain gutters discharging roof runoff adjacent to or within the near vicinity of the structure may result in excessive differential settlement.
- We do not recommend storm drain collection sumps be used as part of this development. However, if necessary, sumps should not be located adjacent to foundations or within roadway pavements due to the presence of potentially swelling soils.
- We recommend irrigation around foundations be minimized by selective landscaping and that irrigation valves be constructed at least 5 feet away from foundations.
- Jetting (injecting water beneath the surface) to compact backfill against foundation soils may result in excessive settlement beneath the building and is not allowed.
- Backfill against foundations walls should consist of on-site native fine-grained soils and should be placed in lifts and compacted to 90% modified proctor to create a moisture barrier.

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Failure to comply with these recommendations could result in excessive total and differential settlements causing structural damage.

6.7 SOIL CORROSIVITY

One (1) soil sample tested for soil chemical reactivity. Chemical reactivity tests were performed to determine soil pH, resistivity, and concentrations of water-soluble sulfate ions. Results from these tests are summarized in the table below;

Test Pit	Depth (ft)	Sulfate (ppm)	Resistivity (Ω-cm)	pH
B-1	3	238	290	8.9

Test results indicate that the soluble sulfate concentrations of 238 ppm. Based on the American Concrete Institute (ACI) Building Code, these concentrations represent a "moderate" degree of sulfate attack on concrete structures. Type I/II Portland Cement Concrete (PCC) may be used for concrete elements in contact with the onsite soils or properly placed and compacted granular structural fill.

Laboratory soil resistivity has a direct impact on the degree of corrosion in underground steel structures. A decrease in resistivity relates to an increase in corrosion activity and therefore dictates that protective treatment to be used. Results from the laboratory resistivity tests indicate a range of resistivity of 290 ohm-cm. Based on the resistivity test results, the on-site fine-grained soils are considered to be "very corrosive" if saturated in the field.

Results of the ion hydrogen concentration (pH) tests were 8.9. Concentrations above 7 are considered basic and are less likely to contribute to corrosion attack on subsurface steel structures.

Anticipated underground steel structures (i.e., pipes, exposed steel) should be protected against corrosion.

6.8 PAVEMENT SECTION

Based on a laboratory-determined CBR value of 0.6 the near-surface soils are anticipated to provide relatively poor pavement support throughout the proposed pavement area. No traffic

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information was available at the time this report was prepared, therefore, GeoStrata has assumed traffic counts for access roads and parking areas. We assumed that the vehicle traffic in and out of the warehouse complex would consist of approximately 500 passenger vehicles/day, 2 medium trucks/day, and 3 heavy trucks/day. The following pavement design alternatives have been developed for a 20-year design life assuming an annual growth rate of 0% and an estimated single axle load (ESAL) of approximately 88,000 ESALs. Based on the information obtained and the above mentioned assumptions, we recommend that one of the following pavement sections be constructed.

Flexible (Asphalt) Pavement Section – Salem Office-Warehouse

Asphalt Concrete (in.)	**Untreated Road Base (in.)**	**Granular Borrow (in.)**
3.5	12	24
3.5	30	0

Asphalt has been assumed to be a high stability plant mix; base course material should be composed of crushed stone with a minimum CBR of 70. Asphalt should be compacted to a minimum density of 96% of the Marshall value and base course should be compacted to at least 95% of the maximum dry density of the modified proctor. Untreated base should meet UDOT or Salem City specifications.

It is our experience that pavement in areas where trucks frequently turn around, backup, or load and unload experience more distress. If the owner wishes to prolong the life of the pavement in these areas, consideration should be given to using a Portland cement concrete (rigid) pavement in these areas. The following rigid pavement section is recommended:

Rigid (Concrete) Pavement Section – Salem Office-Warehouse

Concrete (in)	**Untreated Road Base (in)**
5	12

Concrete should consist of a low slump, low water cement ratio mix with a minimum 28-day compressive strength of 4,000 psi. Base course should be compacted to at least 95% of the maximum dry density as determined by the ASTM D1557.

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As an alternative pavement design, a reinforcing geosynthetic fabric can be used on the site to reduce the required thickness of the untreated base course. A woven fabric can greatly increase the effective strength of a subsurface soil by carrying a portion of the tensile load experienced from the anticipated traffic. Based on our analysis, the following flexible pavement section was created incorporating a Tencate Mirafi® H_2Ri woven geosynthetic fabric.

Flexible Pavement Section with Woven Geosynthetic – Salem Office-Warehouse

Asphalt Concrete (in)	**Untreated Base Course (in)**	**Granular Borrow (in)**
3.5	10	10
3.5	14	0

The woven fabric should be placed directly below the untreated base course in accordance with the manufacturer's recommendations.

If traffic conditions vary significantly from our stated assumptions, GeoStrata should be contacted so we can modify our pavement design parameters accordingly. Specifically, if the traffic counts are significantly higher or lower, we should be contacted to revise the pavement section design as necessary. The pavement section thickness above assumes that the majority of the construction traffic including cement trucks, cranes, loaded haulers, etc. has ceased. If a significant volume of construction traffic occurs after the pavement section has been constructed, the owner should anticipate maintenance or a decrease in the design life of the pavement area.

Consideration should be given to thickening the pavement section in truck turn around areas, especially if the pavement section consists of asphalt. It has been our experience that truck turnaround areas show early pavement distress based on the turning of heavily loaded truck wheels. We recommend that in these areas the pavement section by increased from 3.5 inches of asphalt to 4 inches.

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7.0 CLOSURE

7.1 LIMITATIONS

The recommendations contained in this report are based on our limited field exploration, laboratory testing, and understanding of the proposed construction. The subsurface data used in the preparation of this report were obtained from the explorations made for this investigation. It is possible that variations in the soil and groundwater conditions could exist between and beyond the points explored. The nature and extent of variations may not be evident until construction occurs. If any conditions are encountered at this site that are different from those described in this report, GeoStrata should be immediately notified so that we may make any necessary revisions to recommendations contained in this report. In addition, if the scope of the proposed construction changes from that described in this report, GeoStrata should be notified.

This report was prepared in accordance with the generally accepted standard of practice at the time the report was written. No warranty, expressed or implied, is made.

It is the Client's responsibility to see that all parties to the project including the Designer, Contractor, Subcontractors, etc. are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

7.2 ADDITIONAL SERVICES

The recommendations made in this report are based on the assumption that an adequate program of tests and observations will be made during construction. GeoStrata staff should be on site to verify compliance with these recommendations. These tests and observations should include, but not necessarily be limited to, the following:

- Observations and testing during site preparation, earthwork and structural fill placement.
- Observation of foundation soils to assess their suitability for footing placement.
- Observation of soft/loose soils over-excavation.
- Observation of temporary excavations and shoring.
- Consultation as may be required during construction.
- Quality control and observation of concrete placement.

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We also recommend that project plans and specifications be reviewed by GeoStrata to verify compatibility with our conclusions and recommendations. Additional information concerning the scope and cost of these services can be obtained from our office.

We appreciate the opportunity to be of service on this project. Should you have any questions regarding the report or wish to discuss additional services, please do not hesitate to contact us at your convenience at (801) 501-0583.

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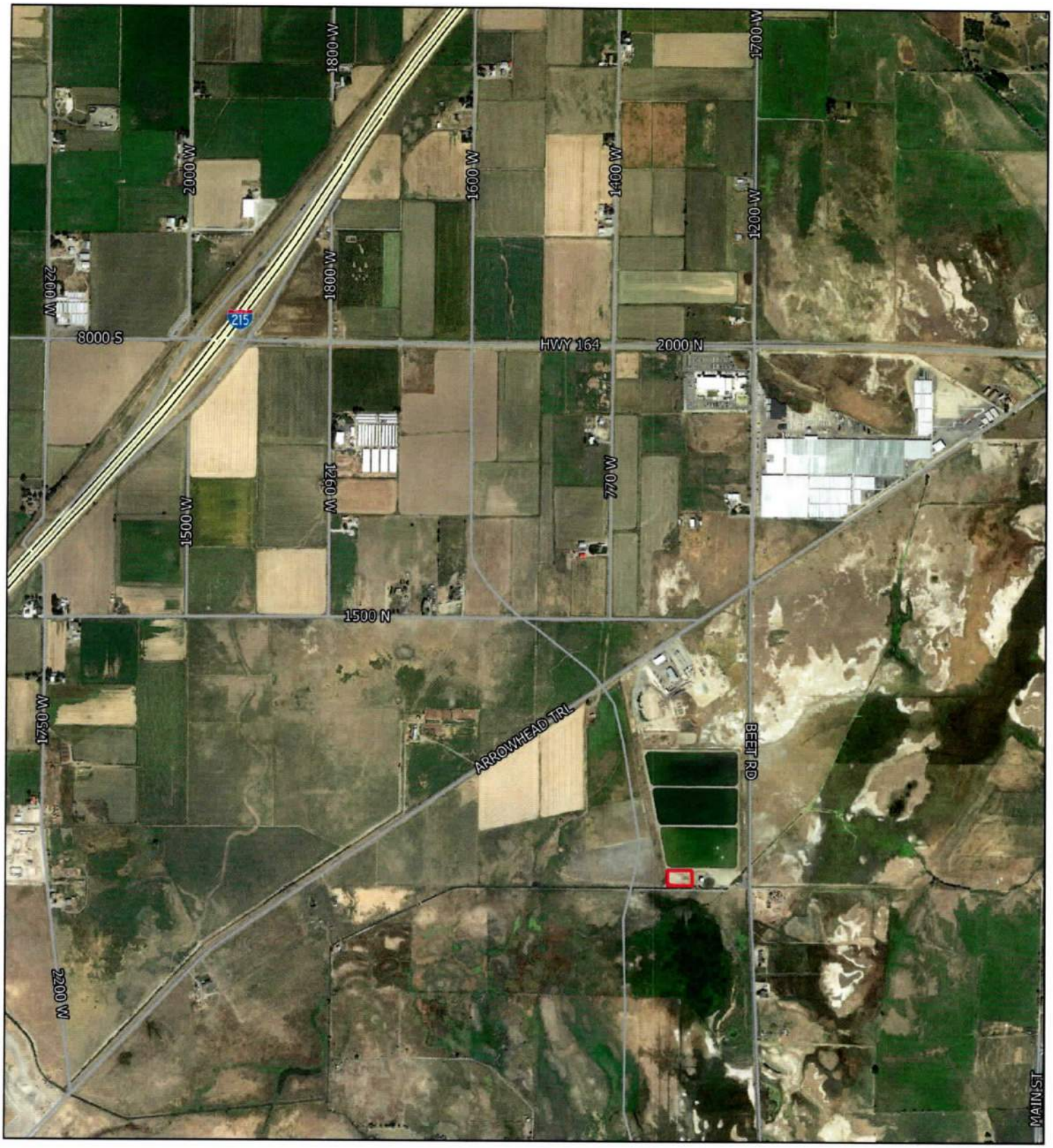
Appendix A



700 0 700 1400 2100 2800 ft

1:15,000

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Legend

Approximate Site Boundary

Salem City
Office-Warehouse Building
Salem, Utah
Project Number 1435-001

Site Vicinity Map

Plate A-1

90 0 90 180 270 360 ft

1:2,000

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Legend

- Approximate Boring Locations
- Approximate Site Boundary

Salem City
Office-Warehouse Building
Salem, Utah
Project Number 1435-001

Exploration Location Map

Plate A-2

Appendix B

DATE
STARTED: 1/2/19
COMPLETED: 1/2/19
BACKFILLED: 1/2/19

Salem City
Office-Warehouse Building
Salem, Utah

Project Number 1435-001

GeoStrata Rep: D. Bliler
Rig Type: B-80 Mobile Drill
Boring Type: HSA

Boring ID
B-1
Sheet 1 of 2

LOCATION
EASTING NORTHING ELEVATION

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	N	N*	SPT BLOW COUNT 10203040506070809 0	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits: Plastic Limit / Moisture Content / Liquid Limit 10203040506070809 0
0	0					FILL - Clayey SAND with gravel, medium dense, very moist, brown, contains pulverized asphalt									
					CH	Fat CLAY - hard, very moist, gray, minor pinholes throughout, occasional traces of organics						96.9	68	40	
1	5					- light gray, occasional black mottling	17	32							
2						- torvane shear strength - 800 psf	47	57		92.9	31.3	98.7	62	36	
3	10				CL	Lean CLAY - hard, moist, gray, no pinholes, no organics, occasional white mottling	27	44			20.4	91.4	36	19	
4															
5	15					- torvane shear strength - 670 psf, iron staining throughout	55	69		105.1	22.0	99.2	33	16	
6	20					- gray-brown	32	64			21.9	98.6	36	18	
7															
8	25					- torvane shear strength - 1400 psf	45	57		100.7	26.1	99.6	40	21	

N - OBSERVED UNCORRECTED BLOW COUNT

N* - CORRECTED N1(60) EQUIVALENT SPT BLOW COUNT

LOG OF BORING - PLATE (B) 1435-001 BORING LOGS.GPJ GEOSTRATA.GDT 1/23/19

GeoStrata

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SAMPLE TYPE
- 2" O.D./1.38" I.D. Split Spoon Sampler
- 2.5" O.D./2" I.D. California Split Spoon Sampler
- 3" O.D. Thin-Walled Shelby Sampler
- Grab Sample
- 2" O.D./1.625" I.D. Liner Sampler

NOTES:

WATER LEVEL
▼ - MEASURED ▽ - ESTIMATED

Plate
B - 1a

DATE
STARTED: 1/2/19
COMPLETED: 1/2/19
BACKFILLED: 1/2/19

Salem City
Office-Warehouse Building
Salem, Utah
Project Number 1435-001

GeoStrata Rep: D. Bliler
Rig Type: B-80 Mobile Drill
Boring Type: HSA

Boring ID
B-1
Sheet 2 of 2

DEPTH
METERS | FEET | SAMPLES | WATER LEVEL | GRAPHICAL LOG | UNIFIED SOIL CLASSIFICATION

LOCATION
EASTING NORTHING ELEVATION

MATERIAL DESCRIPTION	N	N*	SPT BLOW COUNT 10 20 30 40 50 60 70 80 90	Dry Density (pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
- gray, no iron staining or mottling	32	58			27.9	100.0	45	24
- stiff, very moist, dark gray	8	14			36.4	95.5	44	24
CL Lean CLAY with sand - very soft, wet, dark gray	0	0			36.1	76.5	43	23
Bottom of Boring @ 51.5 Feet								

Moisture Content and Atterberg Limits
Plastic Limit | Moisture Content | Liquid Limit
10 20 30 40 50 60 70 80 90

N - OBSERVED UNCORRECTED BLOW COUNT
N* - CORRECTED N1(60) EQUIVALENT SPT BLOW COUNT

LOG OF BORING - PLATE (B) 1435-001 BORING LOGS GPJ GEOSTRATA GDT 1/23/19

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SAMPLE TYPE
- 2" O.D./1.38" I.D. Split Spoon Sampler
- 2.5" O.D./2" I.D. California Split Spoon Sampler
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- Grab Sample
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NOTES:

WATER LEVEL
▼ - MEASURED ▽ - ESTIMATED

Plate
B - 1b

DATE
STARTED: 1/2/19
COMPLETED: 1/2/19
BACKFILLED: 1/2/19

Salem City
Office-Warehouse Building
Salem, Utah

Project Number 1435-001

GeoStrata Rep: D. Bliler
Rig Type: B-80 Mobile Dril
Boring Type: HSA

Boring ID
B-2
Sheet 1 of 1

LOCATION
EASTING NORTHING ELEVATION

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	N	N*	SPT BLOW COUNT 10203040506070809 0	Dry Density (pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits: Plastic Limit / Moisture Content / Liquid Limit 10203040506070809 0
0	0					FILL - Clayey SAND with gravel, medium dense, very moist, brown, contains pulverized asphalt									
1					CH	Fat CLAY - hard, moist, dark gray with black mottling, minor pinholes throughout	16	31							
	5					- torvane shear strength - 770 psf	28	35		76.4	28.2	99.8	52	30	
2						- medium stiff, light gray	4	7							
3	10		▽		CL	Lean CLAY - very stiff, moist, light gray, 800 psi for Shelby Tube sampling resistance, torvane shear strength - 650 psf				99.1	24.2	91.9	33	16	
4															
	15					- wet, light brown	12	23							
5															
6	20					- hard, blue-gray	29	39							
7						Bottom of Boring @ 21.5 Feet									
8	25														

N - OBSERVED UNCORRECTED BLOW COUNT

N* - CORRECTED N1(60) EQUIVALENT SPT BLOW COUNT

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SAMPLE TYPE
- 2" O.D./1.38" I.D. Split Spoon Sampler
- 2.5" O.D./2" I.D. California Split Spoon Sampler
- 3" O.D. Thin-Walled Shelby Sampler
- Grab Sample
- 2" O.D./1.625" I.D. Liner Sampler

NOTES:

WATER LEVEL
▼ - MEASURED ▽ - ESTIMATED

Plate
B - 2

LOG OF BORING - PLATE (B) 1435-001 BORING LOGS.GPJ GEOSTRATA.GDT 1/23/19

DATE
STARTED: 1/2/19
COMPLETED: 1/2/19
BACKFILLED: 1/2/19

Salem City
Office-Warehouse Building
Salem, Utah

Project Number 1435-001

GeoStrata Rep: D. Bliler
Rig Type: B-80 Mobile Drill
Boring Type: HSA

Boring ID
B-3
Sheet 1 of 1

LOCATION
EASTING NORTHING ELEVATION

METERS	FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	N	N*	SPT BLOW COUNT 10 20 30 40 50 60 70 80 90	Dry Density (pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits: Plastic Limit / Moisture Content / Liquid Limit 10 20 30 40 50 60 70 80 90
0	0					FILL - Clayey SAND with gravel, medium dense, very moist, brown, contains pulverized asphalt									
					CH	Fat CLAY - hard, moist, light gray with white mottling, minor pinholes, occasional thin layers of dark brown, wet Clayey SAND with minor gravel with occasional organics									
1	5					- torvane shear strength - 1020 psf	17	32							
2					CL	Lean CLAY - hard, moist, light gray with white mottling, no pinholes, 1/2" seams of dark brown ancient organics	27	33		100.6	22.5	95.5	40	21	
3	10					- very stiff	16	26							
4															
5	15					- 1400 psi for Shelby tube sampling resistance, torvane shear strength - 1900 psf				106.1	22.4	90.8	40	22	
6	20					- hard, gray-brown	18	36							
7						Bottom of Boring @ 21.5 Feet									
8	25														

N - OBSERVED UNCORRECTED BLOW COUNT

N* - CORRECTED N1(60) EQUIVALENT SPT BLOW COUNT

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SAMPLE TYPE
- 2" O.D./1.38" I.D. Split Spoon Sampler
- 2.5" O.D./2" I.D. California Split Spoon Sampler
- 3" O.D. Thin-Walled Shelby Sampler
- Grab Sample
- 2" O.D./1.625" I.D. Liner Sampler

NOTES:

WATER LEVEL
▼ - MEASURED ▽ - ESTIMATED

Plate
B - 3

LOG OF BORING - PLATE (B) 1435-001 BORING LOGS.GPJ GEOSTRATA.GDT 1/23/19

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			USCS SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	GRAVELS (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
			SC	CLAYEY SANDS SAND-GRAVEL-CLAY MIXTURES
FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid limit less than 50)		ML	INORGANIC SILTS & VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid limit greater than 50)		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

LOG KEY SYMBOLS

BORING SAMPLE LOCATION

TEST-PIT SAMPLE LOCATION

WATER LEVEL (level after completion)

WATER LEVEL (level where first encountered)

CEMENTATION

DESCRIPTION	DESCRIPTION
WEAKELY	CRUMBLES OR BREAKS WITH HANDLING OR SLIGHT FINGER PRESSURE
MODERATELY	CRUMBLES OR BREAKS WITH CONSIDERABLE FINGER PRESSURE
STRONGLY	WILL NOT CRUMBLE OR BREAK WITH FINGER PRESSURE

OTHER TESTS KEY

C	CONSOLIDATION	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	DS	DIRECT SHEAR
UC	UNCONFINED COMPRESSION	T	TRIAXIAL
S	SOLUBILITY	R	RESISTIVITY
O	ORGANIC CONTENT	RV	R-VALUE
CBR	CALIFORNIA BEARING RATIO	SU	SOLUBLE SULFATES
COMP	MOISTURE/DENSITY RELATIONSHIP	PM	PERMEABILITY
CI	CALIFORNIA IMPACT	-200	% FINER THAN #200
COL	COLLAPSE POTENTIAL	Gs	SPECIFIC GRAVITY
SS	SHRINK SWELL	SL	SWELL LOAD

MODIFIERS

DESCRIPTION	%
TRACE	<5
SOME	5 - 12
WITH	>12

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH
MOIST	DAMP BUT NO VISIBLE WATER
WET	VISIBLE FREE WATER, USUALLY SOIL BELOW WATER TABLE

STRATIFICATION

DESCRIPTION	THICKNESS	DESCRIPTION	THICKNESS
SEAM	1/16 - 1/2"	OCCASIONAL	ONE OR LESS PER FOOT OF THICKNESS
LAYER	1/2 - 12"	FREQUENT	MORE THAN ONE PER FOOT OF THICKNESS

GENERAL NOTES

1. Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.
2. No warranty is provided as to the continuity of soil conditions between individual sample locations.
3. Logs represent general soil conditions observed at the point of exploration on the date indicated.
4. In general, Unified Soil Classification designations presented on the logs were evaluated by visual methods only. Therefore, actual designations (based on laboratory tests) may vary.

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT (blows/ft)	MODIFIED CA. SAMPLER (blows/ft)	CALIFORNIA SAMPLER (blows/ft)	RELATIVE DENSITY (%)	FIELD TEST
VERY LOOSE	<4	<4	<5	0 - 15	EASILY PENETRATED WITH 1/2-INCH REINFORCING ROD PUSHED BY HAND
LOOSE	4 - 10	5 - 12	5 - 15	15 - 35	DIFFICULT TO PENETRATE WITH 1/2-INCH REINFORCING ROD PUSHED BY HAND
MEDIUM DENSE	10 - 30	12 - 35	15 - 40	35 - 65	EASILY PENETRATED A FOOT WITH 1/2-INCH REINFORCING ROD DRIVEN WITH 5-LB HAMMER
DENSE	30 - 50	35 - 60	40 - 70	65 - 85	DIFFICULT TO PENETRATED A FOOT WITH 1/2-INCH REINFORCING ROD DRIVEN WITH 5-LB HAMMER
VERY DENSE	>50	>60	>70	85 - 100	PENETRATED ONLY A FEW INCHES WITH 1/2-INCH REINFORCING ROD DRIVEN WITH 5-LB HAMMER

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT (blows/ft)	TORVANE: UNTRAINED SHEAR STRENGTH (tsf)	POCKET PENETROMETER: UNCONFINED COMPRESSIVE STRENGTH (tsf)	FIELD TEST
VERY SOFT	<2	<0.125	<0.25	EASILY PENETRATED SEVERAL INCHES BY THUMB. EXUDES BETWEEN THUMB AND FINGERS WHEN SQUEEZED BY HAND.
SOFT	2 - 4	0.125 - 0.25	0.25 - 0.5	EASILY PENETRATED ONE INCH BY THUMB. MOLDED BY LIGHT FINGER PRESSURE.
MEDIUM STIFF	4 - 8	0.25 - 0.5	0.5 - 1.0	PENETRATED OVER 1/2 INCH BY THUMB WITH MODERATE EFFORT. MOLDED BY STRONG FINGER PRESSURE.
STIFF	8 - 15	0.5 - 1.0	1.0 - 2.0	INDENTED ABOUT 1/2 INCH BY THUMB BUT PENETRATED ONLY WITH GREAT EFFORT.
VERY STIFF	15 - 30	1.0 - 2.0	2.0 - 4.0	READILY INDENTED BY THUMBNAIL.
HARD	>30	>2.0	>4.0	INDENTED WITH DIFFICULTY BY THUMBNAIL.

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Soil Symbols Description Key

Salem City
Office-Warehouse Building
Salem, UT
Project Number: 1435-001

Plate B-4

Appendix C

Boring No.	Sample Depth (feet)	USCS Soil Classification	Natural Moisture Content (%)	Natural Dry Density (pcf)	Optimum Moisture Content (%)	Maximum Dry Density (pcf)	Gradation			Atterberg		Consolidation			Collapse (%)	Swell (%)	Torvane Shear Strength (psf)	CBR (%)	Sulfate Content (ppm)	Resistivity (Ω-cm)	pH
							Gravel (%)	Sand (%)	Fines (%)	LL	PI	Cc	Cr	OCR							
B-1	3	CH			9.00	86.3	0.0	3.1	96.9	68	40							0.6	238	290	8.92
B-1	7.5	CH	31.3	92.9			1.3		98.7	62	36					0.13	800				
B-1	10	CL	20.4				0.0	8.6	91.4	36	19										
B-1	15	CL	22	105.1			0.8		99.2	33	16	0.081	0.022	1.1			667				
B-1	20	CL	21.9				0.3	1.1	98.6	36	18										
B-1	25	CL	26.1	100.7			0.4		99.6	40	21						1367				
B-1	30	CL	27.9				0.0	0.0	100.0	45	24										
B-1	40	CL	36.4				4.5		95.5	44	24										
B-1	50	CL	36.1				0.0	23.5	76.5	43	23										
B-2	5	CH	28.2	76.4			0.2		99.8	52	30	0.134	0.032	3.3			767				
B-2	10	CL	24.2	99.1			8.1		91.9	33	16				0.08		650				
B-3	7.5	CL	22.5	100.6			4.5		95.5	40	21				0.07		1017				
B-3	15	CL	22.4	106.1			9.2		90.8	40	22						1900				

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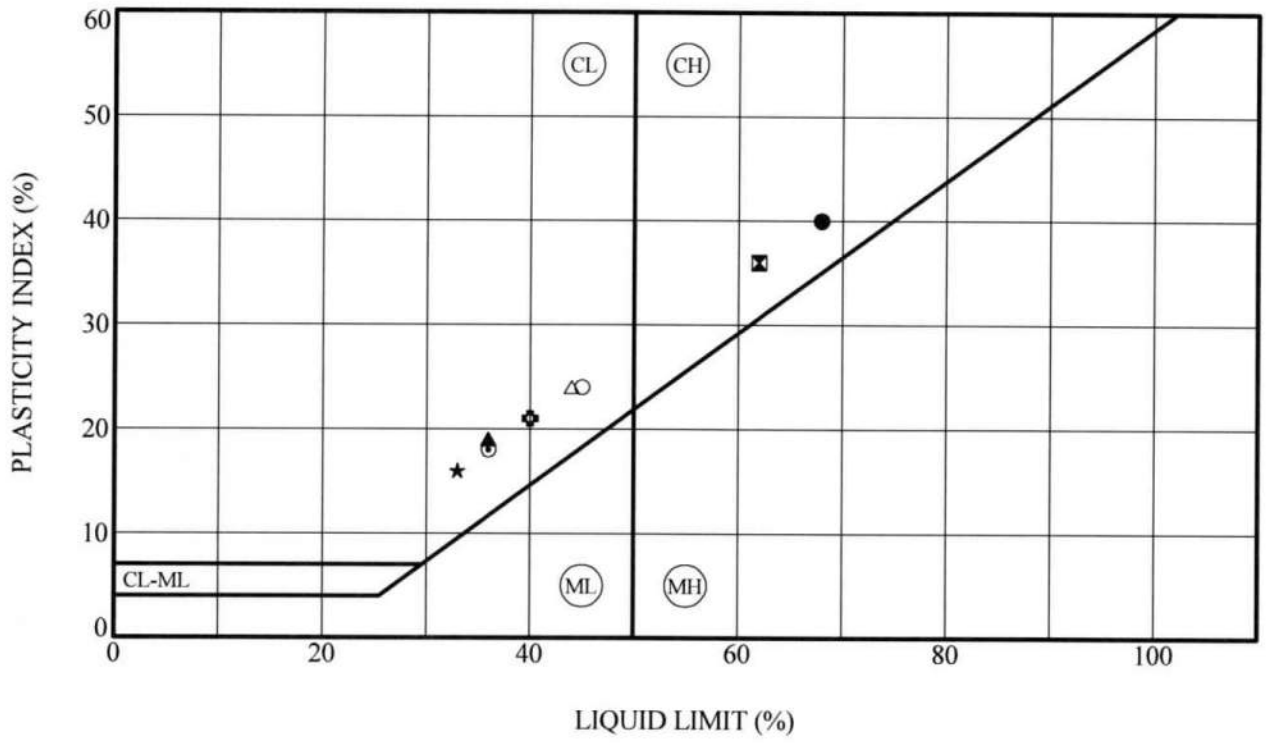
Lab Summary Report

Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate C - 1



Sample Location		Depth (ft)	LL (%)	PL (%)	PI (%)	Fines (%)	Classification
●	**B-1**	**3.0**	**68**	**28**	**40**	**96.9**	**Fat CLAY**
⊠	**B-1**	**7.5**	**62**	**26**	**36**	**98.7**	**Fat CLAY**
▲	**B-1**	**10.0**	**36**	**17**	**19**	**91.4**	**Lean CLAY**
★	**B-1**	**15.0**	**33**	**17**	**16**	**99.2**	**Lean CLAY**
⊙	**B-1**	**20.0**	**36**	**18**	**18**	**98.6**	**Lean CLAY**
✿	**B-1**	**25.0**	**40**	**19**	**21**	**99.6**	**Lean CLAY**
○	**B-1**	**30.0**	**45**	**21**	**24**	**100.0**	**Lean CLAY**
△	**B-1**	**40.0**	**44**	**20**	**24**	**95.5**	**Lean CLAY**

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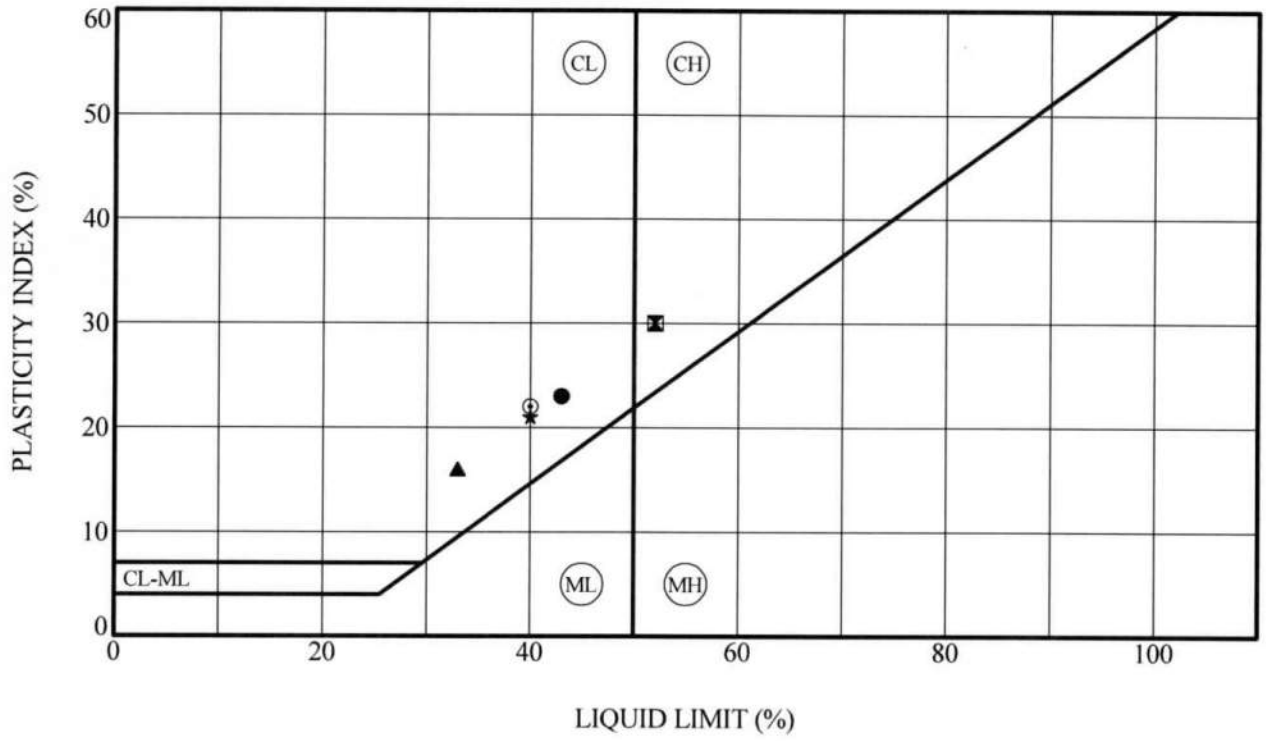
ATTERBERG LIMITS' RESULTS - ASTM D 4318

Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate

C - 2

C_ATTERBERG 1435-001 BORING LOGS.GPJ GEOSTRATA.GDT 1/18/19



	Sample Location	Depth (ft)	LL (%)	PL (%)	PI (%)	Fines (%)	Classification
●	**B-1**	**50.0**	**43**	**20**	**23**	**76.5**	**Lean CLAY with sand**
⊠	**B-2**	**5.0**	**52**	**22**	**30**	**99.8**	**Fat CLAY**
▲	**B-2**	**10.0**	**33**	**17**	**16**	**91.9**	**Lean CLAY**
★	**B-3**	**7.5**	**40**	**19**	**21**	**95.5**	**Lean CLAY**
⊙	**B-3**	**15.0**	**40**	**18**	**22**	**90.8**	**Lean CLAY**

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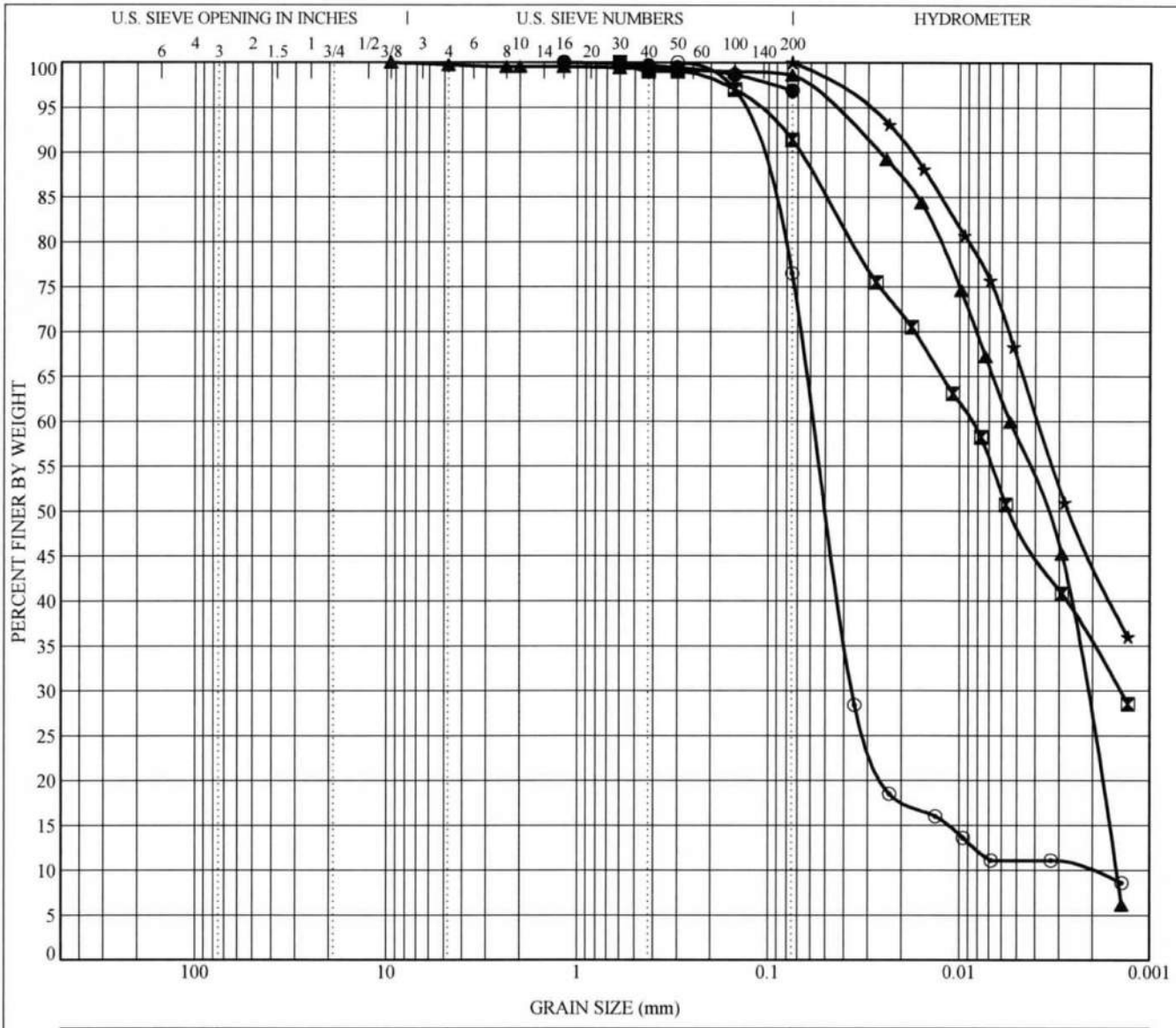
ATTERBERG LIMITS' RESULTS - ASTM D 4318

Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate

C - 3

C_ATTERBERG 1435-001 BORING LOGS.GPJ GEOSTRATA.GDT 1/18/19



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample Location	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-1	3.0	Fat CLAY	68	28	40		
⊠	B-1	10.0	Lean CLAY	36	17	19		
▲	B-1	20.0	Lean CLAY	36	18	18	0.58	3.60
★	B-1	30.0	Lean CLAY	45	21	24		
⊙	B-1	50.0	Lean CLAY with sand	43	20	23	9.91	25.54

	Sample Loctaion	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1	3.0	1.18				0.0	3.1	96.9	
⊠	B-1	10.0	0.6	0.009	0.001		0.0	8.6	56.3	35.1
▲	B-1	20.0	9.5	0.005	0.002	0.002	0.3	1.1	73.3	25.3
★	B-1	30.0	0.075	0.004			0.0	0.0	55.6	44.4
⊙	B-1	50.0	0.3	0.058	0.036	0.002	0.0	23.5	66.9	9.6

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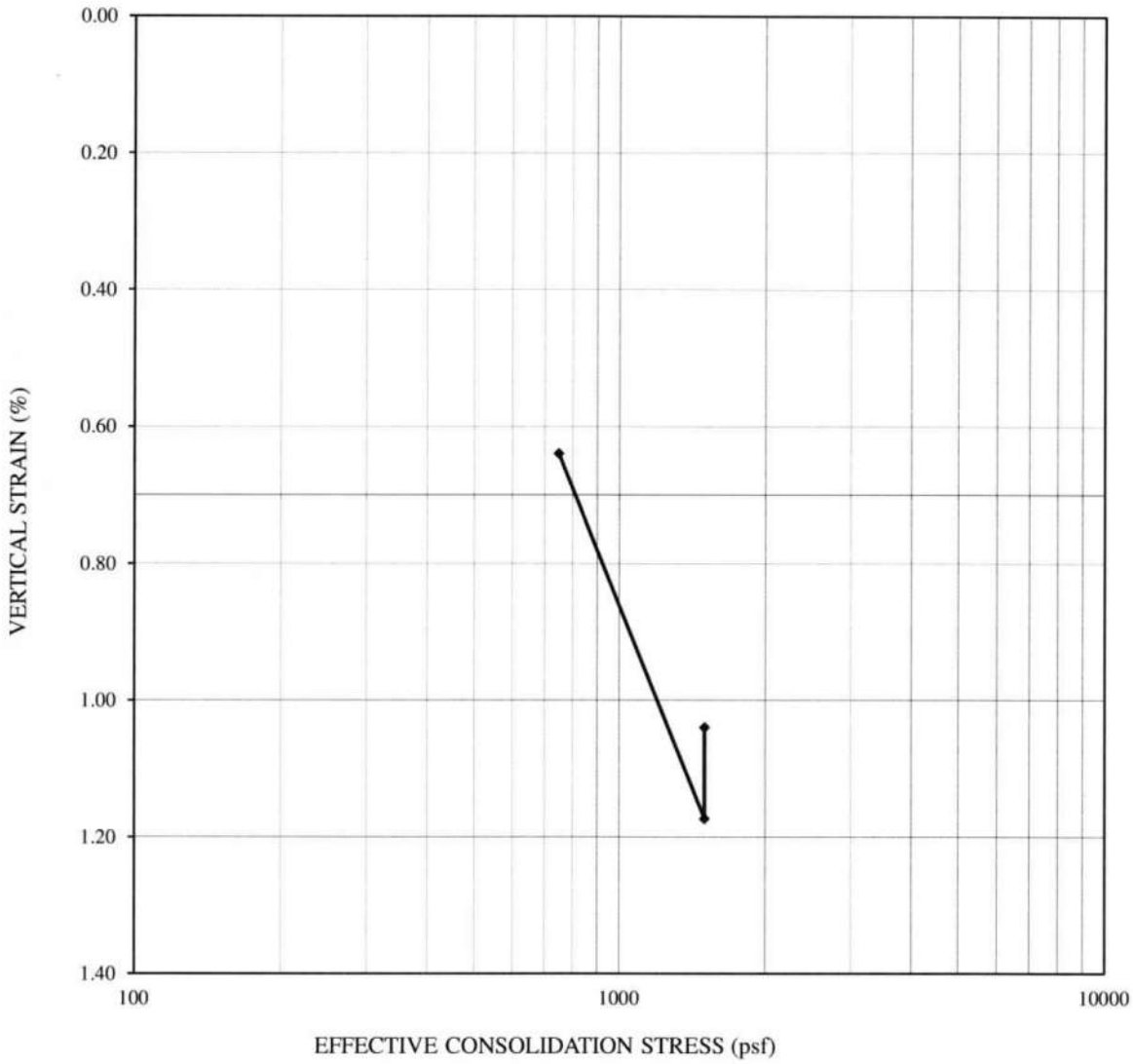
GRAIN SIZE DISTRIBUTION - ASTM D422

Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate

C - 4

C_GSD 1435-001 BORING LOGS.GPJ GEOSTRATA.GDT 1/18/19



Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
B-1	**7.5**	**Fat CLAY**	**92.9**	**29.8**	**1500**	**0.13**	**---**

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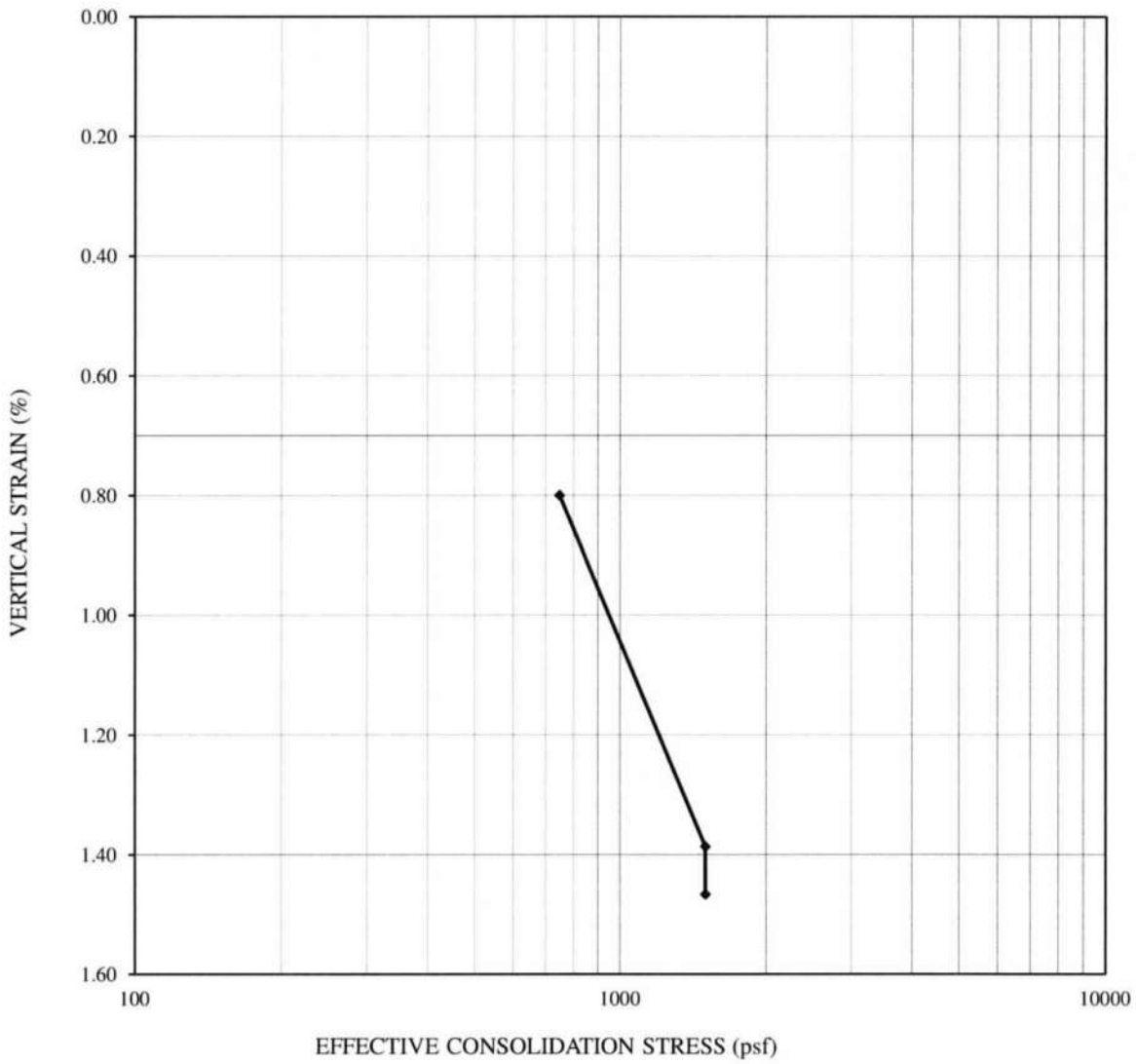
1-D SWELL/COLLAPSE TEST

Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate
C - 5



Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
B-2	**10.0**	**Lean CLAY**	**99.1**	**22.2**	**1500**	**---**	**0.08**

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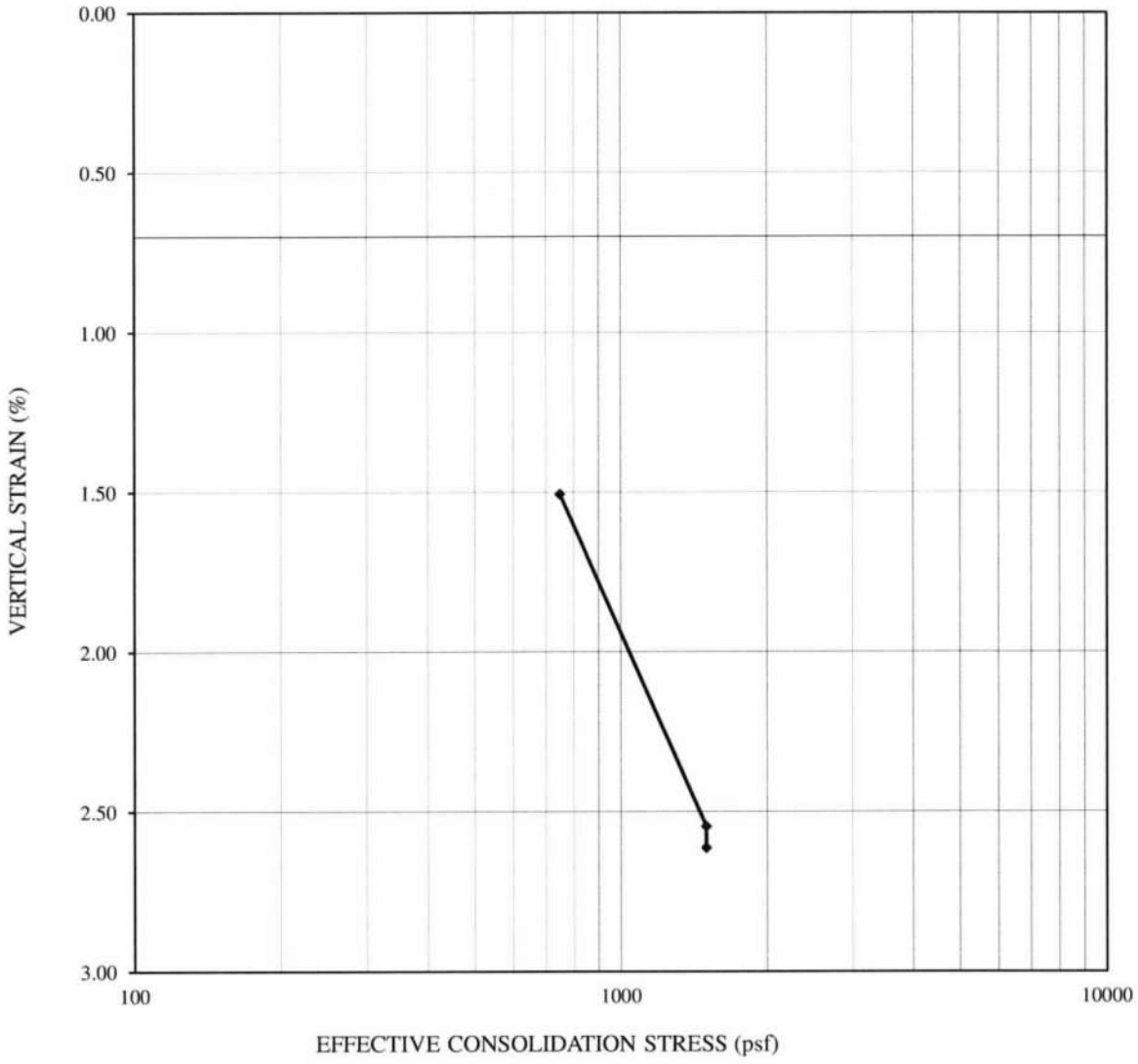
1-D SWELL/COLLAPSE TEST

Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate
C - 6



Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
B-3 Bottom	**7.5**	**Lean CLAY**	**100.5**	**23.0**	**1500**	**---**	**0.07**

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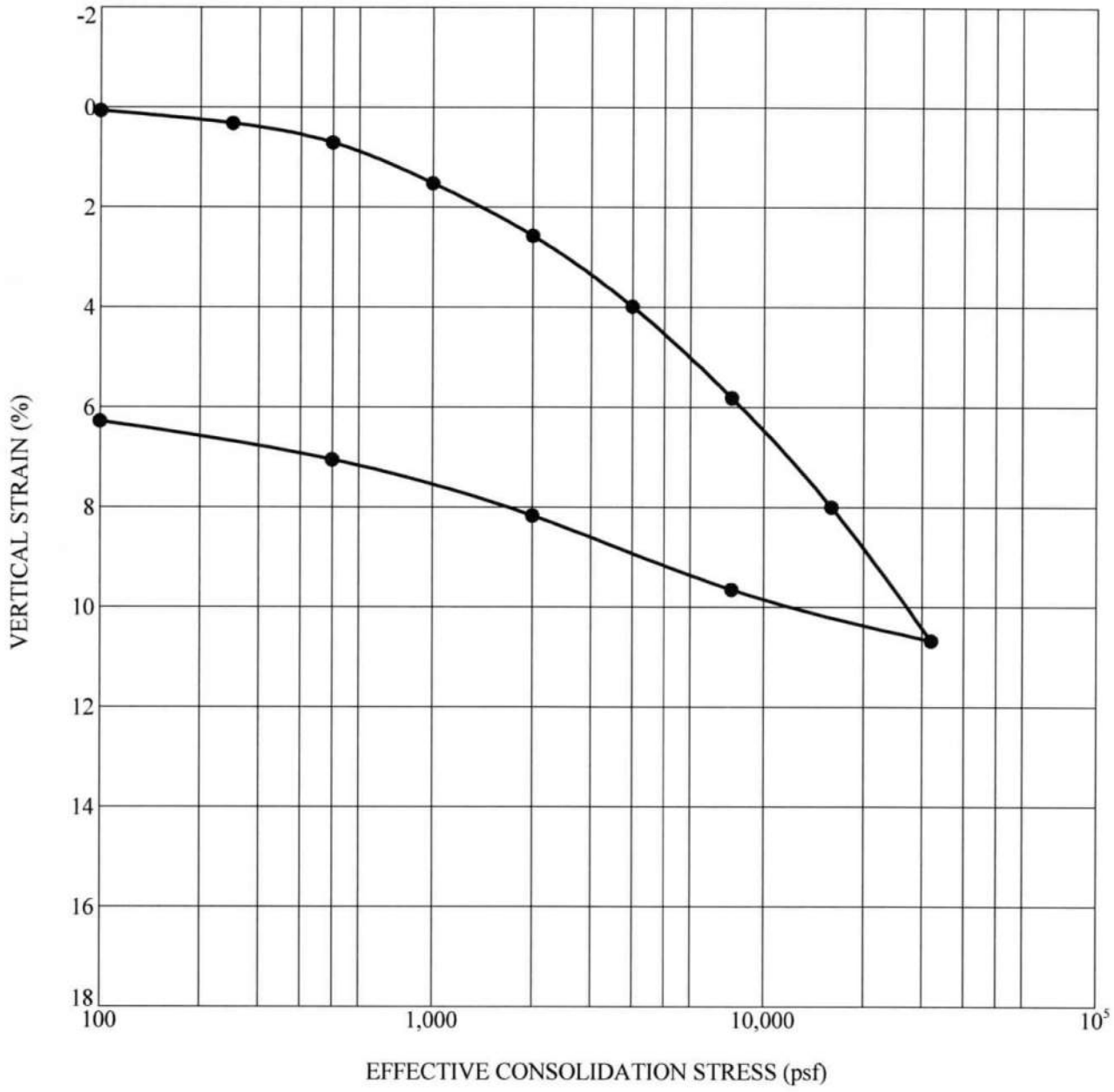
1-D SWELL/COLLAPSE TEST

Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate
C - 7



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	C'_c	C'_r	OCR
●	**B-1**	**15.0**	**Lean CLAY**	**105**	**22**	**0.081**	**0.022**	**1.1**

1-D CONSOLIDATION TEST - ASTM D 2435

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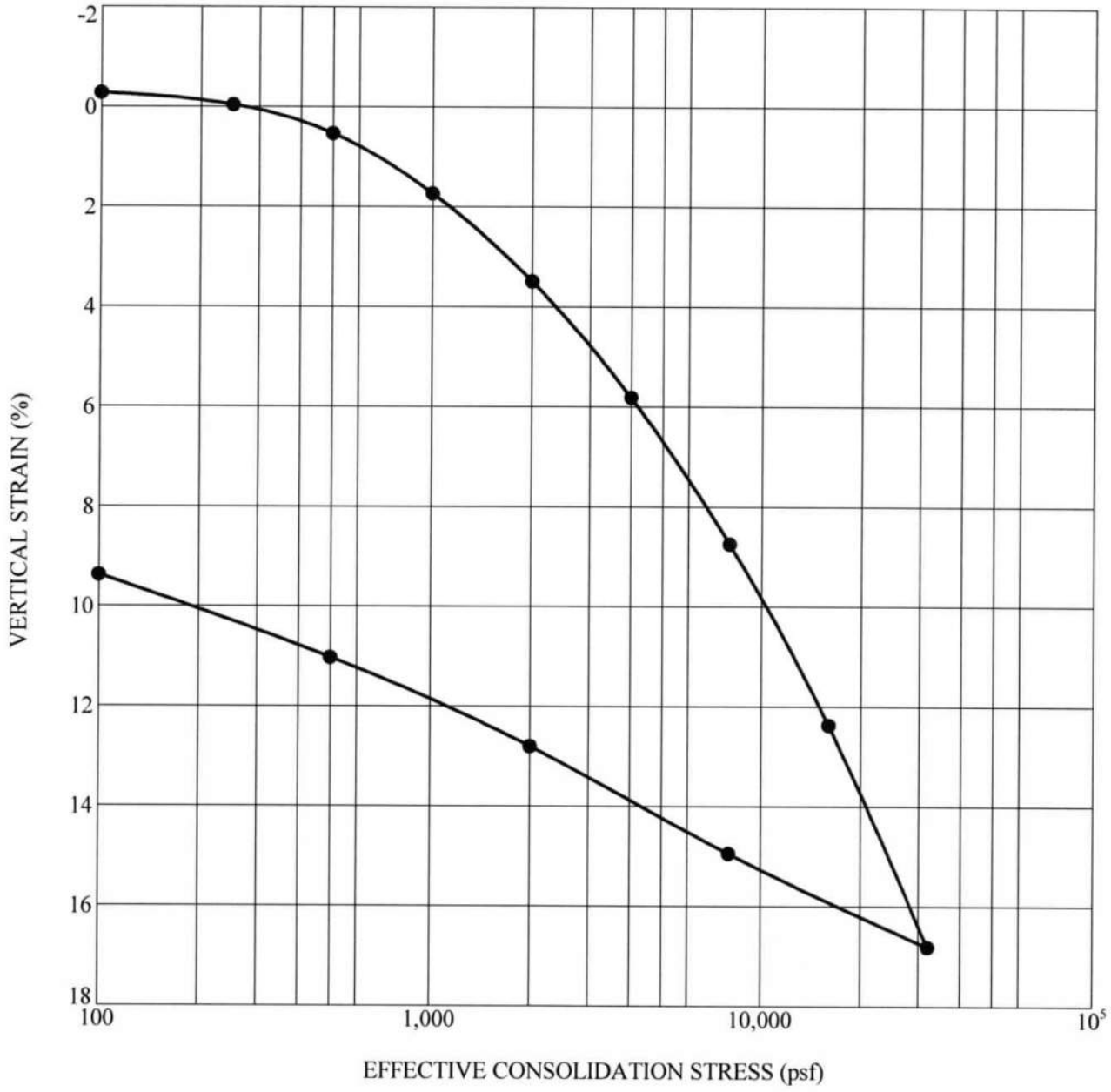
Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate

C - 8

C_CONSOL 1435-001 BORING LOGS GPJ GEOSTRATA GDT 1/18/19



Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	C'_c	C'_r	OCR
● B-2	5.0	Fat CLAY	76	44	0.134	0.032	3.3

1-D CONSOLIDATION TEST - ASTM D 2435

GeoStrata

Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate

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C_CONSOL 1435-001 BORING LOGS.GPJ GEOSTRATA.GDT 1/18/19

Source of Material: **B-1 3.0 ft.**

Material Description: **Fat CLAY**

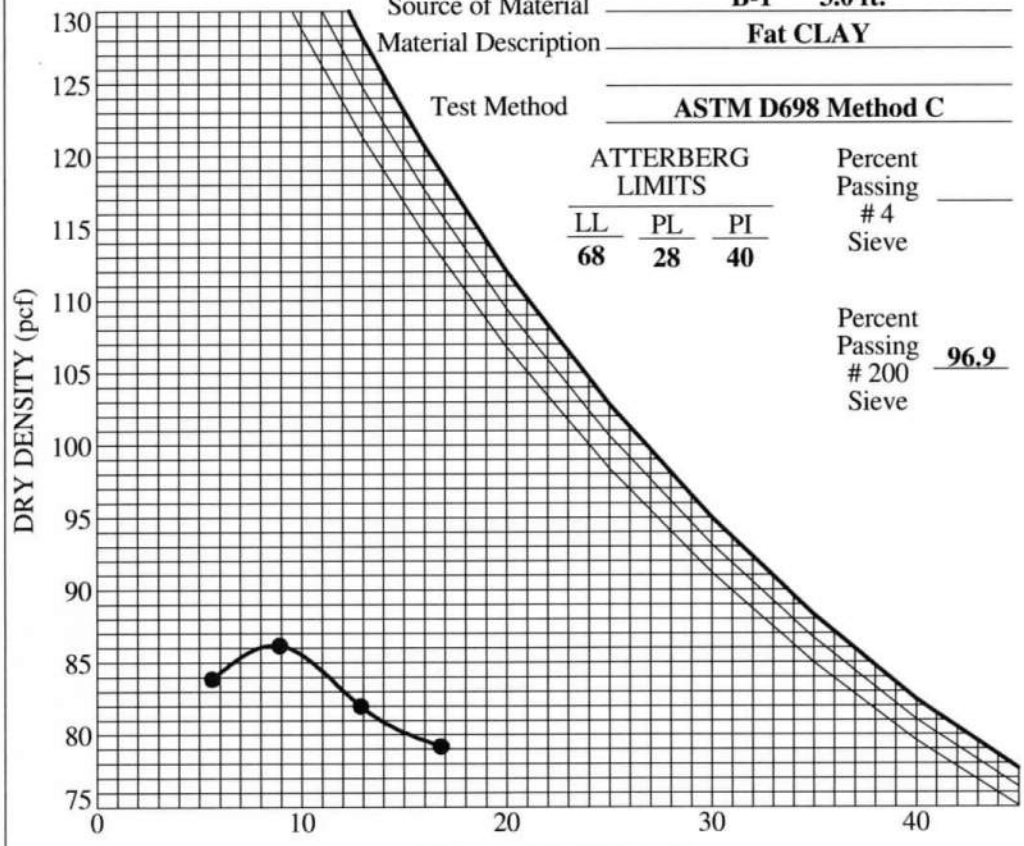
Test Method: **ASTM D698 Method C**

ATTERBERG LIMITS

LL	PL	PI
68	**28**	**40**

Percent Passing # 4 Sieve: ____

Percent Passing # 200 Sieve: **96.9**

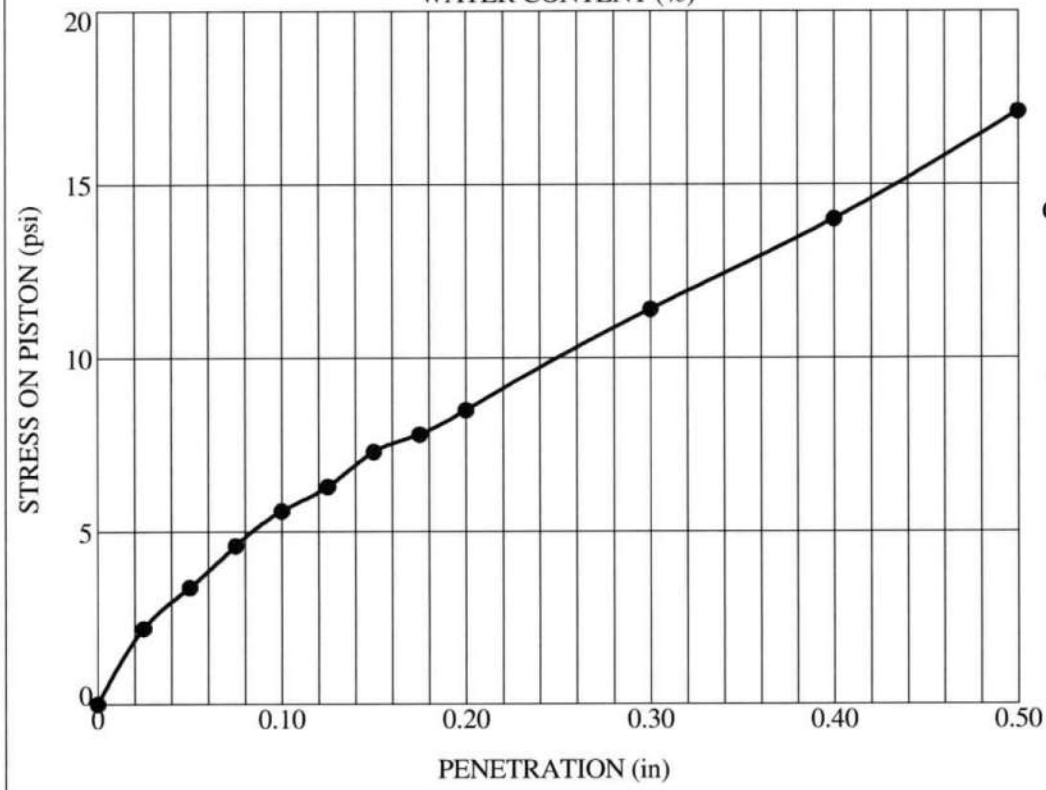


TEST RESULTS

Maximum Dry Density	**86.3** (pcf)
Optimum Water Content	**9.0** (%)
Percent Rock	____ (%)
Corrected Maximum Dry Density	____ (pcf)
Corrected Optimum Water Content	____ (%)

Curves of 100% Saturation for Specific Gravity Equal to:

2.60, 2.70, 2.80



Dry Density	**76.8** (pcf)
Relative Compaction	**89** (%)
Surcharge	**50** (psf)
% Standard CBR	**0.60**
Swell	**3.40** (%)

C_COMPACTION SPLIT 1435-001 BORING LOGS.GPJ GEOSTRATA.GDT 1/18/19

GeoStrata

COMPACTION AND CBR TEST

Salem City
Office-Warehouse Building
Salem, Utah
Project Number: 1435-001

Plate

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