

DESIGN-BUILD CONTRACT

THIS DESIGN-BUILD CONTRACT (the "Contract") is made and entered into this ____ day of _____, 20____, by and between the City of Las Vegas, a municipal corporation in the State of Nevada (the "Owner") having its principal office located at 400 Stewart Avenue, Las Vegas, Nevada 89101 and MARTIN-HARRIS CONSTRUCTION. (a corporation organized and existing under the laws of the State of Nevada), (hereinafter the "Design-Build Team") having its principal office located at 3030 South Highland Drive, Las Vegas, Nevada 89109.

WITNESSETH:

WHEREAS, the Design-Build Team having submitted a Design/Build Proposal to the Owner for the design and construction of the project commonly known and referred to as Water Pollution Control Facility 3 Megawatt Solar Power Site Project, RFP No. 090200-LD, PWP # CL-2010-23; and

WHEREAS, the City Council, after due consideration of the submitted proposals, awarded a contract to the Design-Build Team for both the design and construction of the Project in the maximum amount set forth below.

NOW, THEREFORE, in consideration of the above, the parties hereto agree to the following:

1. PROJECT DESCRIPTION. The Project consists of the design and construction of the 3 Megawatt Solar Power Site which is fully set forth and described in the Bridge Documents (defined in the General Conditions attached hereto).

2. DESIGN AND CONSTRUCTION COVENANT.

a. In General. The Design-Build Team hereby covenants and agrees to furnish the design of the Project in accordance with all professional architectural and engineering principles generally accepted as standards of the profession in the State and shall construct the Project as designed, free from defects and deficiencies, all in compliance with the requirements of the Contract. The Design-Build Team shall be responsible for performing and completing, and for causing all of its Subconsultants and Subcontractors to perform and complete the requirements set forth in the Contract and all applicable laws. The Design-Build Team covenants and warrants that the design and construction of the Project, and the materials incorporated therein, shall meet the performance requirements of the Owner as described in the Contract. The Design-Build Team shall assume overall responsibility for ensuring that the design and construction of the public work is completed in a satisfactory manner.

b. Project Design. The Design-Build Team shall use the key personnel of the design firm or firms identified in the Proposal to provide the professional design services (architectural and engineering services) necessary for the preparation of the Construction Documents for the Project. The Design-Build Team shall be responsible for all errors, omissions, inconsistencies or other deficiencies in the design of the Project and in the Construction Documents. The Construction Documents shall be prepared by qualified architects, engineers and other professionals, selected and paid for by the Design-Build Team and duly licensed in the state of Nevada.

c. Project Construction. The Design-Build Team shall furnish all labor, materials, equipment, transportation and other services necessary for construction of the Project (including, without limitation, the site work, structures, utilities and landscaping) in accordance with the Construction Documents approved by the Owner and other applicable requirements of the Contract. The Design-Build Team hereby covenants and agrees to undertake and complete the Work (defined in the General Conditions attached hereto) in a good, substantial and workmanlike manner in compliance with the Contract.

3. CONTRACT AMOUNT. For performance of the Work, the Owner agrees to pay the Design-Build Team the following maximum amount for the Work required by this Contract, excluding any amount related to costs that may be incurred as a result of unexpected conditions or occurrences as authorized by the contract: \$19,754,695.87 (the "Contract Amount"). The maximum amount to be paid for the performance of the professional design services required by the Contract is \$691,836.30 (which is included in the Contract Amount).

4. DOCUMENT INCORPORATION. The Contract consists of this three page document and the following documents incorporated herein by this reference as a part hereof:

- a. Design/Build Proposal (including attachments thereto), Exhibit "A" attached hereto
- b. General Conditions, Exhibit "B" attached hereto
- c. Bridging Documents, dated October 2009, Exhibit "C" attached hereto
- d. Addendum No. 1 dated November 18, 2009,
Addendum No. 2 dated December 30, 2009,
Addendum No. 3 dated January 6, 2010,
Addendum No. 4 dated January 21, 2010 and
Addendum No. 5 dated February 10, 2010
- e. Prevailing Wage Rates, Exhibit "D" attached hereto

5. COMMENCEMENT AND COMPLETION DEADLINE. Time is of the essence in the performance and completion of this Contract. The Design-Build Team shall commence the Work on the date set by the Owner in the Design Notice to Proceed, and shall complete all work required by the Contract within 430 calendar days after issuance of the Design Notice to Proceed.

6. LIQUIDATED DAMAGES. Liquidated Damages are provided for in Section 6 of the General Conditions in the amount of **\$1,000 per day** for each calendar day the completion of the Work is delayed beyond the completion deadline, or Owner approved extensions thereof.

7. NOTICES. Any notice required to be given under the Contract shall be deemed to have been given when the notice is (i) delivered personally, or (ii) sent by facsimile machine and delivered by regular mail or certified mail, addressed as follows:

To the Owner: City of Las Vegas
 Manager, Purchasing & Contracts
 City Hall, First Floor
 400 Stewart Avenue
 Las Vegas, Nevada 89101-2986

To the Design-Build Team: Martin-Harris Construction
 3030 South Highland Drive
 Las Vegas, Nevada 89109

Any change in the addresses stated above shall be made in writing and delivered in the manner provided herein. In the event of suspension or termination of the Contract, notice may also be given upon personal delivery to any person whose action or knowledge of such suspension or termination would be sufficient notice to the Design-Build Team.

IN WITNESS WHEREOF, the Owner and the Design-Build Team have made and executed this Agreement on the day and year first above written.

OWNER

By: _____
KATHLEEN C. RAINEY, Manager
Purchasing and Contracts Division
Department of Finance and Business Services

ATTEST:

BEVERLY K. BRIDGES, MMC
City Clerk

APPROVED AS TO FORM:

John S. Ridilla 7/1/10
John S. Ridilla Date
Deputy City Attorney

DESIGN-BUILD TEAM:

By: _____
KEVIN ZAHM, Senior Vice President of Operations
Martin-Harris Construction



EXHIBIT B

GENERAL CONDITIONS

EXHIBIT "B" to the Design-Build Contract

GENERAL CONDITIONS

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SECTION 1. DEFINITIONS

The following definitions shall apply to the Contract:

"Addendum" means any written or graphic instrument issued by the Owner via the City of Las Vegas Purchasing and Contracts Office prior to the submission of Proposals which modifies or interprets the RFP Documents by means of an addition, deletion, clarification, correction or other type of modification.

"Adverse Weather" means the climatic conditions that affect the critical path of the Work and prohibit it from being safely or effectively performed as scheduled using normal and customary protective measures.

"Bridge Documents" means the initial documents provided by the City to the Design-Build Team which describe the aesthetic and functional requirements of the Project and includes without limitation, the following schematic documents: site plans, demolition plans, grading plans, utility plans, floor plans, elevations, sections, details, window/door schedules, ceiling/lighting plans, roofing plans, interiors, planting plans, electrical/plumbing/mechanical information, geotechnical evaluations, asbestos survey and abatement specifications, fire line analysis, irrigation line analysis, technical drainage studies, and related specifications. The Bridge Documents will be used by the Design-Build Team to prepare the final stamped plans, specifications and related contract documents for the Project.

"Change Directive" means any written order from the Owner directing immediate changes in the Work for which a modification to the Contract Amount, Contract Time or other provision of the Contract may be appropriate but may not have been negotiated at the time of issuance. The Design-Build Team is to proceed immediately with the implementation of the Change Directive.

"Change Order" means any written order to the Design-Build Team signed by the Owner and Design-Build Team issued after execution of the Contract that authorizes a change in the Work, Contract Amount or Contract Time. Except as allowed by the Contract Documents, the Contract Amount or Contract Time may be changed only by the issuance of a Change Order. The execution of the Change Order indicates the Design-Build Team's agreement to the terms set forth therein including the adjustment, if any, in the Contract Amount or Contract Time.

"Consultant" means the consulting firm contracted by the Owner to assume some or all of the responsibilities of the Owner for administration of the Contract.

"Contract" means the entire agreement between the parties as set forth in the Contract Documents which does not come into legal existence until execution of the Design-Build Contract by the Owner.

"Contract Amount" means the compensation to be paid the Design-Build Team to perform the Work and is included in the "Contract Amount" section of the Design-Build Contract.

"Contract Documents" means the Design-Build Contract, including all incorporated documents.

"Contract Time" means the number of days set forth in Section 6 of the Design-Build Contract (Contract Time) for achieving Substantial Completion of the Work, including the authorized extensions thereto, which commences to start with the date set forth in the Notice to Proceed.

"Critical Path" means the path through the project schedule indicating the minimum time in which it is possible to complete the Work, and the tasks that, if delayed, will delay Substantial Completion of the Work."

"Critical Path Method" means the method of developing a network analysis system as outlined in "CPM in Construction Management" by James J. O'Brien and Freddie L. Plotnick (McGraw-Hill, Inc., 5th Edition).

"Date of Substantial Completion" means the date established and certified by the Owner when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work, or designated portion thereof, for the purpose for which it is intended.

"Day" means a calendar day unless otherwise specifically designated.

"Design-Build Team" means an entity that consists of at least one person who is licensed as a general engineering contractor or a general building contractor pursuant to chapter 624 of NRS; and at least one person who holds a certificate of registration to practice architecture pursuant to chapter 623 of NRS. Design-Build Team shall have the same meaning as defined in Nevada Revised Statute 338.

"Designated Representative" means the person authorized pursuant to Section 3.01 (Designated Representative) of the General Conditions to act or make decisions on behalf of the Owner.

"Drawings" mean the diagrammatic representations of the requirements for construction of the Work prepared by the Design-Build Team and approved by the Owner subsequent to the execution of the Contract.

"Final Completion" means the satisfactory completion of all of the Work under the Contract. Final Completion occurs only after the Design-Build Team complies with the requirements of Section 5.03 (Final Inspection and Final Completion of the Work) of the General Conditions and the Owner approves final payment to the Design-Build Team.

"Modification" means (i) any Addendum pertaining to the Contract, (ii) a Change Order, (iii) a written interpretation, (iv) a written order issued by the Owner for a minor change in the Work, or (v) a written amendment to the Contract signed by both parties.

"Notice of Award" means the letter issued by the Owner notifying the Design-Build Team of the award of the Project by the City Council, authorizing the Design-Build Team to proceed with the procurement of the bonds and insurance, and including the Design-Build Contract for execution and return to the Owner.

"Notice to Proceed" means the document issued by the Owner that (i) establishes the date the Design-Build Team is authorized to commence activity, and (ii) commences the running of the Contract Time.

"Owner" means the City of Las Vegas and is referred throughout the Contract as if singular in number and neuter in gender. The term includes the Owner's Designated Representative identified in Section 3.01 (Designated Representative) of the Contract.

"Product Data" means the illustrations, standard schedules, performance charts, instructions brochures, diagrams and any other information furnished by the Design-Build Team to illustrate a material, product or system for some portion of the Work.

"Project" means the total design and construction of which the Work performed under the Contract may be the whole or a part thereof and which may include construction by the Owner or by others hired by the Owner.

"Promptly" means without delay and on time.

"Proposal" means the written document submitted by the Design-Build Team in response to the Owner's Request for Final Proposals.

"Reasonable Time" means ten (10) business days, except where otherwise specified, or unless City Council action is required.

"RFP Documents" means the documents comprising the Request for Final Proposals for the Design-Build of the Freedom Park Renovation Project (RFP No. 070354-LED) and includes the following documents: Request For Final Proposal, Instructions (together with Proposal forms) and the Design-Build Contract and documents incorporated therein.

"Samples" mean the physical examples that illustrate the materials, equipment or workmanship, to be used by the Design-Build Team and that establish standards for the judgment of the Work.

"Shop Drawings" mean the drawings, diagrams, schedules and other data specially prepared for the Work by the Design-Build Team or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

"Subcontractor " means any individual or entity who is sublet any part of the Work by the Design-Build Team. There is no contractual relationship between the Owner and the Subcontractor who performs work or services for the Design-Build Team.

"Submittal" means the item required by the Contract to be provided to the Owner for information, review, or approval as indicated. Unless otherwise specifically indicated, Submittals are not a part of the construction and do not become part of the Contract Documents. Schedules, Shop Drawings, Product Data, and Samples are typical examples of a Submittal.

"Substantial Completion" means the point in time when, in the opinion of the Owner, construction is sufficiently complete, in accordance with the Contract, that the Owner can occupy or utilize the Work, or designated portion thereof, for the intended use of the Project. This is not necessarily final acceptance of the Project or any portion thereof. A Certificate of Substantial Completion shall be issued by the Owner establishing the Date of Substantial Completion and noting any incomplete or unacceptable portions of the Work that must be completed or corrected prior to final acceptance of the Work. The date of such Certificate shall commence the running of the warranty periods required by the Contract Documents for the completed portions of the Work, except as otherwise provided in the Contract Documents or Certificate of Substantial Completion.

"Technical Specifications" means the written descriptions of the requirements for the Work prepared by the Design-Build Team and approved by the Owner subsequent to the execution of the Contract.

"Work" means the construction and services required by the Contract, whether completed or partially completed, and includes the labor, materials, equipment and services provided or to be provided by the Design-Build Team to fulfill his obligations under the Contract. The Work may constitute the whole or a part of the Project.

SECTION 2. DESIGN-BUILD TEAM'S RIGHTS AND RESPONSIBILITIES

Section 2.01 Designated Representative

The Design-Build Team's Designated Representative with respect to the Contract is Dwight Webb. The Designated Representative shall have complete authority to transmit instructions, receive information, interpret and define the policies of the Design-Build Team and to make other decisions on the part of the Design-Build Team. Following the issuance of the Notice to Proceed, the Designated Representative may perform any review, communications, notices or other act required on the part of the Design-Build Team.

Section 2.02 Responsibility for the Site Conditions and Geotechnical Information

The Design-Build Team awarded this Contract; shall be responsible for investigating the surface and subsurface conditions of the Work site, and for rendering the same suitable for the completion of the Project. The Design-Build Team agrees to retain the services of a geotechnical consultant who shall conduct an investigation of the Work site including, but not limited to, test borings, test pits, determinations of soil bearing values, percolation tests, evaluations of hazardous materials, ground corrosion and resistivity tests and necessary operations for anticipating subsoil conditions. The services of geotechnical engineer(s) or other consultants shall include preparation and submission of all appropriate reports and professional recommendations to Design-Build Team. Such reports and recommendations shall promptly be made available to the Owner. The Design-Build Team retains responsibility for the engineering design and construction associated with the preparation and excavation of the Work site and the construction of

foundations necessary to complete the Project according to the Contract. The Owner has retained the services of Geotechnical & Environmental Services, Inc., a geotechnical consultant, who has conducted various soil borings of the Work site. The Design-Build Team hereby acknowledges receipt of the data from the soil borings. The soil boring data is provided for informational purposes only and no assurances are given as to its accuracy. Any reliance upon such data by the Design-Build Team is at its own risk and without recourse against the Owner.

Section 2.03 Responsibility for the Security of the Work and Project Site

The Design-Build Team is responsible at all times for the Work and for the Project site regardless of whether or not the Owner has required any insurance coverages (such as Builder Risk Insurance) which would have protected the interest of the Design-Build Team and the Owner. The Design-Build Team shall conduct its operations under the Contract in a manner so as to avoid the risk of damage, injury, loss or theft by any means (including acts of God, vandalism or sabotage) to the Work or to the property of the Design-Build Team, Owner or any other person. The Design-Build Team shall promptly take such reasonable precautions, which are necessary and adequate against any and all conditions involving such risk of damage, injury, loss or theft. The Design-Build Team shall continuously inspect the Work (including the materials and equipment used in connection therewith) to discover and determine if any such conditions exists and shall be solely responsible for correcting such conditions.

The Design-Build Team shall cooperate with the Owner on all security matters and shall promptly comply with any security requirements established by the Owner. Such compliance with these security requirements shall not relieve the Design-Build Team of its responsibility for maintaining proper security for the above-noted items, nor shall it be construed as limiting in any manner the Design-Build Team's obligation to undertake such reasonable action as may be required to establish and maintain secure conditions at the Work site. The Design-Build Team shall prepare and maintain accurate reports of incidents of loss, theft or vandalism and shall furnish these reports to the Owner in a timely manner.

Section 2.04 Responsibility for Protecting Adjacent Areas

Unless otherwise specifically provided in the Contract, the Design-Build Team shall not perform the Work in a manner that would disrupt or otherwise interfere with the operation of any pipeline, telephone line, electric transmission line, ditch or other structure which may be on or adjacent to the Work site, or enter upon lands in their natural state until approved by the Owner. Thereafter, and before it begins the Work, the Design-Build Team shall give due notice to the Owner of its intention to start the Work. The Design-Build Team shall not be entitled to an increase in the Contract Time, or extra compensation on account of any postponement, interference or delay of the Work caused by such line, ditch or structure.

The Design-Build Team shall preserve and protect cultivated areas and planted vegetation (such as trees, plants, shrubs and grass) on or adjacent to the Work site that the Owner has determined does not unreasonably interfere with the performance of the Work (including the operation of equipment or stockpiling of materials) and shall repair or restore any damage thereto.

Section 2.05 Responsibility for Construction Safety

The Design-Build Team shall be solely and completely responsible for providing safe conditions at the Project Site to assure the protection of employees and other persons present thereon, and any property affected by the performance of the Work. Prior to the Notice to Proceed, the Design-Build Team shall submit its Safety Management Program setting forth the safety precautions and procedures to be in effect at the Project Site. The Design-Build Team shall comply with all of the requirements set forth in the Safety Management Program, which is incorporated herein by this reference. Each Subcontractor shall agree in writing to comply with the requirements of the Safety Management Program prior to performing any portion of the Work.

An employee of the Design-Build Team shall be designated the person who shall be responsible for the safety conditions at the Project Site. Such designated person shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Design-Build Team shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss. Any Hazardous Substance encountered at the Project Site shall be handled in accordance with applicable laws, ordinances, rules and regulations governing such substance.

Section 2.06 Responsibility for Clean-Up of the Work Site

The Design-Build Team shall, at all times, keep the work area in a neat, clean and safe condition. Upon completion of any portion of the Work, the Design-Build Team shall promptly remove all of its equipment, temporary structures and surplus materials not to be used at or near the same location during later stages of work. Upon completion of the Work and before final payment is made, the Design-Build Team shall, at its expense, dispose of all unnecessary vegetation, structures, rubbish, unused materials, and other equipment and materials belonging to it or used in the performance of the Work to the satisfaction of the Owner in accordance with all applicable federal, state, and local laws, ordinances and codes. The Design-Build Team shall leave the premises and Work site in a neat, clean, and safe condition. In the event of the failure to comply with the foregoing, the Owner may satisfy the requirements of this Section at the Design-Build Team's expense.

Section 2.07 Responsibility for Construction Procedures

The Design-Build Team shall supervise and direct the Work using its best skill and attention. The Design-Build Team shall be solely responsible for the design, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

The Design-Build Team shall not be relieved from its obligations to perform the Work in accordance with the Contract either by the activities or duties of the Owner in the administration of the Contract, or by inspections, tests or approvals required or performed by persons other than the Design-Build Team.

Section 2.08 Responsibility for Employment of Competent Superintendent

The Design-Build Team shall employ a competent Superintendent dedicated full time to supervise and direct the Work. The Superintendent shall be present at the progress meetings and during the entire progress of the Work. Communications from the Owner may be verbal or written. Verbal communications will be confirmed in writing. The Superintendent shall effectively communicate with the Owner and shall have a thorough understanding of the Work and the Contract. The Design-Build Team shall designate a Superintendent who is acceptable to the Owner. Any substitution of the Superintendent is strongly discouraged and will be permitted only after a written request for such substitution has been made and approved by the Owner. The Owner shall submit any requests for substitution of the Superintendent, in writing, stating the reason for such request. Approval of a substitution request by either party shall not be unreasonably denied.

Section 2.09 Responsibility for Uncovering and Correcting the Work

If any portion of the Work has been covered contrary to the request of the Owner or contrary to the requirements stated in the Contract, the Design-Build Team shall, if requested by the Owner, uncover for observation and, if unacceptable, shall be replaced and recovered at the Design-Build Team's expense without any adjustment to the Contract Time.

If any portion of the Work has been covered which the Owner has not specifically requested to observe prior to being covered, the Design-Build Team shall, if requested by the Owner, uncover for observation and, if unacceptable, shall be replaced and recovered at the Design-Build Team's expense without any adjustment to

the Contract Time. If the uncovered Work is in compliance with the requirements of the Contract, the cost to recover shall be paid by the Owner.

Section 2.10 Responsibility for Permits and Fees

Unless otherwise provided in the Contract Documents to be the responsibility of the Owner, the Design-Build Team shall secure all the necessary permits and pay the required license and inspection fees associated therewith, which are necessary for the proper execution and completion of the Work. Permits and Fees will be administered as a "Direct Reimbursable" to the City of Las Vegas, without Design-Build Contractor fee mark-up. A \$250,000.00 Allowance has been established for Permits and Fees, and as an Allowance, any cost savings or overages belong 100% to the City of Las Vegas.

Section 2.11 Responsibility for Record Documents

The Design-Build Team shall keep a marked-up, up-to-date set of the Progress Record Documents subject to the provisions of the Bridging Documents. The Progress Record Documents shall depict the as-built conditions of the Work as they occur during the course of construction as an accurate record of the deviations between the Work as designed and the Work as installed.

Section 2.12 Responsibility for Substitutions of Materials, Products or Services

a. Criteria. The Design-Build Team may propose the substitution of any material, product or service in lieu of that required or specified by brand name or trade name under the Contract subject to the requirements set forth herein. Any material, product or service manufactured by a company other than the one specified, or its brand name, model number or generic species other than what is specified, will be considered a substitution.

Prior to proposing the substitution, the Design-Build Team shall determine whether or not (i) the proposed material, product or service is, in fact, equal to that specified after considering the ease of operation, maintenance, repairs, appearance, longevity and any other pertinent factors and (ii) the substitution will result in a cost savings, reduced construction time or similar demonstrable benefit to the Owner. A substitution will not be permitted where the material or product is intended to match others in use, accommodate artistic design, specific function or economy of maintenance.

b. Procedure. The Design-Build Team shall, within 10 days after award of the Contract submit to the Owner a written request for the substitution accompanied by drawings, samples, test data, certificates and any other pertinent documentation which will permit the Owner to make a fair and equitable decision concerning the proposed substitution. If the Design-Build Team fails to submit the written request within the specified time, the substitution will not be allowed. If the substitution is acceptable to the Owner, a written authorization will be provided to the Design-Build Team. No substitution will be allowed which will result in an increase in the Contract Amount.

c. Burden of Proof. The burden of proof in establishing the equality of the proposed substitution shall be upon the Design-Build Team. Approval of a substitution shall not relieve the Design-Build Team from responsibility for compliance with the other requirements of the Contract. The Design-Build Team shall bear the expense for any changes in other parts of the Work caused by the substitution. The submission of a substitution incurs no obligation on the part of the Owner to accept or construe the proposed substitution to be an equal to that specified under the Contract. The Owner will be the sole judge of whether or not the substitution is equal in quality, utility and economy to that specified under the Contract. The Owner will have a reasonable amount of time to review each request for substitution.

d. Required Certificates. The substituted material, product or service shall be supported, by proper certification from the governmental agencies having jurisdiction over its use in the Work.

Section 2.13 Responsibility for the Delivery and Storage of Materials and Equipment

The Design-Build Team shall receive, unload, store in a secure place, and deliver from storage to the Work site all materials and equipment required for the performance of the Contract. The storage facilities and methods of storing shall meet with the Owner's approval. Any materials and equipment subject to degradation by exposure shall be stored in a suitable enclosure provided by the Design-Build Team.

Section 2.14 Responsibility for Emergencies

When emergencies affecting or threatening the safety of any person or property occur, the Design-Build Team shall immediately act with diligence to prevent injury to such person, or damage or loss to such property. If the Design-Build Team should fail to act, the Owner may, but is not obligated to, act immediately to prevent injury to such person, or damage or loss to property, whichever may be endangered by the emergency by whatever means or method the Owner deems appropriate, including, but not limited to, the use of other Design-Build Teams, the Owner's own forces, and the Design-Build Team's on-site equipment and materials, in which case, the Design-Build Team shall pay the Owner for any such expenses incurred as provided in Section 10.05 (Owner's Right to Perform the Work).

Section 2.15 Responsibility for Payment of Subcontractor and Other Parties

The Design-Build Team is responsible for paying each Subcontractor and Subconsultant performing any portion of the Work, and other parties providing labor, material or supplies in connection with the Work in a timely manner.

Section 2.16 Responsibility for Schedule of Values

The Design-Build Team, if so requested by the Owner, shall provide the Owner with a Schedule of Values allocated to various portions of the Work. The Schedule of Values shall be formed and supported by such data and information, acceptable to the Owner.

Each line item of the Schedule of Values shall contain no more than reasonable and attributable costs applicable to the line item. The Design-Build Team shall warrant the Schedule of Values to be reliable and accurate, and documents used in the preparation thereof shall be available for review by the Owner.

SECTION 3. OWNER'S RIGHTS AND RESPONSIBILITIES

Section 3.01 Designated Representative

The Owner's Designated Representative with respect to the Contract is John Bettencourt. The Designated Representative shall have complete authority to transmit instructions, receive information, interpret and define the policies of the Owner and to make other decisions on the part of the Owner. Following the issuance of the Notice to Proceed, the Designated Representative may perform any review, communications, notices or other act required on the part of the Owner.

Section 3.02 Right to Perform or Award Separate Contracts for Portions of the Work

a. Coordination. The Owner reserves the right to perform portions of the Work related to the Project with its own forces or to award a separate contract or contracts for portions of the Work under the same or similar conditions of the Contract. The Owner will provide for the coordination of the activities by its own forces and that of each separate Design-Build Team with the Work of the Design-Build Team. The Design-Build Team shall participate with the Owner and the other separate Design-Build Teams in reviewing their construction schedules when so directed by the Owner.

b. Revisions to the Guaranteed Project Schedule. The Design-Build Team shall make the revisions to the Guaranteed Project Schedule deemed necessary after a joint review and mutual agreement.

The Guaranteed Project Schedule as revised shall then constitute the schedule to be used by the Design-Build Team. If the activities by the Owner or the other Design-Build Teams are completed within the time reflected in the Guaranteed Project Schedule as revised or an extension is granted in the Contract Time, the Design-Build Team shall be precluded from asserting any claim for delay or additional expenses resulting from the Owner exercising its rights granted herein.

c. Storage of Equipment and Materials. The Design-Build Team shall afford the Owner and any separate Contractor reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Design-Build Team's construction and operations with theirs as required by the Contract.

d. Reporting of Separate Contractor Deficiencies. If part of the Work depends on the proper execution of construction or operations by the Owner or a separate Contractor, the Design-Build Team shall, prior to proceeding with the Work and each portion thereof, promptly report to the Owner any apparent discrepancies or defects in such other construction or operations that would render the Work unsuitable for proper execution by the Design-Build Team. The Design-Build Team's failure to report such discrepancy or defect shall constitute an acknowledgment that the Owner's or separate Contractor's completed or partially completed construction or operations is fit and proper for the Design-Build Team to proceed with the Work, except as to defects not then reasonably discoverable.

e. Delays and Damages to Separate Contractors. The Design-Build Team shall defend, indemnify and hold the Owner harmless pursuant to the provisions of Section 9.01 (General Indemnity) of the General Conditions for each claim asserted by a separate Contractor for delay, improperly timed activity, defective construction or damage to the work of the separate Contractor which is caused by the Design-Build Team. The Design-Build Team agrees to make no claim of cost or damages against the Owner for any delay, improperly timed activity, defective construction or damage to the Work of the Design-Build Team which is caused (i) by the Design-Build Team, or (ii) by a separate Contractor unless such Contractor is under contract to the Owner, or to a general Contractor of the Owner.

The Owner shall pay each claim of cost incurred by the Design-Build Team arising from the delay, improperly timed activity, defective construction or damage to the Work caused by a separate Contractor acting under the direction or control of the Owner, or under the direction and control of a general Contractor of the Owner.

The failure of either party to pay the costs as required herein shall entitle the other party to file a claim pursuant to Section 12 (Disputes between the Parties) of the Contract.

f. Repair of Damages. The Design-Build Team shall promptly repair any damage caused by the Design-Build Team to the work of a separate Contractor or to any property of the Owner or other property owner if so requested and permitted by the injured party. Such repair shall be in lieu of the payment of monetary damages to the injured party.

Section 3.03 Right to Perform Additional Work Within or Near the Project Site

The Owner reserves the right at any time to contract with another Contractor whose work may occur within or near the site of the Project. In such event, the Design-Build Team agrees not to interfere with or hinder the progress of work by the other Contractor, and the Owner agrees to require such Contractor to coordinate its work with that of the Design-Build Team. The Design-Build Team agrees to cooperate and coordinate with such Contractor as directed by the Owner.

The Design-Build Team shall arrange the Work and shall place and dispose of the materials being used so as not to interfere with the operations of other Contractors within the limits of the same Project. The Design-Build Team shall join the Work with that of the other Contractor in an acceptable manner and shall perform it in proper sequence to that of the other Contractor.

Section 3.04 Progress Meetings

The Owner shall chair the progress meetings between the parties to the Contract that shall include a representative from each major subcontractor if so requested by the Owner. The Owner shall take notes of the progress meeting and shall distribute copies to each party within five (5) days after completion of the meeting. The conference notes shall summarize decisions made at the meeting and reflect the weekly job progress in comparison to the Guaranteed Project Schedule. The attendees are responsible for remembering their own required action and the conference notes shall serve only as a reminder and record of the required action.

Section 3.05 Right of Suspension

The Owner may, without cause, order the Design-Build Team in writing to suspend, delay or interrupt the Work, in whole or in part, for such period of time as determined by the Owner. An adjustment shall be made for the increase in the cost of performing the Contract (excluding therefrom any profit to the Design-Build Team), on the increased cost of performance caused by the suspension, delay, or interruption.

No adjustment shall be made to the extent that:

- i. The performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Design-Build Team is responsible; or
- ii. An equitable adjustment is made or denied under another provision of the Contract Documents, or
- iii. The Design-Build Team could have mitigated the increase in cost to perform the Contract.

Section 3.06 Right of Termination for Convenience

Prior to, or during the performance of the Work, the Owner reserves the right to terminate the Contract in whole or in part, for any reason whatsoever (including, but not necessarily limited to, funding limitations). Upon such an occurrence the Owner will immediately notify the design professional and the Design-Build Team in writing specifying the effective termination date of the Contract.

After receipt of the Notice of Termination, the Design-Build Team shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due at the point in the Contract:

- i. Stop all construction;
- ii. Place no further orders for materials or services;
- iii. Terminate all subcontracts;
- iv. Cancel all material and equipment orders as applicable; and
- v. Take whatever action is necessary to protect and preserve all property related to this Contract, which is in the possession of the Design-Build Team.

Within 180 days of the date of the Notice of Termination, the Design-Build Team shall submit a final termination settlement proposal to the Owner based upon costs up to the date of termination, including reasonable profit as allowed by the Contract Documents on completed Work, and reasonable demobilization costs as allowed by the Contract Documents. If the Design-Build Team fails to submit the proposal within the time allowed, the Owner may determine the amount due to the Design-Build Team because of the termination and shall pay the determined amount to the Design-Build Team.

Section 3.07 Owner's Right to Replace Subcontractor or Subconsultant

The Owner shall have the right to require that the Design-Build Team replace any Subcontractor or Subconsultant at any time and for any reason by requesting such change in writing in accordance with the provisions of NRS 338.141.

SECTION 4. CONTRACT COMMENCEMENT, PROGRESS AND COMPLETION

Section 4.01 Notice to Proceed

After receipt of all required post-Proposal submittals, the Owner will issue the Notice to Proceed. The Design-Build Team shall not commence activities on the Project prior to the date specified in the Notice to Proceed.

Section 4.02 Guaranteed Project Schedule

The Design-Build Team shall submit the Guaranteed Project Schedule for the Work within ninety (90) calendar days after issuance of Notice to Proceed, which shall contain the appropriate milestones by which the Owner can judge and determine the progress thereof.

Section 4.03 Progress of the Work

The Design-Build Team shall provide sufficient labor, materials, facilities, and equipment and shall work such hours, including night shifts, overtime operations, Saturdays, Sundays and holidays, as may be necessary to insure the prosecution and completion of the Work or separable portions thereof, in accordance with the Guaranteed Project Schedule.

If the progress of the Work falls behind or fails to proceed in accordance with the Guaranteed Project Schedule, or it becomes apparent to the Owner from the current schedule that the Work will not be substantially complete within the Contract Time (as adjusted by Owner approved Change Orders), in addition to the other requirements of the Contract and remedies available to the Owner, the Design-Build Team agrees to take the following actions at no additional cost to the Owner to correct such tardiness:

- i. Increase manpower in such quantities and crafts as will substantially eliminate, in the judgment of the Owner, the backlog of Work;
- ii. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of equipment, or any combination of the foregoing, sufficient to substantially eliminate, in the judgment of the Owner, the backlog of Work; and,
- iii. Reschedule activities to achieve maximum practical concurrence of accomplishment of activities.

The failure of the Design-Build Team to comply with the requirements of this Section or to remedy the tardiness shall be grounds for a determination by the Owner that the Design-Build Team is failing to diligently prosecute the Work, in which case the Owner may, after the notice of the breach has been provided to the Design-Build Team pursuant to Section 10.01 (Definition of Breach) of the Contract, without prejudice to other remedies the Owner may have and regardless of whether the Design-Build Team has taken or is taking corrective action, immediately correct the Design-Build Team's failure at the Design-Build Team's expense by exercising the right to perform and carry out the work as provided in Section 10.05 (Owner's Right to Perform the Work) including the use of the Owner's work forces, to award separate contracts, to supplement the Design-Build Team's work forces, to prepare or have prepared schedules which shall be used to determine the provisions of the Contract to withhold actual and anticipated liquidated damages, and any other means the Owner deems appropriate.

Section 4.04 Contract Time

Time is of the essence in the performance and completion of this Contract. The Design-Build Team shall commence the Work on the date set by the Owner in the Notice to Proceed, and shall achieve Substantial Completion of the Work within the Contract Time.

Section 4.05 Progress Payments and Retainage

a. Progress Bills and Payments. The Design-Build Team may submit a monthly progress bill requesting payment for the Work performed to-date after measuring the Work and estimating its value based upon the unit prices contained in the Contract or the approved Schedule of Values. The progress bill must be submitted by the deadline established by the Owner and must be accompanied by photographs of the Work completed to date and other supporting documentation (such as material receipts and storage verifications). The quantities and value estimates must have the concurrence of the Owner. As permitted pursuant to Section 10.06 (Deduction from Progress Payments) of the Contract and NRS Chapter 338, the Owner may withhold from the progress payment an amount that is sufficient to protect the Owner for the Design-Build Team's failure to comply with the requirements of the Contract or applicable building codes, laws or regulations. The Design-Build Team must submit certified payroll records each month as required by NRS Chapter 338. If the certified payroll records for the previous month have not been received, the Owner may withhold funds from the progress payment in accordance with NRS Chapter 338.

b. Retainage. From the progress payment to be made to the Design-Build Team, the Owner shall deduct and retain an amount equal to ten percent (10%) of the amount approved for payment.

c. Payment for Stored Material. The Owner may at its discretion pay the Design-Build Team for the cost of the material to be used in the performance of the Work, provided the material complies with the requirements of the Contract and the following conditions are satisfied:

- i. The Design-Build Team stores the material in a manner acceptable to the Owner at the Work site or other site that is acceptable to the Owner.
- ii. The Design-Build Team furnishes evidence of the quantity and quality of the stored material that is acceptable to the Owner.
- iii. The Design-Build Team furnishes legal title (free of liens or encumbrances of any kind) for the stored material that is acceptable to the Owner.
- iv. The Design-Build Team furnishes evidence the stored material is insured against loss, damage or disappearance thereof prior to use in the Work that is acceptable to the Owner.

The transfer of title to, or the payment for, the stored material by the Owner shall in no way relieve the Design-Build Team of responsibility for placing the material in accordance with the requirements of the Contract.

If payment is being sought for material not specifically purchased for the Work, but taken from the Design-Build Team's stock, then in lieu of an invoice, the Design-Build Team shall submit to the Owner a statement and accompanying affidavit certifying that the material was taken from the Design-Build Team's stock and that the claimed material and transportation costs represent the actual costs to the Design-Build Team.

The progress bill requesting payment for the stored material shall not exceed the Contract price for such material or the price for the Contract item comprising the material used by the Design-Build Team.

SECTION 5. COMPLETION OF PROJECT

Section 5.01 Substantial Completion

When the Design-Build Team considers the Work or portion thereof has reached Substantial Completion, the Design-Build Team shall so inform the Owner. The Owner shall schedule a walk-through to establish a punch list of items to be completed or corrected by the Design-Build Team.

If the Work or any designated portion thereof has reached Substantial Completion, and all applicable governmental authorities have granted final approval of the Work, the Owner will issue a Certificate of

Substantial Completion establishing the date of Substantial Completion identifying responsibilities of the Owner and Design-Build Team for security, maintenance, utilities, damage to the work and insurance, and fixing the time for the Design-Build Team to finish the items on the punch list accompanying the Certificate. The Certificate of Substantial Completion shall be submitted to the Owner and Design-Build Team for their written acceptance of responsibilities assigned to them in such Certificate.

In the event the Design-Build Team is unwilling to provide written acceptance of the Certificate of Substantial Completion, the Owner shall issue the Certificate without the Design-Build Team's signature, and (i) the Design-Build Team shall immediately comply with the provisions of the Certificate, and any dispute involving the Design-Build Team's unwillingness to provide written acceptance shall be resolved in accordance with Section 12 (Disputes Between the Parties). In such event, the Owner may withhold Liquidated Damages based on the completion date shown on the issued Certificate of Substantial Completion until such time as the dispute is resolved between the parties.

Section 5.02 Punch List

The Design-Build Team shall complete or correct the Work identified on the punch list within the time specified on the Certificate of Substantial Completion or as otherwise directed. If the Design-Build Team fails to satisfactorily complete or correct the punch list items, such failure shall constitute a breach of this Agreement and the Owner shall have the option to invoke any of the remedies provided for under Section 10.

The time stated for completion of punch list items shall include final clean up of the Work site.

Section 5.03 Final Inspection and Final Acceptance of the Work

When the Design-Build Team considers the Work is complete, the Design-Build Team shall so notify the Owner in writing. If, after inspection and testing, the Owner determines that the Work has been completed as required by the Contract and the Contract otherwise fully performed, the Owner shall inform the Design-Build Team that application for final payment may be made. The Contract shall not be considered to be fully performed until the Design-Build Team provides the Owner with the certificates, guaranties, releases, certified payroll records, affidavits, record documents and other documents required under the Contract. Final acceptance of the Work shall be confirmed by the making of final payment unless otherwise stipulated at the time such payment is made.

Section 5.04 Final Payment

Provided the Contract has been fully performed pursuant to Section 5.03 (Final Inspection and Final Acceptance of the Work) of the Contract, the Design-Build Team shall prepare and submit a final payment application for all Work performed under the Contract. The acceptance of final payment shall operate as a release to the Owner by the Design-Build Team of all claims and liabilities for all things done or furnished in connection with the Work and for every act or omission, negligent or otherwise, of the Owner and others relating to or arising out of the Work.

No payment, final or otherwise, shall operate to release the Design-Build Team from any obligations under the Contract or the Sureties from any obligations under the Performance Bond, Labor and Material Payment Bond or the Guaranty Bond.

Section 5.05 Non-Conforming Work Not Accepted

Neither final acceptance, the making of final payment, nor the entire or partial occupancy of the completed Work by the Owner shall constitute an acceptance of the Work, or any portion thereof, not completed in accordance with the requirements of the Contract.

SECTION 6. LIQUIDATED AND DELAY DAMAGES

Section 6.01 Owner's Recovery of Liquidated Damages

The Design-Build Team acknowledges that time is an essential element of this Contract and for that reason the Work needs to proceed and be prosecuted vigorously to completion. In the event that the Work is not completed within the Contract Time set forth in Section 5 (Contract Time) of the Design-Build Contract, the Design-Build Team further acknowledges that the Owner will suffer damages which are difficult to ascertain, such as, but not necessarily limited to, the loss of the use of the Work by the Owner and the public, the inconvenience suffered by the public, and the cost associated with additional architectural, engineering, inspection, supervision and contract administration.

Because it is difficult and impractical to fix the amount of actual damages which would be suffered by the Owner if the Design-Build Team fails to meet the completion deadline, the parties have agreed that the amount of liquidated damages set forth in Section 6 of the Design-Build Contract is a reasonable estimate of the damages to be suffered by the Owner. The Design-Build Team agrees to pay the Owner Liquidated Damages for each day that the Work exceeds the completion deadline until the Design-Build Team reaches Substantial Completion of the Work. The Liquidated Damages provided for therein pertain only to the failure to complete the Work by the completion deadline, and does not preclude recovering any increased costs incurred by the Owner in completing the Work. Liquidated Damages shall be in addition to any other remedies that may be available to the Owner. By executing the Design-Build Contract, the Design-Build Team agrees that the amount of liquidated damages set forth therein is fair and reasonable.

If the Owner permits the Design-Build Team to complete the Work, or any part thereof, after the completion deadline or any extensions thereto, such permission shall not be construed as a waiver on the part of the Owner of any of its rights or remedies under the Contract.

The Owner's right to withhold Liquidated Damages pursuant to the provisions of this Section, or any other section of the Contract, is self-executing, and is not subject to the notice of claim and arbitration procedures set forth in Section 12.02 (Arbitration) of the Contract. If the Design-Build Team disagrees with the assessment or withholding of any Liquidated Damages, such disagreement shall be treated as a dispute between parties subject to the notice of claim and arbitration procedures set forth in that Section.

Section 6.02 Delay Damages

The Design-Build Team shall not make any claim against the Owner for an increase in the Contract Amount, or for any damages, losses or additional expenses which the Design-Build Team may suffer as a result of any delay in the completion of the Work (regardless of the circumstances giving rise to the delay), with the exception of the following:

- i. Delays caused by the Owner's malicious or grossly negligent conduct, or the Owner's willful and knowing delay to the Substantial Completion of the Work,
- ii. Delays whose assumption of the risk by the Design-Build Team was not within the contemplation of the parties at the time the parties entered into the Contract, or
- iii. Delays of such unreasonable duration that they constitute an intentional abandonment of the Contract by the Owner.

If any of the exceptions set forth in (i) through (iii) above are determined by the Owner to be applicable, the Owner may grant a time extension commensurate with the delay, increase the Contract Amount and/or consider for payment a claim for damages, losses or additional expenses resulting from any delay in the completion of the Work provided such claim meets the requirements set forth in Section 01200 (Claims and Disputes) of the Bridging Documents. The Owner shall determine the validity of the claim and the amount to be paid, and such consideration or payment shall not invalidate, limit or otherwise waive the prohibition provisions of this Section with respect to any future delay claims of the Design-Build Team.

Without limiting the following possible circumstances as being within the contemplation of the parties at the time that the parties entered into the Contract, if any of the following circumstances shall occur:

- i. Unknown or uncertain conditions including, but not necessarily limited to, the discovery of caliche, ground water and all other subsurface conditions,
- ii. Weather conditions (including, but not limited to, precipitation, flood, mud slides, sink holes, ice and snow resulting from precipitation, wind, temperature or humidity) and the resultant effects thereof regardless of the nature, duration, severity or abnormality of such weather condition,
- iii. Unmarked utilities or utility interferences,
- iv. Events of war, labor disputes, transportation delays, freight embargos, earthquakes, floods, epidemics, terrorist threats or acts, workplace violence, theft, vandalism damage to the Work (including fire and explosion), acts of God and all other events, acts or omissions resulting in the unavailability of labor, materials, equipment or utilities, Acts or omissions of the Owner and other governmental authorities acting in their role as code and regulation enforcement regulators,
- v. Acts or omissions of Design-Build Teams, subcontractor, suppliers and material manufacturers involved in the Work,
- vi. Acts, omissions and coordination of other Design-Build Teams regardless of the event location or contractual relationship between the parties, unless such Design-Build Teams are under the direction or control of the Owner, or under the direction or control of a general Design-Build Team of the Owner, or
- vii. Discovery of hazardous substances or substances suspected of being hazardous,

then the Design-Build Team may be entitled to an increase in the Contract Amount and/or a time extension for completion of the Work.

This Section shall apply to any claim described as a "disruption," "acceleration," "suspension," "schedule change," "impact to the progress of the Work" or some other term avoiding use of the term "delay."

SECTION 7. BONDING REQUIREMENTS

Section 7.01 Required Bonds

The Design-Build Team shall purchase and maintain throughout the term of this Agreement, the following bonds:

- i. Performance Bond insuring performance of all of the obligations of the Contractor as required by the Contract in the amount of 100% of the Contract Amount.
- ii. Labor and Material Payment Bond insuring the payment of all of the Subcontractor and material suppliers of the Design-Build Team in the amount of 100% of the Contract Amount.
- iii. Guaranty Bond insuring against defects or deficiencies in the workmanship of, and materials used in, the Work in the amount of 100% of the Contract Amount. The Guaranty Bond shall take effect upon Substantial Completion of the Work and shall remain in effect for a period of one year thereafter or for longer period if so provided in the Specifications.

The bonds required herein shall be separate and apart from the bonds to be provided by each Subcontractor under Section 7.03 of the Contract.

Section 7.02 Acceptable Surety

The bonds must be issued by a surety who is listed in Circular 570 (current edition) issued by the Department of Treasury, Fiscal Services as company holding a certificate of authority as an acceptable surety or reinsuring company of federal projects.

The Surety must be licensed to do business in the State of Nevada. Bonds issued by individuals as surety are not acceptable to the Owner. Any bond prepared by a licensed non-resident agent must be countersigned by a resident agent as required by the provisions of NRS 680A.500. The Design-Build Team shall require the agent who executes the bond on behalf of the Surety to attach to the bond a correct copy of the power of attorney authorizing the agent to execute the bond.

Section 7.03 Subcontractor Bonds

The Design-Build Team shall require each Subcontractor who will perform any portion of the Work in excess of \$50,000.00, or one percent (1%) of the Contract Amount, whichever is greater, to furnish the following bonds:

- i. Labor and Material Payment Bond in an amount equal to 100% of the amount of the subcontract insuring payment of the Subcontractor's employees and material suppliers used in connection with the subcontract, and
- ii. Performance Bond in an amount equal to 100% of the amount of the subcontract insuring performance of the obligations of the Subcontractor under the subcontract.
- iii. Guaranty Bond insuring against defects or deficiencies in the workmanship of, and materials used in, the Work performed by the Subcontractor in the amount of 100% of the subcontract. The Guaranty Bond shall take effect upon Substantial Completion of the Work and shall remain in effect for a period of one year thereafter or for longer period if so provided in the Specifications.

Such bonds shall comply with the requirements of Sections 7.01 (Required Bonds) and 7.02 (Acceptable Surety) of the Contract. The Subcontractor shall provide the bonds prior to performing any portion of the Work. The bonds required herein shall be separate and apart from the bonds provided by the Design-Build Team under Section 7.01 of the Contract.

Section 7.04 Failure to Maintain Bonds

If, for any reason, the bonds are not maintained in effect as required herein, the surety files for protection under the federal bankruptcy laws or similar state laws or the surety rating decreases from that required under Section 7.02 (Acceptable Surety) of the Contract, the Owner may require the Design-Build Team to procure bonds from another surety to be substituted in lieu of the bonds originally provided to the Owner, and the failure to procure the substitute bonds shall constitute a breach of the Contract entitling the Owner to any of the remedies set forth in Section 10 (Breach of Contract and Remedies) of the Contract.

SECTION 8. INSURANCE REQUIREMENTS

Section 8.01 Owner Provided Builder's Risk Insurance.

The Owner shall provide Builder's Risk Insurance insuring against all risks of loss (including fire, testing, vandalism, malicious mischief, collapse and water damage) for 100% of the replacement value of the completed portion of the Work including delay damages or damage to materials stored on or outside the Project, or in transit thereto.

Scope of Coverage:	Project Specific
Type of Coverage:	Occurrence Basis
Amount of Deductible	\$10,000
Amount of Coverage:	Contract Amount
Policy Period:	Effective until final completion of the Project
Named Insured:	City of Las Vegas

Section 8.02 Contractor provided Insurance - General

The Design/Build Team shall purchase and continuously maintain in full force and effect for the policy periods specified below the insurance policies specified in this Section. The insurance required hereunder shall not be interpreted to relieve the Design/Build Team of any obligations under the Contract. The Design/Build Team shall remain fully liable for all deductibles, including Builder's Risk Insurance provided by the Owner and amounts in excess of the coverage actually realized, except Builder's Risk.

a. Commercial General Liability Insurance. The Design/Build Team shall provide and maintain Commercial General Liability Insurance (broad form coverage) insuring against claims for bodily injury, property damage, personal injury and advertising injury that shall be no less comprehensive and no more restrictive than the coverage provided by Insurance Services Office (ISO) form for Commercial General (CG 00-01-10-01). By its terms or appropriate endorsements such insurance shall include the following coverage, to wit: Bodily Injury, Property Damage, Fire Legal Liability (not less than the replacement value of the portion of the premises occupied), Personal Injury, Blanket Contractual, Independent Contractors, Premises Operations, Products and Completed Operations (for a minimum of two (2) years following Final Completion of the Project). The policy cannot be endorsed to exclude the perils of explosion (x), collapse (c) and underground (u) exposures without the approval of the Owner. If Commercial General Liability Insurance or other form with a general aggregate limit and products and completed operations aggregate limit is used, then the aggregate limits shall apply separately to the Project, or the Design/Build Team may obtain separate insurance to provide the required limit which shall not be subject to depletion because of claims arising out of any other project or activity of the Design/Build Team. Any such excess insurance shall be at least as broad as the Design/Build Team's primary insurance.

Scope of Coverage:	Non-Project Specific
Type of Coverage:	Occurrence Basis
Amount of Coverage:	\$1,000,000 per occurrence \$2,000,000 aggregate
Policy Period:	Annual Policy. Effective for 2 years following final completion of the Project
Name Insured:	Design/Build Team
Additional Insured Parties:	City of Las Vegas (its officers, employees and agents)

b. Commercial Automobile Liability Insurance. The Design/Build Team shall provide Comprehensive Automobile Liability Insurance insuring against claims for bodily injury and property damage and covering the ownership, maintenance or use of all owned/leased, non-owned and hired vehicles used in the performance of the Work, both on and off the Project Site, including loading and unloading. The coverage shall be primary and non-contributory and shall be provided by Insurance Services Office form for Commercial Auto Coverage (CA-00-01-10-01) or equivalent.

Scope of Coverage:	Non-Project Specific
Type of Coverage:	Occurrence Basis
Amount of Coverage:	\$1,000,000 Combined Single Limit
Policy Period:	Annual Policy. Effective for the duration of this Agreement
Name Insured:	Design/Build Team
Additional Insured Parties:	City of Las Vegas (its officers, employees and agents)

c. Workers' Compensation. The Design/Build Team shall provide Worker's Compensation Insurance sufficient to meet its statutory obligation under NRS Chapter 616 to provide benefits for employees with claims of bodily injury or occupational disease (including resulting death). The policy required herein shall be primary and non-contributory in its coverage.

Scope of Coverage:	Non-Project Specific
Type of Coverage:	Occurrence Basis
Amount of Coverage:	Statutory
Policy Period:	Annual Policy. Effective for the duration of this Agreement
Name Insured:	Design/Build Team
Additional Insured Parties:	City of Las Vegas (its officers, employees and agents)

d. Employer's Liability Insurance. The Design/Build Team shall provide Employer Liability Insurance covering its legal obligation to pay damages because of bodily injury or occupational disease (including resulting death) sustained by an employee. The policy required herein shall be primary and non-contributory in its coverage.

Scope of Coverage:	Non-Project Specific
Type of Coverage:	Occurrence Basis
Amount of Coverage:	\$1,000,000 bodily injury by accident \$1,000,000 bodily injury by disease \$1,000,000 policy limited
Policy Period:	Annual Policy. Effective for the duration of this Agreement
Name Insured:	Design/Build Team
Additional Insured Parties:	City of Las Vegas (its officers, employees and agents)

e. Professional Liability Insurance. The Design/Build Team shall provide Professional Liability Insurance of limits no less than \$1,000,000, combined single limit and in the aggregate. If coverage is on a "claims made" basis, then it must continue for a period of two years beyond the completion or termination of this Contract. Any retroactive coverage must coincide with or predate the beginning of this Contract and may not be changed without the consent of the City.

Section 8.03 Acceptable Insurance Company

The insurance company providing any of the insurance coverage required herein shall have a Best's Key rating of A VII or higher, (i.e., A VII, A VIII, A IX, A X, etc.) and shall be subject to approval by the Owner. Each insurance company's rating as shown in the latest Best's Key Rating Guide shall be fully disclosed and entered on the required certificate of insurance.

Section 8.04 Premiums, Deductibles and Self-Insured Retentions

The Design/Build Team shall be responsible for payment of premiums for all of the insurance coverages required under this Section 8. The Design/Build Team further agrees that for each claim, suit or action made against insurance provided hereunder, with respect to all matters for which the Design/Build Team is responsible hereunder, the Design/Build Team shall be solely responsible for all deductibles and self-insured retentions. Any deductibles or self-insured retentions over \$50,000 in the Design/Build Team insurance must be declared and approved by Owner.

Section 8.05 Certificates of Insurance

The Design/Build Team will deliver to Insurance Tracking Services, Inc. (ITS), the Owner's representative, a certificate of insurance with respect to each required policy to be provided by the Design/Build Team under this Section 8. The required certificates must be signed by the authorized representative of the insurance company shown on the certificate with proof that such person is an authorized representative thereof, and is authorized

to bind the named underwriter(s) and their company to the coverage, limits and termination provisions shown thereon.

Submit certificates of insurance to:

City of Las Vegas
C/O Insurance Tracking Services, Inc. (ITS)
P.O. Box 21919
Long Beach, CA 90801

Account Manager: Michael Palacios
Phone: (888) 435-2955 ext. 503 • Fax: 562-435-2999
Email: michael.palacios@instracking.com

A certified, true and exact copy of each of the project specific insurance policies (including renewal policies) required under this Section 8 shall be provided to the ITS if so requested.

Section 8.06 Renewal Policies

The Design/Build Team shall promptly deliver to the Owner a certificate of insurance with respect to each renewal policy, as necessary to demonstrate the maintenance of the required insurance coverage for the terms specified herein. Such certificate shall be delivered to the Owner not less than 30 days prior to the expiration date of any policy and bear a notation evidencing payment of the premium thereof.

Section 8.07 Cancellation and Modification of Insurance Coverage

Each insurance policy supplied by the Design/Build Team must be endorsed to provide that the coverage shall not be suspended, voided, canceled or reduced in coverage or in limits except after ten (10) days written notice in the case of non-payment of premiums, or thirty (30) days written notice in all other cases, has been given to the Owner and such notice is by certified mail, return receipt requested. This notice requirement does not waive the insurance requirements contained herein.

Section 8.08 No Recourse

There shall be no recourse against Owner for the payment of premiums or other amounts with respect to the insurance required from the Design/Build Team under this Section 8.

Section 8.09 Endorsements and Waivers

All insurance policies required hereunder shall contain or be endorsed to contain the following provisions:

- i. For claims covered by the insurance specified herein, said insurance coverage shall be primary insurance with respect to the insured, additional insured parties, and their respective members, directors, officers, employees and agents and shall specify that coverage continues notwithstanding the fact that the Design/Build Team has left the Project site. Any insurance or self-insurance beyond that specified in this Contract that is maintained by an insured, additional insured, or their members, directors, officers, employees and agents shall be in excess of such insurance and shall not contribute with it.
- ii. Any failure on the part of a named insured to comply with reporting provisions or other conditions of the policies, any breach of warranty, any action or inaction of a named insured or others, any foreclosure relating to the Project or any change in ownership of all or any portion of the Project shall not affect coverage provided to the other insured or additional insured parties or their respective members, directors, officers, employees and agents.
- iii. The insurance shall apply separately to each insured and additional insured party against whom a claim is made or suit is brought, except with respect to the limits of the insurer's liability.

Section 8.10 Failure to Provide or Maintain Insurance Coverage

The Design/Build Team's failure to provide or maintain any of the insurance coverage required herein shall constitute a breach of the Contract. In addition to the remedies that the Owner may have pursuant to Section 10 (Breach of Contract and Remedies) of the General Conditions, the Owner may take whatever action is necessary to maintain the current policies in effect (including the payment of any premiums that may be due and owing by the Design/Build Team) or procure substitute insurance. The Design/Build Team is responsible for any costs incurred by the Owner in maintaining the current insurance coverage in effect, or providing substitute insurance, and such costs may be deducted from any sums due and owing the Design/Build Team.

SECTION 9. INDEMNITY

Section 9.01 General Indemnity

The Design-Build Team shall protect, indemnify and hold the Owner, its officers, employees, agents and consultants (collectively the "Indemnitees") harmless from any and all claims, liabilities, damages, losses, suits, actions, decrees, and judgments (including attorney fees, court costs) or other expenses of any and every kind or character (collectively the "Claims"), which may be recovered from or sought against the Indemnitees as a result of, by reason of, or as a consequence of, the negligence, errors, omissions, recklessness or intentional misconduct on the part of the Design-Build Team, its officers, employees, agents, subcontractor or suppliers (i) in the manufacturing or supplying (including transportation) of any materials, supplies or other products used in the Work, or (ii) in the performance of the terms, conditions and covenants of the Contract. The Owner may retain for its protection any money due and owing the Design-Build Team under this Contract. In the event no money is due and owing, the surety, if required, of the Design-Build Team, may be held until all of the Claims have been settled and suitable evidence to that effect furnished to the Owner.

The Design-Build Team shall defend the Indemnitees against the Claims and in the event that the Design-Build Team fails to do so, the Owner shall have the right, but not the obligation, to defend the same and to charge all direct and incidental costs, including attorney's fees and court costs to the Design-Build Team.

Section 9.02 Patent Indemnity

The Design-Build Team shall protect, defend and hold the Owner, its officers, employees, agents and consultants (collectively the "Indemnitees") harmless from and against all claims, losses, costs, damages, and expenses, including attorney fees, court costs or other expenses (collectively the "Claims"), incurred by the Indemnitees, or any of them, respectively, as a result of or in connection with any claims or actions based upon infringement or alleged infringement of any patent and arising out of the use of the equipment or materials furnished under the Contract by the Design-Build Team, or out of the processes or actions employed by, or on behalf of, the Design-Build Team in connection with the performance of this Contract. The Design-Build Team shall, at its sole expense, promptly defend against any such claim or action unless directed otherwise by the Indemnitees; provided that the Indemnitees shall have notified the Design-Build Team upon becoming aware of such claims or actions, and provided further that the Design-Build Team's aforementioned obligations shall not apply to equipment, materials or processes furnished or specified by the Indemnitees.

In order to avoid such claims or actions, the Design-Build Team shall have the right, at its expense, to substitute non-infringing equipment, materials or processes, or to modify such infringing equipment, materials and processes so they become non-infringing, or to obtain the necessary licenses authorizing the use of the infringing equipment, material or processes, provided that such substituted and modified equipment, materials and processes shall meet the requirements of this Contract.

SECTION 10. BREACH OF CONTRACT AND REMEDIES

Section 10.01 Definition of Breach

If, during the existence of the Contract, the Design-Build Team:

- a. Fails to properly pay any Subcontractor or other parties for labor, materials or supplies as required by Section 2.13 (Responsibility for Payment of Subcontractor and Other Parties) of the Contract;
- b. Fails to begin the Work within the time specified in the Notice to Proceed as required by Section 4.01 (Notice to Proceed) of the Contract;
- c. Fails to diligently prosecute the Work as required by Section 4.02 (Guaranteed Project Schedule) or Section 4.03 (Progress of the Work) of the Contract;
- d. Fails to provide sufficient workmen, materials or equipment to assure the prompt completion of the Work as required by Section 4.03 (Progress of the Work) of the Contract;
- e. Fails to complete the Work within the Contract Time as required by Section 4.04 (Contract Time) of the Contract;
- f. Fails to complete the punch list within the time specified in the Certificate of Substantial Completion as required by Section 5.02 (Punch List) of the Contract;
- g. Fails to maintain the bonds, industrial insurance coverage for his employees, general liability insurance or any of the other policies of insurance as required by Sections 7.01 (Required Bonds) and 8.01 (Required Insurance) of the Contract;
- h. Fails to pay third party claims as required by Section 9.01 (General Indemnity) of the Contract;
- i. Fails to maintain licensure by the Nevada State Design-Build Team's Board as required by Section 11.01 (General Warranty) of the Contract;
- j. Fails to promptly remedy the Work not in conformance with the Contract as required by Section 11.03 (Warranty Work Conforms with Requirements of the Contract);
- k. Fails to observe laws, ordinances, rules or regulations pertaining to the Project as required by Section 13.01 (General) of the Contract;
- l. Fails to investigate, or cooperate in the investigation of, complaints concerning the payment of prevailing wage rates requested by the Owner or the State Labor Commissioner's Office as required by Section 13.02 (Compliance with Labor Laws) of the Contract;
- m. Fails to maintain solvency, allows a judgment to stand against the Design-Build Team for a period of five (5) days, files a petition with the United States Bankruptcy Court, is adjudged insolvent or bankrupt, makes a general assignment for the benefit of creditors, or commits an act of bankruptcy or insolvency;
or
- n. Fails to remedy any other material breach of the provisions of the Contract;

then the occurrence of any of the above shall constitute a breach of the contract which if unremedied may constitute an Event of Default as described in Section 10.02 (Event of Default).

Section 10.02 Event of Default

The Design-Build Team and the Surety under the Performance Bond shall be entitled to seven (7) days notice of each breach described in Section 10.01 (Definition of Breach) of the Contract and given the opportunity within such time to cure the breach, provided, however, such breach is capable of a cure. If such breach is capable of a cure but by its nature cannot be cured within the seven day period, the Design-Build Team or

Surety may be allowed such additional time as may be reasonably necessary to cure the breach provided the cure is commenced within the seven day period and is diligently pursued to completion.

If any breach is not subject to cure, or is not cured as provided herein, the Owner may declare that an "Event of Default" has occurred and the Owner may, in addition to any other remedies available in law or equity, invoke any of the remedies provided for under this Section 10 (Breach of Contract and Remedies) of the Contract.

Section 10.03 Damages

Except for those breaches which are subject to Liquidated Damages set forth in Section 6.01 (Owner's Recovery of Liquidated Damages), if the Design-Build Team fails to cure any Event of Default under this Agreement within the time provided in Section 10.02 (Event of Default), the Owner shall be entitled to damages resulting therefrom.

Section 10.04 Termination for Cause

Upon the occurrence of an Event of Default, the Owner may terminate the Contract which shall take effect immediately upon service of the notice on the Design-Build Team and the Surety under the Performance Bond unless a different effective date is specified therein. In the event of such termination, the Surety shall have the right to take over and perform the Contract.

If the Surety does not commence performance of the Contract within 10 days of receipt of the notice, the Owner may do any and all of the following:

- i. Take possession of the Project Site and the materials, equipment, tools, and construction equipment and machinery thereon owned by the Design-Build Team;
- ii. Accept the assignment of the Design-Build Team's subcontracts pursuant to this Contract (Contingent assignment of subcontracts to Owner if Contract is terminated); and
- iii. Finish the Work by whatever method deemed expedient by the Owner.

The Design-Build Team shall not be entitled to any further payment under the Contract until the Work is completed and accepted by the Owner. If the unpaid balance of the Contract Amount exceeds the cost of completing the Work, including compensation for any damages or expenses incurred by the Owner through the default of the Design-Build Team, the excess shall be paid to the Design-Build Team. If, however, the damages and expenses exceed the unpaid balance of the Contract Amount, the Design-Build Team and the Surety under the Performance Bond shall pay the difference to the Owner.

Section 10.05 Owner's Right to Perform the Work

If the Design-Build Team fails to perform or proceed with the Work, or any part thereof, as required by the Contract, and fails within the seven day notice required pursuant to Section 10.02 (Event of Default) of the Contract to remedy the breach, or to commence and continue correction of such breach with promptness and due diligence toward completion, the Owner may, without prejudice to any other right or remedy available to the Owner, and without terminating the Contract and relieving the Design-Build Team from its obligations under the Contract, proceed to correct the breach, or applicable portion thereof, by any means or methods deemed appropriate (including use of the Owner's personnel). If the Owner discovers during the course of the corrective action that the breach is greater or otherwise different from, but nevertheless related to, the breach described in the seven-day notice, then the greater or different breach shall be deemed to have been included in the original seven-day notice and the Owner may proceed with the corrective action without having to provide any additional notice to the Design-Build Team.

If, after expiration of the seven-day notice period required pursuant to Section 10.02 (Event of Default) of the Contract, the Design-Build Team proceeds to correct the breach and the Owner has already incurred certain expenses (such as, but not necessarily limited to, preparation of cost estimates or remedial plans and drawings, placement of material orders, demolition costs, rental costs, storage costs, trash removal expenses, utility expenses, scheduled commitments from Design-Build Teams which cannot be canceled without the Owner incurring costs to the Design-Build Team, transportation costs of personnel or materials, and incurred cost of hiring technical personnel whether licensed or not) as part of an effort to remedy the breach, then the Design-Build Team shall pay the Owner for such incurred expenses as provided herein.

If, after issuance of the seven day notice of the breach required pursuant to Section 10.02 (Event of Default) of the Contract, the Owner decides not to take any action to correct the breach or fails in the effort to correct the breach, the Design-Build Team remains responsible for the breach and any expenses incurred in any failed effort to correct the breach.

In the event of a correction and expense as provided herein, the Contract Amount shall be reduced by the amount of the incurred expenses which amount the Owner shall be entitled to deduct from any payments then or thereafter due the Design-Build Team (including the direct and indirect costs of using the Owner's personnel). If payments then or thereafter due the Design-Build Team are not sufficient to cover the incurred expenses, the Design-Build Team shall pay the difference to the Owner.

Section 10.06 Deduction From Progress Payments

For each and every breach set forth in Section 10.01 (Definition of Breach) of the Contract, the Owner may decline to certify, in whole or in part, any pending application for payment which, in the opinion of the Owner, may be necessary to protect the Owner from the damages and expenses which are expected to be incurred, or which have been incurred, as a result of the breach. Based upon the opinion of the Owner, the Owner may withhold from any requested progress payment such sum as may be necessary to protect the Owner from such damages and expenses including, but not necessarily limited to, the Liquidated Damages permitted pursuant to Section 6.01 (Owner's Recovery of Liquidated Damages) of the Contract which the Owner anticipates will occur as a result in the delay in the Completion of the Project.

If an agreement can be reached between the Owner and the Design-Build Team concerning the request for payment, the Design-Build Team may submit a revised application for certification. The Owner shall have the right to deny in whole or in part, or to require an adjustment to, any pending application if, as a result of new evidence or observations subsequent to the issuance of a previous certification, the Owner has determined that the amount paid exceeds the percentage of completion of the Work, the Work can not be completed for the unpaid balance of the Contract or any other such certification was improperly issued.

If the Design-Build Team remedies the failure for which payment has been withheld, and the Owner verifies such correction, then the withheld money shall be included with the payment of the next application.

Section 10.07 Rights and Remedies are Cumulative

Except as otherwise expressly stated in the Contract, the rights and remedies of the parties are cumulative, and the exercise by any party of one or more of such rights or remedies shall not preclude the exercise by it, at the same or different times, of any other rights or remedies for the same default or any other default by the other party.

SECTION 11. REPRESENTATIONS AND WARRANTIES

Section 11.01 General Representations and Warranties

The Design-Build Team hereby represents and warrants that it (i) is familiar with requirements of the Contract; (ii) has investigated the site and is knowledgeable concerning the local conditions that may affect the performance of the Work; (iii) is satisfied that the Work can be performed and completed as required in the

Contract; (iv) accepts all of the risks directly or indirectly connected with the performance of the Contract; (v) has not been influenced by any statement or promise other than those contained in the Contract Documents; (vi) is experienced and competent to perform the Contract; (vii) is familiar with all general and special laws, ordinances and regulations that may affect the Work, its performance, or those persons employed therein; (viii) is familiar with tax and labor regulations and with rates of pay that will affect the Work, and (ix) is properly licensed and will remain properly licensed by the Design-Build Teams Board of the State of Nevada in order to perform the Contract.

Section 11.02 Warranty of Merchantability and Fitness for Particular Purpose

The Design-Build Team warrants that the equipment and materials used or provided as part of the Contract are of merchantable quality and fit for their particular purpose.

Section 11.03 Warranty Work Conforms with Requirements of the Contract

In addition to other warranties and longer time periods which may be provided in the Contract, and as a minimum, the Design-Build Team warrants the Work performed under the Contract is in conformance with the requirements of the Contract, and that the Work is free of defects and deficiencies in design, materials and workmanship (unless furnished by the Owner) for a period of 12 months from the date of the Certificate of Substantial Completion (or 12 months from the completion date of any portions of the Work first performed after Substantial Completion), regardless of whether the same were furnished or performed by the Design-Build Team or by any of its Subcontractor of any tier. Upon receipt of written notice from the Owner of any non-conformance to the Contract during the applicable warranty period, the Design-Build Team shall promptly correct the affected non-conformance at a time acceptable to the Owner.

The Design-Build Team shall perform such tests as the Owner may require verifying that the Work is in compliance with the Contract. If such Work is not in accordance with the Contract, the costs of the correcting and testing, including the cost of removal necessary to gain access thereto and other related incidental costs, shall be borne by the Design-Build Team. If such Work is found to be in accordance with the Contract, the costs of uncovering, replacement, and testing shall be charged to the Owner. The Design-Build Team warrants any corrected Work to be in conformance with the Contract for a period of 12 months from the date of acceptance thereof. If the Design-Build Team fails to promptly make the necessary corrections and tests, the Owner may perform or cause to be performed the same at the Design-Build Team's expense. The Design-Build Team and its Surety shall be liable for the satisfaction and full performance of the warranties set forth in this Section.

Unless otherwise provided elsewhere in the Contract, the materials and equipment incorporated into the Work shall be new and of the most suitable grade of their respective kinds for their intended use, and all workmanship shall be in accordance with construction practices acceptable to the Owner.

Nothing contained in this Section shall be construed to establish a period of limitation with respect to the Design-Build Team's obligations under the Contract other than specifically to correct the Work then known by the Owner to be in non-conformance with the Contract, including, but not limited to, defects and deficiencies in design, materials and workmanship (unless furnished by the Owner).

Section 11.04 Warranty Exclusions Prohibited

The Owner will not accept any warranty clause from the Design-Build Team, Subcontractor or manufacturer that states:

- i. That the implied warranties of Merchantability or Fitness for a Particular Purpose are excluded from the Contract;
- ii. That the warranty clause is in lieu of all other warranties that are either expressed or implied.

In addition to the above restrictions, the warranty requirements of the Contract shall exist in a direct extension from the manufacturer to the Owner as well as from the Design-Build Team to the Owner if the manufactured product is sold directly to the Design-Build Team.

SECTION 12. DISPUTES BETWEEN THE PARTIES

Section 12.01 Preliminary Resolution

Any claim, dispute or other question that may arise between the Owner and Design-Build Team concerning any provision of this Contract shall be resolved through the good faith efforts of both parties. Notice shall be given within 14 days of such claim, dispute or other question arising under the Contract.

The Design-Build Team shall proceed with the Work and maintain progress in accordance with the requirements of the Contract pending resolution of the claim, dispute or other matter in question between the parties. If the dispute is not satisfactorily resolved within 30 days, either party may request arbitration in accordance with Section 12.02 (Arbitration) of the Contract.

Section 12.02 Arbitration

a. Right of Arbitration. Any claim, dispute, or other matter in question between the parties concerning any provisions of this Contract that cannot otherwise be resolved between the parties and, in the case of the Design-Build Team, which has not been waived by the acceptance of final payment, shall be submitted to and be determined by arbitration in the manner set forth in this Section. As a prerequisite to the exercise of this right, the party seeking arbitration shall notify the other party pursuant to Subsections e and f of this Section.

b. Designation of Arbitrators. Within the notice provided pursuant to subsection f of this Section, the party seeking arbitration shall appoint an arbitrator. Within 10 days after receipt of such notice, the party receiving the notice shall appoint, by serving written notice upon the party seeking arbitration, a second arbitrator, and, in the event of a default in the second appointment, the arbitrator first appointed shall be sole arbitrator and shall proceed in the same manner as hereinafter provided for three arbitrators. When two arbitrators have been appointed as aforesaid, they shall, if possible, agree upon a third arbitrator and shall appoint him or her by written notice, signed by both of them given to the Owner and the Design-Build Team. If 15 days have elapsed after the appointment of the second arbitrator without the appointment of a third arbitrator, then either party may, in writing, request the Nevada Arbitration Association appoint the third arbitrator. Upon appointment of a third arbitrator, the arbitrators shall meet without delay and proceed to a determination of the claim, dispute or other matter in question between the parties in accordance with the construction industry rules of the Arbitration Association.

c. Arbitration Costs and Attorneys Fees. The fees and expenses of the arbitration proceedings shall be assessed equally against both parties. Each party is responsible for their own costs, expenses, witness fees and counsel fees incurred in the presentation or defense of the claim, dispute or other question that may arise between the parties.

In lieu of the appointment of three arbitrators, the parties may agree to the appointment of only one arbitrator for the purpose of conducting the arbitration.

d. Right of Joinder. In the event that the Owner is named as a party to any arbitration action or commences an arbitration action against a party other than the Design-Build Team, which arises out of, results from, or is connected with, the construction of the Work, or the performance of the Design-Build Team under this Contract, the Design-Build Team agrees and hereby irrevocably consents to be joined as a party in the arbitration proceeding and to be bound by any decision resulting therefrom. Any joinder of the Design-Build Team is conditioned upon the handling of such arbitration in accordance with arbitration rules of the Nevada Arbitration Association. None of the time provisions imposed under subsections d and e apply to the joinder rights provided herein in such a way as to preclude the Owner from joining the Design-Build Team as a party to

any arbitration proceedings which the Owner commences or is named as a party and which arises out of, or results from, the construction of the Project.

If the Design-Build Team is named as an additional party by the Owner, the Design-Build Team shall not be entitled to any additional compensation from the Owner as a result of preparing for, or participating in, the arbitration.

e. Notice of Claim. In order for the Design-Build Team to be able to arbitrate any claim, dispute or other matter in question between the parties, written notice must be given to the Owner within fourteen (14) days after occurrence of the event giving rise to such claim, dispute or other matter between the parties. The purpose of such notification is to place the Owner on notice so that proper measures can be taken by the Owner to properly observe and record the progress of the Work, and any impact that the claim, dispute or other matter may have thereon, and to enable the Owner to properly verify any costs incurred by the Design-Build Team in connection therewith. The failure to give such notice shall forever bar such claim, dispute or other matter from being arbitrated or litigated.

f. Notice of Arbitration. The filing of the written notice pursuant to Subsection e of this Section shall preserve that party's right to arbitration, but shall not obligate the party to proceed with arbitration.

In the event that either party desires to proceed with the arbitration of any claim, dispute, or other matter with respect to which such notice has been given, a written demand for arbitration shall be filed in writing with the other party, and with the Nevada Arbitration Association, within sixty (60) days after the Date of Substantial Completion and the failure to make such demand shall forever bar such claim, dispute or other matter from being arbitrated or litigated.

g. Discovery. In the event of arbitration, the parties agree that all means of discovery including, but not limited to, depositions and interrogatories will be afforded to the parties involved in the arbitration, and the appointed arbitrator shall have the authority to impose sanctions against either party for failing to comply with the rules of discovery as provided under the Nevada Rules of Civil Procedure.

h. Summary Procedure. In lieu of discovery rights set forth in subsection g, the Owner may elect to proceed pursuant to the summary arbitration proceeding set forth herein. Notice of such election shall be provided by the Owner to the Design-Build Team within 30 days after the appointment of the final arbitrator pursuant to subsection b of this Section.

In the event of such an election, the parties shall agree upon a date for the presentation of the Design-Build Team's claim which date or dates shall be acceptable to the arbitrators. At such hearing, the Design-Build Team shall present such testimony and documents in support of its claim against the Owner. Upon the conclusion of the Design-Build Team's presentation, the matter shall be continued for not less than thirty (30) days but no more than sixty (60) days to allow the City to prepare its response to the claim of the Design-Build Team. At the conclusion of the City's presentation, the Design-Build Team shall proceed with any rebuttal testimony or documentary evidence in response to the City's defense, and the City shall at the same hearing proceed with any reply to the rebuttal by the Design-Build Team.

i. Work to Proceed. The Design-Build Team shall proceed with the Work during any pending arbitration, court or other dispute proceedings, unless otherwise mutually agreed upon in writing. Arbitration conducted in accordance with this provision shall take place in Clark County, Nevada.

j. Substitution of Arbitration Association. In the event that the Nevada Arbitration Association refuses, or is unable, to perform any of the obligations imposed under this Section, the City shall designate a substitute arbitration association to carry out the duties of the Nevada Arbitration Association.

SECTION 13. COMPLIANCE WITH THE LAWS

Section 13.01 General

The Design-Build Team shall comply with all federal, state and local laws and regulations applicable to construction of the Work including, but not necessarily limited to, licensing requirements, labor and health laws, and requirements for the payment of sales and use taxes on equipment, materials and supplies provided in connection with the Contract.

Section 13.02 Compliance with Labor Laws

a. Prevailing Wage Rate Law. The Design-Build Team and each Subcontractor shall comply with all federal, state and local labor laws with regard to minimum wages, overtime work, hiring and discrimination including, without limitation, NRS Chapter 338.

1. Prevailing Wage Rates. For public work projects whose cost is \$100,000 or more, the Design-Build Team hereby acknowledges that pursuant to the provisions of NRS 338.040 and 338.050, any person who is employed by the Design-Build Team or Subcontractor at the Work Site, or who performs work on a public work project (regardless of any contractual relationship alleged to exist between the workman and his other employer), is subject to the prevailing wage rate provisions of NRS 338.010 to 338.090, inclusive. The Design-Build Team is responsible for ensuring that the aforementioned persons are paid in accordance with the current prevailing wage rates approved by the State Labor Commissioner. Any Change Order causing a contract to equal or exceed \$100,000 will subject the Contract to the provisions of Prevailing Wage Rate Law and to audit by the State Labor Commissioner. Any work performed after regular working hours, or on Sunday or a legal holiday, shall be performed without additional expense to the Owner.

In accordance with NRS Chapter 338, the Design-Build Team shall post the current prevailing wage rates and applicable addenda in a place generally visible to the workmen. The prevailing wage rates and applicable addenda are available from the office of the State Labor Commissioner (www.laborcommissioner.com). The Design-Build Team agrees to investigate, or to assist in the investigation of, each claimed violation of the prevailing wage law as may be requested by the Owner or the State Labor Commissioner.

2. Certified Payroll Reports. Pursuant to NRS Chapter 338, for any public work contract awarded for \$100,000 or more, the Design-Build Team and each Subcontractor are required to keep an accurate record showing the name, occupation and the actual per diem wages and benefits paid to each workman employed by them in connection with the Work. These records are referred to as the "certified payroll reports."

The Design-Build Team, and each Subcontractor through the Design-Build Team, is required to submit a copy of the certified payroll reports for each calendar month to the Owner no later than fifteen (15) calendar days after the end of the month. The Design-Build Team shall be responsible for coordinating the submittal of all the certified payroll reports for the Project, including the reports of each Subcontractor who is performing Work on the Project. The Design-Build Team agrees to contact the Nevada State Labor Commissioner with any question concerning the payment of prevailing wage rates.

3. Penalties. In accordance with NRS 338.060, the Design-Build Team shall forfeit the penalty provided herein to the Owner for each calendar day or portion thereof that each workman employed on the Project (i) is paid by the Design-Build Team or Subcontractor less than the designated wage rate for the work on the Project, (ii) the Design-Build Team or Subcontractor willfully included inaccurate or incomplete information in the monthly certified payroll report submitted to the Owner, (iii) the Design-Build Team or Subcontractor did not report to the Owner as required pursuant to NRS 338.070, and/or (iv) if a violation of more than one provision of subsection (i) through (iii) herein involves the same workman, the Design-Build Team shall forfeit the penalty set forth in each violated subsection.

The Design-Build Team hereby stipulates that the Owner may withhold not less than \$20.00, nor more than \$50.00 for each and every violation of subparagraphs (i) through (iii) herein, the actual amount of which is according to a sliding scale based on the size of the Design-Build Team's business which is adopted by the State Labor Commissioner, except that for violation of subparagraph (iii) the maximum penalty is limited to \$1,000 for the first violation and \$5,000 for each subsequent violation occurring during the term of the Contract.

In addition to any penalty imposed by the Labor Commissioner, if the Design-Build Team or Subcontractor is determined by the Owner to have violated the provisions of this Section, the Owner may deduct from any payments due the Design-Build Team, the costs of the proceedings associated with the investigation of each wage complaint including, but not limited to, employee salaries, investigator fees and attorney fees.

In addition to any monetary penalty imposed by the statute, the Design-Build Team, or its Subcontractor, agent or representative, performing Work on the Project who neglects to comply with the prevailing wage rate requirements of NRS Chapter 338 is guilty of a misdemeanor.

b. Copeland Anti-Kickback Law. The Design-Build Team shall comply with the Copeland Anti- Kick Back Act (19 U.S.C. 874) as supplemented in the Department of Labor Regulations (29 CFR Part 3). This Act provides that the Design-Build Team or Subcontractor shall be prohibited from inducing by any means, any person employed in the construction, completion or repair of public work, to give up any part of the compensation to which that person is otherwise entitled.

c. Fair Employment Law. The Design-Build Team shall comply with the fair employment provisions of NRS 338.125. The Design-Build Team agrees not to discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, sexual orientation or age. Such agreement shall include, but is not necessarily limited to, employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Design-Build Team further agrees to insert this provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials. Any violation of this provision by the Design-Build Team shall constitute a material breach of the Contract.

If the Design-Build Team or any of its Subcontractor refuse to hire or do business with an individual or company in violation of this provision, the Owner may declare the Design-Build Team in breach of the Contract, and the Owner may terminate the Contract and designate the Design-Build Team as not responsible for purposes of bidding future public work projects.

d. Preferential Employment. The Design-Build Team shall comply with the preferential employment provisions of NRS Chapter 338.130. This law requires, in all cases where persons are employed in the construction of public works, preference must be given, when the qualifications of applicants are equal: First, to persons who have been honorably discharged from the Army, Navy, Air Force, Marine Corps or Coast Guard of the United States, a reserve component thereof or the National Guard, and are citizens of the State of Nevada; Second, to other citizens of the State of Nevada. If these provisions of NRS 338 are not complied with by the Design-Build Team engaged on the public work, the contract shall be void, and any failure or refusal to comply with any of these provisions of this section renders any such contract void.

Section 13.03 Compliance with Americans with Disabilities Act

The Work shall comply with the Americans with Disabilities Act (ADA) as amended to date. The Design-Build Team shall construct the Work in compliance with the ADA and the rules and regulations promulgated thereunder and shall immediately notify the Owner of any conflicts between the Contract Documents and the Act or the rules and regulations promulgated thereunder.

Section 13.04 Compliance with Immigration Reform Control Act of 1986

In accordance with the Immigration Reform and Control Act of 1986, the Design-Build Team shall not employ unauthorized aliens in the performance of the Contract.

Section 13.05 Air Pollution Control

Prior to commencing the Work, the Design-Build Team shall obtain a permit from the Clark County Department of Air Quality and Environmental Management.

The Design-Build Team shall perform the Work in a manner that does not discharge smoke, dust or other air contaminants into the atmosphere from any source whatsoever, in violation of the laws, rules and regulations of federal, state and local government pertaining to air pollution including, but not necessarily limited to, the following:

- i. Nevada Revised Statute 445: Air Quality Regulation
- ii. Adhering to all Clark County Department of Air Quality and Environmental Regulations

The Design-Build Team shall not be granted any time extensions for delays due to compliance with or violations of the aforementioned laws, rules or regulations, and shall pay all compliance costs and violation fines and penalties. Such imposed fines and penalties shall not result in an increase in the Contract Amount, and are not subject to reimbursement by the Owner.

Section 13.06 Fire Prevention

The Design-Build Team shall conform to all federal, state, and local laws and regulations pertaining to burning, fire prevention, and control within or adjacent to the Work Site. Necessary precautions to avoid and eliminate fire hazards shall be the responsibility of the Design-Build Team.

All tarpaulins used for any purpose during construction of the Work shall be made of material resistant to fire, water, and weather and shall bear UL labels. Lighting of any fires on the Project Site is strictly forbidden.

The Design-Build Team shall provide portable fire extinguishers compatible with the hazard of each work area and shall instruct its personnel in their location and use. Wherever welding or burning is conducted, inflammable materials shall be protected and a fire watch shall be provided by the Design-Build Team to be present during the burning and welding operation to ensure that protective measures are taken and no fires result from such operation. The fire watch shall have fire extinguisher equipment readily available and know-how for proper use.

Section 13.07 Provisions Required by Law

Each and every provision of Nevada Revised Statutes Chapter 338 and 624 and any other laws required to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or inserted incorrectly, then upon the application of either party, the Contract shall be amended to make such insertion or correction.

SECTION 14. CONTRACT INTERPRETATION

Section 14.01 General

The Contract shall be construed and enforced in accordance with the laws of the State of Nevada. Any action for the enforcement of any provision of this Contract shall be instituted before the Nevada Arbitration Association in the County of Clark, State of Nevada.

Section 14.02 Intent and Correlation

The Contract is intended to include all items necessary for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by one portion or section of the Contract shall be as binding as if required by all. Any work not covered in the Contract will not be required unless it is consistent with the Contract Documents, and it is reasonably inferable or necessary to produce the intended results or provide a complete work. Words and abbreviations, which have well known technical or trade meanings, are used in the Contract Documents in accordance with such recognized meanings.

Section 14.03 Governing Order of Contract Documents

The Contract Documents include various divisions, sections, and conditions, which are essential parts for the work to be provided by the Design-Build Team. In case of discrepancy, the lower number document will govern over the higher numbered document according to the following order of precedence, unless to do so would contravene the intent of the Contract Documents as determined by the Owner:

1. Change Orders
2. Addenda, with those of later date having precedence over those of an earlier date
3. Design-Build Contract
4. General Conditions
5. Bridging Documents, Drawings and Referenced Standards (these documents are to be construed together in determining the intent of the Owner)

Section 14.04 Conflicting Conditions

In the event of inconsistencies within or between parts of the Contract Documents, or between the Contract Documents and applicable standards, codes and ordinances, the Design-Build Team shall (i) provide the better quality or greater quantity of Work or (ii) comply with the more stringent requirement; either or both in accordance with the Owner's interpretation.

Section 14.05 Graphic Enhancement

Graphic enhancement of any text of the Contract such as bolding, underlining, italics, etc. is added for ease of reference and shall not be interpreted as placing additional importance on the enhanced text or lessening the importance of text without such enhancement.

SECTION 15. MISCELLANEOUS PROVISIONS

Section 15.01 Regulatory Authorities

The Design-Build Team does hereby acknowledge and agrees that the Department of Public Works, by or through its Architectural Services Division, acting as the Owner's Designated Representative for purposes of the Project, does not have any control, authority or influence over the decisions or requirements of regulatory authorities which are separate from the Owner, or which are departments of the Owner including, but not limited to, the Building Department, Fire Department, Planning Department or other divisions within the Department of Public Works acting in a regulatory manner. The Design-Build Team is responsible for complying with the requirements imposed by the regulatory authorities (including the departments of the City acting in a regulatory manner) and any delays resulting to the Design-Build Team in the performance of the Contract from having to comply with such requirements are solely the responsibility of the Design-Build Team, and not attributable in any manner to the Owner.

The Owner's Designated Representative acts in a capacity similar to that of a representative working for a private property owner which is to ensure that the City receives a quality product, delivered on schedule, for a fair price. Furthermore, the Owner's Designated Representative does not speak or act for any regulatory authority, nor does any regulatory authority speak or act for the Owner's Designated Representative. The Design-Build Team agrees that its relationship with the regulatory authorities having jurisdiction over the Project is separate from its relationship with the Owner's Designated Representative, and that the Design-Build Team's interaction with each regulatory authority is to be conducted without assistance from the Owner's Designated Representative.

Section 15.02 Subcontracts

Any subcontract entered into by the Design-Build Team and its Subcontractor or material supplier shall not create any contractual relationship between the Owner and the Subcontractor or material supplier.

The Design-Build Team agrees to provide a copy of each subcontract (including contracts for the purchase of supplies) entered into by the Design-Build Team in connection with the Project if so requested by the Owner for any of the reasons set forth in NRS 338.140 (1)(d).

The Design-Build Team shall not substitute a subcontractor for any portion of the Work which was previously indicated would be performed by the Design-Build Team unless such substitution meets the requirements of NRS Chapter 338.

Section 15.03 Right to Review and Audit

The Design-Build Team agrees to maintain financial records pertaining to all matters relative to the Contract in accordance with standard accounting principles and procedures and to retain all records and supporting documentation applicable to the Design-Build Team for a period of three (3) years after completion of the Contract and any subsequent extensions thereof. All records subject to audit findings shall be retained for three (3) years after such findings have been resolved. In the event the Design-Build Team goes out of existence, the Design-Build Team shall turn over to the Owner all of its records relating to the Contract to be retained by the Owner for the required period of time.

The Design-Build Team agrees to permit the Owner or its authorized representative to inspect and audit its records and books relative to the Contract at any time during normal business hours and under reasonable circumstances and to copy and/or transcribe any information that the Owner desires concerning Design-Build Team's operation hereunder. The Design-Build Team further understands and agrees that the inspection and audit would be exercised upon written notice.

If the Design-Build Team or its records and books are not located within Clark County, Nevada, the Design-Build Team agrees to deliver the records and books or have the records and books delivered to the Owner or its authorized representative at an address within the City of Las Vegas as designated by the Owner.

If the Owner or its authorized representative find that the records and books delivered by the Design-Build Team are incomplete, the Design-Build Team agrees to pay the Owner the costs to travel (including travel, lodging, meals, and other related expenses) to the Design-Build Team's offices to inspect, audit, retrieve, copy and/or transcribe the complete records and books. The Design-Build Team further agrees to permit the Owner or its authorized representative to inspect and audit, as deemed necessary, the financial and performance records of the Project that may be required by relevant directives from the funding sources of the Owner.

If, at any time during the term of the Contract, or at any time after the expiration or termination of the Contract, the Owner or its authorized representative finds the Owner's dollar liability to the Design-Build Team is less than the payments made by the Owner to the Design-Build Team, the Design-Build Team agrees to repay the

difference immediately to the Owner or, at the Owner's option, credit the difference against future payments due the Design-Build Team.

Section 15.04 Independent Design-Build Team

The Design-Build Team represents that it is fully experienced and properly qualified to perform the class of Work provided for herein, and that it is properly licensed, equipped, organized and financed to perform such Work. The Design-Build Team shall act as an independent Design-Build Team and not as an agent of the Owner in performing the Contract. The Design-Build Team shall maintain complete control over its employees and all of its subcontractor. Nothing contained in the Contract or any subcontract awarded by the Design-Build Team shall create any contractual relationship between any such subcontractor and the Owner. The Design-Build Team shall perform the Work in accordance with its own methods subject to compliance with the Contract.

Section 15.05 Severability

The invalidity, illegality, or unenforceability of any provision of the Contract or the occurrence of any event rendering any portion or provision of the Contract void shall in no way affect the validity or enforceability of any other portion or provision of the Contract. Any void provision shall be deemed severed from the Contract, and the balance of the Contract shall be construed and enforced as if the Contract did not contain the particular portion of provision held to be void. The parties further agree to amend the Contract to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this clause shall not prevent the entire Contract from being void should a provision which is of the essence of the Contract to be determined void.

Section 15.06 Assignment of Contractual Rights

The Design-Build Team shall not assign, transfer, convey or otherwise dispose of the Contract or its right, title or interest in or to the same, or any part thereto.

Section 15.07 Ownership and Use of Documents

The Drawings, Bridging Documents, and any copies furnished by the Owner are and shall remain the Owner's property unless a consultant is used in the preparation of the Contract Documents in which case ownership shall be according to the agreement between the Owner and the consultant. They are to be used only with respect to the Project and are not to be used on any other project. Submission or distribution to meet official regulatory requirements for other purposes in connection with the Project is not to be construed as infringement of the copyright of the Owner's or Consultant's common law or other reserved rights.

Section 15.08 Prohibited Interests

No official of the Owner, who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the Project, shall become directly or indirectly interested personally in the Contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of, or for the Owner, who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the Project, shall become directly or indirectly interested personally in the Contract or in any part hereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the Project.

Section 15.09 Waiver

No waiver of any breach or failure to enforce any of the terms, conditions or covenants of the Contract shall be construed to be a waiver of any succeeding breach of the same or similar provision of the Contract.

Section 15.10 No Personal Liability

No official, officer, employee or agent of the Owner shall in any way be personally liable or responsible for any covenant or agreement herein contained, whether expressed or implied, or for any statement, representation or warranty made in connection with the Contract.

Section 15.11 Contract Modification

The Contract represents the entire and integrated agreement between the Owner and the Design-Build Team and supersedes prior negotiations, representations or agreements, either written or oral, made by either party. The Contract may only be amended by a Modification.



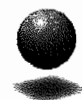
EXHIBIT C

BRIDGING DOCUMENTS

**City of Las Vegas
Water Pollution Control Facility
Solar Photovoltaic Project**



Bridging Document
October 14, 2009



CH2MHILL

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City of Las Vegas Water Pollution Control Facility Solar Photovoltaic Project

General Project Description

Definitions

Array: A mechanically integrated assembly of modules and panels, together with support structure and foundation, tracking, thermal control, and other components, if used, to form a direct current (dc) power-producing unit.

CRC: Colorado River Commission, a Nevada state agency responsible for acquiring and managing Nevada's share of water and hydropower resources from the Colorado River, and who is expected to provide retail electric services to the WPCF.

Insolation: Sunlight, direct or diffuse (not to be confused with insulation). The integrated intensity of sunlight reaching a given area, usually expressed in watts per square meter per day. This measurement may be used to express the average amount of solar energy falling on different regions of the country.

Module: A number of solar cells connected together electrically and sealed inside a weatherproof package with a clear face; sometimes called a "solar panel."

NV Energy: An electric utility that produces, distributes and sells electricity in Nevada and who maintains the electric distribution lines serving the WPCF.

Panel: A designation for a number of photovoltaic (PV) modules assembled in a single mechanical frame.

PV: Photovoltaic. Pertaining to the direct conversion of light into electricity.

PV USA Test Conditions (PTC): Test conditions applied to PV modules intended to represent wattage during operation; irradiance of 1000 watts per square meter, 20 degrees Celsius (°C) ambient temperature, 1 meter per second wind speed, and an air mass of 1.5.

Renewable Energy Credit (REC): Also known as green tags or tradable renewable certificates (TRCs), are tradable environmental commodities which represent proof that generated electricity was renewable (generated from an eligible renewable energy resource).

SPS: Solar Power System. This definition includes all components necessary to provide a complete and functional PV power generating system.

Standard Test Conditions (STC): Test conditions applied to PV modules; irradiance of 1000 watts per square meter, cell temperature of 25°C and an air mass of 1.5.

Submittal Register: List of submittals to be supplied by the design builder as a part of the 30% design and construction package.

Substantial Completion: The status of work at which the project is complete as requested by the Design-builder and approved by the Owner's Project Manager, such that the work can be utilized for the purposes for which it is intended.

Tilt Angle: The angle of inclination of a solar panel measured from the horizontal plane.

WPCF: Water Pollution Control Facility (existing City of Las Vegas treatment plant)

Project Summary

The Owner is seeking a Design-builder to design and install a 3-megawatt (MW) alternating current (ac) (STC) ground-mounted SPS. The project is located on 18 + acres at the Water Pollution Control Facility, 6005 East Vegas Valley Drive, Las Vegas, Nevada. The minimum system size is to be 3 MW, however larger systems will be taken into consideration during the evaluation phase by the Owner.

The system will be connected to the grid through a new "smart" meter, separate from the existing WPCF electrical system. The system will not be net-metered, but will be scheduled as a separate generating facility by the CRC. As such, the connection of the SPS to the grid will be governed by applicable Federal Energy Regulatory Commission (FERC) regulations, as opposed to state or other regulations. The Design-builder shall provide all equipment (switchgear, transformers, disconnects, breakers) up to the designated point of connection with NV Energy. The exact requirements must be coordinated between the utility and the Design-builder, but the expected separation of work is shown on the attached one-line diagram.

The SPS and all required electrical distribution equipment (e.g., transformers, switchgear, inverters, panelboards, security system equipment, plant network gateway equipment) will be located on the Owner's property to the east of the WPCF. Unless specifically indicated otherwise, the proposed site for the PV array will be located on land that is separated from the WPCF by the Las Vegas Wash, a flow of water that is comprised of urban runoff, shallow groundwater, reclaimed water, and stormwater.

Other site improvements to be provided include fencing and access gates, a new trail along the wash separating the project site from the WPCF, a perimeter road system, site grading, provisions for communication with the existing plant supervisory control and data acquisition (SCADA) system, provisions to extend fiber optic communications along Vegas Valley Drive, and site security improvements and. Communications along Vegas Valley Drive should provide a tie between the SPS and the Owner's existing plant SCADA system. Details of the communications link and site security infrastructure shall be closely coordinated with the Owner.

The Design-builder is responsible for complying with all of the Clark County Department of Development Services Offsite Improvements Agreement Requirements. All offsite work and improvements, which may consist of streets, street name signs, traffic signs, sewers, water systems, fire hydrants, curbs, gutters, sidewalks, street lighting, driveways, drainage facilities, accesses, and survey monuments.

The Design-builder shall provide means to extend communication utilities along Vegas Valley Drive separating the WPCF from the SPS site. The communications link shall accommodate a minimum of a 24-pair fiber optic cable, to be provided by the Design-builder.

Existing System Description

The WPCF electrical load is relatively steady, estimated at about 5 MW average. The WPCF is fed through seven separate utility (NV Energy) connections and the 5-MW load is spread among these services. Historical billing information for each of these meters is available from the Owner upon request.

Interruption of Services

The WPCF operates continuously. Power interruptions must be kept to a minimum and carefully coordinated with the Owner. For proposal purposes, assume that each electrical service interruption may only last 4 hours at a time, and may only occur once per day.

NRS and OSHA Requirements of Design-Builder

The Design-builder will comply with the requirement in NRS 618.936 that photovoltaic (PV) installers have a license issued by the Division of Industrial Relations of the Department of Business and Industry unless they are installing or maintaining a PV system project on private residential property. The Nevada State Contractor's Board, through NAC 624.200, classifies PV installers as C-2G contractors and prohibits PV installers to work beyond the service panel. Section 10 of Assembly Bill 148 (AB148) requires construction workers in NV to take OSHA 10-hr or 30-hr (if supervisory workers) training or an approved alternative course (Section 15). Furthermore, AB148 defines a construction worker as anyone who performs physical work at a site that "results in the construction, alteration or destruction involved in the construction project" which includes contractors.

Technical Requirements

General

SPS PV modules and balance of system equipment shall not extend beyond areas designated on the attached site layout drawing, unless specifically noted.

Components, wiring methods, and work associated with the system shall meet National Fire Protection Association (NFPA) 70 requirements.

Environmental Conditions

All equipment shall carry suitable ratings for the environment in which it is installed. Some equipment, such as sensitive electronics, inverters, network equipment, etc, require ventilation or cooling. Major electrical equipment such as switchgear and transformers located outdoors shall be provided with a shade structure.

The Design-builder shall provide a pre-fabricated building with air-conditioned spaces to house major electrical equipment. At a minimum, low voltage switchgear and panelboards,

station service transformer, inverters and any other equipment containing sensitive electronics shall be housed in this building. The Design-builder is required to obtain all necessary permits and provide all required services to the building. Design-builder must show that all equipment will operate within design temperatures suggested by the manufacturer.

Maximum ambient outdoor design temperature: 120 degrees Fahrenheit (°F).

Altitude: Approximately 1700 feet above sea level.

Codes, Standards, and Regulations

The Design-builder shall comply with all currently adopted Clark County codes, including amendments. Some of the more pertinent codes are listed below. However, Design-builder is responsible for meeting all applicable codes.

- Uniform Standard Specifications for Public Works Construction Off-Site Improvements, Clark County Area, Nevada
- Clark County Unified Development Code, Title 30
- 2008 Building Administrative Code of Clark County
- 2006 International Building Code (IBC) Final Approved Amendments
 - Amendment to the 2006 IBC Section 1609.1.1 (Determination of Wind Loads)
- 2005 National Electric Code (NEC) Final Approved Amendments
- Title 25.04 The Electrical Code of Clark County
 - 2002 Southern Nevada NEC Code Amendments
- Title 25.12 Solar Energy Code
- Title 25.16 The Mechanical Code of Clark County
 - 2000 Southern Nevada UMC (University Medical Center) Code Amendments
- IEEE 929 -2000 Recommended Practice for Utility Interface of Photovoltaic Systems.
- IEEE 519, Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems
- IEEE/ANSI 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems.

Underwriters Laboratories Compliance

Materials manufactured within the scope of Underwriters Laboratories (UL) shall conform to UL standards and have an applied UL listing mark.

If no UL compliance is available, provide the work in accordance with NFPA 70. Where required by Authority Having Jurisdiction (AHJ), material and equipment shall be labeled

or listed by a nationally recognized testing laboratory or other organization acceptable to AHJ.

Special Services

Perform all paperwork on behalf of the Owner to procure all applicable utility (both NV Energy and CRC), local, state, federal rebates and incentives. The Design-builder shall list all anticipated rebates/incentives in his/her proposal. The Owner will not sell or trade its RECs associated with the SPS.

SPS Warranty

Provide warranty, with Owner named as beneficiary, in writing. SPS warranty shall provide correction, or at the option of the Owner, removal and replacement of work described in this document found defective during a period of 2 years after the date of substantial completion.

Design Requirements

SPS shall include all solar equipment from the solar modules all the way up to and including the breaker(s)/disconnect(s) to interconnect with NV Energy. This shall include, but not necessarily be limited to, the following:

- Arrays of PV modules installed within designated areas shown on drawings
- Mounting system for PV modules
- dc to ac inverters
- All dc wiring and conduit from PV arrays to combiner boxes and inverters
- All ac wiring and conduit from inverters to NV Energy interconnection points
- Low-voltage ac switchgear or switchboards
- Distribution transformers step-up or isolation, where required
- Shade structures and/or buildings
- Tracking systems (optional)
- All other equipment required to provide a complete and functional PV system
- Other work separate from the SPS (e.g., grading, fencing, trails, roads, security infrastructure, lighting, communications to WPCF) is included elsewhere in this document

Power DC-output from SPS shall be fed into inverters that are connected to the electric power grid. The system will not directly feed any other loads, except "station service" loads directly associated with the SPS.

Tracking systems may be provided at the discretion of the Design-builder. The Design-builder shall describe the type of tracking system to be provided if it chooses to include

these systems in its proposal. If the tracking systems require electrical power, the Design-builder shall indicate how these systems will be powered.

Voltage Drop

- dc circuits: Maximum 2 percent for any individual dc circuit, as measured from a PV panel to input of an inverter, including losses through conductors, fuses, blocking diodes, and terminations.
- ac circuits: Maximum 3 percent for any individual ac circuit, as measured from the source power panel to the load, including losses through conductors and other impedances.

Physical layout of SPS shall minimize shading on PV module. All shading shall be factored into the calculated energy production of the SPS.

SPS shall be provided with a grounding system and necessary interconnections to other grounding systems, as required by NFPA 70.

Provide array ground-fault projection devices as part of inverter or as external device in accordance with NFPA 70.

Grid Connections

It is anticipated that electrical power generated by the SPS will be fed to the NV Energy grid. A one-line diagram is attached as an example of possible SPS electrical system topography. This diagram is not intended to represent the ultimate system. The Design-builder is responsible for designing and providing the final electrical system design.

An alternative connection point has been discussed with both CRC and NV Energy. This alternative would include connection to the WPCF's system downstream of metering. The Design-builder may wish to explore this option with CRC. If there is sufficient advantage to both the Design-builder and the City, the Design-builder may include this connection approach in its design proposal.

In consideration of the probable connection point being the NV Energy grid, a Small Generator Interconnection Agreement (SGIA) was filled out and sent to NV Energy in April 2009. This document will prompt a distribution system study to be performed by NV Energy to determine what modifications to the distribution system, if any, are required to accommodate the SPS. If the SGIA has not been fully processed or completed by the time of the proposal, the Design-builder shall assist the Owner with any work required to complete the SGIA. A copy of the SGIA application is attached to this document.

For the purposes of this proposal, assume that the study will show that no further distribution system modifications are needed, beyond the standard metering and service equipment that would normally be required for connection of the SPS. If medium-voltage distribution system modifications are required, the work will be performed by the utility (NV Energy) and paid for by the Owner. The Design-builder is not responsible for any medium voltage distribution system modification or inherent costs, but should be aware of the nature of the work being performed as it could affect the Design-builder's work and schedule.

Any changes to the Design-builder's scope of work that are required as a result of the SGIA study shall be treated as a change to the contract.

The grid connection and all associated equipment shall be sized for a total SPS size of 4-MW ac.

Location of Service

The Design-builder shall work with the utilities to determine the exact location of the grid connection to the SPS. It is expected that this connection will be located at or near the north property line for the project, along the south side of Vegas Valley Drive; however, other factors (e.g., results of SGIA, site conditions) may warrant a different service location.

Interconnection Requirements and Areas of Responsibility

It is the responsibility of the Design-builder to coordinate and comply with all utility (both NV Energy and CRC) requirements. Those details are not described in this document. However, some of the anticipated requirements are listed for informational purposes only.

The distribution voltage is 12.47 kV (Design-builder to verify).

NV Energy will provide and install a "smart" meter and metering cabinet, complete with all current transformers and potential transformers. NV Energy will provide one or more medium-voltage switches. All equipment on the customer side of this medium-voltage gear (e.g., transformers, low-voltage switchgear, required disconnects not provided by NV Energy) shall be provided by the Design-builder.

Photovoltaic Devices

General

- UL listed: Modules that are not UL listed, but meet International Electrotechnical Commission (IEC) 61215 may be considered at Owner's discretion.
- Acceptable Photo Voltaic (PV) technologies include standard PV with poly-crystalline or mono-crystalline panels, thin film or Concentrated Photo Voltaic (CPV). No other technologies will be allowed.
- Factory-installed bypass diode.
- If PV modules using hazardous materials (e.g., Cadmium or other hazardous materials) are in use, the environmental impact of the hazardous material usage must be discussed and documented in writing, and include any special maintenance requirements and proper disposal/recycling of the modules at the end of their useful life. Modules containing hazardous materials must comply with the U.S. Environmental Protection Agency (EPA) Landfill Disposal Requirements. Any additional costs related to PV modules containing hazardous materials and responsibility for those costs must be clearly identified.

Materials

- Corrosion-resistant, resistant to damage from snow, wind, hail, and windblown dust and sand.

- Weatherproof.
- Stainless steel fastener hardware.

Warranty

Manufacturer's standard limited power output warranty, 20 years minimum, guaranteeing the following:

- The initial power output per module shall be within $\pm 5\%$ of the specified power output.
- Within the first 10 years, the power output per module shall not fall below 90% of the specified power output.
- No module shall generate less than 80% of its specified power at the end of the 20 year warranty period"

Combiner Boxes

Combiner boxes shall carry a rating suitable for environment and be UL listed. Some or all combiner boxes may be integral to the inverters at the discretion of the Design-builder.

Lightning Protection

Provide UL-listed lightning protections system for any structures that allow for personnel access, including the pre-fabricated metal building for electrical equipment. Lightning protection systems shall be designed by a lightning protection engineer registered in the State of Nevada.

Inverters

General

Number and size of inverters to be provided shall take into consideration the following:

- Available space for inverter installation.
- Redundancy of systems.
- Topography of the existing electrical system to which the system will connect.
- Inverters shall be of a proven design that has been demonstrated on other projects for a minimum of 1 year.
- Inverters shall be located a minimum of 18 inches above the 100-year flood plain, or be protected from the 500-year flood level, whichever is greater.
- Provide shade structures, ventilation, cooling systems or other means of providing an environment with temperatures within the inverter's operating range.

Features

- UL 1741-listed.
- dc to ac inverter, with pure sine wave output.

- Voltage: Output ac voltage shall be as required for compatibility with connection to existing electrical systems. Transformers may be used where inverter output voltage isn't compatible with identified electrical connection points.
- Integral dc contactor for array isolation.
- Nighttime mode or other means to minimize standby losses.
- Integrated dc and ac disconnects, UL listed.
- Total Current Harmonics: Less than 3 percent at inverter ac terminal.
- Efficiency: 95 percent minimum.
- Parallel or Stacked Operation: Capable of operating in parallel with other inverters (stacked) without loss of functionality or performance.
- Capable of interrupting available line-to-line fault currents and line-to-ground fault currents. Additional interrupting features, such as fuses, shall be included where rating of inverter is not sufficient. In the event of a fault event, inverter shall turn off before ac or dc contactors are opened.
- Provide self-protective features to protect inverter from damage in the event of component failure or from parameters beyond normal operating range due to internal or external causes.
 - Self-protective features shall not allow inverters to be operated in a manner that might be unsafe or damaging.
 - Faults as a result of malfunctions within inverter or solar conversion system equipment shall be cleared by inverter over-current protection device and not by Owner's protection devices.

Inverter Monitoring

Multifunction digital display mounted on front of inverter, with a minimum of the following features:

- Input dc voltage, amps, and power in kW.
- Output ac voltage, amps, power factor, power in kW and kilovolt-ampere (kVA), frequency.
- Grid status (available or not available).
- Common fail indication.
- Inverter status (off/operating).
- Display and communicate historical power generated in kWh ac, with 1-hour minimum resolution, with at least 1 year of memory.

Controls

- Grid Synchronization Control

- Capable of parallel operation with ac power system.
- Synchronize output waveform with that of utility power system.
- Automatically disconnect from utility power system if that power is interrupted.
- Wake up and sleep sequencing with isolation controls and grid restoration.

Communications

Inverter shall be provided with Modbus TCP/IP communications capability. Modbus communication link shall be capable of transmitting all inverter status points listed under paragraph, Monitoring, above. No control features are required to be communicated through Modbus.

Enclosure

General: The inverters shall have provisions to prevent moisture condensation and entrance of rodents into air intake or exhaust ports. The inverter enclosure should be well ventilated or be air conditioned so that the inverters operate safely at or near their maximum power point (MPP).

Warranty: 10-year minimum.

Solar Power System Monitoring

All monitoring data gathered from the SPS shall be sent to the Owner's existing SCADA network at the WPCF.

For each grid interconnection point, power monitoring equipment shall be provided on the Owner side of the service with the following minimum features:

- ac voltage, amps, power factor, power in kW and KVA, frequency.
- Display and communicate historical power generated in kWh ac, with hourly resolution, with at least 1 year of memory.

Incident solar radiation in the plane of the array tracking surface shall be monitored with a pyranometer. A minimum of one pyranometer shall be provided for each MW of PV provided. Incident solar radiation in the horizontal plane shall also be monitored with a pyranometer. A minimum of two pyranometers, installed in the horizontal plane (not necessarily in the plan of the array, shall be provided for the entire SPS.

Data collected from the solar site shall include pyranometer readings, inverter data, power SPS power data, and SPS equipment building ambient temperature. This data shall be communicated via a Modicon Quantum Programmable Logic Controller (PLC) to the Owner's SCADA utilizing Ethernet protocol over fiber optic media. The fiber optic cabling shall connect the SPS PLC to the WPCF SCADA system at the existing administration building. The Design-builder shall provide all required connections and infrastructure to connect the SPS system components and the SPS PLC to the WPCF SCADA system.

Electrical

The SPS must be installed in accordance with all applicable requirements of local electrical and national electric codes. The SPS electrical design shall also comply with IEC, Institute of Electrical and Electronic Engineers (IEEE), American National Standards Institute (ANSI), or other standards as determined by the local jurisdiction.

All electrical components, including over-current protection, disconnect, surge suppression devices, conduit, wiring, and terminals must be commercial- or utility-grade and have appropriate voltage, current, and temperature ratings for this application.

Series rated devices are prohibited.

Conduit shall be direct buried, with no concrete encasement, except as otherwise required by NV Energy.

Exterior electrical enclosures shall be rated National Electric Manufacturers Association (NEMA) 3R minimum. Exterior enclosures housing sensitive electronics should be completely sealed and provided with ventilation, air conditioning, or other means to keep electronics within specified operating ranges.

Low-voltage Switchgear

- UL listed.
- Enclosure: Switchgear shall have provisions to prevent moisture condensation and entrance of rodents.
- Location: All switchgear shall be located a minimum of 18 inches above the 100-year flood plain, or be protected from the 500-year flood level, whichever is greater.
- Provide shade structures, ventilation, cooling systems or other means of providing an environment with temperatures within the inverter's operating range.
- Warranty: 10-year minimum.

Transformers

Where required, the Design-builder shall supply transformers to match the output of the inverters to the voltage of the local utility distribution system. The transformers shall be compatible with utility standards for voltage, phasing, and grounding. Transformers shall be housed in dust-tight and rain-tight enclosures. Transformers may be dry-type or liquid-filled type. For oil-filled transformers, the SPS provider shall provide an adequate oil containment system. Power circuit breakers shall not be permitted.

Transformers shall include an automatic positive load-breaking means of disconnect (e.g., switch, circuit breaker) on the high side. The disconnect means shall be provided to disconnect all phases simultaneously.

Feed-through or daisy chained transformers will not be allowed.

Photovoltaic Array Structural Support Systems

Structural design shall be performed by a professional engineer registered in the state of Nevada and submitted for review and approval.

- PV arrays, including modules, hardware, support structure, and attachments shall be structurally designed to withstand the specified wind loads and shall comply with existing local and national codes.
- Bolts shall have anti-theft heads to prevent removal of PV modules.
- Mechanical Hardware
 - Use stainless steel fasteners and aluminum support structure for corrosion resistance and durability.
 - Use of ferrous metals, wood, or plastic components is not allowed.
 - Avoid galvanic corrosion.

Conceal mechanical hardware, conduit, junction boxes, and other equipment beneath or behind array.

Finished elevations for the structural supports shall be located so that any portion of the PV module is a minimum of 18 inches above the 100-year flood plain, or protected from the 500-year flood level, whichever is greater. This includes the lowest point of any module installed on tracking systems, at any position along the full path of travel of the tracking system.

Operations and Maintenance

Design-builder shall submit detailed operations and maintenance manuals for the SPS. At a minimum, this shall include:

- Array cleaning procedures.
- Tracking system maintenance instructions, if applicable.
- O&M manuals for all electrical and other equipment, gates, lights, etc.'
- Estimated annual O&M costs. These costs shall not be included in the proposal price. They are for informational purposes only.

The Design-builder may offer SPS maintenance services as part of the proposal.

SPS Commissioning

PV designer-builder will submit a draft start-up and commissioning procedure with the proposal. The procedure will be reviewed and finalized once the final contractor is selected.

System Acceptance Procedure

The PV plant will be tested using the published PVUSA test procedure which will be carried out in the presence of the owner's engineer, the designer-builder engineer, and the project engineer. The PV plant will be considered acceptable if the results indicate that the plant is within +/-10 % of the guaranteed power rating in MW-dc at Standard Test Conditions. The

PVUSA rating procedure uses on-site measured data and a linear regression analysis to determine the STC rating of the plant.

Site/Civil

Boundaries/Access

The project location for the SPS is at 6005 East Vegas Valley Drive. The site property is located in the Clark County Sunrise Manor jurisdiction. The Site is bounded by Vegas Valley Drive on the north, Las Vegas Wash on the west, Desert Inn Road on the south, and industrial development on the east. This area will serve as the construction work and staging area. This area will be used for general construction activities, material storage, and other use required for construction operations, provided that such use shall not interfere with the work of the owner in the vicinity. Communications for the SPS will tie into an existing communication tie-in point on the Owner's Property to the west at the WPCF. The Owner will provide access to the WPCF

Offsite Permits

Clark County Development Services will require off-site roadway improvements along the south side of Vegas Valley Drive and on the west side Tree Line Drive adjacent to the City of Las Vegas property. The general location of these improvements is shown in the attached site plan. The Design-builder, at his/her own cost, shall perform and complete all offsite work and improvements, which may consist of streets, street name signs, traffic signs, sewers, water systems, fire hydrants, curbs, gutters, sidewalks, street lighting, driveways, drainage facilities, accesses, and survey monuments., hereinafter referred to as "offsite improvements." Offsite improvements shall be constructed in accordance with applicable ordinances, regulations, standards and specifications, and other requirements of Clark County. The Design-builder is responsible for complying with all of the Clark County Department of Development Services Offsite Improvements Agreement Requirements.

Improvement Plans

The Design-builder is responsible for preparing a set of improvement plans approved by Clark County Development Services. The improvement plans shall incorporate the following requirements as set forth in the approved drainage and traffic studies:

Drainage: The Design-builder is responsible for preparing a technical drainage study approved by Clark County Development Services. In addition, as this project is bordered by the Las Vegas Wash, this study must be approved by Clark County Regional Flood Control District. All requirements as noted in the approved study shall be implemented into the improvement plans.

Traffic requirements: The Design-builder is responsible for preparing a traffic study approved by Clark County Development Services. All requirements as noted in the approved study shall be implemented into the improvement plans.

Utilities**Offsite:**

- The Design-builder is responsible for coordinating the improvement plans with all utility agencies in the vicinity of this project. At a minimum, utility agencies shall include Southwest Gas, Las Vegas Valley Water District (LVVWD), NV Energy, Cox Communications, and Embarq. All improvement plans must be signed and approved by the utility agencies. One-call utility location services must be contacted prior to any construction activities.
- The Design-builder is responsible for designing a new commercial water service installation to include water meter and backflow prevention device per LVVWD Uniform Design and Construction Standards (UDACS). The Design-builder is responsible for any connection fees as a result of this water service. The improvement plans shall be submitted to LVVWD for approval.

Onsite:

- The Design-builder is responsible for designing general utility water service to the site with one hose bibb near the entrance gate. The Design-builder shall submit the improvement plans to LVVWD for approval.
- Southern Nevada Water Authority (SNWA) has an easement on the west side of the property. The Design-builder is responsible for coordinating all improvement plans with SNWA. The existing SNWA infrastructure within this easement includes above ground blow off assemblies.
- The Design-builder is responsible for designing provisions for communication with the existing plant supervisory control and data acquisition (SCADA) system and provisions to extend fiber optic communications along Vegas Valley Drive. The Design-builder is responsible for coordinating all construction activities with the City of Las Vegas Engineer, (John Bettencourt). There are several utilities on the WPCF site including chemical process piping, plant process piping, potable water, non-potable water, underground and overhead electrical lines, and various communication lines. The Owner will provide site drawings showing approximate horizontal locations of the various known utilities on the WPCF site. It is the Design-builder's responsibility to locate and protect in place all utilities on the WPCF site.

Geotechnical Requirements

The City has provided a site-specific geotechnical investigation for the proposed project. The Design-builder shall review available geologic and geotechnical data in this area of the project. A copy of this data is included in Appendix B.

Fire Department

The Design-builder is responsible for obtaining Clark County Fire Department approval for offsite and onsite design and construction activities.

Las Vegas Wash Trail Requirements

Design-builder shall construct a shared use path on the west side of the parcel from the southerly intersection of Desert Inn Road extending north to existing trail near Vegas Valley Drive. The shared use path will be constructed to match as built and in accordance with Clark County Uniform Standard Drawing no. 255. The Design-builder shall coordinate with Clark County for landscaping requirements.

Site Security Requirements

Design-builder shall coordinate with Owner to determine all required security requirements. Items integral to equipment provided by the Design-builder (e.g., gate controllers, loop sensors, door switches) and necessary security equipment shall be provided by the Design-builder. Security infrastructure shall be provided by the Design-builder.

Provide fencing around all exposed exterior SPS equipment including PV panels, inverters, electrical switchgear, transformers, and tracking system components (where applicable). See attached site layout drawing. The site/perimeter fencing will be 6 foot tall with 2 foot long outward facing security pickets for a total height of 8 feet. The construction materials will consist of 4" minimum width wrought iron posts with wrought iron metal work. The Design-builder is responsible for obtaining a fence permit from Clark County Development Services; this will include structural calculations as necessary.

Gates shall be electrically powered and shall have provisions to accommodate all Owner-provided access and security devices. The gates shall be set back a minimum of 50 feet. The Design-builder shall provide power and required security/access infrastructure (e.g., conduits, handholes, boxes) to all electrically operated gates. Coordinate with Owner to determine all required security infrastructure.

The pre-fabricated metal building that will house electrical equipment shall be provided with security infrastructure. This may include door switches, conduit, junction boxes, lighting, motion detectors, etc. Coordinate with Owner to determine all required security infrastructure.

Site lighting shall be provided at all gates and at all outdoor electrical gear such as transformers, switchgear, and inverters. Lighting shall be full cutoff, and shall provide light levels as recommended by the Illuminating Engineering Society of North America. No permanent lighting shall be installed at the PV arrays, and light poles shall not shade any PV modules.

General Structural Requirements

All structures and structural elements, including array structures, shall be designed in accordance with the following building codes, design standards, and loading requirements.

- Building and Design Codes – 2006 IBC and the American Society of Civil Engineers (ASCE) design standard Minimum Design Loads for Buildings and Other Structures (ASCE 7-05).
- Wind Loading
 - Wind speed (3-second gust) = 90 miles per hour (mph)

- Exposure C
- Wind Importance Factor = 1.0
- Seismic Loads
 - Occupancy Category II
 - Seismic Parameters (Mapped)
 - $S_s = 0.600$
 - $S_1 = 0.181$
 - Seismic Parameters (Design)
 - $S_{ds} = 0.528$
 - $S_{d1} = 0.250$
 - Seismic Design Category D
 - Seismic Importance Factor = 1.0
- Allowable Bearing Pressure and Geotechnical Design Parameters: Per existing geotechnical data from site specific geotechnical investigation per Section III.P.6. Geotechnical Requirements.

Reference Drawings

Attached reference drawings include the following:

- General site layout shall show allowed staging area, SPS tie-in locations, wash crossing location, perimeter roads, fencing, gates, wash trail, and other pertinent site features.
- Example SPS Schematic System Diagram showing one possible system topography for the SPS. This drawing is not intended to indicate a preferred system configuration, and the Design-builder will not be evaluated based on adherence to this example.
- Boundary and Easements Survey
- Aerial Topography

30% Design Submittal Requirements

The Design-builder shall submit a 30% Design Document for the project with proposal. This shall include as a minimum, but is not limited to, the following:

Narrative

Provide a narrative describing the SPS in detail, and indicating compliance with all requirements set forth in this document.

Drawings

General/Civil

- Applicable Legend Sheets
- Site Plan/Photovoltaic Array Layout

- Sediment & Erosion Control Plan
- Grading Plan
- Off-Site Improvements (roadways, curb and gutter, sidewalks, etc.)
- On-Site Improvements (roadways, trails, fencing, gates, yard piping, rip-rapping, etc.)
- Conceptual Design of buildings, shade structures, and foundations

Electrical

- Site Plan
- One Line Diagrams
- Plan Drawings
- Cable Block Diagrams
- Cable and Conduit Schedules
- Panelboard Schedules
- Control Diagrams
- Equipment Elevations
- Sections
- Electrical Details

Instrumentation and Control

- P&ID's
- Panel Layout Drawings
- PLC I/O Arrangement Drawings
- Communications Interface Diagrams
- Instrument Installation Details
- Instrument Loop Diagrams

Specifications

- PV modules.
- Inverters.
- Balance of system components for PV arrays such as combiner boxes, dc cable connectors, back-mounted junction boxes, and pyranometers.
- Conduit and conductors.
- Electrical and communication handholes/manholes/vaults.
- Tracking/mounting systems.
- Electrical equipment (e.g., transformers, switchgear, power monitoring equipment, panelboards).
- Fencing and gates.
- Luminaires selected for site security/area lighting.
- Security system equipment

- Communications system equipment
- Grounding system equipment
- Site surface treatment

Construction Schedule

The Design-builder shall submit a detailed CPM design and construction schedule and submittal register, showing all major project milestones, substantial completion dates, permitting schedules, testing and commissioning schedule, etc.

Calculations

The Design-builder shall submit site-specific calculations, showing expected monthly (production for each calendar month) and annual energy production of the SPS in kWh-ac per month and year.

- Using weather data from "TMY2 Data set for Las Vegas, NV" available from the National Renewable Energy Laboratory (NREL), calculate the energy production in kWh/year per kW of production capacity of the system being proposed. Energy production shall be measured at the AC service entrance and calculations shall account for all system inefficiencies (inverters, transformers, wiring, etc).
- Monthly calculations shall be performed for a period of 20 years. Panel degradation and other factors shall be factored into this calculation to show how power output will decrease over time. Provide a spreadsheet showing these calculations.
- The Design-builder shall clearly show which calculation tool (such as SAM, PVWatts, etc.) is being used. If Design-builder does not use such tools, state this, along with justification for the calculation method that is used.
- Take into account known site conditions, dust and dirt accumulation, module and wiring mismatches, conversion and other system losses, weather, and other environmental factors.
- Where an overall de-rating factor is used in calculations, list all losses that are accounted for in the de-rating factor.
- Identify and describe all assumptions used in the calculations.

Solar access/shade report: Shade analysis shall be performed with Solmetric SunEye or similar device. Results of this report shall be factored into the above production calculation. Shade analysis shall be performed at all corners of the site, and any other points where possible shading is expected.

Structural: The PV system shall be designed to resist all overturning forces and loading combinations per Chapter 16 of the 2006 IBC and structural design standard for ASCE 7-05. Complete structural calculations shall be stamped and signed by a registered professional engineer who is currently licensed in the State of Nevada.

Operation and Maintenance Costs

The Design-builder shall submit a projection of the expected annual operation and maintenance costs.

Alternative Considerations

The Design-builder shall include additional information on the SPS being proposed for consideration in evaluating the proposal. This may include information on the maximum amount of energy production that could potentially be produced on the site with the system being proposed.

Construction Phase Submittal Requirements

During the Construction Phase, the Design-builder shall submit as a minimum, but is not limited to, the following:

- As-Built Record Drawings
- Technical Submittals
- Updated Construction Schedules
- Manufacturers Operation and Maintenance Manuals
- Certificates of Manufactures Inspection of Proper Installation
- Training Materials

Permitting

The Design-builder shall be responsible for obtaining all required permits unless otherwise specifically stated. No exemptions for permits have been confirmed or should be assumed. The Design-builder shall design to code, apply for the necessary permits, and secure all required permits before proceeding. Any applicable vacations are to be recordable prior to building permit issuance or applicable map submittal.

The Owner will be responsible for ensuring business license and tax assessments are in accordance with anticipated land use associated with this project.

The Owner assumes with the use of PV technology, there will be no emissions of regulated air pollutants; no hazardous waste generation, storage, or disposal; and no additional water rights or usage will be required to be obtained for this project.

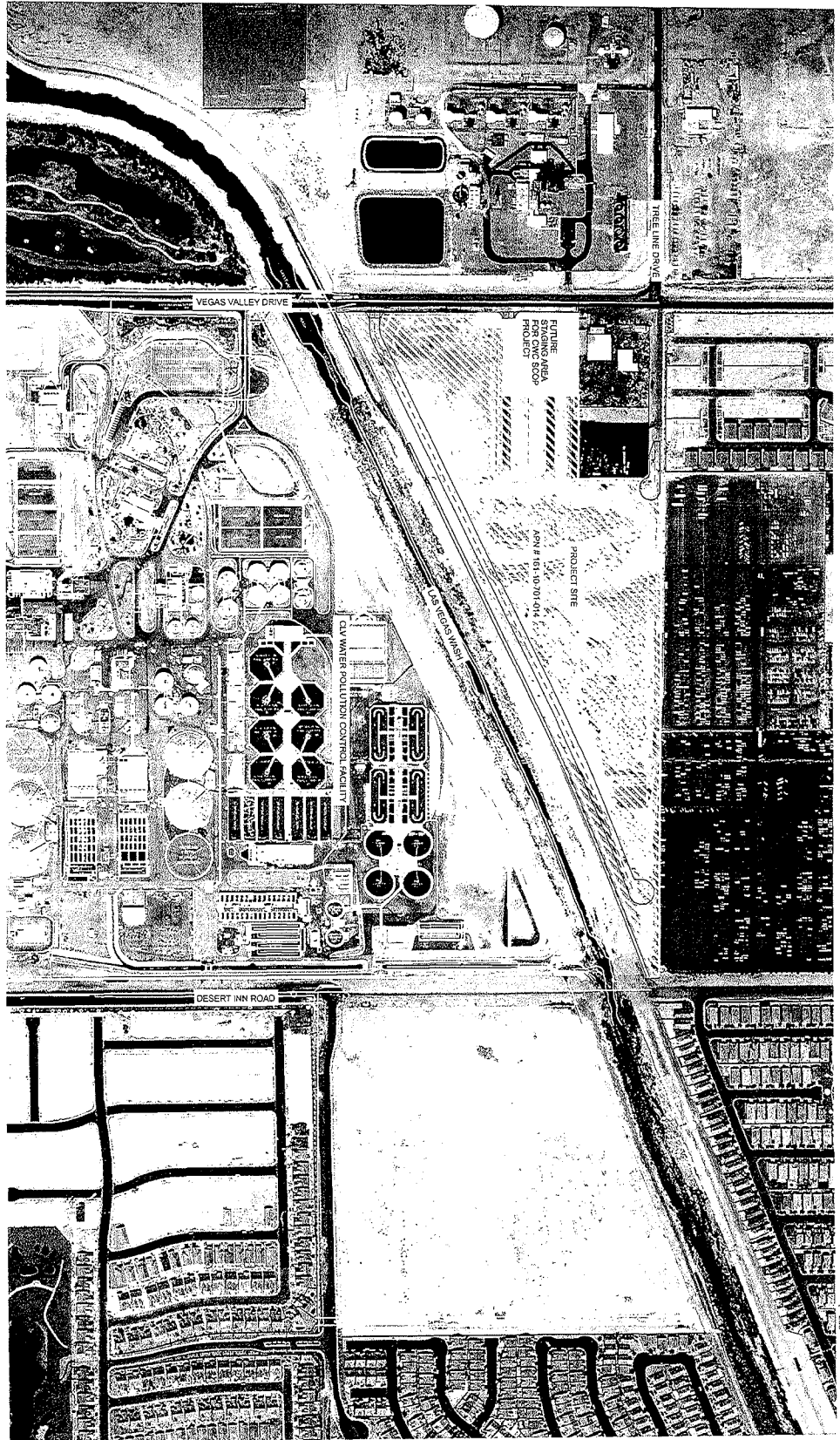
Anticipated Permits (for information only).

Regulatory Authority	Permit/Approval	Report /Permit Requirements	Comments
Federal			
U.S. Department of Defense (DOD)	Department of Defense R 2508 Complex Sustainability Office review and approval	Review the project and its potential impact on military overflights and operations.	A letter from the DOD, stating that construction and operation of the array would not adversely affect DOD operations will be sufficient to meet this requirement.

Regulatory Authority	Permit/Approval	Report /Permit Requirements	Comments
U.S. Army Corps of Engineers (USACE)	Section 404 permit: Preconstruction Notification or Individual Permit	Delineation and Permit	When affecting waters of the U.S.
Federal Energy Regulatory Commission (FERC)	Qualifying Facility/Exempt Wholesale Generator Certification	Certification required to qualify for benefits under Public Utilities Regulatory Policies Act. For small power producer (renewable) to qualify for subsidy in sales of energy to host utility.	Only if applicable.
State			
Nevada Division of Environmental Protection (NDEP) Bureau of Water Pollution Control	National Pollutant Discharge Elimination System (NPDES) Construction Activities Storm Water General Permit	Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI)	Required for land disturbance of greater than 1 acre. Permit application needs applicant information, project description, including size of area to be affected and other environmental permits associated with the project, as well as use of best management practices.
NDEP Bureau of Water Pollution Control	General Storm Water Permit for Industrial Activities	Permit requires applicant information, site location information, SWPPP, a monitoring plan, and site maps.	This is a separate SWPPP and NOI from that required for construction.
NDEP Bureau of Water Pollution Control	Groundwater Discharge Permit	Temporary Permit Narrative Description, Water Quality Analysis, Quantity of Discharge	Temporary permit needed for discharge associated with construction activities if dewatering is required. Discharge permit not expected to be needed for operation activities.
Nevada Department of Transportation (NDOT)	NDOT Super Load Permit	Required when extraordinarily large or oversized equipment traveling on state roads or unusual impacts on traffic are anticipated.	If necessary

Regulatory Authority	Permit/Approval	Report /Permit Requirements	Comments
Clark County			
Clark County Department of Development Services Current Planning Division	Title 30 Land Use Permit	Site plans, floor elevation, landscape plan (or shown on site plan), locator map, assessor's map(s), zone boundary map/legal description, deed, legal description of property, parking analysis, justification letter, preliminary traffic impact analysis	Must have approval from Clark County Planning Commission and/or Board of County Commissioners. Onsite development plan submittals are reviewed by zoning plans examination, civil engineering, and building plans examination to verify compliance with applicable codes and ordinances.
Clark County Department of Development Services	Commercial Development Permit/Building Permit	Assessor's parcel number (APN) and associated land use application numbers, copy of recorded deed, deed of trust, or escrow instructions, grading plan, lot drainage and any stormwater mitigating features, all building plans	Other agency approvals must be completed and presented to the building department prior to permit issuance.
Clark County Department of Public Works Community Development Division	Drainage Study Approval	Design Manual Standard Form 1, Design Manual Form 4, two copies of drainage plans, a notarized letter from adjacent property owners allowing offsite grading or discharge.	Site drainage associated with construction of a new facility requiring more than 2 acres within Clark County ROW.
Clark County Department of Building	Grading Permit	Drainage study submittal sheet, grading permit and application drainage study approval letter and redlines Grading and detail mylars or bond	Required for site grading and activity within the jurisdiction of Clark County.
Clark County Fire Department	Fire System Permits	Detailed plans and drawings on all fire suppression/control designs.	Each component of fire safety will require separate permit, alarms, hydrants, and extinguishers. Final inspection of construction required for final permit.
Clark County Department of Public Works Community Development Division	Encroachment Permit	Type, location, duration, of encroachment.	Needed if there is encroachment onto public roadways.

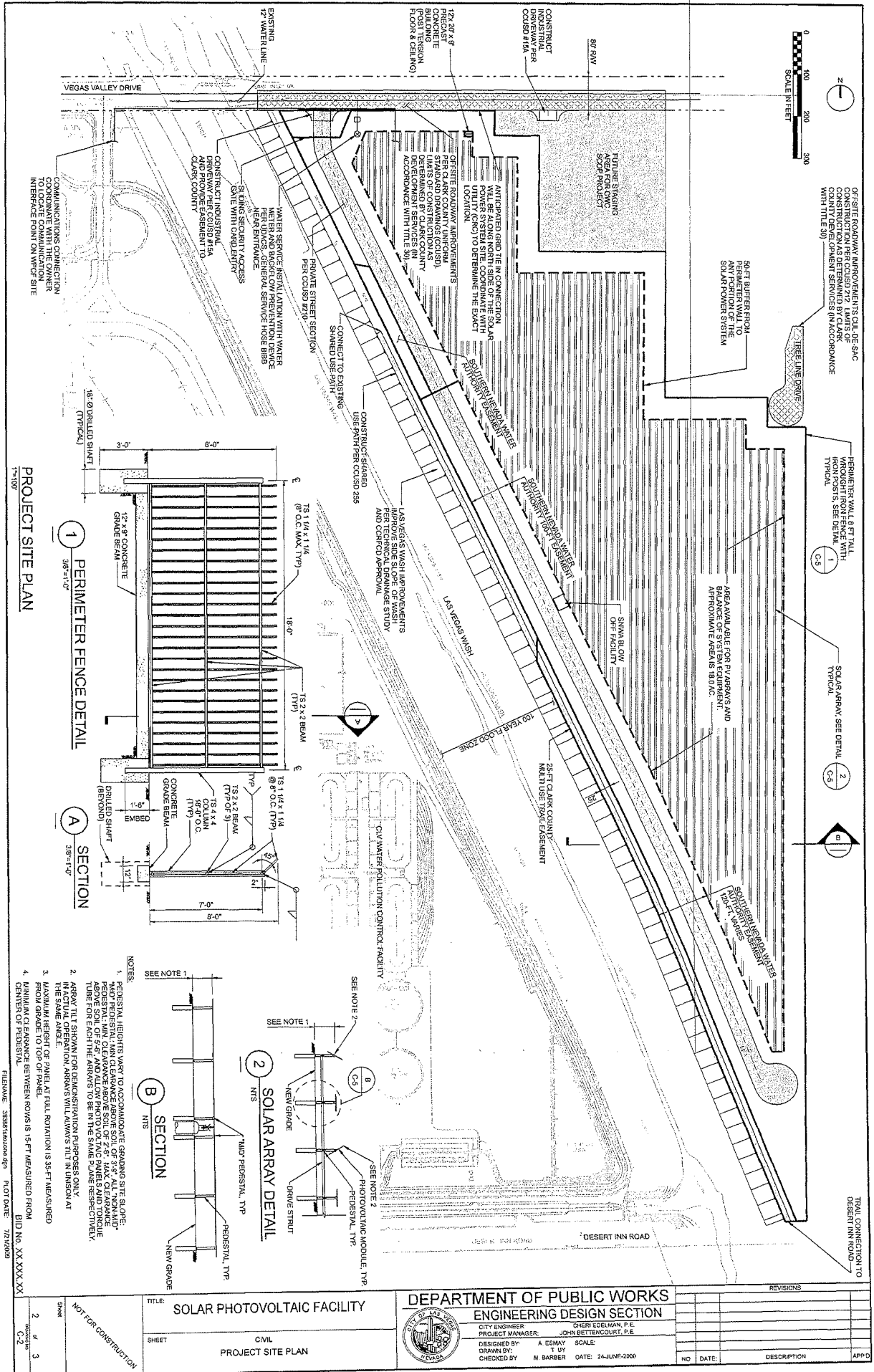
Regulatory Authority	Permit/Approval	Report /Permit Requirements	Comments
Clark County Department of Air Quality and Environmental Management	Authority to Construct/ Operating Permit Air Permit	Application identifying project potential to emit for regulated air pollutants.	Photovoltaic solar installation is not expected to produce regulated air pollutants.
Clark County Department of Air Quality and Environmental Management	Dust Permit	Required for surface disturbing activities and must include area of disturbance, duration, and types of activities.	Must be renewed every year.
Clark County Department of Public Works	Traffic Permit Special Event or Over Dimensional	Detailed description of activities.	Required for special uses on, or projects that affect the ROW or infrastructure maintained by Clark County.

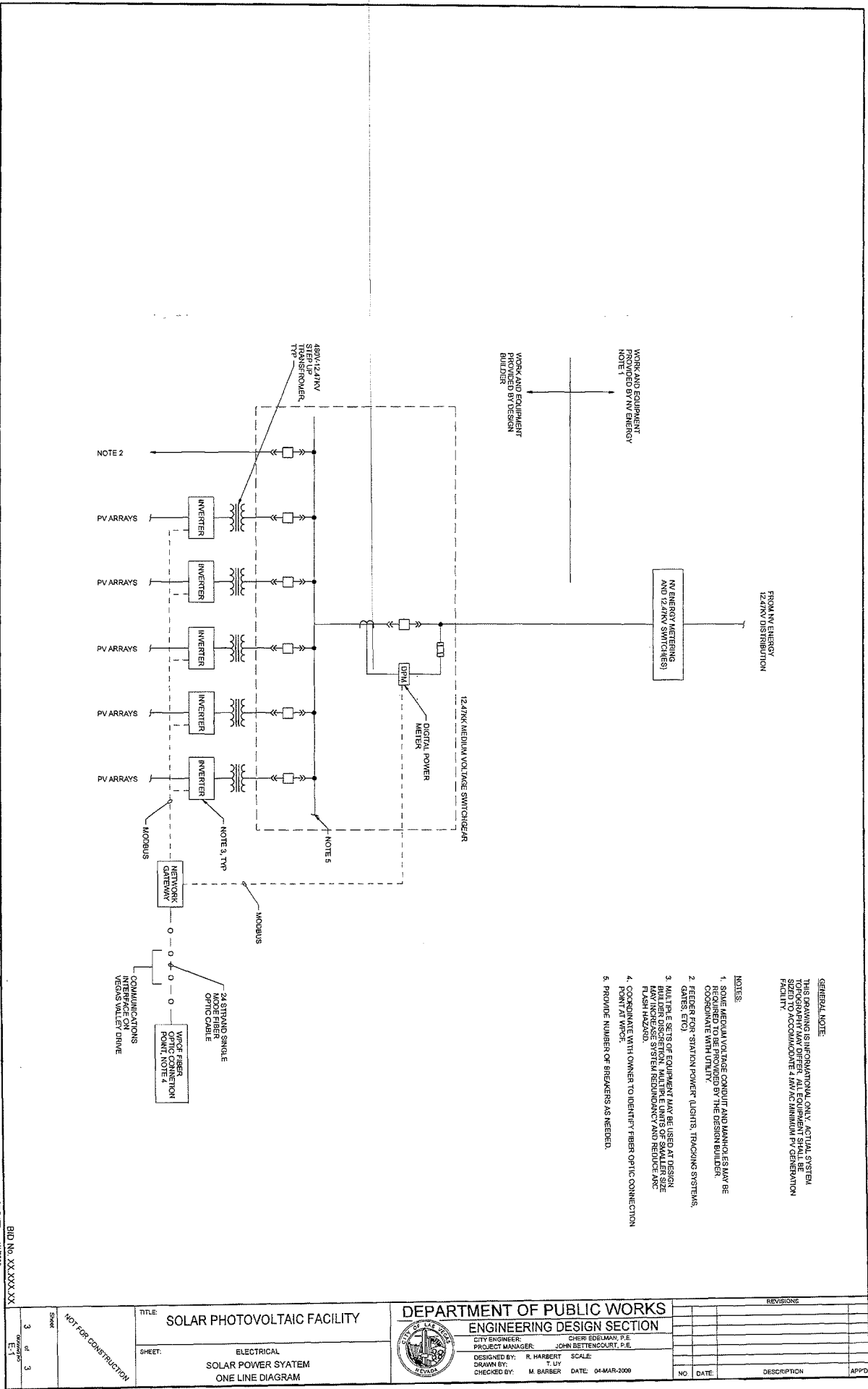


AREA MAP
1"=200'

BID NO. XXXXXX-XX
FILENAME: 3638142227.dgn PLOT DATE: 2/2/2009

TITLE: SOLAR PHOTOVOLTAIC FACILITY SHEET: CIVIL AREA MAP		DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN SECTION		REVISIONS	
NOT FOR CONSTRUCTION		CITY ENGINEER: CHERI EDELMAN, P.E. PROJECT MANAGER: JOHN BETTS-COURT, P.E. DESIGNED BY: A. ESMAY DRAWN BY: T. UY CHECKED BY: M. BARBER		SCALE: DATE: 04-MAR-2009	
1 of 3 C-1		NO. DATE DESCRIPTION APPR.			





FILENAME: 36581901.dgn

PLOT DATE: 4/17/2009

BID NO. XXXXXX.XX

3 of 3

E-1

NOT FOR CONSTRUCTION

TITLE: SOLAR PHOTOVOLTAIC FACILITY

SHEET: ELECTRICAL SOLAR POWER SYSTEM ONE LINE DIAGRAM

DEPARTMENT OF PUBLIC WORKS

ENGINEERING DESIGN SECTION

CITY ENGINEER: CHERI EDLMAN, P.E.

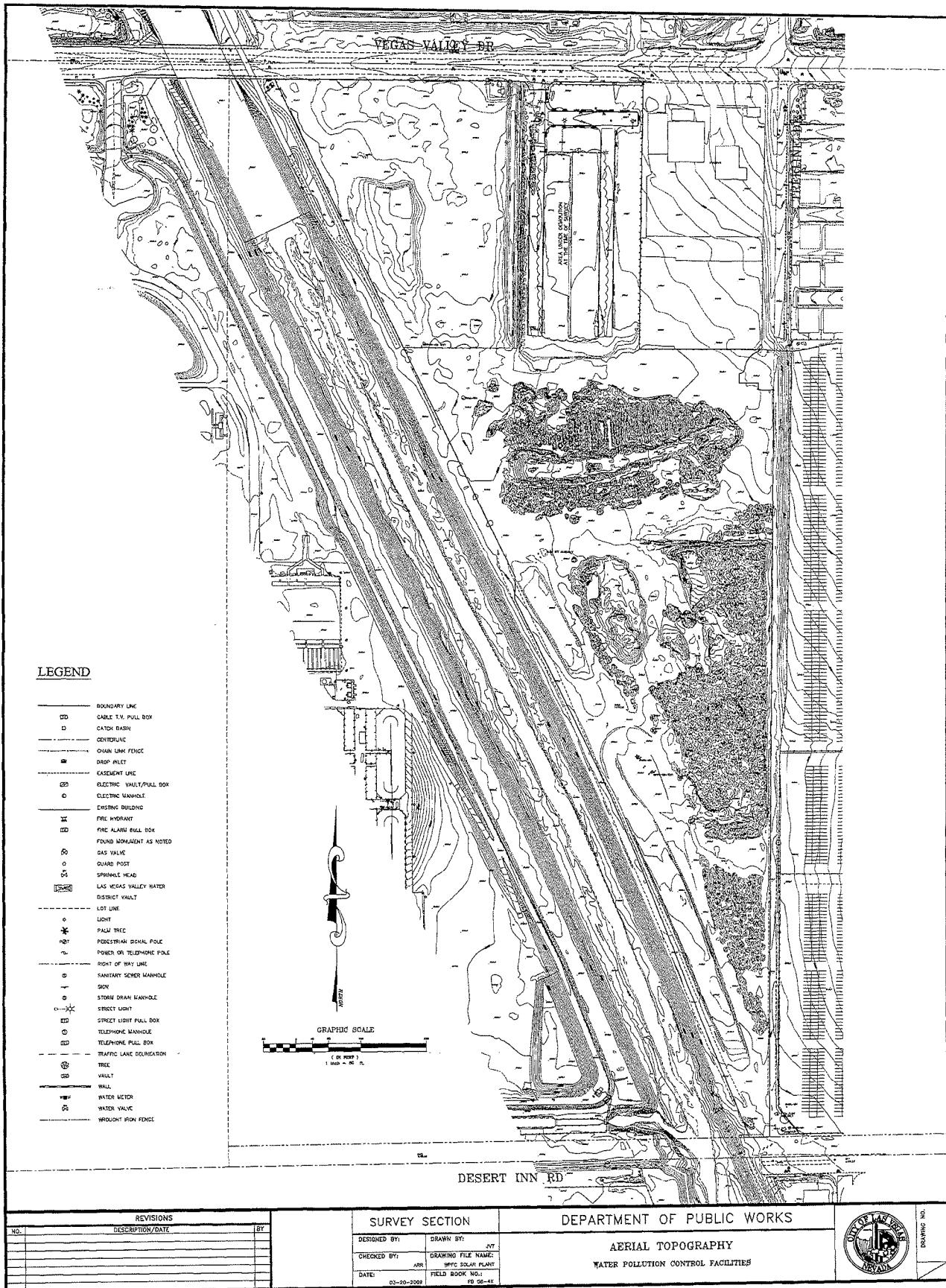
PROJECT MANAGER: JOHN BETTENCOURT, P.E.

DESIGNED BY: R. HARBERT SCALE:

DRAWN BY: T. LY

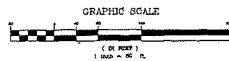
CHECKED BY: M. BARBER DATE: 04-MAR-2009

REVISIONS			
NO	DATE	DESCRIPTION	APP'D



LEGEND

---	BOUNDARY LINE
DT	CABLE T.V. PULL BOX
D	CATCH BASIN
---	CENTERLINE
---	CHAIN LINK FENCE
---	DROP PILE
---	EASEMENT LINE
ED	ELECTRIC VAULT/PULL BOX
o	ELECTRIC MANHOLE
---	EXISTING BUILDING
---	FIRE HYDRANT
ED	FIRE ALARM BELL BOX
---	FOUND MONUMENT AS NOTED
o	GAS VALVE
o	GUARD POST
o	SPRINKLE HEAD
ED	LAS VEGAS VALLEY WATER DISTRICT VAULT
---	LOT LINE
o	LIGHT
*	PALM TREE
HT	POST/STORM DRAIN POLE
HT	POWERS ON TELEPHONE POLE
---	RIGHT OF WAY LINE
o	SANITARY SINKER MANHOLE
---	SEW
o	STORM DRAIN MANHOLE
o	STREET LIGHT
ED	STREET LIGHT PULL BOX
o	TELEPHONE MANHOLE
ED	TELEPHONE PULL BOX
---	TRAFFIC LANE DELINEATION
o	TREE
ED	VAULT
---	WALL
HT	WATER METER
o	WATER VALVE
---	WROUGHT IRON FENCE

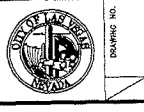


DESERT INN RD

REVISIONS		
NO.	DESCRIPTION/DATE	BY

SURVEY SECTION	
DESIGNED BY:	DRAWN BY: JYT
CHECKED BY: JNR	DRAWING FILE NAME: WPTC SOLAR PLANT
DATE: 03-30-2009	FIELD BOOK NO.: 10 06-48

DEPARTMENT OF PUBLIC WORKS	
AERIAL TOPOGRAPHY	
WATER POLLUTION CONTROL FACILITIES	



Appendix A
Small Generator Interconnection Request

COPY

Attachment 2 to SGIP

**Small Generator Interconnection Request
(Application Form)**

Transmission Provider: NV Energy

Designated Contact Person: Renee Hull

Address: 6100 Nell Road RENO, NEVADA 89511

Telephone Number: 775-834-5441

Fax: 775-834-3047

E-Mail Address: mull@nvanergy.com

An Interconnection Request is considered complete when it provides all applicable and correct information required below.

Preamble and Instructions

An Interconnection Customer who requests a Federal Energy Regulatory Commission jurisdictional interconnection must submit this Interconnection Request by hand delivery, mail, e-mail, or fax to the Transmission Provider.

Processing Fee or Deposit:

If the Interconnection Request is submitted under the Fast Track Process, the non-refundable processing fee is \$500.

If the Interconnection Request is submitted under the Study Process, whether a new submission or an Interconnection Request that did not pass the Fast Track Process, the Interconnection Customer shall submit to the Transmission Provider a deposit not to exceed \$1,000 towards the cost of the feasibility study.

Interconnection Customer Information

Legal Name of the Interconnection Customer (or, if an individual, individual's name)

Name: City of Las Vegas

Contact Person: John Bettencourt

Mailing Address: ~~400 Stewart Ave~~ 6006 E. VEGAS VALLEY DRIVE

City Las Vegas

State: NV

Zip: ~~89104~~ 89142

Small Generator Interconnection Request

Issued by: Patricia M. Franklin,
Manager, FERC/CA Regulatory

Effective: August 12, 2005
Docket No. RM02-12-000

Issued on: August 8, 2005 - Filed to comply with order of the FERC in Docket No. RM02-12-000 issued May 12, 2005, 111 FERC ¶ 61,220 (2005).

Facility Location (if different from above): 6005 Vegas Valley Dr. Las Vegas, NV

Telephone (Day): 702-229-6580 Telephone (Evening): _____

Fax: 702-431-7611 E-Mail Address: _____

Alternative Contact Information (if different from the Interconnection Customer)

Contact Name: _____

Title: _____

Address: _____

Telephone (Day): _____ Telephone (Evening): _____

Fax: _____ E-Mail Address: _____

Application is for: X New Small Generating Facility
Capacity addition to Existing Small Generating Facility

If capacity addition to existing facility, please describe: _____

Will the Small Generating Facility be used for any of the following?

Net Metering? Yes ___ No X

To Supply Power to the Interconnection Customer? Yes X No ___

To Supply Power to Others? Yes ___ No X

For installations at locations with existing electric service to which the proposed Small Generating Facility will interconnect, provide:

NV Energy

(Local Electric Service Provider*)

(Existing Account Number*)

[*To be provided by the Interconnection Customer if the local electric service provider is different from the Transmission Provider]

Contact Name: Manny Oreco

Title: Major Accounts Executive

Address: 400 Stewart Ave., Las Vegas, NV 89104

6226 WEST SAHARA AVE, LAS VEGAS NEVADA 89151-0001

Small Generator Interconnection Request

Issued by: Patricia M. Franklin,
Manager, FERC/CA Regulatory

Effective: August 12, 2005
Docket No. RM02-12-000

Issued on: August 8, 2005 - Filed to comply with order of the FERC in Docket No. RM02-12-000 issued May 12, 2005, 111 FERC ¶ 61,220 (2005).

Fax: 702-657-4316

E-Mail Address: morocco@nvenergy.com

Requested Point of Interconnection: Winterwood Substation Feeder (Breaker 124) JWS 8-20-09

Interconnection Customer's Requested In-Service Date: Dec. 31, 2010

Small Generating Facility Information

Data apply only to the Small Generating Facility, not the Interconnection Facilities.

Energy Source:

☐ Solar ☐ Wind ☐ Hydro Hydro Type (e.g. Run-of-River): _____
☐ Diesel ☐ Natural Gas ☐ Fuel Oil ☐ Other (state type): _____

Prime Mover: ☐ Fuel Cell ☐ Recip Engine ☐ Gas Turb ☐ Steam Turb
☐ Microturbine ☐ PV ☐ Other

Type of Generator: ☐ Synchronous ☐ Induction ☐ Inverter

Generator Nameplate Rating: 5000 kW (Typical) JWS 8-20-09

Generator Nameplate kVAR: 4000 5000 JWS 8-20-09

Interconnection Customer or Customer-Site Load: N/A kW (if none, so state)

Typical Reactive Load (if known): N/A

Maximum Physical Export Capability Requested: 0 kW

List components of the Small Generating Facility equipment package that are currently certified:

Equipment Type	Certifying Entity
1. PV Modules	UL
2. Inverter (DC to AC)	UL
3. Transformers	UL
4. Switchgear (Low & Med Voltage)	UL
5. _____	_____

Is the prime mover compatible with the certified protective relay package? ☒ Yes
☐ No

Generator (or solar collector)

Manufacturer, Model Name & Number: TBD

Version Number: _____

Nameplate Output Power Rating in kW:

(Summer) 5000 4000

(Winter) 5000 4000

Nameplate Output Power Rating in kVA:

(Summer) 4000 5000

(Winter) 4000 5000 JWS 8-20-09

Small Generator Interconnection Request

Issued by: Patricia M. Franklin,
Manager, FERC/CA Regulatory

Effective: August 12, 2005
Docket No. RM02-12-000

Issued on: August 8, 2005 - Filed to comply with order of the FERC in Docket No. RM02-12-000 issued May 12, 2005, 111 FERC ¶ 61,220 (2005).

Individual Generator Power Factor 0.9 Minimum (Exact PF TBD)

Rated Power Factor: Leading: _____ Lagging: _____

Total Number of Generators in wind farm to be interconnected pursuant to this ^{N/A}

Interconnection Request: _____ Elevation: _____
_____ Single phase
_____ Three phase

Inverter Manufacturer, Model Name & Number (if used): Satcon PowerGate 500 KW 480V (Qty 8)

List of adjustable set points for the protective equipment or software: TBD

Note: A completed Power Systems Load Flow data sheet must be supplied with the Interconnection Request.

Small Generating Facility Characteristic Data (for inverter-based machines)

Max design fault contribution current: 280 Amps (At 12.47 KV)
Instantaneous _____ or RMS? _____

Harmonics Characteristics: THD < 3%

Start-up requirements: Per Inverter Requirements

Small Generating Facility Characteristic Data (for rotating machines)

RPM Frequency: _____
(*) Neutral Grounding Resistor (If Applicable): _____

N/A

Synchronous Generators:

Direct Axis Synchronous Reactance, X_d : _____ P.U.
Direct Axis Transient Reactance, X'_d : _____ P.U.
Direct Axis Subtransient Reactance, X''_d : _____ P.U.
Negative Sequence Reactance, X_2 : _____ P.U.
Zero Sequence Reactance, X_0 : _____ P.U.
KVA Base: _____
Field Volts: _____
Field Amperes: _____

Induction Generators:

Motoring Power (kW): _____
 $I_2^2 t$ or K (Heating Time Constant): _____
Rotor Resistance, R_r : _____

Small Generator Interconnection Request

Issued by: Patricia M. Franklin,
Manager, FERC/CA Regulatory

Effective: August 12, 2005

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N/A

Stator Resistance, Rs: _____
Stator Reactance, Xs: _____
Rotor Reactance, Xr: _____
Magnetizing Reactance, Xm: _____
Short Circuit Reactance, Xd'': _____
Exciting Current: _____
Temperature Rise: _____
Frame Size: _____
Design Letter: _____
Reactive Power Required In Vars (No Load): _____
Reactive Power Required In Vars (Full Load): _____
Total Rotating Inertia, H: _____ Per Unit on kVA Base

Note: Please contact the Transmission Provider prior to submitting the Interconnection Request to determine if the specified information above is required.

Excitation and Governor System Data for Synchronous Generators Only

Provide appropriate IEEE model block diagram of excitation system, governor system and power system stabilizer (PSS) in accordance with the regional reliability council criteria. A PSS may be determined to be required by applicable studies. A copy of the manufacturer's block diagram may not be substituted.

Interconnection Facilities Information

Will a transformer be used between the generator and the point of common coupling? ☒ Yes
_____ No.

Will the transformer be provided by the Interconnection Customer? ☒ Yes _____ No

Transformer Data (If Applicable, for Interconnection Customer-Owned Transformer):

Is the transformer: _____ single phase ☒ three phase? Size: 500 kVA
Transformer Impedance: _____ % on _____ kVA Base

If Three Phase:

Transformer Primary: 480 Volts _____ Delta _____ Wye ☒ Wye Grounded
Transformer Secondary: 12470 Volts ☒ Delta _____ Wye _____ Wye Grounded
Transformer Tertiary: _____ Volts _____ Delta _____ Wye _____ Wye Grounded

Transformer Fuse Data (If Applicable, for Interconnection Customer-Owned Fuse):

(Attach copy of fuse manufacturer's Minimum Melt and Total Clearing Time-Current Curves)

(See Attached)

Small Generator Interconnection Request

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Manufacturer: Square D Type: Dry Size: 500 KVA Speed: _____

Interconnecting Circuit Breaker (if applicable): (TBD)

Manufacturer: _____ Type: _____

Load Rating (Amps): _____ Interrupting Rating (Amps): _____

Trip Speed (Cycles): _____

Interconnection Protective Relays (If Applicable): (TBD)

If Microprocessor-Controlled:

List of Functions and Adjustable Setpoints for the protective equipment or software:

Setpoint Function	Minimum	Maximum
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

If Discrete Components:

(Enclose Copy of any Proposed Time-Overcurrent Coordination Curves)

Manufacturer: _____ Type: _____ Style/Catalog No.: _____

Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____

Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____

Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____

Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____

Proposed Setting: _____

Small Generator Interconnection Request

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(TBD)
Current Transformer Data (If Applicable):
(Enclose Copy of Manufacturer's Excitation and Ratio Correction Curves)

Manufacturer: _____
Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____

Manufacturer: _____
Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____

Potential Transformer Data (If Applicable): (TBD)

Manufacturer: _____
Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____

Manufacturer: _____
Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____

General Information

Enclose copy of site electrical one-line diagram showing the configuration of all Small Generating Facility equipment, current and potential circuits, and protection and control schemes. This one-line diagram must be signed and stamped by a licensed Professional Engineer if the Small Generating Facility is larger than 50 kW. Is One-Line Diagram Enclosed?
☒ Yes ☐ No

Enclose copy of any site documentation that indicates the precise physical location of the proposed Small Generating Facility (e.g., USGS topographic map or other diagram or documentation).

Proposed location of protective interface equipment on property (include address if different from the Interconnection Customer's address)

6291 E. VEGAS VALLEY DRIVE, LV NV 89142

APN: 161-10-701001 & 161-10-701-014

Enclose copy of any site documentation that describes and details the operation of the protection and control schemes. Is Available Documentation Enclosed? ☐ Yes ☒ No To Be Determined

Enclose copies of schematic drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits (if applicable).

Are Schematic Drawings Enclosed? ☐ Yes ☒ No

To Be Determined

Small Generator Interconnection Request

Issued by: Patricia M. Franklin,
Manager, FERC/CA Regulatory

Effective: August 12, 2005

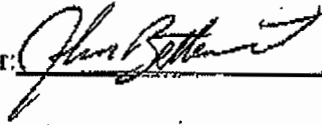
Docket No. RM02-12-000

Issued on: August 8, 2005 - Filed to comply with order of the FERC in Docket No. RM02-12-000 issued May 12, 2005, 111 FERC ¶61,220 (2005).

Applicant Signature

I hereby certify that, to the best of my knowledge, all the information provided in this
Interconnection Request is true and correct.

For Interconnection Customer:



Date:

7-20-07

Small Generator Interconnection Request

Issued by: Patricia M. Franklin,
Manager, FERC/CA Regulatory

Effective:

August 12, 2005

Docket No.

RM02-12-000

Issued on: August 8, 2005 - Filed to comply with order of the FERC in Docket No. RM02-12-000 issued May 12,
2005, 111 FERC ¶ 61,220 (2005).

Appendix B

Geotechnical Investigation

**PRELIMINARY GEOTECHNICAL EVALUATION REPORT
CLV- WPCF SOLAR PHOTOVOLTAIC PROJECT
LOCATED NEAR THE SOUTHWEST CORNER OF
VEGAS VALLEY DRIVE AND TREE LINE DRIVE
CLARK COUNTY, NEVADA**

**Project No. 20092529E1
July 14, 2009**

Prepared for:
CH2M Hill
2285 Corporate Circle Drive, Suite 200
Henderson, Nevada 89074

Prepared by:
Geotechnical & Environmental Services, Inc.
7150 Placid Street
Las Vegas, Nevada 89119



July 14, 2009
Project No. 20092529E1

Mr. Bruce A. Johnson, P.E.
CH2M HILL
2285 Corporate Circle Drive, Suite 200
Henderson, Nevada 89074

RE: Geotechnical Evaluation Report, City of Las Vegas- Water Pollution Control Facility Solar Photovoltaic Project, Located Near the Southwest Corner of Vegas Valley Drive and Tree Line Drive, Clark County, Nevada

PROVIDING

- Geotechnical Engineering
- Construction Materials Engineering
- Environmental Engineering
- Drilling Services

Dear Mr. Johnson:

Geotechnical & Environmental Services, Inc. (GES) is pleased to present the Geotechnical Evaluation report for the proposed City of Las Vegas-Water Pollution Control Facility (WPCF) Solar Photovoltaic project located in Clark County, Nevada.

The Geotechnical Evaluation report includes the findings of the geologic review, the results of the field exploration including evaluation of existing uncontrolled fill and laboratory testing programs, and recommendations for site development.

We appreciate this opportunity to provide our professional services. If you have any questions or comments regarding this information, please feel free to contact our office.

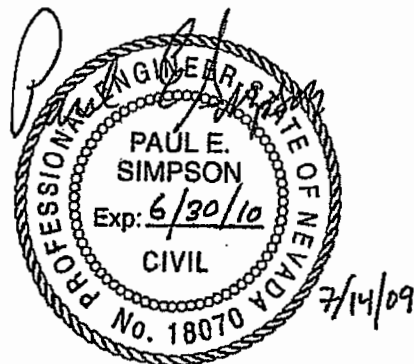
Sincerely,

Geotechnical & Environmental Services, Inc.

CH. Satish Kumar
Satish Chellaboina, E. I.
Engineering Intern

SC:PES: vm

Dist: 5 originals delivered to addressee
1 copy e-mailed to addressee at Bruce.Johnson1@ch2m.com
1 cc to Project File



Paul E. Simpson, P.E.
Project Engineer

"We Make the Ground Work for You..."

7150 Placid Street Las Vegas, NV 89119
(702) 365-1001 • Fax (702) 341-7120
www.gesnevada.com

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**PRELIMINARY GEOTECHNICAL EVALUATION REPORT
CLV- WPCF SOLAR PHOTOVOLTAIC PROJECT
LOCATED NEAR THE SOUTHWEST CORNER OF
VEGAS VALLEY DRIVE AND TREE LINE DRIVE
CLARK COUNTY, NEVADA**

1. INTRODUCTION

This report presents the results of a preliminary geotechnical evaluation performed by Geotechnical & Environmental Services, Inc. (GES) and preliminary recommendations for the proposed City of Las Vegas (CLV)–Water Pollution Control Facility (WPCF) Solar Photovoltaic project located near the southwest corner of Vegas Valley Drive and Tree Line Drive East of the Las Vegas wash channel in Clark County, Nevada. Figure A-1 presents a vicinity map showing the approximate location of the project site within the Las Vegas Valley. This report includes the findings of boring explorations and test pits, results of laboratory tests of borings, test pits, conclusions regarding the subsurface conditions at the site and uncontrolled fill piles, and preliminary geotechnical recommendations for design and construction of the project.

1.1. PURPOSE AND SCOPE

The purposes of our geotechnical study were to evaluate the subsurface and uncontrolled fill piles at the site and to provide preliminary design and construction recommendations for the intended redevelopment of the site. The information and recommendations presented in this report are preliminary and are presented for a design-build contractor to bid on the project. At the time of this geotechnical study the location and type of structures to be built on the site are not known. The design-build contractor may have to perform an additional study once final site layout and grades, structural loads, structure locations, and foundation types are known. The scope of this study included a review of referenced geologic literature and maps, a subsurface exploration, soil sampling, laboratory testing of selected soil samples, preliminary engineering evaluations and preparation of this report. In this regard, we have provided information and preliminary recommendations concerning:

- Geology and seismicity
- Seismic Site Class
- Subsurface materials and conditions
- Site earthwork, including, material volume changes, and structural fill and import fill criteria
- Pavement sections for dedicated on-site and non-dedicated off-site asphaltic concrete pavements
- Engineering parameters for the on-site soils to develop design parameters including:
 - Allowable bearing pressure for spread footings and minimum foundation depths and widths

- Estimated total and differential settlements of spread footing foundations
- Coefficient of friction for foundations
- Concrete mix design criteria

1.2. PROJECT DESCRIPTION

Our understanding of this project is based upon information received from the client, including the City of Las Vegas request for proposal, an aerial topography and conceptual plan, a preliminary civil plan, a site reconnaissance with the CH2M personnel, and our experience with similar projects. It is our understanding that the project is design-build and final grades and structure locations are not known at this time. An additional study may have to be performed by the design-build contractor based on the final project design.

Based on the provided documents, we understand that the proposed project will consist of the construction of a 3 to 4 megawatt solar power system. The solar panel system will include the installation of solar panel arrays with associated guidance systems supported by isolated pedestal or on-grade foundations with relatively light loads. In addition, we understand that the project will include grading of the subject site; construction of off-site improvements, an access road along the west boundary of the site, and a trail along the east side of the Las Vegas Wash; installation of a security fence around the subject site; and construction of a small building to house electrical equipment. The electrical equipment building is expected to be a single-story lightly loaded structure supported on spread footings with a slab-on-grade floor. We assume that loads on continuous spread footings supporting single-story structures at the site will not exceed 3 kips per lineal foot. The site design grades are not known at this time.

We understand that the off-site improvements will include the full widening including curbs, gutters, sidewalks and streetlights for about 500 linear feet along the south side of Vegas Valley Drive east of the Las Vegas Wash crossing and about 200 linear feet at the end of Tree Line Drive south of Vegas Valley Drive. Per the Boundary & Easements survey provided, we understand that Vegas Valley Drive is an 80 foot right-of-way (major collector) and Tree Line Drive is a 60-foot right-of-way (minor collector). We assume that Traffic Indices of 8.5 and 6.5 may be used to adequately represent traffic volumes for Vegas Valley Drive and Tree Line Drive, respectively. We assume that a Traffic Index value of 5.5 may be used to adequately represent traffic volumes for the proposed asphalt paved trail and on-site asphalt paved access road.

1.3. SITE DESCRIPTION

Based on review of provided information and observations during a site reconnaissance and a subsurface site investigation, the project area is bordered on the north and south by Vegas Valley Drive and Desert Inn Road, respectively, with residential properties beyond, on the east by Tree Line Drive alignment and commercial developments, with residential properties beyond, and on the west by the existing Las Vegas Wash, with the City of Las Vegas Water Pollution Control facility beyond.

The subject site is located on approximately 29 acres of undeveloped land located south of Vegas Valley Drive between the Las Vegas Wash and the alignment of Tree Line Drive. The majority of the southern 2/3 of the site has been used as a spoils dump area for soils and debris, likely from nearby construction projects. Many of the piles are contiguous from end-dump trucks, except one large pile of imported reddish-brown cobbles located within the southern portion of the site parallel to the Las Vegas Wash. Within the piles are scattered large caliche boulders, large pieces of crushed asphalt pavement and waste concrete, plastic wire insulation, and various landscape debris. The spoils vary in soil type from boulders and cobbles to poorly graded gravels to clays and silts. The actual depths and lateral extent of the fill piles are unknown, but it is likely that spread fill exists across the site and beneath the spoils piles to depths of at least a few feet to several feet.

Within the central portion of the northern half of the site, a partially constructed subdivision exists that contains the remains of dedicated improvements including asphalt roadways and concrete curbs and gutters. Some demolition of asphalt pavements had already been performed prior to our site visit. Although no structures were observed above the existing ground surface, it is likely that underground utilities exist beneath the asphalt pavements and previously graded building pads. Up to 9 feet of fill was observed in the area underlying the demolished asphalt pavement, without engineering documentation this fill is considered uncontrolled. Several CMU retaining and block fence walls have been constructed along the north and west sides of this development to heights of about 6 feet.

Along the western boundary line of the site, the SNWA East Valley lateral underground water transmission line is present as indicated at the ground surface by concrete markers or vaults. The water transmission line is located within a 100-foot wide easement extending the full length of the site from south to north. A multi-use trail easement is also located parallel to the Las Vegas Wash just west of the SNWA East Valley Lateral easement. A weathered steel pedestrian bridge

crosses Vegas Valley Drive near the northwest corner of the site, which drops down to an existing asphalt paved trail that extends approximately 700 feet south from Vegas Valley Drive. Overhead telephone lines are present adjacent to the northern boundary of the site along Vegas Valley Drive. Chain link fence is present along the northern boundary of the site adjacent to Vegas Valley Drive and along the trail extending approximately 700 feet south from Vegas Valley Drive. Vegetation at the subject site consists primarily of native desert plants. The project site generally slopes downward towards the southwest.

1.4. FIELD EXPLORATION

GES evaluated the subsurface conditions on June 3, 2009, by drilling five borings (B-1 through B-5) at the site to depths of approximately 11.5 feet each below the existing ground. The total footage drilled was approximately 57 lineal feet. GES also evaluated the subsurface conditions on June 4, 2009, by excavating five exploratory test pits (TP-1 through TP-5) to maximum depths of approximately 10 feet below the existing ground surface. Figure A-2 presents a site plan showing the approximate exploration locations.

A GES representative directed and supervised the subsurface explorations and exploratory test pits, maintaining detailed logs of the subsurface conditions, classifying the soils encountered, and obtaining relatively undisturbed and bulk soil samples. The soils encountered were classified in general accordance with the Unified Soil Classification System (USCS). A Key to Symbols and Terms utilized on the exploration logs is presented on Figure A-3. The exploration logs are presented in Appendix A.

The borings were drilled with a Diedrich D-50 track-mounted drill rig using 7-inch nominal outside diameter hollow stem augers. Relatively undisturbed soil samples and penetration blow counts were obtained with a 3-inch outside diameter ring-lined drive sampler in general accordance with ASTM D 3550. The sampler was driven with a 140-pound automatic trip hammer falling about 30 inches. Pocket penetrometer tests were also performed in the field on selected clayey specimens as an indication of soil consistency. The results of these pocket penetrometer tests are shown on the boring logs at their respective sampling depth. The penetration resistance (hammer blows) measured by driving the sampler was used to evaluate the density and consistency of the in-place soil. Bulk samples were also obtained at selected intervals. The boreholes were then backfilled with soil cuttings. The test pits were excavated with a Case tire-mounted back-hoe using 24-inch nominal width bucket. Bulk samples were obtained from the excavated spoils for each material type encountered. The excavations were then backfilled with spoils.

In addition GES obtained samples from the existing uncontrolled fill piles from five locations, C-1 through C-5, at the site. The materials obtained from each sample location were blended so that the resulting samples were a composite of the materials obtained at each location. The results of the laboratory testing and conclusions developed regarding the suitability of the fill soils to be used as structural fill beneath improvements are presented in Appendix C of the report.

1.5. LABORATORY TESTING

The laboratory testing program consisted of tests to classify the on-site, subsurface soils and to evaluate engineering and physical properties. The tests performed and a summary of the results are tabulated below:

Table 1.5.-1 Laboratory Test Summary

Type of Test		Range of Results
In-Place Dry Density		89.9 to 120.1 pcf
In-Place Moisture Content		2.4 to 23.3 percent
Liquid Limit		NV to 29
Plasticity Index		NP to 13
Maximum Dry Density		123.0 to 134.0
Optimum Moisture		8.0 to 12.0
R-Value		4 and 39
In-Place Swell Potential (Section 1802.3.3 of the SNBCA)		1 to 4 percent
Remolded Swell Potential (Section 1802.3.3 of the SNBCA)		5 to 17 percent
Expansion Potential (ASTM D 9999)		-1 to 0 percent
Hydro-Collapse Potential		1 to 5 percent
Chemical Testing	pH	8.26 to 8.69
	Red-Ox	588 to 630
	Sulfate	0.47 and 1.28 percent
	Sulfide	Nil
	Total Salts	1.16 to 2.21 percent
	Chloride	0.00 to 0.13 percent
	Solubility	1.16 to 2.21 percent

The test results are presented in Appendix A on the boring logs and on test reports presented on Appendix B. Detailed descriptions of the laboratory tests performed are also presented in Appendix B.

2. DISCUSSION

The following sections describe the geology and seismicity at the site and the encountered subsurface materials and conditions.

2.1. GEOLOGY AND SEISMICITY

The geology of the Las Vegas Valley is characterized by a deep sequence of alluvial deposits that are believed to have been deposited beginning in the Miocene epoch. The subject site is located on the referenced Geologic Map of the Las Vegas NE Quadrangle, Clark County, Nevada predominantly within an area mapped as active alluvium (Qa) comprised of sand to pebble and cobble gravel occurring as thin veneers mostly unconsolidated, but locally cemented by caliche. The southern portion of the subject site is also underlain by well dissected alluvial fan deposits (Qf₂) comprised of pebble-cobble gravel interlayered with sand with slightly to well consolidated cemented layers. Based on review of the Clark County Soil Guidelines map, the site is located within a previously mapped special geotechnical consideration area consisting of potential drainage areas or recent sediment deposits that may contain areas of solubility, clay swell, corrosion, gypsum salt, expansive or hydro-collapsible potential. Based on our review of the Clark County Expansive Soil Guidelines Map, the majority of the site is located within a previously mapped special geotechnical consideration area for moderate (4 to 8 percent) expansion potential.

Based on the referenced Geologic Map of the Las Vegas NE Quadrangle, there are no known mapped concealed, inferred and known fault lineaments crossing or within the close proximity of the subject site. Based on a review of referenced geologic maps and literature the nearest mapped Quaternary age tectonic faults are the Eglington fault and Frenchman Mountain fault, located approximately 12 miles northwest and 1.5 miles east of the site, respectively, although there is a debate among local geologists that the Eglington fault is Holocene in age. The nearest mapped Holocene active fault (i.e., a fault that has moved within the last 10,000 years) is the Black Hills Fault, located approximately 14 miles south of the site (USGS). The nearest mapped fissure zone is located approximately 5 miles southwest of the site (dePolo and Bell, 2000). Based on the results of our review of available literature, it is our opinion that the potential for fault-related surface rupture at the site is negligible.

2.2. SUBSURFACE MATERIALS AND CONDITIONS

The following sections describe the fill and native soils and groundwater encountered in the borings and test pits. The exploration logs in Appendix B present detailed information regarding subsurface materials and conditions.

2.2.1. FILL

A 4-inch thick layer of crushed asphaltic concrete layer was encountered at the surface of the exploratory test pit TP-4. Fill soils were encountered in the borings and test pits performed as part

of this study to depths of up to 9 feet in the explored borings B-1 through B-5, and test pits TP-1 through TP-5. The fill consists of dry to moist, poorly graded gravel with sand and silt, silty sand with gravel, poorly graded sand with silt and gravel, and clayey sand. Based on our observations at the site and previously explained that the subject site was being used as spoils dump area, fill soils should also be anticipated to be encountered at other locations within the subject site.

The existing fill soils at the site should be considered uncontrolled unless documentation is provided to indicate that such fill soils were placed under the supervision of a Geotechnical Engineer. The term uncontrolled fill soils refers to man-made fill which was placed without engineering observation, testing, or documentation. The existing uncontrolled fill at the site is unsuitable in its present condition for the support of the proposed improvements, and other planned improvements, and should be overexcavated and processed for subsequent use as structural fill should it meet the recommendations set forth in this report, or alternatively hauled off the site.

2.2.2. NATIVE SOIL

In general, the native subsurface soils encountered in borings B-1 through B-5 consisted mostly of layers of moist, loose to medium dense silty sand, silty gravel, clayey sand and gravel, and stiff to very stiff lean clay, sandy lean clay, and lean clay with sand with varying amounts of sand and gravel. Moist and loose clayey gravel with sand was encountered in boring B-3 at a depth of approximately 6.5 feet and moist and dense silty gravel with sand was encountered in boring B-5 at a depth of approximately 3.5 feet below the surface. The native subsurface soils encountered in test pits, TP-1 through TP-5, generally consisted of moist clayey sand, silty sand, and silty sand with gravel and moist lean clay and sandy lean clay. Slightly to moderately gypsiferous native soils were observed in borings B-1 and B-5 and test pits TP-2, TP-3 and TP-5.

Although not encountered in our borings and test pits, moderately to strongly cemented, hard and difficult to excavate soils could be encountered at locations beyond or between our boring locations. Moderately cemented soil refers to rock-like soil that will crumble or break with considerable finger pressure and typically is not anticipated to cause excavation difficulties for heavy duty excavation equipment. Strongly cemented soil refers to rock-like soil that will not crumble or break at any finger pressure and typically requires heavy duty equipment to excavate. In general, heavy-duty backhoe, ripper, hoe-ram, headache ball, rock-saw or similar rock excavation techniques are typically needed to excavate strongly cemented rock-like

material. The contractor should perform the independent investigations necessary to determine the type of equipment required to perform the work.

The near-surface soils generally exhibit a low to medium plasticity, and a low to critical swell potential. Based on the density of the soils encountered, the amounts of fine-grained materials present at the site, and the result of laboratory testing the site soils are anticipated to have a low to moderate hydro-collapse potential. Based on the results of the chemical tests, the on-site soils contain a severe concentration of water soluble sulfates and should be considered to have a severe concrete sulfate attack potential as defined in Table 4.3.1 of American Concrete Institute (ACI) Publication 318 per Section 1904.3 of the 2006 IBC. The on-site soils may be considered as a slightly soluble. For the purposes of this study, slightly soluble refers to soil with less than 2.50 percent by dry weight soluble solids as determined by American Water Works Association (AWWA) standard test method 2540 C. The results of the suite of chemical tests are presented in Appendix B.

2.2.3. GROUNDWATER

Groundwater was not encountered in the explored borings and test pits at the site. However, due to the proximity of the existing Las Vegas Wash at the western boundary of the site, groundwater level might be shallow at the western boundary of the site. Groundwater levels should be anticipated to fluctuate due to seasonal precipitation changes, groundwater withdrawal and recharge, and irrigation practices. A detailed evaluation of possible groundwater fluctuations is beyond the scope of this investigation.

3. CONCLUSIONS

Based on the results of our field exploration and laboratory testing programs, it is our opinion that there are no known geologic or geotechnical conditions that would prevent development of the site. It is also our opinion that there are some geotechnical considerations that will affect site development, including the presence of collapsible soils, uncontrolled fill, and scattered fill piles, as described below.

- Based on the results of laboratory tests performed on soils obtained from our explorations, the tested subsurface soils have a low to critical swell potential (greater than 12 percent) as measured by Section 1802.3.3 of the Southern Nevada Amendments to the 2006 International Building Code.
- The subsurface on-site soils have a low to moderate hydro-collapse potential.

- The tested on-site soils have up to a severe concrete sulfate exposure and a low chemical-induced heave potential as determined by AWWA Standard Test Methods 3500-Na D and 4500 E.
- Groundwater was not encountered in borings located adjacent to the existing wash. Groundwater conditions might be anticipated in this area if excavations are planned in these areas.
- Previously demolished structure including crushed asphaltic concrete pavement and buried block wall was located in the central portion of the northern half of the site. Remnants of this building may be present below the ground surface and are unsuitable as structural fill or for support of proposed improvements. Due to the age of development at the site, remnants from additional improvements including underground improvements could be present at the site.
- Debris including buried wire and underlying organic-rich soils should be removed from proposed structural improvement areas. Debris and other vegetation will not be suitable for placement as structural at the site.
- Based on our understanding of the project and the results of our laboratory tests performed on the site soils, it is our opinion that soil materials at the site classify as category 4c soils based on Table 1704.7 of the Southern Nevada Amendments to the 2006 International Building Code.
- Fill soils, consisting of about 4 inches of crushed asphalt concrete pavement and up to about 9 feet of poorly graded gravel with sand and silt, silty sand with gravel, poorly graded sand with silt and gravel, and clayey sand, were penetrated in the borings and test pits. These materials should be considered uncontrolled fill unless documentation of their placement and compaction is provided. Based upon the presence of demolished structures and spoils dump piles across the site, areas of uncontrolled fill between and beyond our explored locations at the site will be present. The term uncontrolled fill refers to man-made fill which was placed without engineering observation, testing, or documentation. The uncontrolled fill should be considered unsuitable in its present condition and should be overexcavated from improvement areas and replaced with properly processed and compacted structural fill.
- Based on the consistency of the soils encountered in the borings to depths of approximately 10 feet and because groundwater was not encountered in the explorations, we anticipate that the potential for liquefaction at the site is relatively negligible. The explorations were limited to depths of approximately 10 feet below the existing ground surface, the final design for the facility including changes in site grades may influence the liquefaction potential at the site. The design-build contractor should verify the liquefaction potential for the site based on the final design, this may include a study of seasonal groundwater elevation and explorations to evaluate the soils to greater depths.
- Since deep subsurface information is not available for the site, a Site Class D as defined in Table 1613.5.2 of the 2006 IBC is recommended for the project site.

4. PRELIMINARY RECOMMENDATIONS

The following sections present preliminary recommendations concerning proposed redevelopment of the subject site. These preliminary recommendations are based upon our understanding of the project, the engineering properties of the tested on-site soils, the geologic conditions that are

presented in this report, and the assumption that an adequate number of tests and observations will be made during construction to evaluate compliance with these recommendations. Based on the final design, including site layout and grades, structural loads, structure locations and foundation types, the preliminary recommendations presented may not be applicable for the site and additional study may need to be done. The design-build contractor should evaluate whether the information and preliminary recommendations presented in this report are applicable for the final design and perform additional studies, if necessary.

4.1. EARTHWORK

Based on the results of our field exploration and laboratory testing programs, our understanding and assumptions about the proposed development, it is our opinion that the following earthwork recommendations may be applicable to the project.

As previously mentioned, the existing demolished structure, piles of debris, organic soils, uncontrolled fill, deleterious material, and loose surficial native soil encountered should be removed from the improvement areas. Uncontrolled fill and loose or disturbed native soils should also be excavated from beneath the proposed improvement areas. Any near-surface organic-rich soils should also be excavated in their entirety to reduce the potential for future organic decomposition-related settlement to structures or the depth of removal of the organic-rich soils should be evaluated by the Geotechnical Engineer during grading operations. Existing piles of debris, including wire insulation, cans, and garbage and underlying organic-rich soils, removed during clearing and grubbing will not be suitable for placement in structural fills.

Due to the presence of uncontrolled fill, possible uncontrolled backfill of excavations from the demolished structure at the site, loose shallow native soils and collapsible soils in the areas of some proposed improvements, the near-surface soils are not suitable in their present condition for the support of structure foundations, pavements, and exterior concrete flatwork and slabs-on-grade. In order to reduce the potential for soil movement-related distress, we recommend that after the removal of uncontrolled fill, the proposed structures at the site be supported on a zone of structural fill as described in the following table.

Table 4.1.-1 Recommended Structural Fill Thickness

Description	Recommended Depth of Structural Fill
Post-Tensioned Concrete Slabs-on-Grade and Conventional Footings	At least 24 inches below the bottom of the aggregate base or footing bottom
Asphalt Concrete Pavement and Exterior Concrete Flatwork	At least 18 inches below the bottom of aggregate base

It may be necessary to overexcavate the existing native soils to provide the recommended structural fill thickness. The recommended structural fill thickness described in Table 4.1.-1 are in addition to the excavation of uncontrolled fill and other unsuitable materials.

The recommended excavations should extend laterally beyond the edges of footings or post-tensioned concrete slabs-on-grade a minimum of 5 feet or a distance equal to the depth of the excavation beneath foundation bottoms, whichever is deeper. For pavements and concrete flatwork, the recommended excavation should extend laterally at least 2 feet beyond the edges.

After the removal of existing unsuitable soils and any recommended excavations, the exposed native soils in structural areas should be scarified to a depth of at least 12 inches, moisture conditioned to 2 percent or greater above the optimum moisture content, and compacted to at least 90 percent of the maximum dry density, as determined by ASTM D 1557. The excavation depths may be terminated on moderately or strongly cemented soil at the discretion of the Geotechnical Engineer.

If both cemented and uncemented materials are present at the bottom of footing excavations, the cemented material should be removed to a depth of at least 12 inches below bottom of footing and replaced with compacted structural fill. As an alternative, the uncemented material may be removed to expose underlying cemented material throughout the footing area, if any, and replaced with lean mix concrete.

Excavated native on-site soils to be used as structural fill underlying concrete slabs-on-grade, foundations, or other improvements should be processed to satisfy the following recommendations. Native materials at the site should be evaluated during construction by the Geotechnical Engineer prior to their placement as structural fill.

- Structural fill should have an organic content of less than 5 percent as measured by ASTM D 2974
- Imported fill materials should be free of debris, organic materials, and other deleterious materials.
- Structural fill should not contain any rocks or similar irreducible materials greater than 4 inches in nominal dimension
- Structural fill should have a liquid limit of less than 30 and plasticity index of less than 15

- Structural fill should have a low to moderate remolded swell potential (less than 8 percent) as determined per the procedure outlined in Section 1802.3.3 of the Southern Nevada Amendments to the 2006 International Building Code
- Structural fill should have a solubility less than 2.00 percent
- Soils placed in on-site asphalt concrete pavement areas should have an R-Value of at least 20

Imported materials used for structural fill should satisfy the following recommendations. Samples of materials proposed for use as imported structural fill should be submitted to the Geotechnical Engineer for testing and evaluation prior to being transported to the site.

- Imported fill materials should be similar to the on-site soils with between 15 percent and 50 percent passing the No. 200 sieve and 100 percent passing the 4-inch sieve.
- Imported fill materials should have a liquid limit of less than 30 and plasticity index of less than 15.
- Imported fill materials should have a low to moderate remolded swell potential of less than 8 percent as determined per the procedure outlined in Section 1802.3.3 of the Southern Nevada Amendments to the 2006 International Building Code.
- Imported fill materials should contain less than 2.00 percent by dry weight soluble solids as determined by American Water Works Associated (AWWA) standard test method 2540 C.
- Imported fill materials should contain less than 1.00 percent by dry weight soluble sulfate as determined by AWWA standard test method 4500 E.
- Imported fill materials should be free of debris, organic materials, and other deleterious materials.
- Imported fill soils placed in on-site asphalt concrete pavement areas should have an R-Value of at least 20

Structural fill or imported fill should be placed in loose lifts up to 8 inches thick, uniformly moisture conditioned to 2 percent or greater above the optimum moisture content, and compacted to at least 90 percent of the maximum dry density as determined by ASTM D 1557. The upper at least 8 inches of subgrade soils beneath pavement aggregate base should be compacted to at least 95 percent of the maximum dry density as determined by ASTM D 1557 or AASHTO T180. Backfill placed against footings should be moisture conditioned and compacted as recommended for structural fill.

In-place density and moisture tests should be performed in accordance with ASTM D 2922 and ASTM D 3017, respectively, or alternatively in accordance with ASTM D 1556. The test frequency

should be at least one test per 500 cubic feet of fill material placed or at least one test per lift of fill material placed, whichever is greater.

4.2. EXCAVATION CONSIDERATIONS

Excavations greater than 4 feet in depth into uncemented soils are not expected to stand vertically. Excavations greater than 4 feet in depth should be sloped back in accordance with the maximum allowable slope ratios presented in Appendix B to Subpart P of Occupational Safety and Health Standards for the Construction Industry (OSHA) 29 CFR, State of Nevada, Division of Occupational Safety and Health, Part 1926. The soil type definitions in Appendix A to Subpart P of OSHA 29 CFR, Part 1926 should be applied to soils encountered in excavations to determine the maximum allowable slope ratio. As an alternative to sloped excavation sidewalls, excavations could be shored and braced. Shoring and bracing should be designed in accordance with Appendices C and D to Subpart P of OSHA 29 CFR, Part 1926. Safety of construction personnel is the responsibility of the contractor.

4.3. MATERIAL VOLUME CHANGES

Based on our experience, it is our opinion that there will be a reduction in volume when the on-site subsurface soils are excavated and compacted. Shrinkage of the on-site subsurface soils is estimated to be in the range of 10 to 20 percent when compacted to at least 90 percent of the maximum dry density (ASTM D 1557). Accordingly, with shrinkage of 10 to 20 percent, one cubic yard of excavated native soils compacted to 90 percent relative compaction (ASTM D 1557) would generate approximately 0.90 to 0.80 cubic yards of structural fill, respectively.

4.4. SEISMIC SITE CLASS

Since deep subsurface soils information is not known for this site, a Site Class D as defined in Table 1613.5.2 of the 2006 IBC may be assumed for design for the project site.

The following seismic design parameters based on the 2006 IBC may be utilized using representative site coordinates of 36.1336 degrees latitude and -115.0345 degrees longitude.

Table 4.4.-1 Spectral Response Accelerations and Site Coefficients

Spectral Response Acceleration At Short Periods, $S_s^{(1)}$	Spectral Response Acceleration At 1-Second Period, $S_1^{(2)}$	Site Coefficient, $F_a^{(3)}$	Site Coefficient, $F_v^{(4)}$
0.600g	0.181g	1.32	2.078

- (1) Per Figure 1613.5(1) of the 2006 IBC
- (2) Per Figure 1613.5(2) of the 2006 IBC
- (3) Per Table 1613.5.3(1) of the 2006 IBC
- (4) Per Table 1613.5.3(2) of the 2006 IBC

4.5. UNDERGROUND UTILITIES

Utility trench backfill placement procedures should meet the specifications outlined in the Standard Specifications. The majority of the near-surface, on-site uncemented soils are not anticipated to meet the specifications for Selected Backfill as outlined in Subsection 207.02.01 of the Standard Specifications. However, excavated soils may be used as common trench backfill for buried on-site utilities provided they have a remolded swell potential of less than 8 percent, and should be moisture conditioned to 2 percent or greater above the optimum moisture content and compacted to at least 90 percent of the maximum dry density (ASTM D 1557 or AASHTO T180). Suitability and compaction of trench backfill should be evaluated during construction. Materials proposed for use as common trench backfill for buried off-site utilities should be sampled, tested and submitted to the governing agency during construction.

Due to the nature of the on-site soils and anticipated drainage conditions, ponding or jetting of utility trench backfill will not be acceptable. Trench backfill should be compacted by mechanical means only.

4.6. SHALLOW SPREAD FOOTINGS

We understand that the proposed electrical equipment building will be supported on spread footings with a slab-on-grade floor. Shallow spread footings supporting structure walls should be founded on a zone of at least 24 inches of properly compacted structural fill as previously described. Footings supporting structures should not be founded partially on properly compacted structural fill and partially on cemented soils. If both cemented and uncemented materials are present at the bottom of the footing excavation, the cemented material should be removed to a depth of at least 12 inches below bottom of footing and replaced with compacted structural fill. As an alternative, the uncemented material may be removed to expose underlying cemented material throughout the footing area, if any, and replaced with lean mix concrete.

Spread footings should be established at least 18 inches below the lowest adjacent final compacted subgrade and be at least 12 inches wide. Footings that are founded entirely on properly compacted structural fill and that are at least 12 inches wide and embedded at least 18 inches may be designed based on an allowable net dead plus sustained live load bearing pressure of 1,500 pounds per square foot (psf). The allowable bearing pressure for conventional spread footings may be increased by 500 psf for each additional foot of embedment or 250 psf for each additional foot of width up to a maximum allowable pressure of 2,500 psf. The allowable bearing pressures may be increased by one-third for temporary wind or seismic loads. The allowable

bearing pressure presented above includes a factor of safety against general bearing capacity failure of at least 2.5. Provided that the earthwork recommendations presented are followed and structural loads do not exceed 3 kips per lineal foot for continuous footings, total and differential settlements are not anticipated to exceed 1 and ½ inch, respectively. Should structural loads exceed our limitations, we should be provided the opportunity to re-evaluate our settlement estimates.

Resistance to lateral loads may be calculated using both passive lateral earth support and friction developing between the footing and underlying soil. The passive lateral earth support for footings may be based upon an allowable equivalent fluid density of 240 pounds per cubic foot up to a maximum allowable passive lateral pressure of up to 2,400 pounds per square foot. A coefficient of friction of 0.23 may be used for the interface between the footing and underlying properly compacted structural fill. The values for passive equivalent fluid density and base coefficient of friction include a factor of safety of 1.5.

4.7. EXTERIOR CONCRETE FLATWORK

Exterior concrete flatwork should be underlain by at least 4 inches of Type II Aggregate Base underlain by a zone of at least 18 inches of properly compacted structural fill as previously described. The Type II Aggregate Base should be moisture conditioned to within 2 percent of optimum and compacted to at least 95 percent of the maximum laboratory dry density (ASTM D 1557 or AASHTO T180). Type II Aggregate Base should conform to the criteria presented in Section 704.03.04 of the Standard Specifications.

To facilitate curing of slabs, aggregate base materials should be kept moist prior to placement of concrete. Excessive slump (due to a high water-cement ratio) of the concrete and/or improper curing procedures could lead to excessive shrinkage, cracking or curling of slabs-on-grade and exterior concrete flatwork. Concrete placement and curing operations should be performed in accordance with the American Concrete Institute (ACI) Manual of Concrete Practice.

4.8. PRELIMINARY DEDICATED OFF-SITE ASPHALT CONCRETE PAVEMENTS

Dedicated Asphalt concrete (AC) material and placement procedures should conform to the appropriate sections of the "Standard Specifications". Laboratory R-value testing indicate the values of 4 and 39 for subgrade soils, and presented in Appendix B. Based on the results of our R-value testing, a design R-value of 20 was assumed. Our preliminary recommendations for the design of the asphalt concrete pavement sections are tabulated below. Our calculations were

based on 80 percent reliability, standard deviation of 0.45, initial serviceability of 4.2, terminal serviceability of 2.5, and resilient modulus, M_R , of 4,846 psi for an R-value of 20.

Table 4.8.-1 Preliminary Dedicated Asphalt Concrete Pavement Sections

Pavement Area	Traffic Index	Design R-Value	Asphalt Concrete Thickness (Inches)	Type II Aggregate Base Thickness (Inches)
Vegas Valley Drive (80' ROW)	8.5	20	5.0	15
Tree Line Drive (60' ROW)	6.5	20	3.5	10

The preliminary pavement section presented above is for planning purposes only. The preliminary minimum section assumes soils placed as structural fill underlying pavement sections will have a fill blanket of at least 18 inches and an R-value of at least 20. Final pavement sections should be determined based on the results of R-value, gradation, and Atterberg Limit tests performed on subgrade soils exposed during construction of roadways.

Prior to placing the supportive Aggregate Base at least the upper 8 inches of subgrade soils should be uniformly moisture conditioned to at least the optimum moisture content, and compacted to at least 95 percent of the maximum dry density. Scarification may be terminated at a shallower depth or omitted entirely if moderately to strongly cemented soil is encountered, at the discretion of the Engineer, based on actual soil conditions observed at the site.

Type II Aggregate Base should be placed in accordance with Section 302 of the "Standard Specifications" and should be compacted to at least 95 percent of the maximum dry density. Aggregate base and asphalt pavement materials and construction methods should meet the requirements set forth in the "Standard Specifications".

4.9. NON-DEDICATED ASPHALT CONCRETE PAVEMENT

Laboratory R-value testing indicate the values of 4 and 39 for subgrade soils, and presented in Appendix B. Based on the results of our R-value testing, a design R-value of 20 was assumed. Our recommendation for the design of the asphalt concrete pavement section is tabulated below. Our calculations were based on 80 percent reliability, standard deviation of 0.45, initial serviceability of 4.2, terminal serviceability of 2.5, and resilient modulus, M_R , of 4,846 psi for an R-value of 20.

Table 4.9.-1 Minimum Non-Dedicated Asphalt Concrete Pavement Section

Traffic Condition	Traffic Index	Asphalt Thickness, (Inches)	Type II Aggregate Base Thickness, (Inches)
Heavy Truck Traffic	5.5	3.0	8.0

The recommended minimum section assumes soils placed as structural fill underlying pavement sections will have a fill blanket of at least 18 inches and an R-value of at least 20. If soils with R-Values less than 20 are placed as structural fill in asphalt concrete pavement sections the asphalt concrete pavement sections should be reevaluated.

Prior to placing the supportive Aggregate Base at least the upper 8 inches of subgrade soils should be uniformly moisture conditioned to at least the optimum moisture content, and compacted to at least 95 percent of the maximum dry density. Scarification may be terminated at a shallower depth or omitted entirely if moderately to strongly cemented soil is encountered, at the discretion of the Engineer, based on actual soil conditions observed at the site.

Type II Aggregate Base should be placed in accordance with Section 302 of the "Standard Specifications" and should be compacted to at least 95 percent of the maximum dry density. Aggregate base and asphalt pavement materials and construction methods should meet the requirements set forth in the "Standard Specifications".

4.10. DRAINAGE AND MOISTURE PROTECTION

Finished grades should slope away from the structure perimeters in all directions away from the structure for a distance of at least 5 feet at a slope of at least 3 percent. Where practicable, the areas around the structures should be covered with asphalt pavements or exterior concrete flatwork to ensure that all water is directed away from the structures as rapidly as possible.

Landscaping vegetation and watering should conform to the applicable Southern Nevada Water Authority (SNWA) watering restrictions at the time of construction. Based on our findings, we recommend that any trees and shrubs be avoided within 5 feet of buildings, concrete pads, block walls, and retaining walls. Shrubs and trees should require little water to sustain life and be irrigated with a drip system. It is also beneficial to eliminate potential sources of water adjacent to concrete flatwork and pavements to prevent wetting of any moisture sensitive subgrade soils.

4.11. SOIL CORROSIVITY

Based on the results of chemical testing, the tested on-site soils have up to a severe sulfate exposure as defined in Table 4.3.1 of ACI Publication 318 per Section 1904.3 of the 2006 IBC. Concrete used in foundations that may directly or indirectly contact the native soils should contain Type V sulfate resistant cement, have a maximum water-cement ratio of 0.45, and have a 28-day unconfined compressive strength of at least 4,500 pounds per square inch. We recommend that a Corrosion Engineer be consulted for protection recommendations for any buried metal pipe. Metal pipe may be protected by using cathodic protection or pipe coatings and wrappings, or, as an alternative, PVC pipe may be used if allowed by agency requirements.

5. LIMITATIONS

The preliminary recommendations contained in this report are based on field exploration, laboratory testing, research of pertinent maps and literature, and our understanding and assumptions of the proposed construction. The soil data used in the preparation of this report were obtained from five borings and five exploratory test pits performed at the site. It is possible that variation in the soil conditions will exist between the locations explored. Therefore, if any soil conditions are encountered at the site that are different from those outlined in this report, Geotechnical & Environmental Services, Inc. should be immediately notified so that we may review the situation that exists and make supplementary recommendations as needed. The information and recommendations presented in this report are preliminary and are presented for a design-build contractor to bid on the project. At the time of this geotechnical study the location and type of structures to be built on the site are not known. The design-build contractor may have to perform an additional study once final site layout and grades, structural loads, structure locations, and foundation types are known.

The preliminary recommendations presented in this report are based on the assumption that an adequate number of tests and observations will be made during site construction to evaluate compliance with the recommendations. These tests and observations should be provided under the direction of a qualified Geotechnical Engineer. Such testing and observations should include but not be limited to the following:

- Review of site construction plans for conformance with the soils investigation.
- Observation and testing during site preparation, earthwork, and placement of aggregate base and concrete.
- Consultation as may be required during construction.

Our services were performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable engineering firms in this or similar localities. No other warranties, either expressed or implied, are included or intended in this report.

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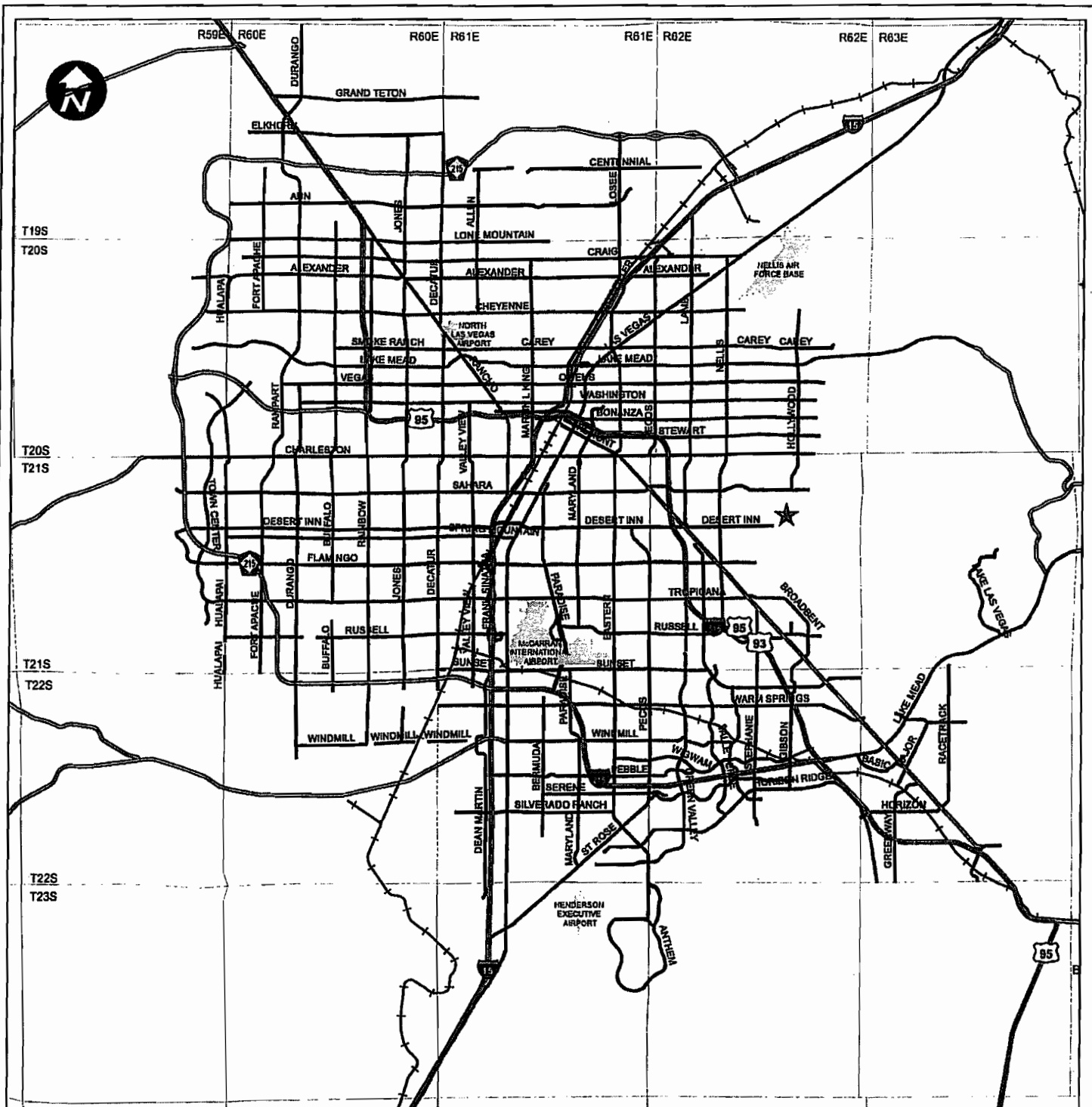
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APPENDIX A
SUBSURFACE STUDY



Legend

- ★ Approximate Project Location
- ✈ Airports
- Interstate
- Major Streets
- Railroad
- State Highway
- Township & Range

0 2 4 8 12 16 Miles



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NOTE: Data presented on this map is a compilation of GIS Metadata extracted from a variety of sources. Major Streets, Airports, and Railroads is data obtained from the Southern Nevada GIS Management Office. This data is downloaded by GES for incorporation into drawings generated by GES. Data contained within this page is to be used for informational purposes only. GES has not modified the data contained herein and uses it as it is acquired from the respective agency.

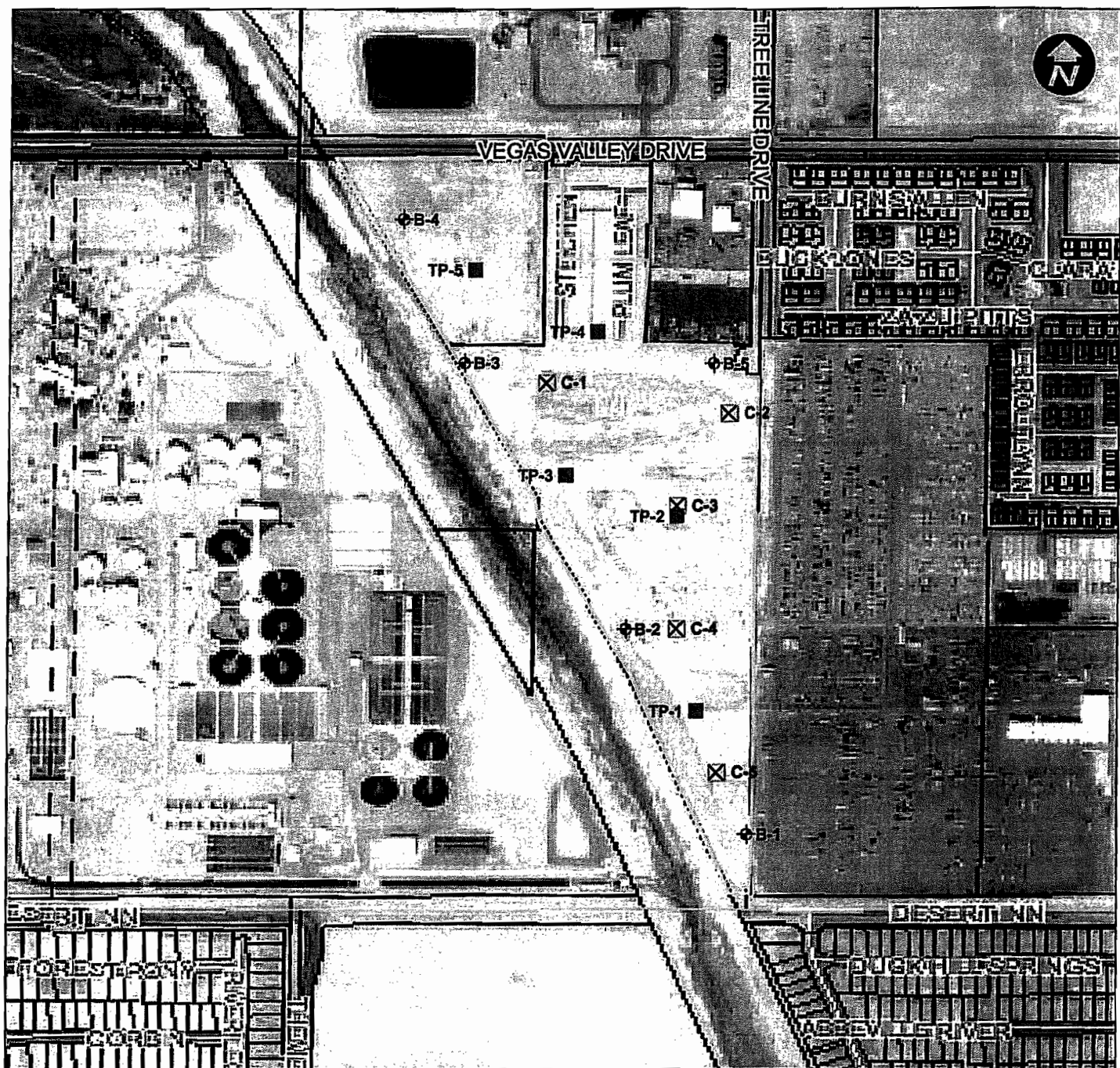
VICINITY MAP
CITY OF LAS VEGAS WATER POLLUTION CONTROL FACILITY
SOLAR PHOTOVOLTAIC PROJECT
CLARK COUNTY, NEVADA

Drawn By:
PES

Date Drawn:
6/17/09

Project No.
20092529E1

Figure No.
A-1



Legend

0 125 250 500 750 1,000 Feet

- Approximate Site Boundary
- ⊕ B-5 Approximate Boring Location
- TP-5 Approximate Test Pit Location
- ⊗ C-5 Approximate Stockpile Sample Location



NOTE: Data presented on this map is a compilation of GIS Metadata extracted from a variety of sources. Major Streets, Airports, and Railroads is data obtained from the Southern Nevada GIS Management Office. This data is downloaded by GES for incorporation into drawings generated by GES. Data contained within this page is to be used for informational purposes only. GES has not modified the data contained herein and uses it as it is acquired from the respective agency.

EXPLORATION LOCATION MAP
 CITY OF LAS VEGAS WATER POLLUTION CONTROL FACILITY
 SOLAR PHOTOVOLTAIC PROJECT
 CLARK COUNTY, NEVADA

Drawn By: PES	Date Drawn: 6/26/2009
Project No. 20082529E1	Figure No. A-2

KEY TO SYMBOLS AND TERMS

Terms used according to the Unified Soil Classification System

Consistency or Condition of Soils

Fine-Grained Soils (Silt and Clay): Major portion passing #200 sieve

California Sampler* (blows/foot)	SPT** (blows/foot)	Estimated Consistency	Unconfined Compressive Strength (tsf)	Manual Manipulation
< 2	< 2	Very Soft	< 0.25	Thumb will penetrate soil more than 1 in.
2-5	2-4	Soft	0.25-0.50	Thumb will penetrate soil about 1 in.
5-10	4-8	Firm	0.50-1.00	Thumb will penetrate soil about 1/2 in.
10-20	8-15	Stiff	1.00-2.00	Thumb will not indent soil but readily indented with thumbnail.
>20	>15	Very Stiff	>2.00	Thumbnail will not indent soil.

*ASTM D 3550 using a 140-pound hammer falling 30 inches.

**ASTM D 1586

Coarse-Grained Soils (Sand and Gravel): Major portion retained on #200 sieve

California Sampler* (blows/foot)	SPT** (blows/foot)	Estimated Consistency	Behavior of 1/2-Inch Diameter Probe Rod
0-7	0-4	Very Loose	Easily penetrated when pushed by hand.
7-18	4-10	Loose	Firmly penetrated when pushed by hand.
18-50	10-30	Medium Dense	Easily penetrated when driven by 1 lb. hammer.
50-90	30-50	Dense	Penetrated less than 1 inch when driven with a 1 lb. hammer.
>90	>50	Very Dense	Penetrated less than 1/2 inch when driven with a 1 lb. hammer.

*ASTM D 3550 using a 140-pound hammer falling 30 inches.

**ASTM D 1586

Cementation	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

Caliche and Cemented Sand and Gravel: Materials classified as medium hard, hard, or very hard caliche or cemented sand and gravel should be treated as rock per Appendix K of the Southern Nevada Amendments to the 2000 International Building Code, published February 11, 2003.

Misc. Symbols

	Exploration continues
	Initial groundwater depth
	Final groundwater depth

Constituent Percentages

Trace - < 5%
Few - 5 to 10%
Little - 15-25%
Some - 30-45%
Mostly - 50-100%

Moisture Condition

Dry - Absence of moisture, dusty, dry to the touch
Moist - Damp but no visible water
Wet - Visible free water, usually soil is below water table

Notes

1. Subsurface explorations were performed using the equipment listed on the exploration logs.
2. Subsurface explorations were performed on the date(s) shown on the exploration logs.
3. Soil sampler(s) were driven with a 140 pound hammer falling 30 inches (unless otherwise noted in the text of this report).
4. The transitions between soil types shown on the exploration logs as occurring abruptly at particular depths may in actuality be a gradual progression from one soil type to the next.
5. Exploration logs are subject to the limitations, conclusions, and recommendations presented in this report.

Strata Group Symbols

	Fill
	CL - Low plasticity clay
	CH - High plasticity clay
	ML - Silt
	MH - Elastic Silt
	SP - Poorly graded sand
	SW - Well - graded sand
	GP - Poorly graded gravel
	GW - Well - graded gravel
	Cemented sand and gravel
	Caliche

Soil Sampler Symbols

	Bulk Sample
	Sample from auger cutting
	California Sampler
	Standard Penetration test
	Shelby tube
	Sample from Sonic circular ring bit



Disclaimer

This Key to Symbols is part of a report prepared by Geotechnical & Environmental Services, Inc. and should be used with the report. The descriptions on the exploration logs apply only at the specific exploration locations and at the time the explorations were made. They are not warranted to be representative of subsurface conditions at other locations or times.

Figure No. A-3

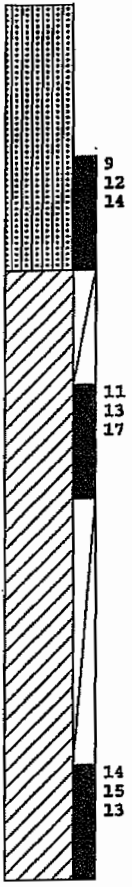
EXPLORATION LOG B-1

PROJECT: CLV WPCF SOLAR PROJECT
 BORING LOCATION: N:36.1305 W:-115.0338
 EXPLORATION SIZE (dia.): 7" O.D. H.S.A
 ELEVATION: --

PROJECT NO.: 20092529E1
 EXPLORATION DATE: 6/3/09
 EQUIPMENT: Diedrich D-50 Drill Rig
 LOGGED BY: TT/SC

INITIAL DEPTH TO WATER: Not Encountered
 FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A
 DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		SM	Light brown silty SAND, moist and medium dense.			5.8 7.1	89.9 78.6	4	
2.5									
5		CL	Brown sandy lean CLAY, moist and very stiff. ...few gravel.	9	29	3.3	107.9	4.9	
7.5									
10			...with gravel, moderately gypsiferous.			3.9	105.4		
12.5			END OF BORING AT 11.5 FEET						
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

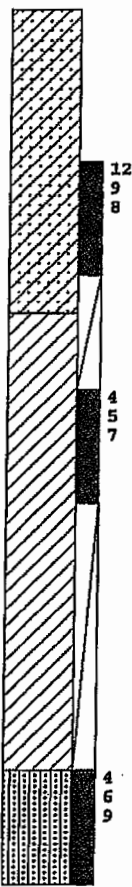
EXPLORATION LOG B-2

PROJECT: CLV WPCF SOLAR PROJECT
BORING LOCATION: N:36.1325 W:-115.0350
EXPLORATION SIZE (dia.): 7" O.D. H.S.A
ELEVATION: -

PROJECT NO.: 20092529E1
EXPLORATION DATE: 6/3/09
EQUIPMENT: Diedrich D-50 Drill Rig
LOGGED BY: TT/SC

INITIAL DEPTH TO WATER: Not Encountered
FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A
DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		SC	Brown clayey SAND, moist and loose.			8.2	102.1		
2.5									
5		CL	Brown lean CLAY with sand, moist and stiff.			20.2 28	99.0 93.4	-0.2 0	3.5
7.5				13	29				
10		SM	Light brown silty SAND, moist and loose.			9.8	106.0		
12.5			END OF BORING AT 11.5 FEET						
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

EXPLORATION LOG B-3

PROJECT: CLV WPCF SOLAR PROJECT
BORING LOCATION: N:36.1351 W:-115.0366
EXPLORATION SIZE (dia.): 7" O.D. H.S.A
ELEVATION: --

PROJECT NO.: 20092529E1
EXPLORATION DATE: 6/3/09
EQUIPMENT: Diedrich D-50 Drill Rig
LOGGED BY: TT/SC

INITIAL DEPTH TO WATER: Not Encountered
FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A
DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		SM	Light brown silty SAND, moist and medium dense.			13.9	99.5	-0.8	
2.5									
5		CL	Dark brown lean CLAY, moist and stiff.			17 24.2	99.6 97.9	-1	3.75
7.5		GC	Dark brown clayey GRAVEL with sand, moist and loose	15	28				
10		CL	Dark brown sandy lean CLAY, moist and stiff.			23.3	95.5		2.5
11.5		END OF BORING AT 11.5 FEET							
12.5									
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

EXPLORATION LOG B-4

PROJECT: CLV WPCF SOLAR PROJECT
BORING LOCATION: N:36.1365 W:-115.0372
EXPLORATION SIZE (dia.): 7" O.D. H.S.A
ELEVATION: --

PROJECT NO.: 20092529E1
EXPLORATION DATE: 6/3/09
EQUIPMENT: Diedrich D-50 Drill Rig
LOGGED BY: TT/SC

INITIAL DEPTH TO WATER: Not Encountered
FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A
DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		FILL	Pale brown poorly graded GRAVEL with silt and sand (GP-GM), dry.						
2.5	11 14 13	CL	Dark brown sandy lean CLAY, moist and very stiff.	16	28	9.9	110.7	1	>4.5
5	5 6 8		...stiff.			16.4	94.8	-1.2	2.75
7.5									
10	5 9 13	SM	Brown silty SAND, moist and medium dense.			6.7	119.7	-0.1	
12.5			END OF BORING AT 11.5 FEET						
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

EXPLORATION LOG B-5

PROJECT: CLV WPCF SOLAR PROJECT

PROJECT NO.: 20092529E1

BORING LOCATION: N:36.1351 W:-115.0337

EXPLORATION DATE: 6/3/09

EXPLORATION SIZE (dia.): 7" O.D. H.S.A

EQUIPMENT: Diedrich D-50 Drill Rig

ELEVATION: --

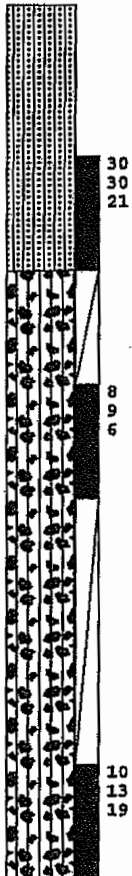
LOGGED BY: TT/SC

INITIAL DEPTH TO WATER: Not Encountered

DATE MEASURED: N/A

FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		SM	Light brown silty SAND with gravel, moist and dense.						
2.5									
5		GM	Light brown silty GRAVEL with sand, moist and dense. ...slightly to moderately gypsiferous and loose.	NP	NV	2.4	113.5		
7.5									
10			...slightly gypsiferous and medium dense.			3.6	120.1		
12.5			END OF BORING AT 11.5 FEET						
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

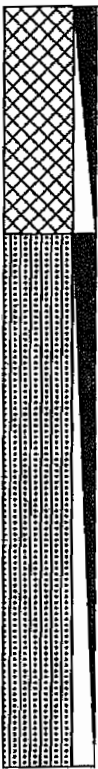
EXPLORATION LOG TP-1

PROJECT: CLV WPCF SOLAR PROJECT
 BORING LOCATION: N:36.1317 W:-115.0343
 EXPLORATION SIZE (dia.): Approx. 4'x8'
 ELEVATION: —

PROJECT NO.: 20092529E1
 EXPLORATION DATE: 6/4/09
 EQUIPMENT: Backhoe
 LOGGED BY: John/SC

INITIAL DEPTH TO WATER: Not Encountered
 FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A
 DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		FILL	Reddish brown silty SAND with gravel (SM), moist. A pile of wire insulation debris was observed up to 3 feet deep.						
2.5		SM	Light brown silty SAND with gravel, moist.						
5				NP	NV			5	
7.5									
10			END OF BORING AT 10.0 FEET						
12.5									
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.
 It is not intended to be representative of subsurface conditions at other locations or times.

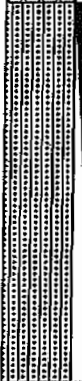
EXPLORATION LOG TP-2

PROJECT: CLV WPCF SOLAR PROJECT
BORING LOCATION: N:36.1336 W:-115.0345
EXPLORATION SIZE (dia.): Approx. 4'x8'
ELEVATION: --

PROJECT NO.: 20092529E1
EXPLORATION DATE: 6/4/09
EQUIPMENT: Backhoe
LOGGED BY: John/SC

INITIAL DEPTH TO WATER: Not Encountered
FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A
DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		FILL	Light brown poorly graded SAND with gravel, moist.						
2.5		SM	Reddish brown silty SAND, slightly gypsiferous, moist. ...interbedded clay layers up to 4 inches thick through 6 feet. ...few gravel.	NP	NV	8.5		9	
5		CL	Dark brown sandy lean CLAY, slightly to moderately gypsiferous, and moist.						
7.5		SM	Reddish brown silty SAND, slightly gypsiferous, and moist.						
10			END OF BORING AT 10.0 FEET						
12.5									
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

EXPLORATION LOG TP-3

PROJECT: CLV WPCF SOLAR PROJECT

PROJECT NO.: 20092529E1

BORING LOCATION: N:36.1340 W:-115.0356

EXPLORATION DATE: 6/4/09

EXPLORATION SIZE (dia.): Approx. 4'x8'

EQUIPMENT: Backhoe

ELEVATION: ---

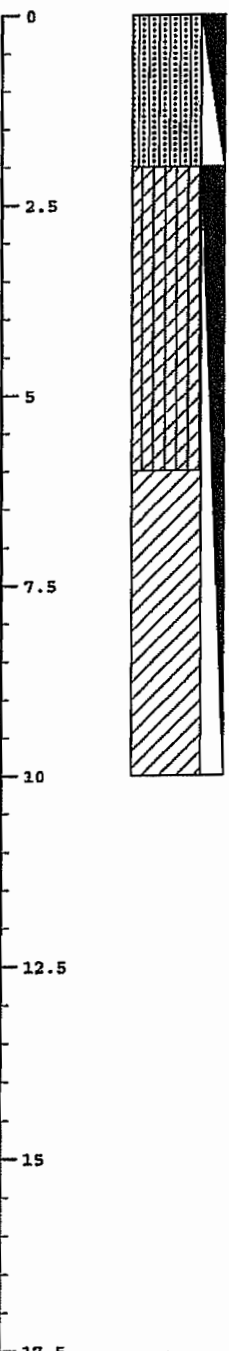
LOGGED BY: John/SC

INITIAL DEPTH TO WATER: Not Encountered

DATE MEASURED: N/A

FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		SM	Reddish brown silty SAND, moist.						
2.5		CL-ML	Brown silty CLAY with sand, slightly gypsiferous, and moist.			10.2			
5				19	26				
7.5		CL	Dark brown lean CLAY, moist.						
10		END OF BORING AT 10.0 FEET							
12.5									
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

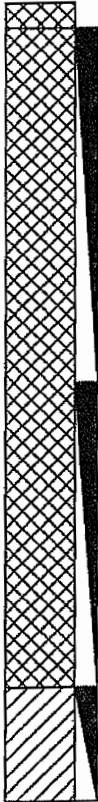
EXPLORATION LOG TP-4

PROJECT: CLV WPCF SOLAR PROJECT
BORING LOCATION: N:36.1354 W:-115.0353
EXPLORATION SIZE (dia.): Approx. 4'x8'
ELEVATION: --

PROJECT NO.: 20092529E1
EXPLORATION DATE: 6/4/09
EQUIPMENT: Backhoe
LOGGED BY: John/SC

INITIAL DEPTH TO WATER: Not Encountered
FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A
DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		FILL	4 inches thick crushed asphaltic concrete layer.						
2.5		FILL	Light brown silty SAND (SM), few gravel, and moist. ...pieces of cable wire, debris encountered through 9 feet.			8.9			
5			...Dark brown, a few pieces of debris, and moist.	NP	NV			5	
7.5									
10		CL	Dark brown sandy lean CLAY, moist.			10.3			
12.5			END OF BORING AT 10.5 FEET						
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

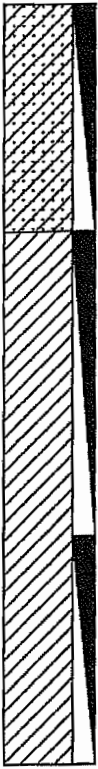
EXPLORATION LOG TP-5

PROJECT: CLV WPCF SOLAR PROJECT
 BORING LOCATION: N:36.1360 W:-115.0365
 EXPLORATION SIZE (dia.): Approx. 4'x8'
 ELEVATION: -

PROJECT NO.: 20092529E1
 EXPLORATION DATE: 6/4/09
 EQUIPMENT: Backhoe
 LOGGED BY: John/SC

INITIAL DEPTH TO WATER: Not Encountered
 FINAL DEPTH TO WATER: N/A

DATE MEASURED: N/A
 DATE MEASURED: N/A

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)	POCKET PENETROMETER (tsf)
0		SC	Light brown clayey SAND, moist.			12.6			
2.5		CL	Dark brown sandy lean CLAY, slightly gypsiferous, and moist.						
5			...reddish brown.	18	27			10	
7.5									
10			END OF BORING AT 10.0 FEET						
12.5									
15									
17.5									

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

APPENDIX B
LABORATORY TEST RESULTS

**PRELIMINARY GEOTECHNICAL EVALUATION REPORT
CLV- WPCF SOLAR PHOTOVOLTAIC PROJECT
LOCATED NEAR THE SOUTHWEST CORNER OF
VEGAS VALLEY DRIVE AND TREE LINE DRIVE
CLARK COUNTY, NEVADA**

1. IN-PLACE MOISTURE CONTENT AND DENSITY

The in-place moisture content and density of relatively undisturbed soil samples obtained from the borings were measured in general accordance with ASTM D 2937. The in-place moisture content and density are a qualitative indication of soil consistency and compressibility. The results of these tests are presented on the exploration logs in Appendix A at the respective sampling depth.

2. GRAIN SIZE DISTRIBUTION

Ten grain size distribution tests were performed by sieve analysis in general accordance with ASTM C 136. Basically, a sample is oven dried to a constant weight and sieved through a number of different sized sieves. The amount of material retained on each sieve is measured and the percent of material passing each sieve is computed. The test results are presented as particle size distribution curves on Figures B-1 through B-10.

3. ATTERBERG LIMITS

Ten Atterberg limit tests were performed in general accordance with ASTM D 4318. The results of these tests are shown on the exploration logs at the respective sampling depths and on Figures B-11 and B-12.

4. LABORATORY MAXIMUM DENSITY

Four laboratory maximum density tests were performed on selected samples in general accordance with ASTM D 1557 Test Method. The test procedure includes dropping of a 10-pound hammer through a height of 18 inches on each of the five layers. The test results are presented on Figures B-13 through B-16.

5. R-VALUE

Two soil samples were tested in the laboratory to determine the R-value in accordance with ASTM D 2844. The R-value test result is an indication of the subgrade resistance to wheel loads and was used in the design of pavements. The results of the R-value tests are presented on Figures B-17 and B-18.

6. EXPANSION POTENTIAL

Three expansion tests were performed on relatively undisturbed samples of the subsurface soils. The tests were performed in general accordance with ASTM D 4546. A ring sample was placed in a consolidation rack and was incrementally loaded to pressures of up to 400 pounds per square foot (psf), after which, the sample was inundated with water. The deformations of the sample were measured at each load increment and recorded. The results of the test are presented on Figures B-19 through B-21 and B-26.

7. HYDRO-COLLAPSE

Four hydro-collapse tests were performed in general accordance with ASTM D 5333 on selected relatively undisturbed samples. A ring sample was placed in a consolidation rack and was incrementally loaded to pressures of up to 3,200 pounds per square foot (psf); after which, the sample was inundated with water. Sample deformation was measured at each load increment after 1 hour. The amount of collapse after saturation was also measured after 24 hours. The results of the hydro-collapse tests are shown graphically on Figures B-22 through B-25.

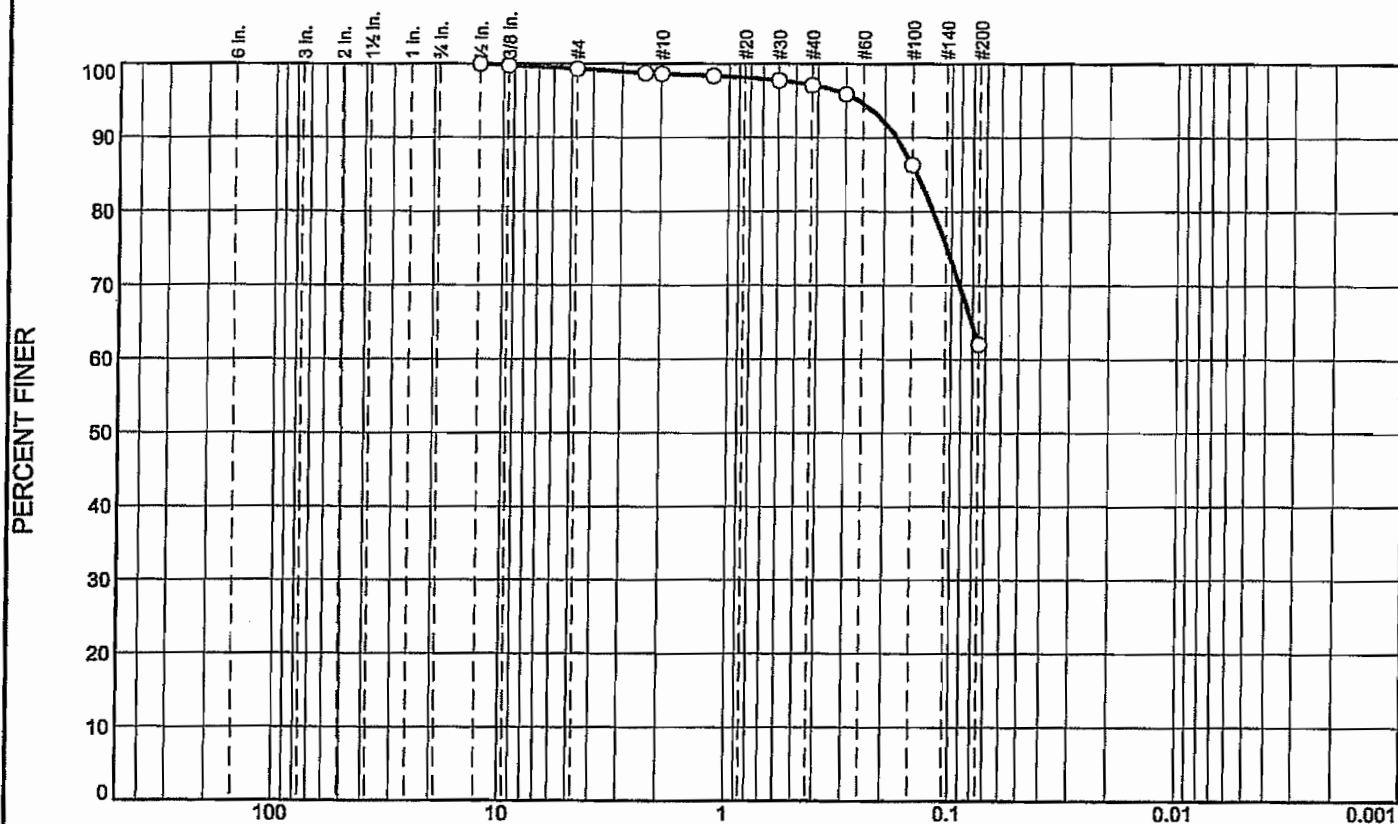
8. SWELL POTENTIAL

Two swell tests were performed on relatively undisturbed samples and five swell tests were performed on laboratory remolded samples of the soils in general accordance with Section 1802.3.3 of the Southern Nevada Amendments to the 2006 International Building Code. A vertical confining pressure of approximately 60 pounds per square foot was applied to the oven-dried sample and then the sample was inundated with water. The results of the swell tests are presented on Figure B-26.

9. CORROSIVITY TESTS

A suite of chemical corrosivity tests was performed on nine selected soil samples to aid in evaluating the corrosiveness of the on-site soils to buried metal. The suite of chemical corrosivity tests included the pH, reduction-oxidation (red-ox) potential, and the contents of sulfate, sulfide, total salts and chloride. The chemical tests were performed by Atlas Consultants, Inc. The test results are presented on Figures B-27 through 30.

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.6	1.6	35.1	62.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.8		
#4	99.3		
#8	98.7		
#10	98.7		
#16	98.3		
#30	97.8		
#40	97.1		
#50	95.9		
#100	86.4		
#200	62.0		

* (no specification provided)

Material Description

SANDY LEAN CLAY

PL= 20 Atterberg Limits LL= 29 PI= 9

Coefficients
D₈₅= 0.1423 D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

USCS= CL Classification AASHTO= A-4(3)

ENTERED BY: AS Remarks

Sample Number: B-1 Depth: 3.5'-5.0'
Location: BORING B-1 @ 3.5'-5.0'

Date: 06/24/09



**GEOTECHNICAL &
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SERVICES, INC.**

Client: CH2M HILL

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

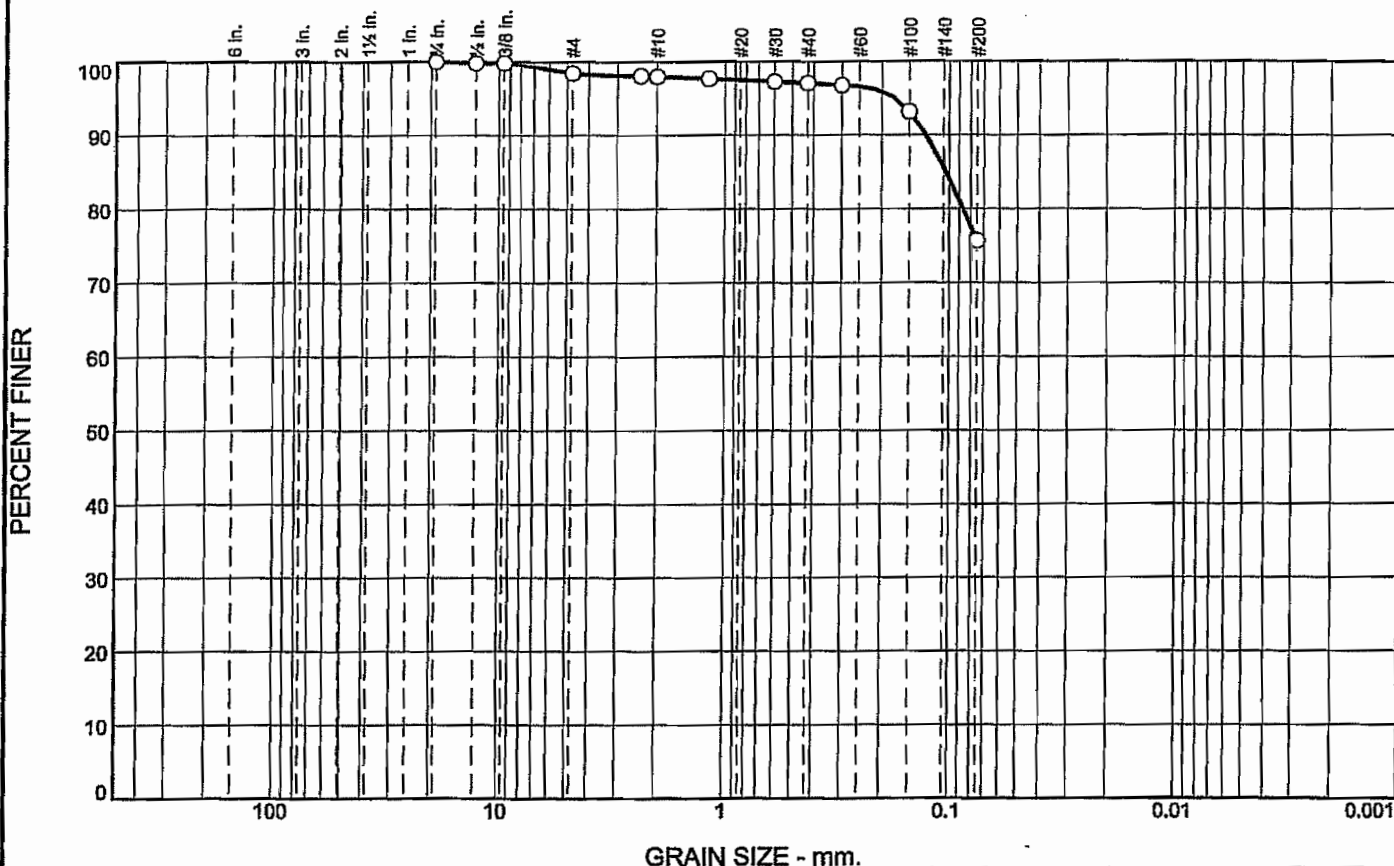
Project No: 20092529E1

Figure B-1

Tested By: AS

Checked By: AS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	0.4	0.9	21.4	75.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.5	99.8		
.375	99.8		
#4	98.4		
#8	98.0		
#10	98.0		
#16	97.7		
#30	97.3		
#40	97.1		
#50	96.8		
#100	93.1		
#200	75.7		

* (no specification provided)

Material Description

LEAN CLAY WITH SAND

PL= 16 Atterberg Limits LL= 29 PI= 13

Coefficients
D₈₅= 0.1033 D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

USCS= CL Classification AASHTO= A-6(8)

Remarks
ENTERED BY:AS

Sample Number: B-2 Depth: 6.5'-10.0'
Location: BORING B-2 @ 6.5'-10.0'

Date: 06/24/09



**GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.**

Client: CH2M HILL
Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

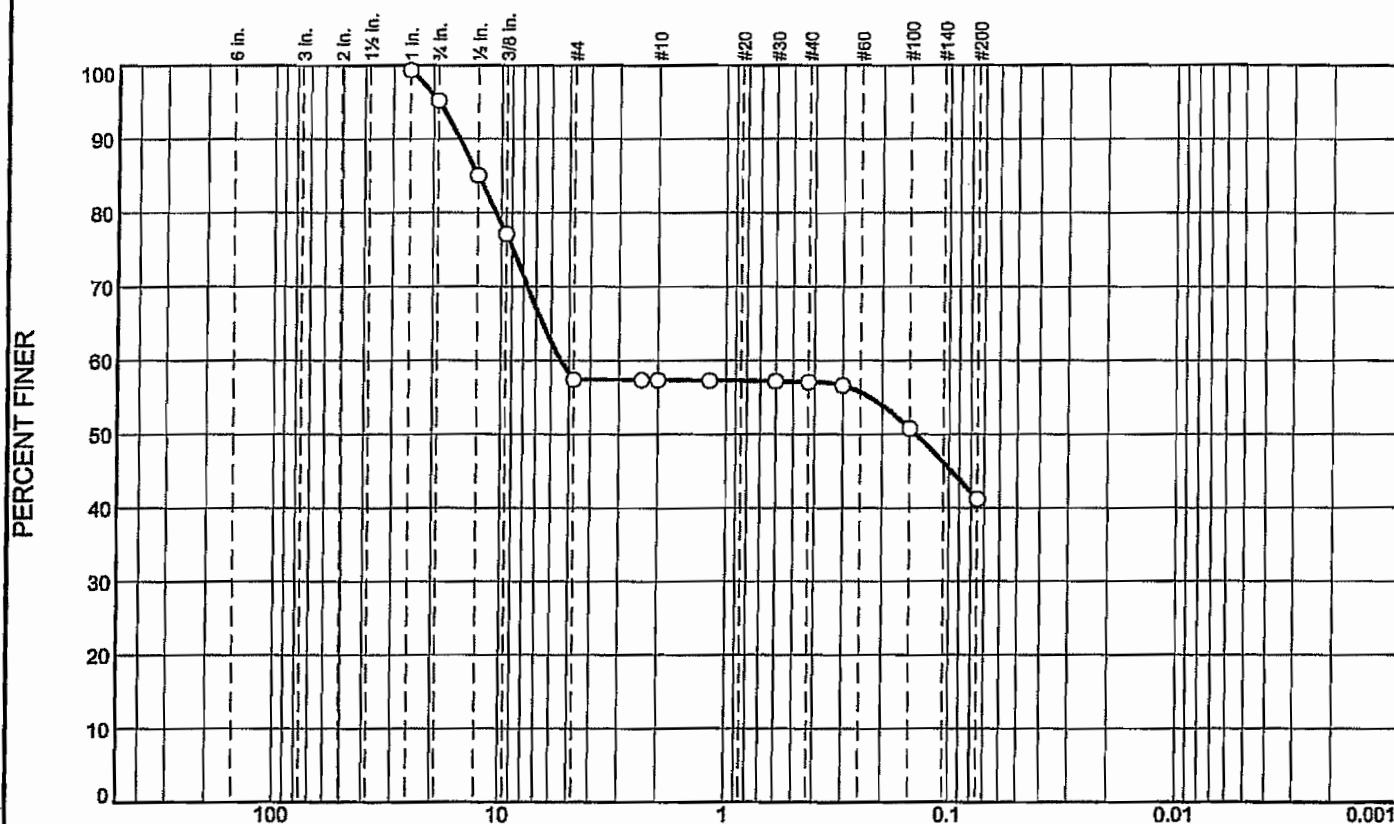
Project No: 20092529E1

Figure B-2

Tested By: AS

Checked By: AS

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		37.8	0.1	0.3	15.8	41.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.0	99.4		
.75	95.2		
.5	85.1		
.375	77.1		
#4	57.4		
#8	57.3		
#10	57.3		
#16	57.3		
#30	57.2		
#40	57.0		
#50	56.6		
#100	50.7		
#200	41.2		

* (no specification provided)

Material Description

CLAYEY GRAVEL WITH SAND

PL= 15 Atterberg Limits LL= 28 PI= 13

Coefficients
D₈₅= 12.6694 D₆₀= 5.4509 D₅₀= 0.1413
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification
USCS= GC AASHTO= A-6(2)

Remarks
ENTERED BY: EA

Sample Number: B-3 Depth: 6.5'-10.0'
Location: B-3 @ 6.5'-10.0'

Date: 6/25/09



**GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.**

Client: CH2M HILL
Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

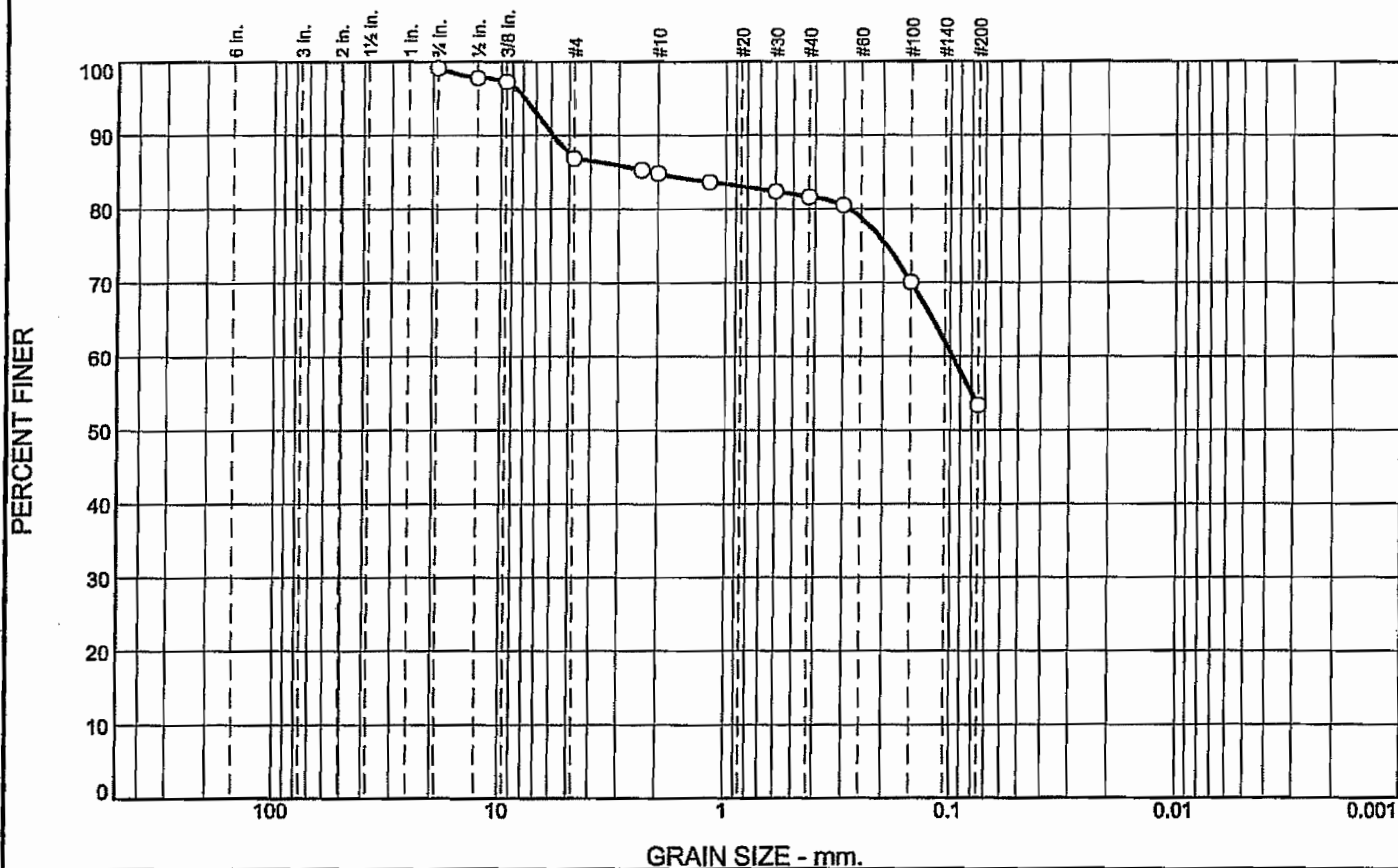
Project No: 20092529E1

Figure B-3

Tested By: EA

Checked By: PS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		12.3	2.0	3.2	28.2	53.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	99.1		
.5	97.8		
.375	97.3		
#4	86.8		
#8	85.3		
#10	84.8		
#16	83.7		
#30	82.4		
#40	81.6		
#50	80.5		
#100	70.1		
#200	53.4		

(no specification provided)

Material Description

SANDY LEAN CLAY

PL= 16 Atterberg Limits LL= 28 PI= 12

Coefficients
D₈₅= 2.1006 D₆₀= 0.0974 D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification
USCS= CL AASHTO= A-6(3)

Remarks
ENTERED BY: EA

Sample Number: B-4 Depth: 3.5'-5.0'
Location: BORING B-4 @ 3.5'-5.0'

Date: 6/26/09



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Client: CH2M HILL

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

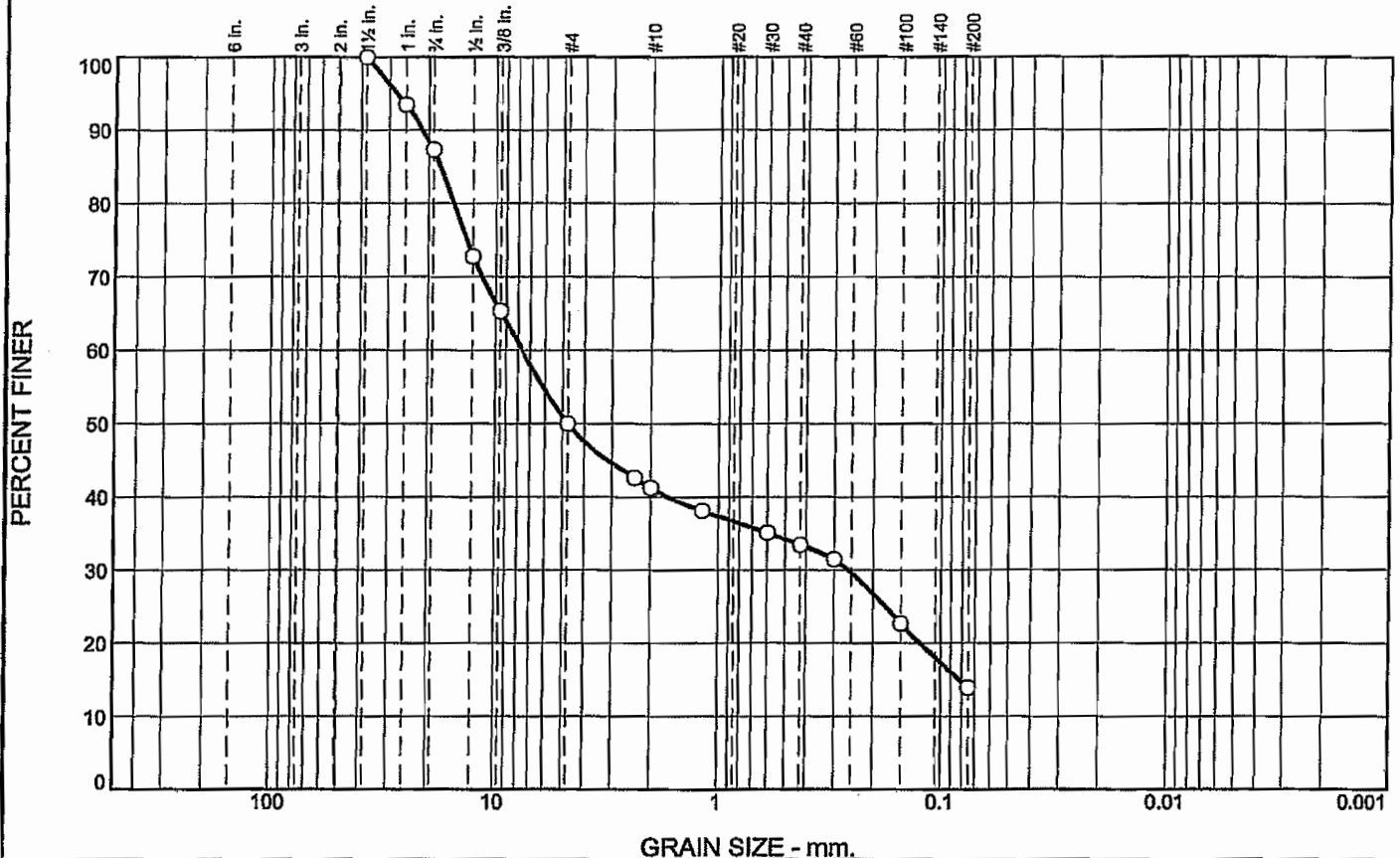
Project No: 20092529E1

Figure B-4

Tested By: EA

Checked By: PS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.7	37.3	8.8	7.8	19.5	13.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	93.4		
.75	87.3		
.5	72.8		
.375	65.3		
#4	50.0		
#8	42.6		
#10	41.2		
#16	38.1		
#30	35.1		
#40	33.4		
#50	31.5		
#100	22.7		
#200	13.9		

* (no specification provided)

Material Description

SILTY GRAVEL WITH SAND

PL= NP Atterberg Limits LL= NV PI= NP

Coefficients
D₈₅= 17.7179 D₆₀= 7.6136 D₅₀= 4.7479
D₃₀= 0.2578 D₁₅= 0.0821 D₁₀=
C_u= C_c=

Classification
USCS= GM AASHTO= A-1-b

Remarks
ENTERED BY:AS

Sample Number: B-5 Depth: 3.5'-5.0'
Location: BORING B-5 @ 3.5'-5.0'

Date: 06/24/09



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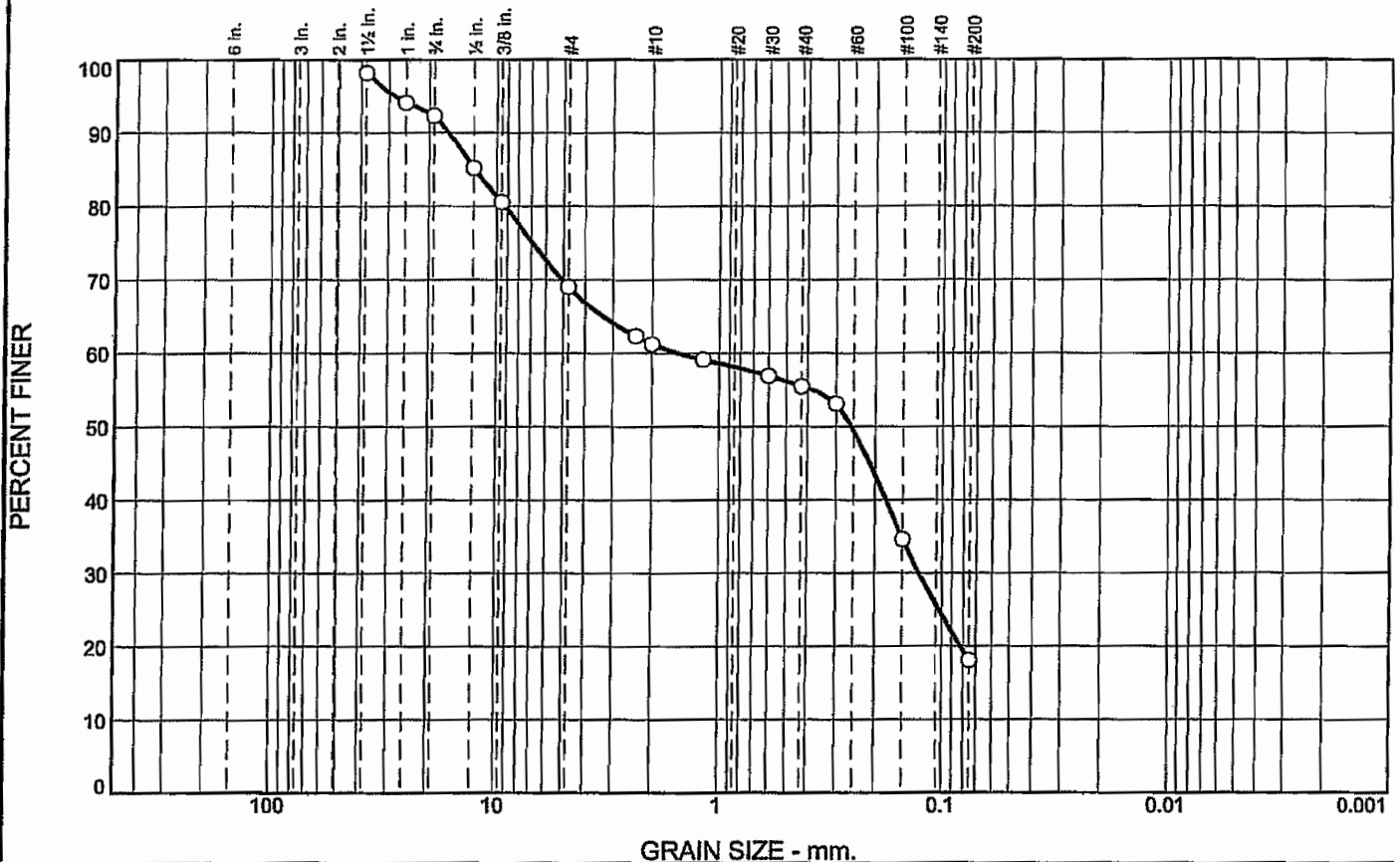
Project No: 20092529E1

Figure B-5

Tested By: AS

Checked By: AS

Particle Size Distribution Report



% +3"

% Gravel

% Sand

% Fines

Coarse

Fine

Coarse

Medium

Fine

Silt

Clay

23.3

7.7

5.9

37.3

18.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	98.2		
1	94.1		
0.75	92.3		
0.5	85.3		
0.375	80.6		
#4	69.0		
#8	62.3		
#10	61.3		
#16	59.1		
#30	56.9		
#40	55.4		
#50	53.1		
#100	34.6		
#200	18.1		

* (no specification provided)

Material Description

SILTY SAND WITH GRAVEL

Atterberg Limits

PL= NP

LL= NV

PI= NP

Coefficients

D₈₅= 12.5213

D₆₀= 1.5344

D₅₀= 0.2549

D₃₀= 0.1269

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= SM

AASHTO= A-2-4(0)

Remarks

ENTERED BY: PES

Sample Number: TP-1 Depth: 3.0'-10.0'
Location: TEST PIT TP-1 @ 3.0'-10.0'

Date: 6/25/09



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Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

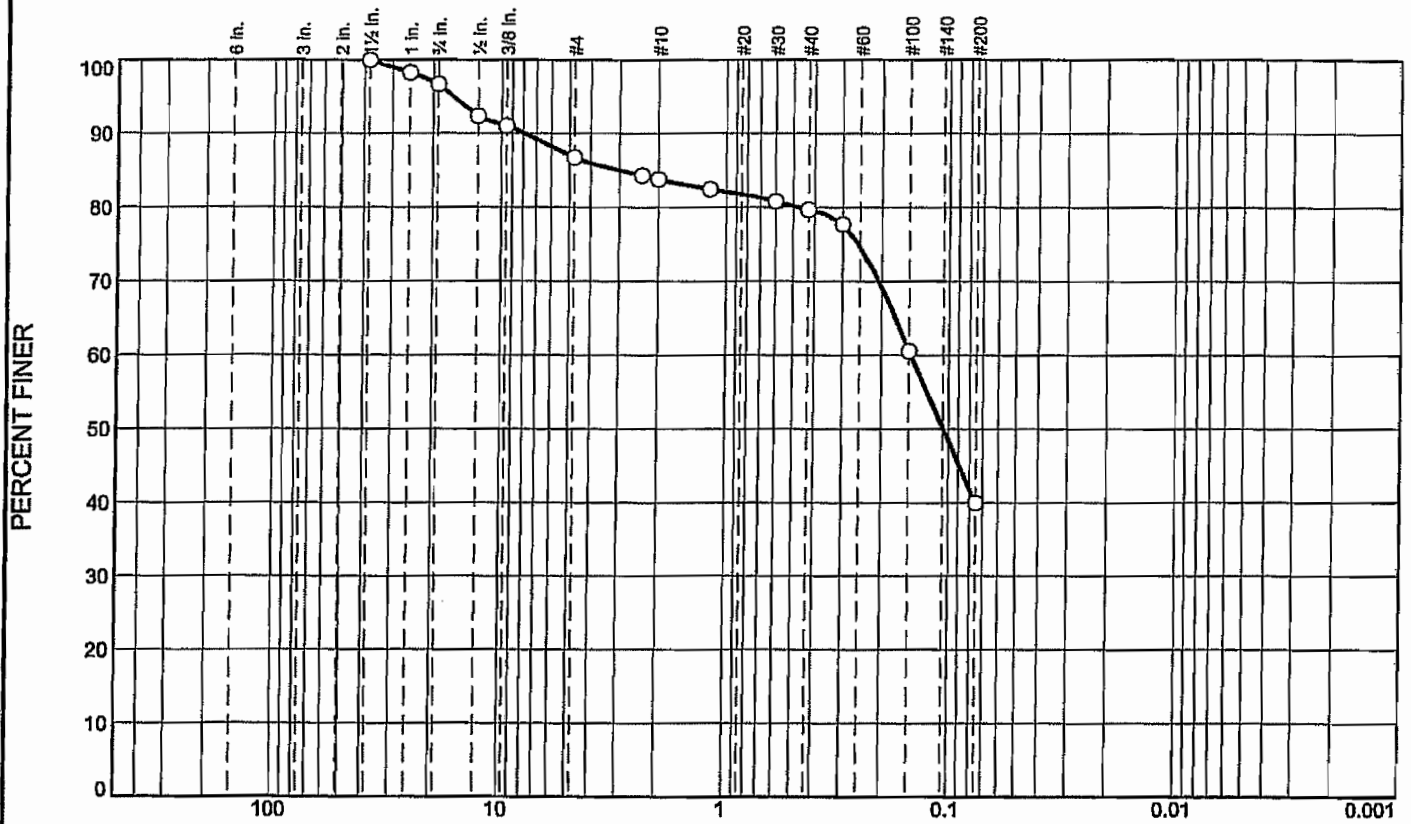
Project No: 20092529E1

Figure B-6

Tested By: EA

Checked By: PES

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.3	9.9	3.0	4.1	39.8	39.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	98.2		
.75	96.7		
.5	92.4		
.375	91.0		
#4	86.8		
#8	84.4		
#10	83.8		
#16	82.4		
#30	80.8		
#40	79.7		
#50	77.7		
#100	60.6		
#200	39.9		

* (no specification provided)

Material Description

SILTY SAND

PL= NP

Atterberg Limits

LL= NV

PI= NP

Coefficients

D₈₅= 2.9526

D₆₀= 0.1473

D₅₀= 0.1056

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= SM

AASHTO= A-4(0)

Remarks

ENTERED BY:AS

Sample Number: TP-2 Depth: 0.0'-6.0'
Location: TEST PIT TP-2 @ 0.0'-6.0'

Date: 06/24/09



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Client: CH2M HILL

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

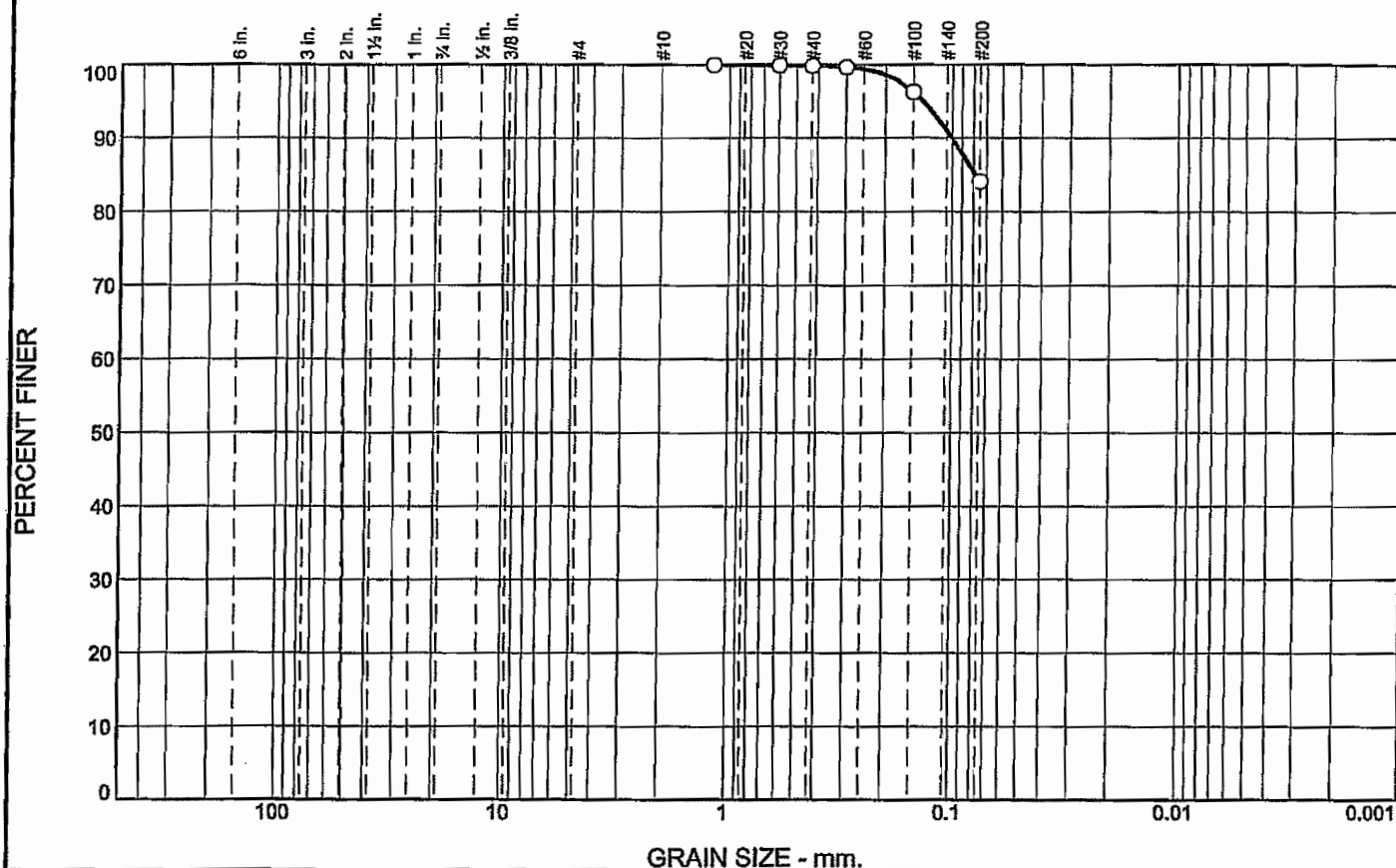
Project No: 20092529E1

Figure B-7

Tested By: AS

Checked By: AS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					15.7	84.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100.0		
#30	99.9		
#40	99.8		
#50	99.6		
#100	96.3		
#200	84.1		

Material Description

SILTY CLAY WITH SAND

PL= 19 Atterberg Limits LL= 26 PI= 7

Coefficients
D₈₅= 0.0782 D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification
USCS= CL-ML AASHTO=

Remarks
ENTERED BY: PES

* (no specification provided)

Sample Number: TP-3 Depth: 2.0'-10.0'
Location: TEST PIT TP-3 @ 2.0'-10.0'

Date: 6/25/09



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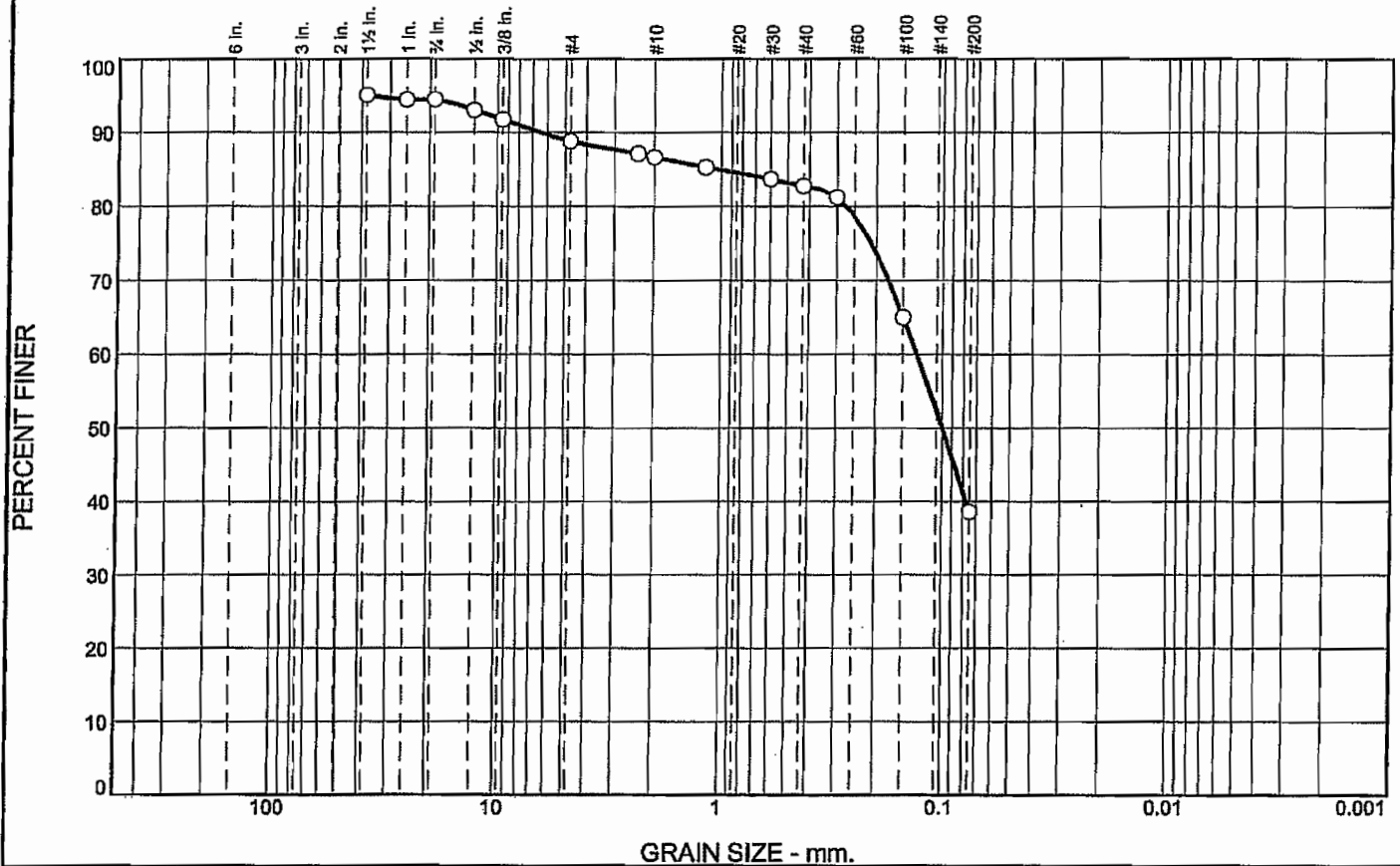
Client: CH2M HILL
Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

Project No: 20092529E1

Figure B-8

Tested By: EA Checked By: PES

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		5.6	2.1	3.9	44.2	38.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	95.1		
1	94.4		
.75	94.4		
0.5	93.0		
.375	91.8		
#4	88.8		
#8	87.2		
#10	86.7		
#16	85.3		
#30	83.7		
#40	82.8		
#50	81.3		
#100	65.0		
#200	38.6		

* (no specification provided)

Material Description

Silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D₈₅= 1.0199 D₆₀= 0.1300 D₅₀= 0.0998
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

ENTERED BY: EA

Sample Number: TP-4 Depth: 5.0'-9.0'
Location: TEST PIT TP-4 @ 5.0'-9.0'

Date: 6/26/09



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Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

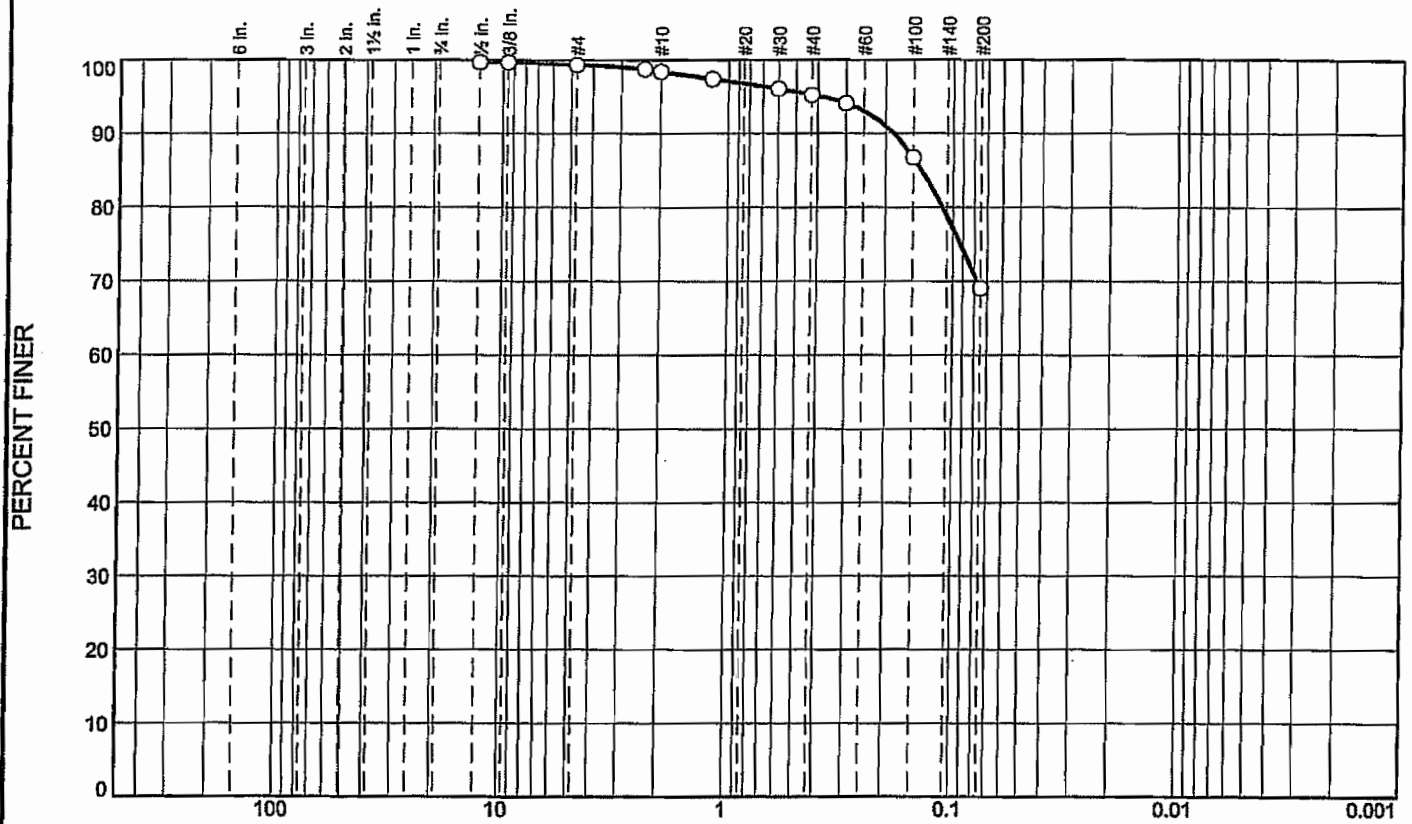
Project No: 20092529E1

Figure B-9

Tested By: EA

Checked By: PS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
			0.9	3.2	26.1	69.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.5	99.7		
0.375	99.7		
#4	99.3		
#8	98.7		
#10	98.4		
#16	97.4		
#30	96.1		
#40	95.2		
#50	94.1		
#100	86.8		
#200	69.1		

* (no specification provided)

Material Description

SANDY LEAN CLAY

PL= 18 Atterberg Limits LL= 28 PI= 10

Coefficients
D₈₅= 0.1374 D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification
USCS= CL AASHTO= A-4(5)

Remarks
ENTERED BY: EA

Sample Number: TP-5 Depth: 3.0'-7.0'
Location: TEST PIT TP-5 @ 3.0'-7.0'

Date: 6/26/09



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Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

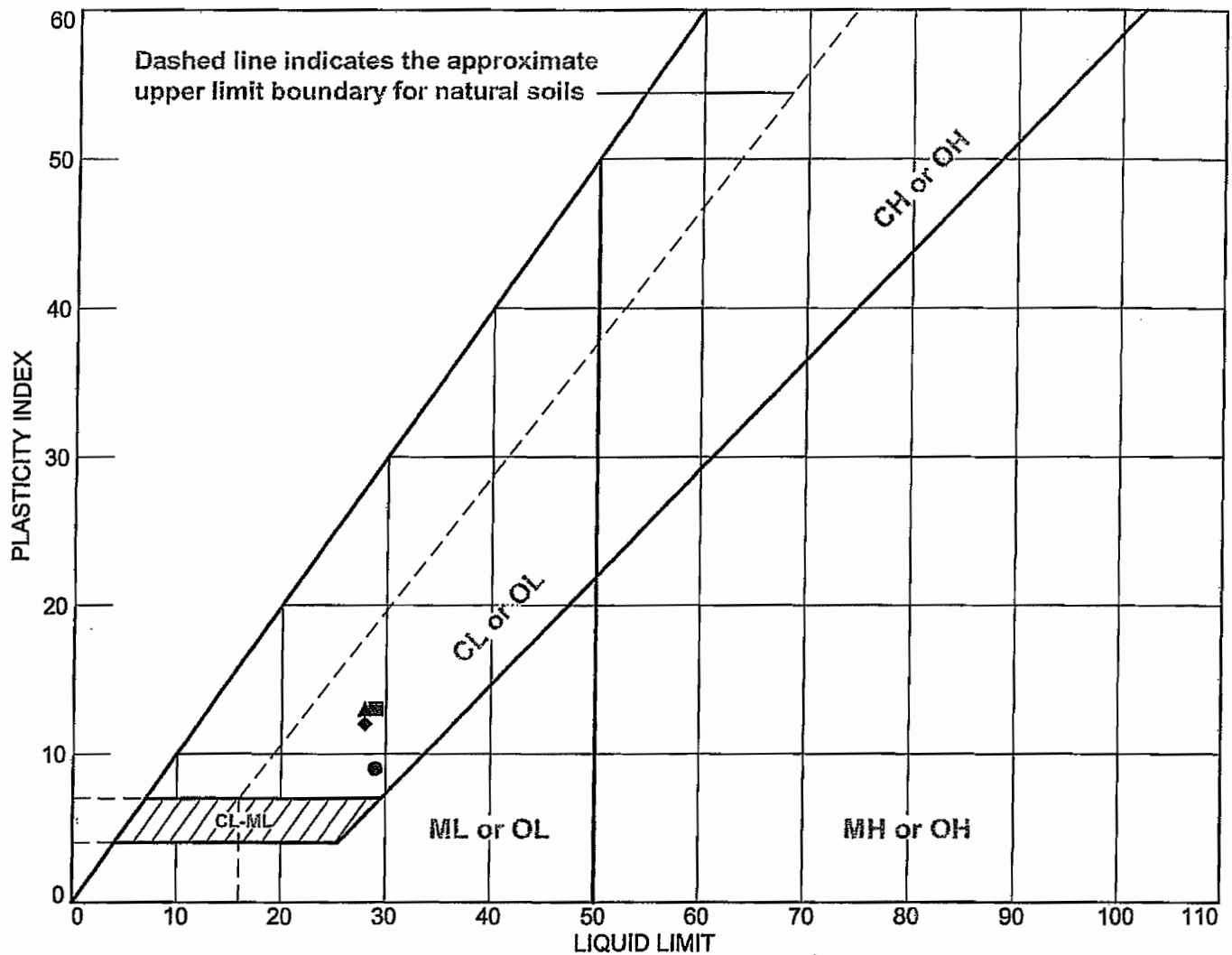
Project No: 20092529E1

Figure B-10

Tested By: EA

Checked By: PES

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	09-0034	B-1	3.5'-5.0'		20	29	9	CL
■	09-0034	B-2	6.5'-10.0'		16	29	13	CL
▲	09-0034	B-3	6.5'-10.0'		15	28	13	GC
◆	09-0034	B-4	3.5'-5.0'		16	28	12	CL
▼	09-0034	B-5	3.5'-5.0'		NP	NV	NP	GM



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Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

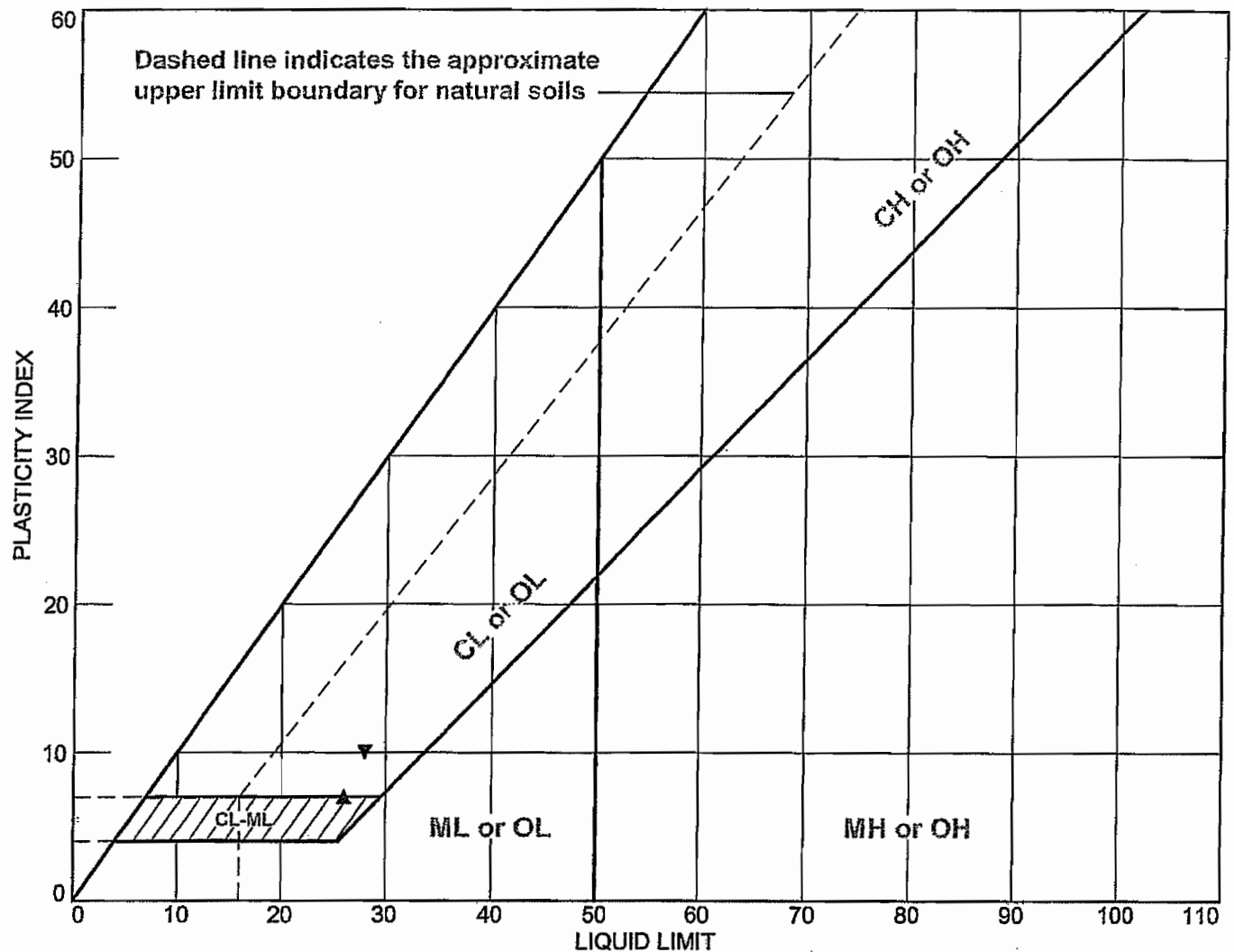
Project No.: 20092529E1

Figure B-11

Tested By: AS

Checked By: AS

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	09-0034	TP-1	3.0'-10.0'		NP	NV	NP	SM
■	09-0034	TP-2	0.0'-6.0'		NP	NV	NP	SM
▲	09-0034	TP-3	2.0'-10.0'		19	26	7	CL-ML
◆	09-0034	TP-4	5.0'-9.0'		NP	NV	NP	SM
▼	09-0034	TP-5	3.0'-7.0'		18	28	10	CL



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Client: CH2M HILL

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

Project No.: 20092529E1

Figure B-12

Tested By: AS

Checked By: AS

COMPACTION TEST REPORT

Curve No.: 09-0034

Project No.: 20092529E1

Date: 6/26/09

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

Location: TEST PIT TP-1 @ 3.0'-10.0'

Elev./Depth: 3.0'-10.0'

Sample No. TP-1

Remarks:

MATERIAL DESCRIPTION

Description: SILTY SAND WITH GRAVEL

Classifications -

USCS: SM

AASHTO: A-2-4(0)

Nat. Moist. =

Sp.G. = 2.65

Liquid Limit = NV

Plasticity Index = NP

% > 3/8 in. = 19.4 %

% < No.200 = 18.1 %

ROCK CORRECTED TEST RESULTS

Maximum dry density = 134.0 pcf

Optimum moisture = 8.0 %

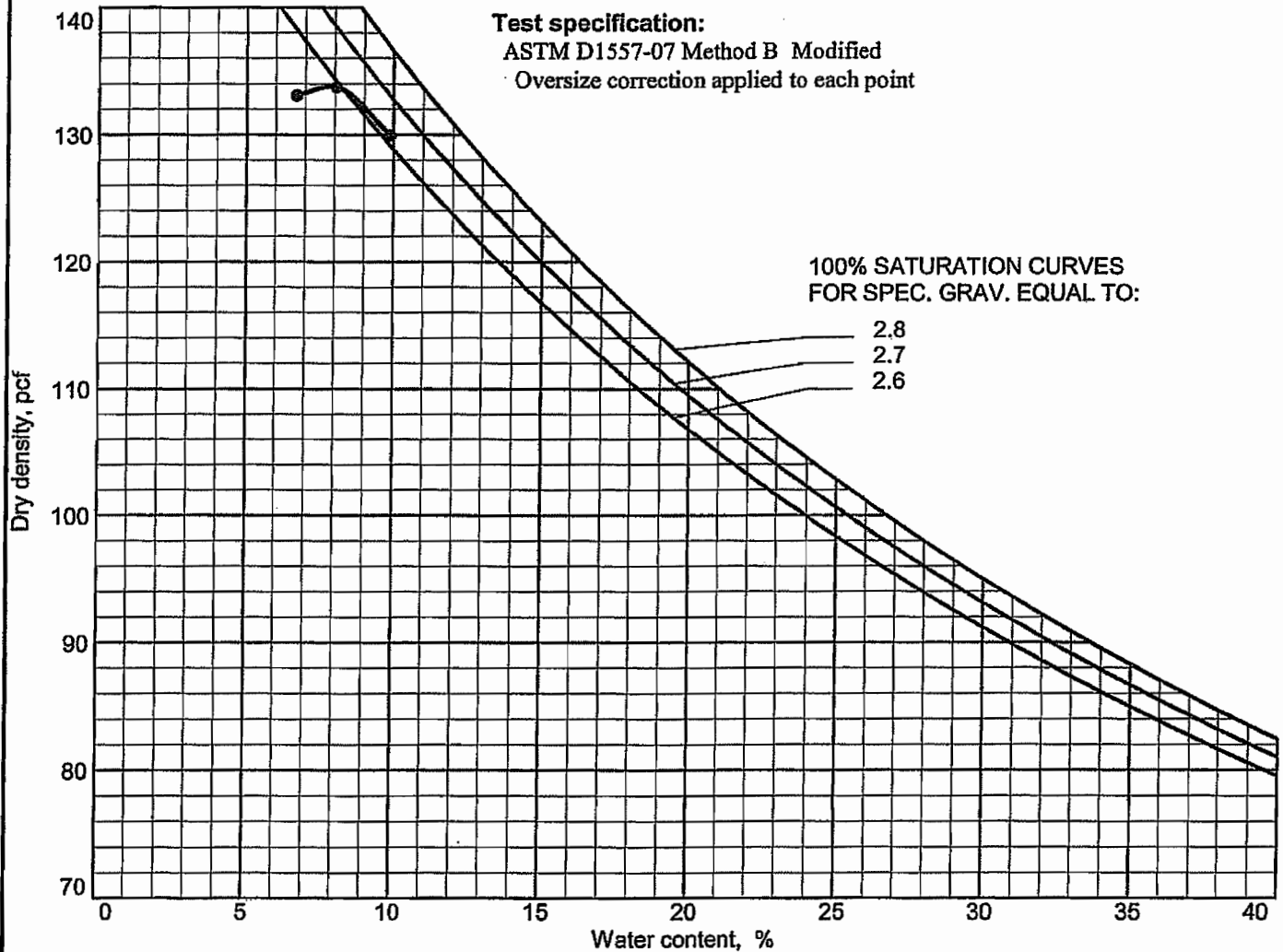


Figure B-13

COMPACTION TEST REPORT

Curve No.: 09-0034

Project No.: 20092529E1

Date: 06/25/09

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

Location: TEST PIT TP-2 @ 0.0'-6.0'

Elev./Depth: 0.0'-6.0'

Sample No. TP-2

Remarks: ENTERED BY:AS

MATERIAL DESCRIPTION

Description: SILTY SAND

Classifications -

USCS: SM

AASHTO: A-4(0)

Nat. Moist. =

Sp.G. = 2.65

Liquid Limit = NV

Plasticity Index = NP

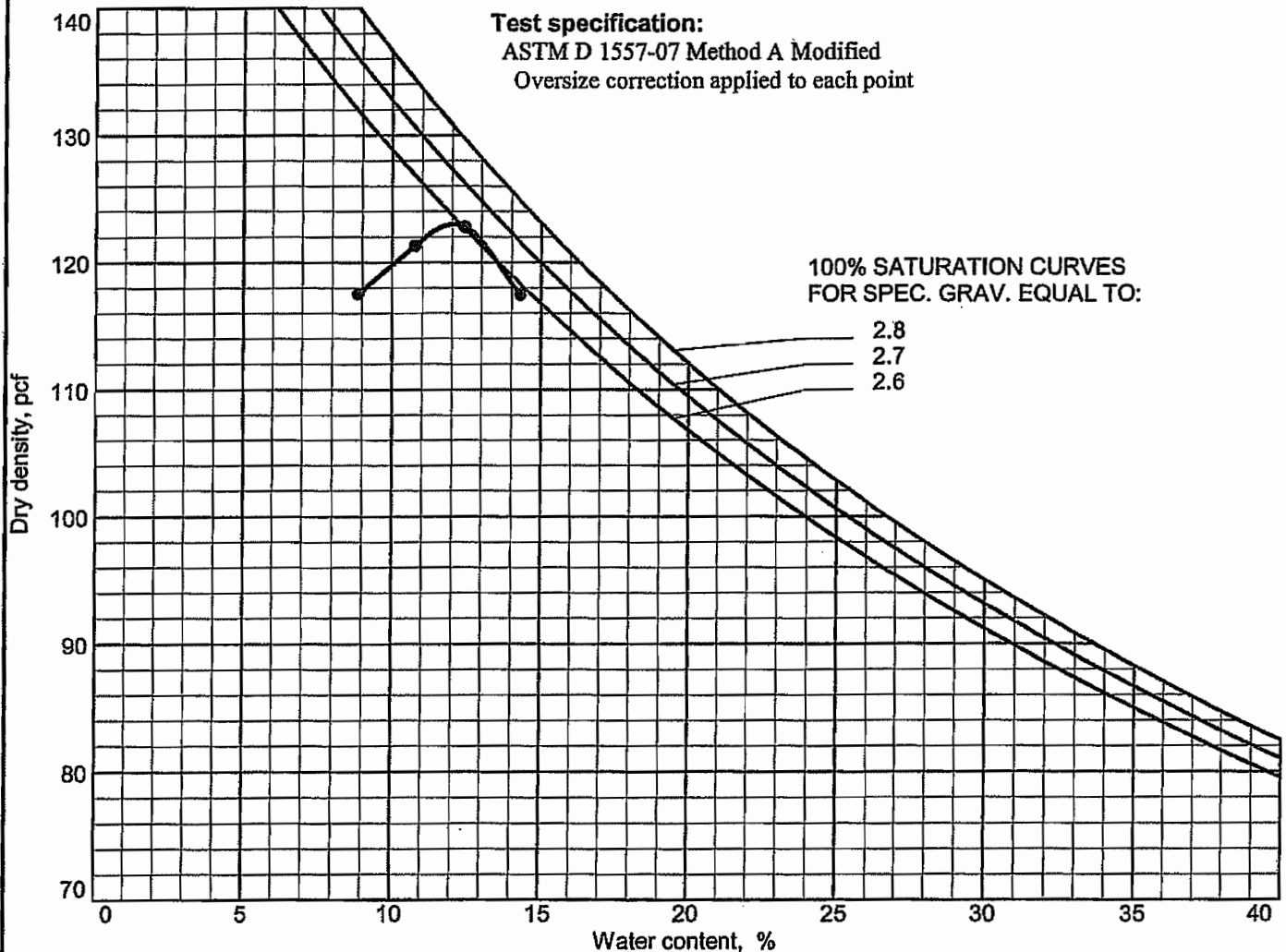
% > No.4 = 13.2 %

% < No.200 = 39.9 %

ROCK CORRECTED TEST RESULTS

Maximum dry density = 123.0 pcf

Optimum moisture = 12.0 %



COMPACTION TEST REPORT

Curve No.: 09-0037

Project No.: 20092529E1

Date: 06/26/09

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

Location: TEST PIT TP-4 @ 0.3'-5.0'

Elev./Depth: 0.3'-5.0'

Sample No. TP-4

Remarks: ENTERED BY:AS

MATERIAL DESCRIPTION

Description: SILTY SAND

Classifications -

USCS: SM

AASHTO:

Nat. Moist. =

Sp.G. = 2.65

Liquid Limit = N/A

Plasticity Index = N/A

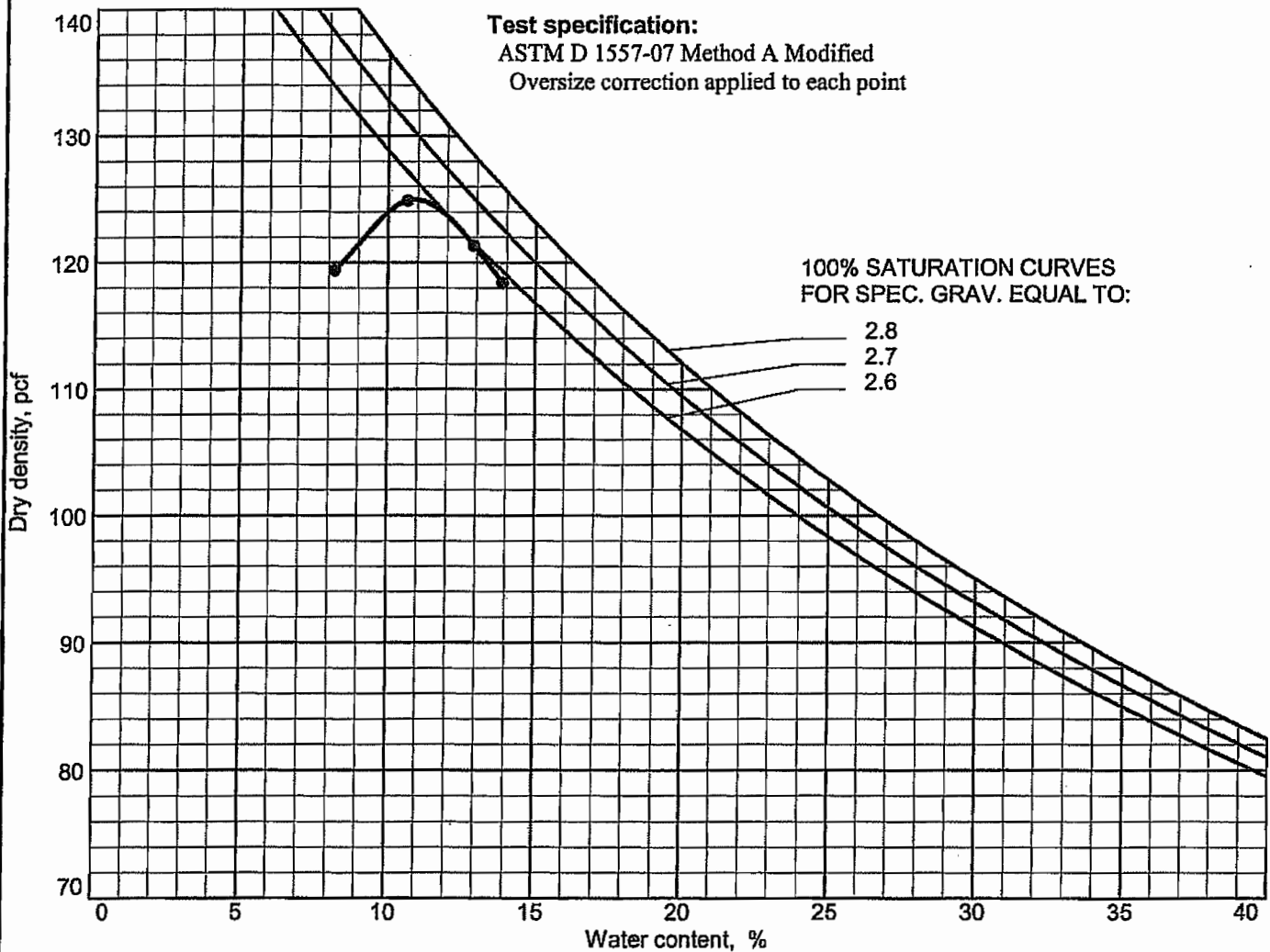
% > No.4 = %

% < No.200 =

ROCK CORRECTED TEST RESULTS

Maximum dry density = 125.0 pcf

Optimum moisture = 11.0 %



COMPACTION TEST REPORT

Project No.: 20092529E1

Date: 6/26/09

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

Location: TEST PIT TP-4 @ 5.0'-9.0'

Elev./Depth: 5.0'-9.0'

Sample No. TP-4

Remarks:

MATERIAL DESCRIPTION

Description: SILTY SAND

Classifications -

USCS: SM

AASHTO: A-4(0)

Nat. Moist. =

Sp.G. =

Liquid Limit = NV

Plasticity Index = NP

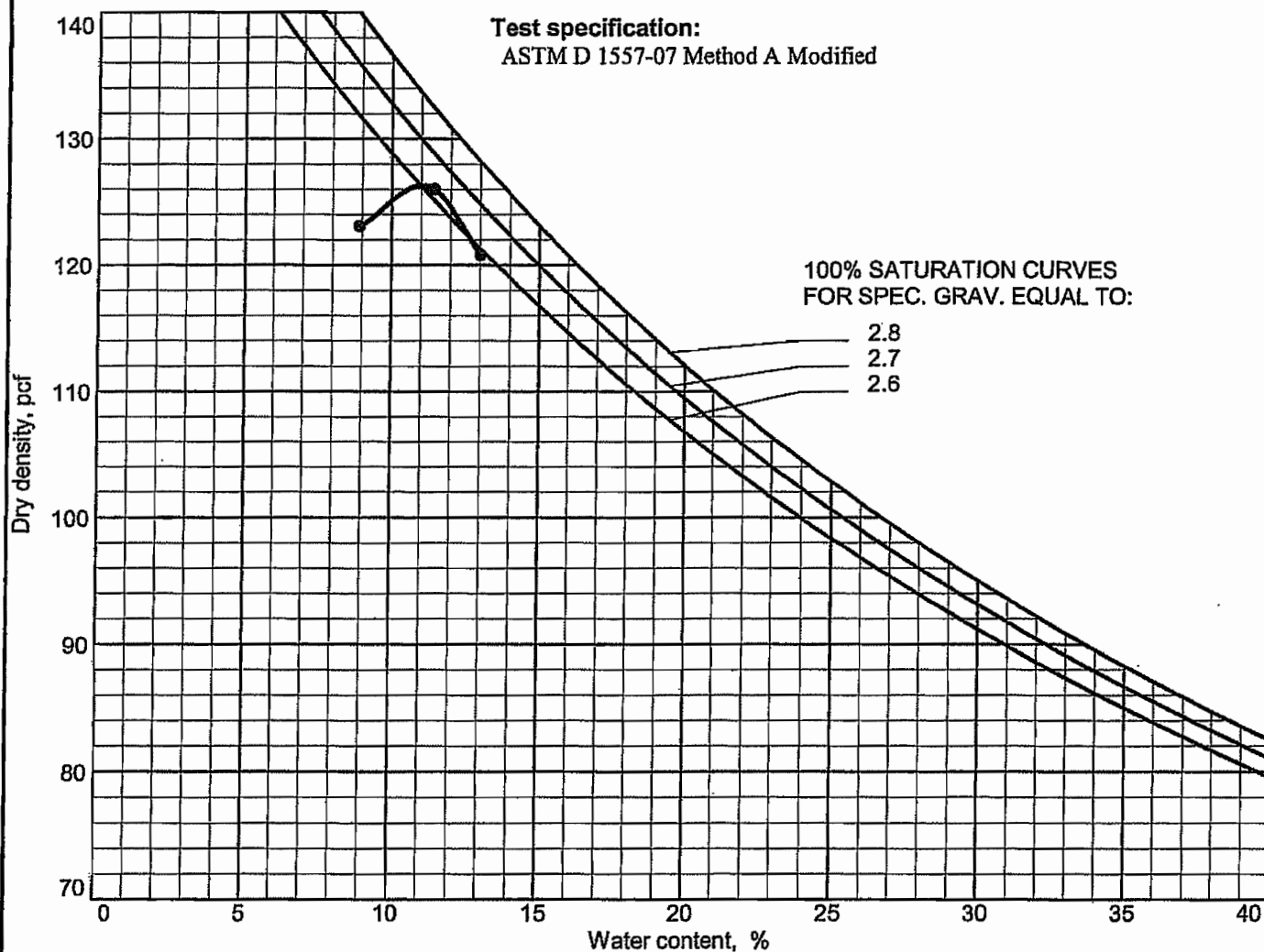
% > No.4 = 11.2 %

% < No.200 = 38.6 %

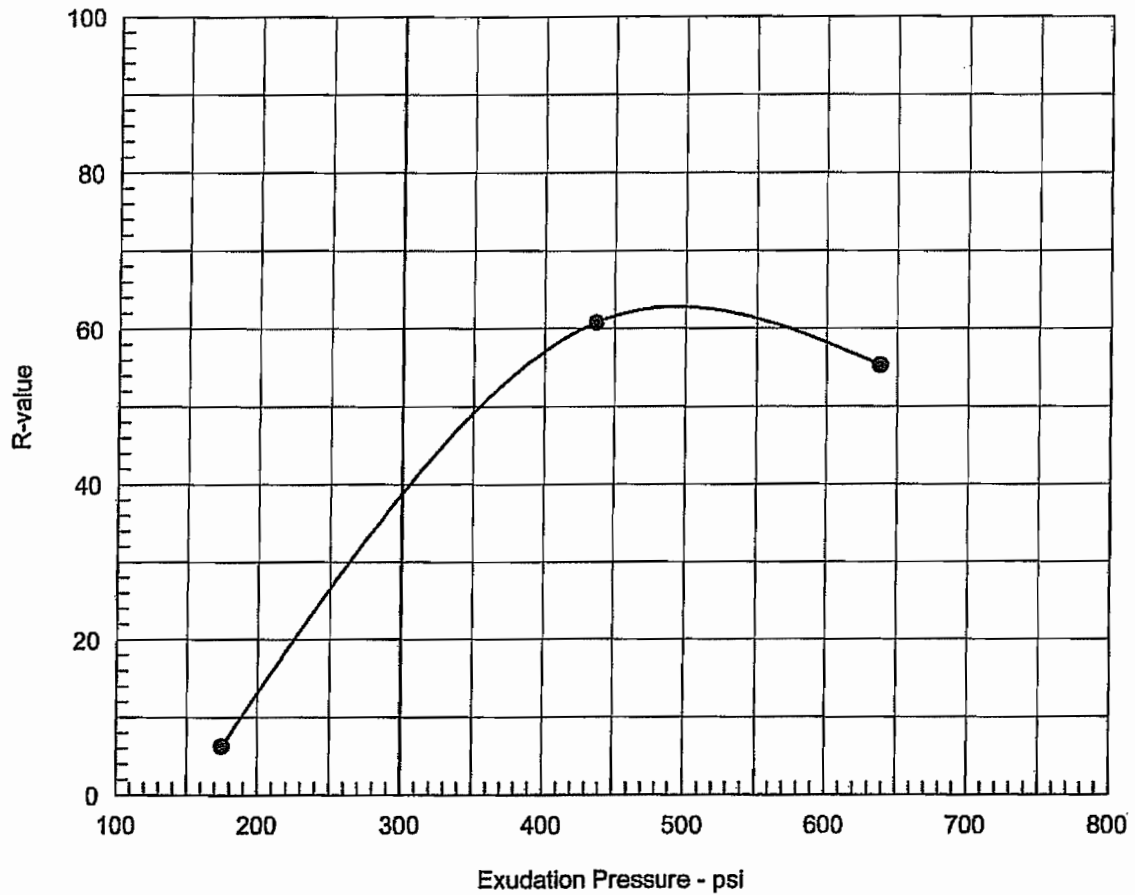
TEST RESULTS

Maximum dry density = 126.5 pcf

Optimum moisture = 11.0 %



R-VALUE TEST REPORT



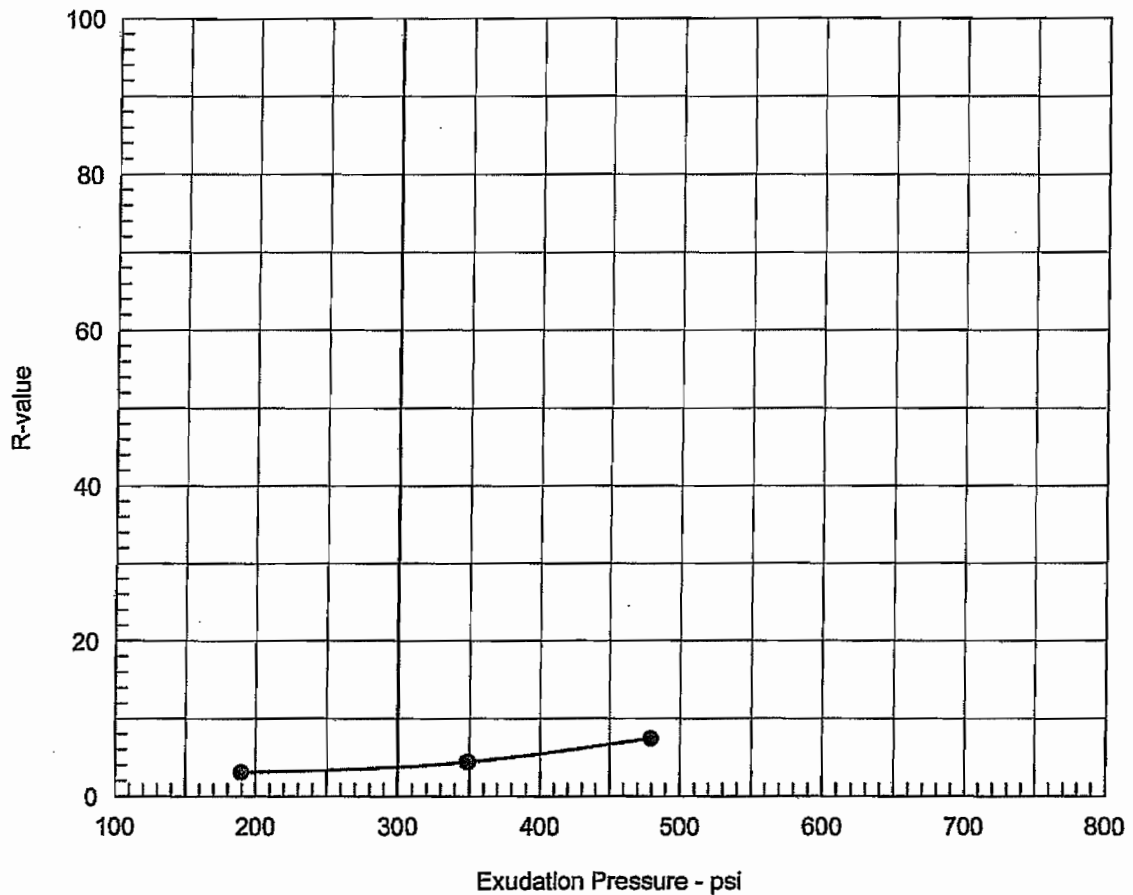
Resistance R-Value and Expansion Pressure - ASTM D 2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	350	112.1	14.8	0.00	134	2.70	175	6	6
2	350	114.9	12.9	0.48	34	2.40	437	63	61
3	350	112.3	12.0	0.64	39	2.40	638	58	55

Test Results	Material Description
R-value at 300 psi exudation pressure = 39	
Project No.: 20092529E1 Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT Location: TEST PIT TP-3 @ 0.0'-2.0' Sample Number: TP-3 Depth: 0.0'-2.0' Date: 6/29/2009	Tested by: AS Checked by: AS Remarks:
R-VALUE TEST REPORT GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	

Figure B-17

R-VALUE TEST REPORT

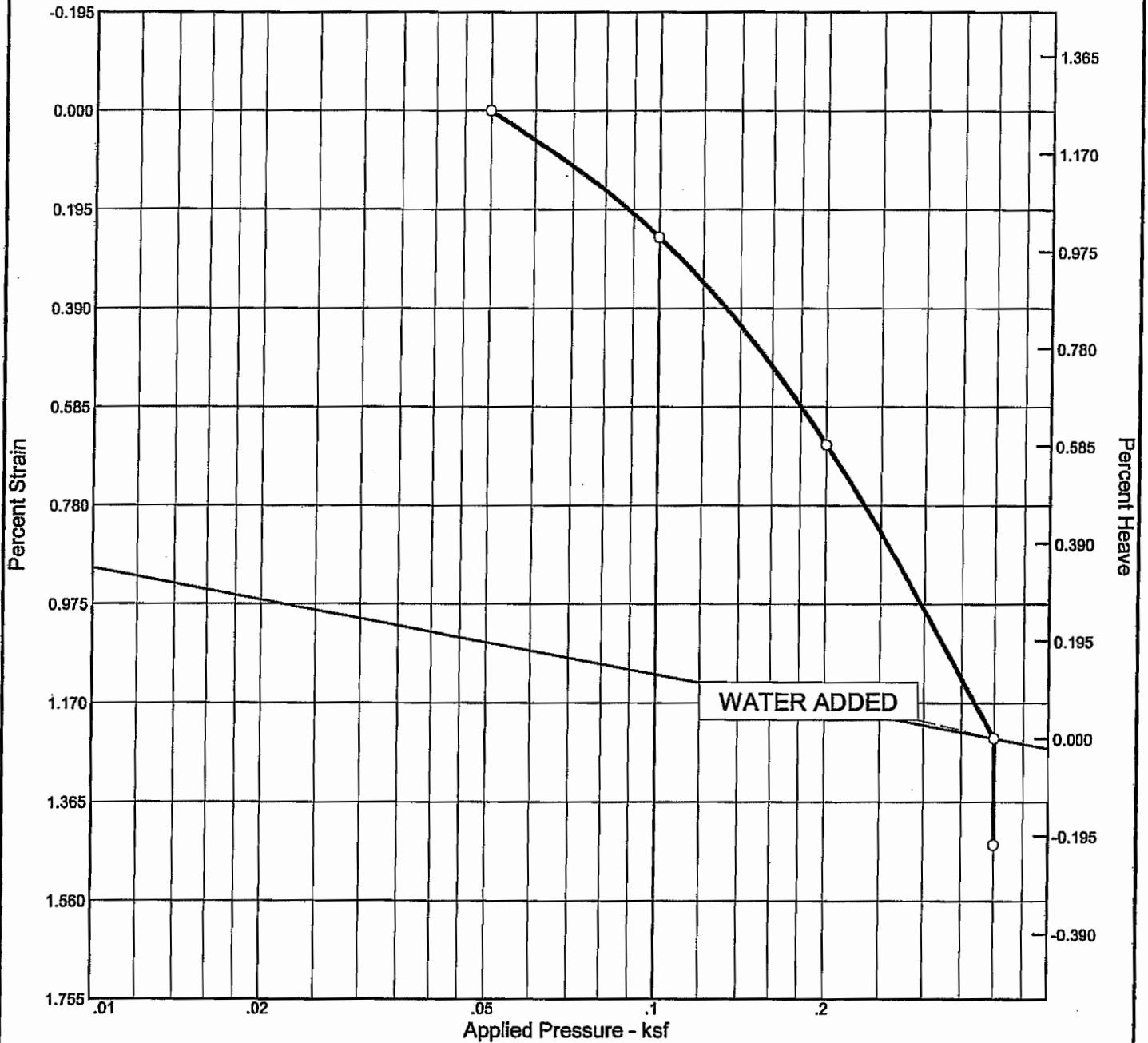


Resistance R-Value and Expansion Pressure - ASTM D 2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	100	109.0	16.0	0.00	145	2.50	189	3	3
2	150	112.8	15.0	0.00	140	2.50	349	4	4
3	250	114.7	14.1	0.00	132	2.50	479	7	7

Test Results						Material Description			
R-value at 300 psi exudation pressure = 4									
Project No.: 20092529E1 Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT Location: TEST PIT TP-5 @ 0.0'-3.0' Sample Number: TP-5 Depth: 0.0'-3.0' Date: 6/29/2009						Tested by: AS Checked by: AS Remarks:			
R-VALUE TEST REPORT GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.						Figure B-18			

EXPANSION POTENTIAL



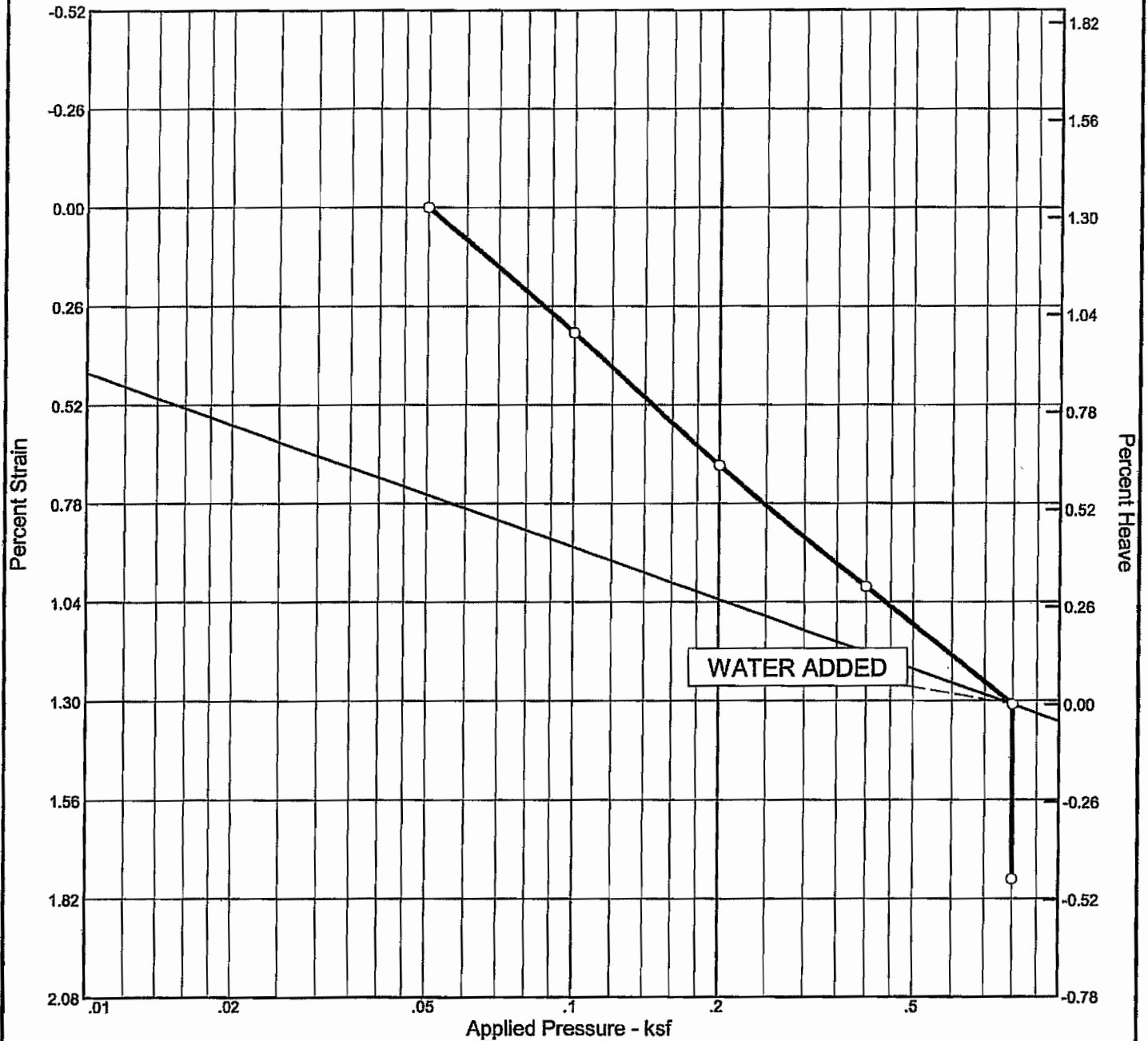
Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Swell Press. (ksf)	Heave %	e_o
Sat.	Moist.											
96.3 %	28.0 %	93.4	N/A	N/A	2.65	0.70	61.85	0.00			-0.2	0.772

MATERIAL DESCRIPTION										USCS	AASHTO
LEAN CLAY WITH SAND										CL	

Project No. 20092529E1 Client: CH2M HILL	Remarks: ENTERED BY:AS
Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT	
Location: BORING B-2 @ 6.0'-6.5'	
GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	Figure B-19

Figure B-19

EXPANSION POTENTIAL

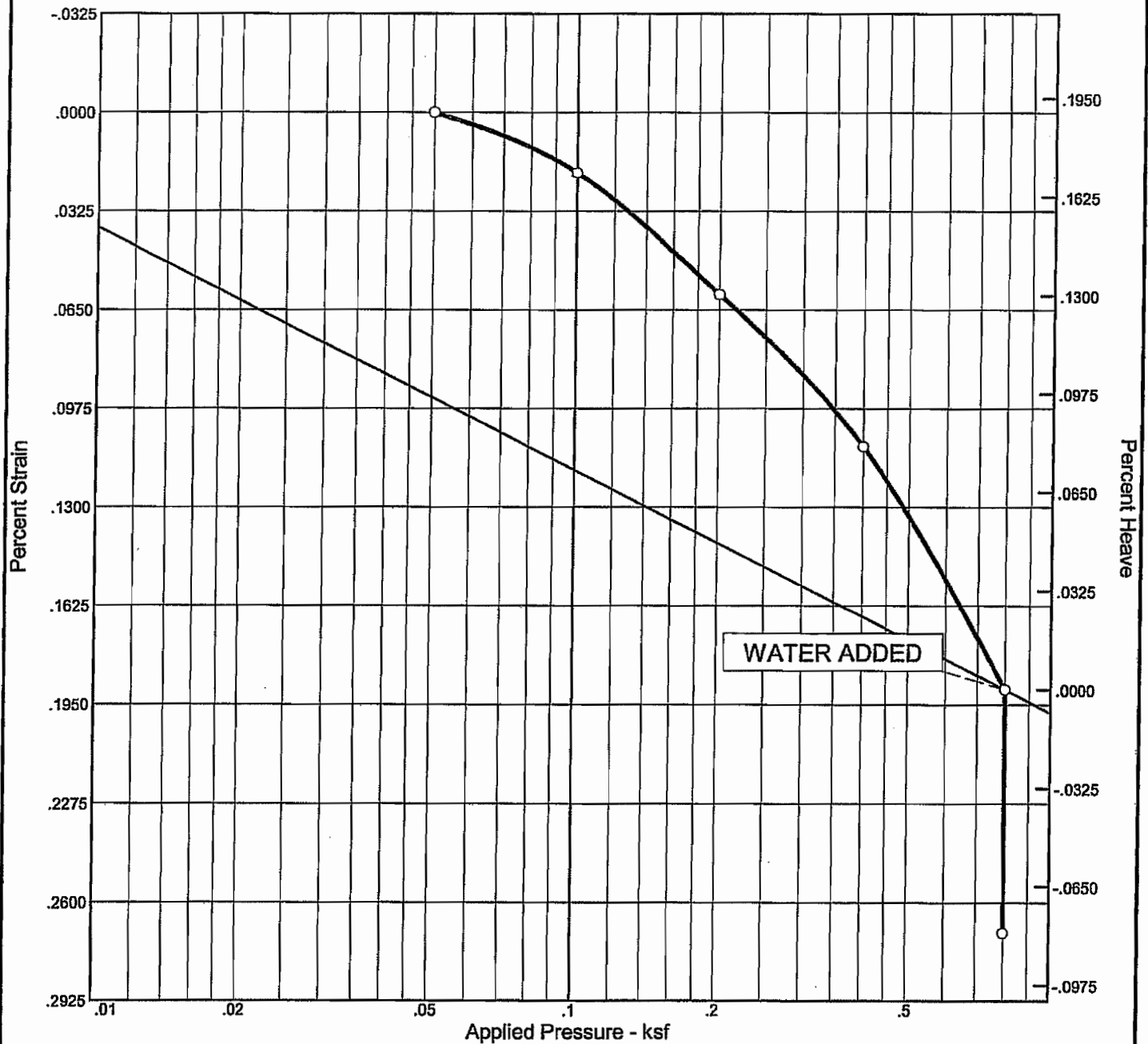


Natural	Dry Dens.	LL	PI	Sp. Gr.	Overburden	P _c	C _c	C _r	Swell Press.	Heave %	e _o
Sat.	Moist.	(pcf)			(ksf)	(ksf)			(ksf)		
93.0 %	24.2 %	97.9	N/A	N/A	0.70	550.18	0.01			-0.5	0.690

MATERIAL DESCRIPTION	USCS	AASHTO
LEAN CLAY	CL	

Project No. 20092529E1 Client: CH2M HILL Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT Location: BORING B-3 @ 6.0'-6.5'	Remarks: ENTERED BY:AS
 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	Figure B-20

EXPANSION POTENTIAL



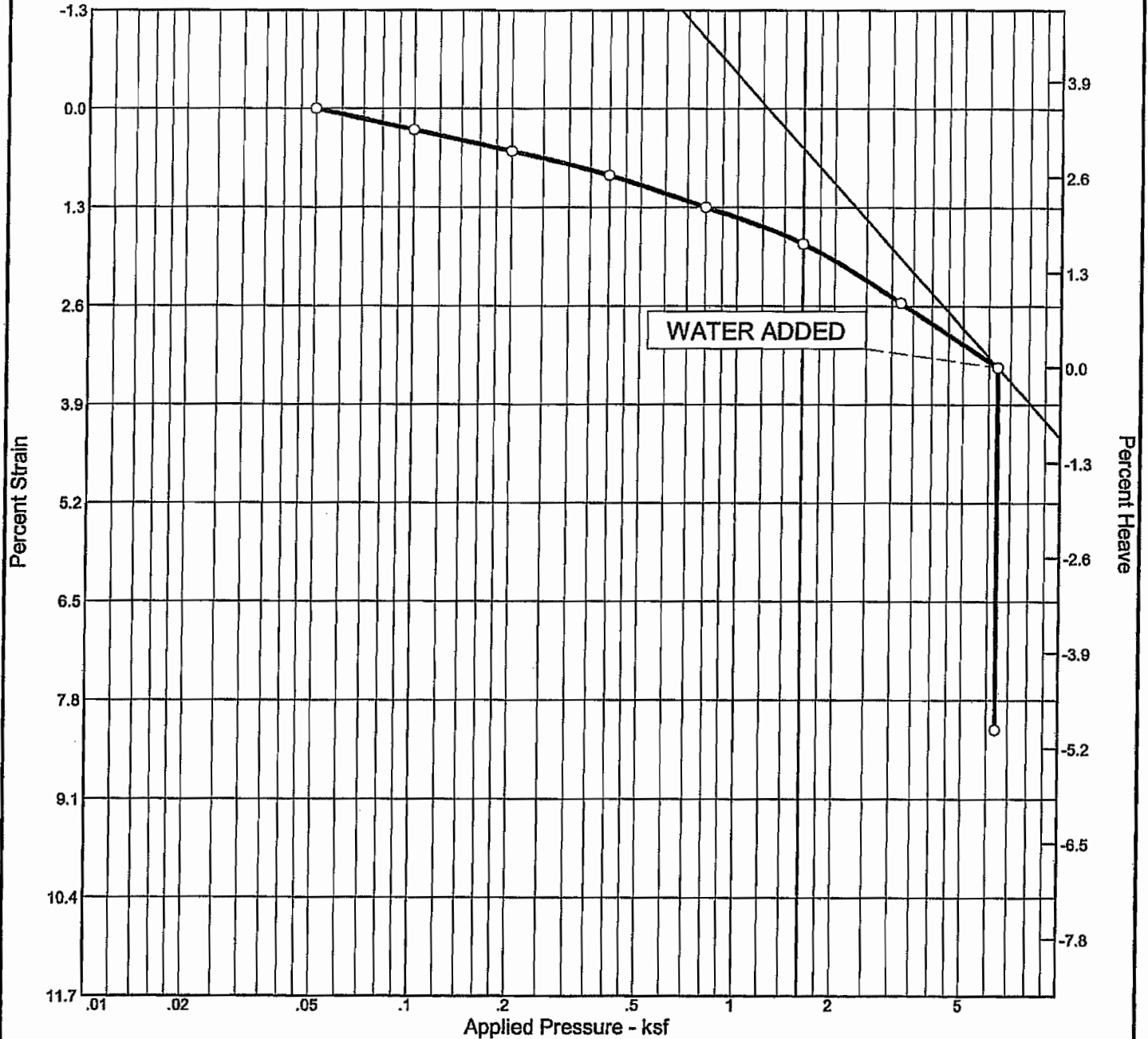
Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P _C (ksf)	C _C	C _r	Swell Press. (ksf)	Heave %	e ₀
Sat.	Moist.											
63.4 %	13.4 %	106.2	N/A	N/A	2.65	1.30	0.00	0.00			-0.1	0.558

MATERIAL DESCRIPTION										USCS	AASHTO
										SM	

Project No. 20092529E1 Client: CH2M HILL		Remarks: ENTERED BY:AS
Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT		
Location: BORING B-4 @ 11.0'-11.5'		
 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.		Figure B-21

Figure B-21

HYDRO-COLLAPSE



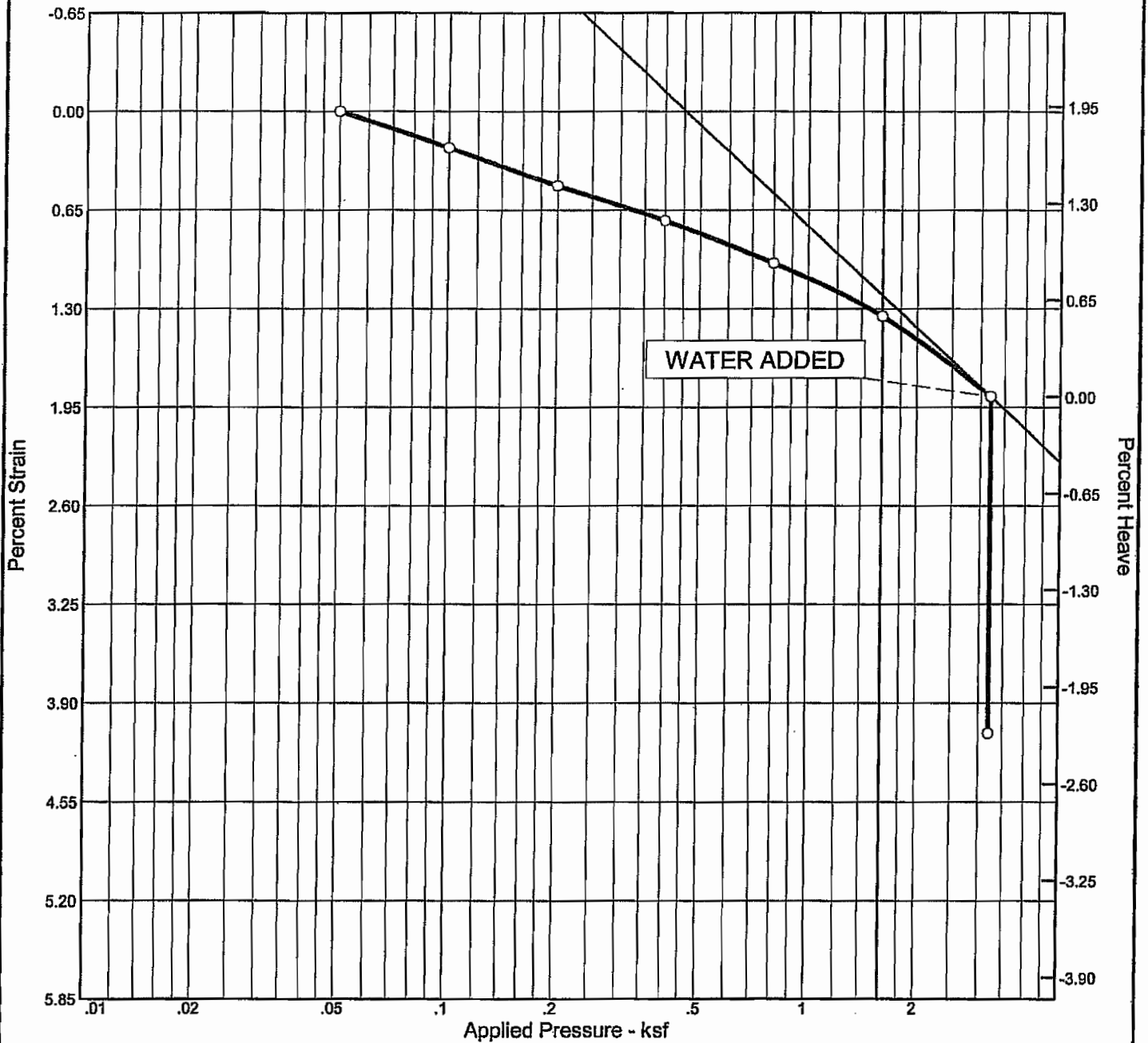
Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Swell Press. (ksf)	Heave %	e_0
Sat.	Moist.											
30.0 %	8.2 %	96.1	N/A	N/A	2.65	0.60	3.45	0.08			-4.9	0.722

MATERIAL DESCRIPTION										USCS	AASHTO
SILTY SAND										SM	

Project No. 20092529E1 Client: CH2M HILL Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT Location: BORING B-1 @ 6.0'-6.5'	Remarks: ENTERED BY:AS
 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	Figure B-22

Figure B-22

HYDRO-COLLAPSE



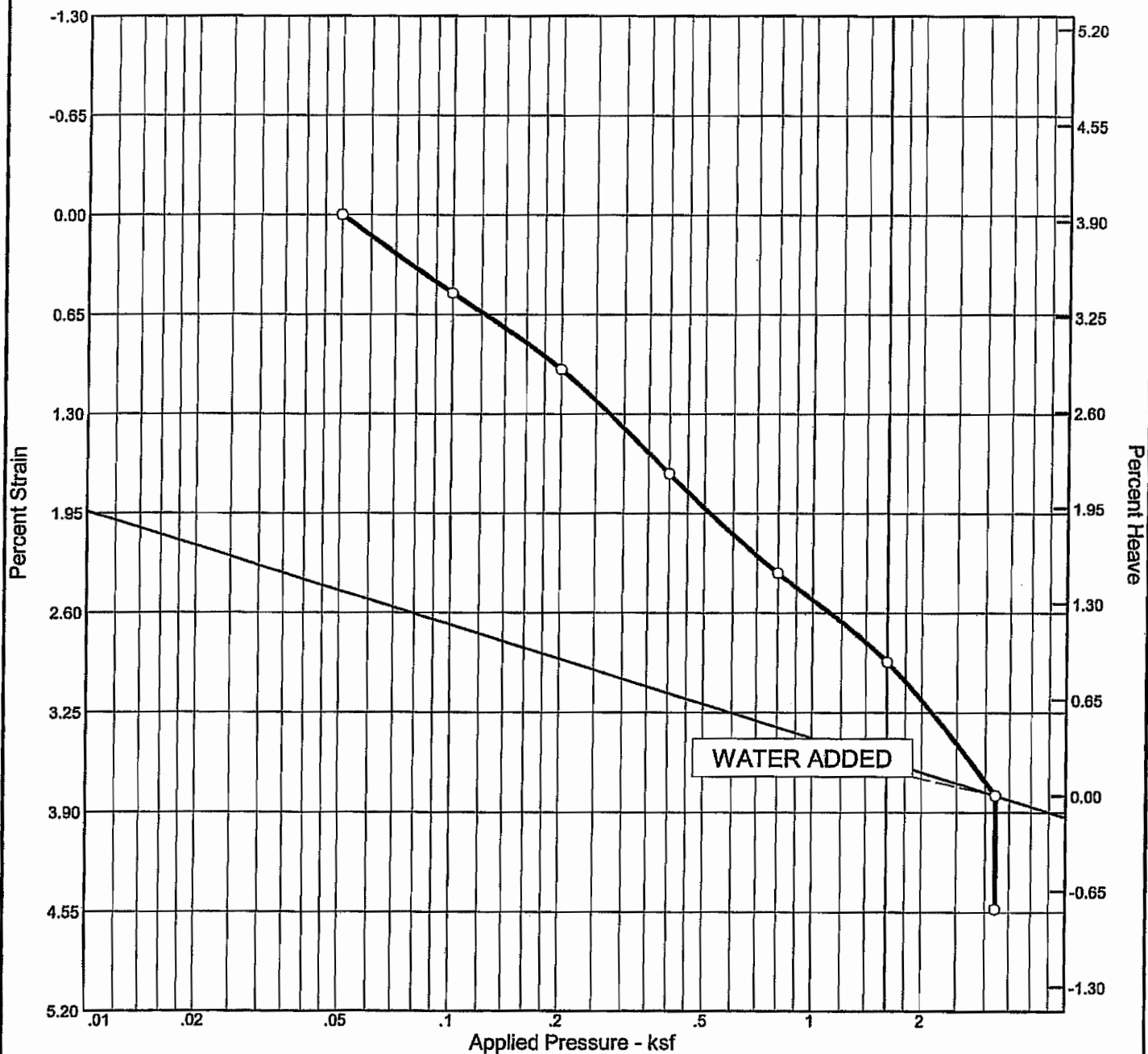
Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Swell Press. (ksf)	Heave %	e_0
Sat.	Moist.											
48.8 %	11.0 %	103.6	N/A	N/A	2.65	0.30	1.98	0.04			-2.3	0.596

MATERIAL DESCRIPTION										USCS	AASHTO
CLAYEY SAND										SC	

Project No. 20092529E1 Client: CH2M HILL		Remarks: ENTERED BY:AS
Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT		
Location: BORING B-2 @ 3.0'-3.5'		
		Figure B-23
<u>GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.</u>		

Figure B-23

HYDRO-COLLAPSE



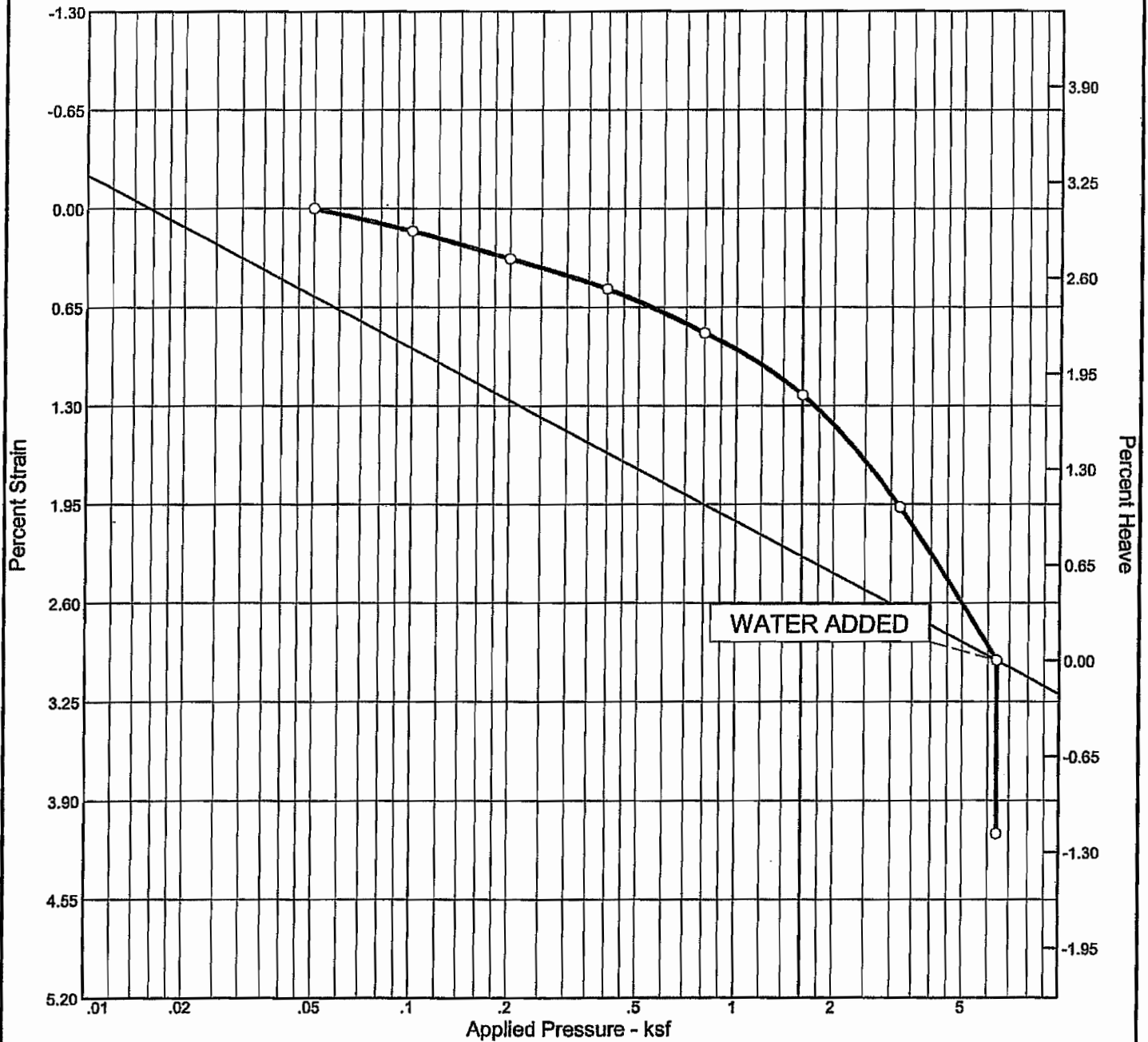
Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P _c (ksf)	C _c	C _r	Swell Press. (ksf)	Heave %	e _o
Sat.	Moist.											
72.0 %	16.9 %	101.9	N/A	N/A	2.65	0.30	49.07	0.01			-0.8	0.623

MATERIAL DESCRIPTION										USCS	AASHTO
SILTY SAND										SM	

Project No. 20092529E1 Client: CH2M HILL	Remarks: ENTERED BY:AS
Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT	
Location: BORING B-3 @ 3.0'-3.5'	
 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	Figure B-24

Figure B-24

HYDRO-COLLAPSE



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Swell Press. (ksf)	Heave %	e_o
Sat.	Moist.											
82.2 %	19.7 %	101.1	N/A	N/A	2.65	0.70	0.00	0.02			-1.2	0.637

MATERIAL DESCRIPTION										USCS	AASHTO
SANDY LEAN CLAY										CL	

Project No. 20092529E1 Client: CH2M HILL
 Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT
 Location: BORING B-4 @ 6.0'-6.5'

Remarks:
 ENTERED BY:AS



Figure B-25



GEOTECHNICAL &
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SERVICES, INC.

SWELL/EXPANSION TEST SUMMARY

7150 Placid Street
Las Vegas, Nevada 89119
(702) 365-1001

Project Name: CLV-WPCF Solar Photovoltaic Project

Client: CH2M HILL

Project No.: 20092529E1

Test Method: SNBC 1802.3.3 (60pcf surcharge) and ASTM D 4546 (others)

Sample Dates: 6/3/2009 and 6/4/2009

Report Date: June 26, 2009

LAB NUMBER	SAMPLE LOCATION	SAMPLE DEPTH (feet)	USCS	TEST CONDITION	SURCHARGE LOAD (psf)	INITIAL DRY DENSITY ¹ (pcf)	INITIAL MOISTURE CONTENT ² (%)	FINAL MOISTURE CONTENT (%)	EXPANSION ³ (%)
09-0034	B-1	3.0'-3.5'	SM	IN-PLACE	60	78.6	7.1	40.6	4
09-0034	B-2	6.0'-6.5'	CL	IN-PLACE	400	93.4	28.0	29.5	0
09-0034	B-3	6.0'-6.5'	CL	IN-PLACE	800	97.9	24.2	25.2	-1
09-0034	B-4	3.0'-3.5'	CL	IN-PLACE	60	110.7	9.9	20.4	1
09-0034	B-4	11.0'-11.5'	SM	IN-PLACE	800	106.2	13.4	18.3	0
09-0034	TP-1	3'-10'	SM	REMOLDED	60	111.9	11.0	15.5	5
09-0034	TP-2	0'-6'	SM	REMOLDED	60	112.5	10.4	18.7	9
09-0034	TP-3	2'-10'	CL	REMOLDED	60	111.8	10.4	24.4	17
09-0034	TP-4	5'-9'	SC	REMOLDED	60	106.8	16.3	17.6	5
09-0034	TP-5	3'-7'	CL	REMOLDED	60	111.3	11.2	21.8	10

1 Remolded samples were remolded to approximately 92% of the estimated soil maximum dry density (AASHTO T180)

2 Moisture content prior to oven drying.

3 Positive values refer to swell. Negative values refer to collapse.

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LABORATORY NO: 15551(a)

DATE: June 18, 2009

SAMPLE:

P.O.:

MARKED: 20092529E1

LAB ID: 09-0034

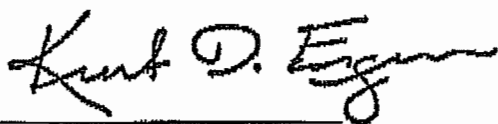
SUBMITTED BY: Geotechnical & Environmental Services

SOIL SIEVE = -10

ANALYZED BY: Kurt D. Ergun

REPORT OF DETERMINATION

BORING NUMBER	B-1	B-2	B-3	B-4	B-5	
SAMPLE NUMBER						
DEPTH (feet)	3.5-5.0	3.0-3.5	3.5-5.0	6.5-10.0	3.0-3.5	
pH VALUE	8.26	8.41	8.45	8.53	8.69	
RED-OX (mv)	+605	+605	+601	+588	+630	
SULFATE (mg/Kg)	5830	5170	8608	7590	5830	
SULFIDE (mg/Kg)	Nil	Nil	Nil	Nil	Nil	
TOTAL SALTS (mg/Kg)	11872	15400	18368	14952	12320	
CHLORIDE (mg/Kg)	75	1175	1175	325	250	



LABORATORY DIRECTOR

NOTES:

1. The soil:water extract ratio was 1:5, the results are in mg/Kg in the soil.
2. The standard methods used for the determinations are AWWA 4500 H pH Value, ASTM D 1498 Red-Ox, AWWA 4500 E-SO₄ Turbidimetric, AWWA 4500-S D Methylene Blue, AWWA 2510 Electrical Conductivity and AWWA 4500-CI B Argentometric.
3. Nil is less than 1.0 mg/Kg.

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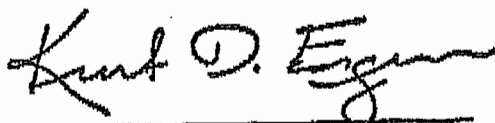
ACT LAB NO: 15551(a)-2 DATE: June 25, 2009
PROJECT NO: 20092529E1 P.O.:
SUBMITTED BY: Geotechnical & Environmental LAB ID: 09-0034
Services
ANALYZED BY: Kurt D. Ergun

REPORT OF DETERMINATION

AWWA 2540 C

SOIL SIEVE SIZE = -10 MESH

<u>Sample No.</u>	<u>Location</u>	<u>Depth (feet)</u>	<u>Solubility Percent</u>
	B-1	3.5-5.0	1.19
	B-2	3.0-3.5	1.54
	B-3	3.5-5.0	1.84
	B-4	6.5-10.0	1.50
	B-5	3.0-3.5	1.23



LABORATORY DIRECTOR

Notes: The results for each constituent denote the percentage of that analyte, at a 1:5 (soil:water) extraction ratio, which is present in the soil.

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LABORATORY NO: 15551(c)

DATE: June 18, 2009

SAMPLE:

P.O.:

MARKED: 20092529E1

LAB ID: 09-0034

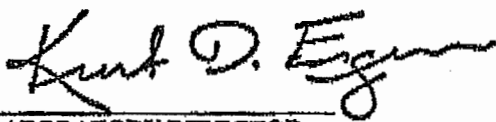
SUBMITTED BY: Geotechnical & Environmental Services

SOIL SIEVE = -10

ANALYZED BY: Kurt D. Ergun

REPORT OF DETERMINATION

BORING NUMBER	TP-2	TP-3	TP-4	TP-5	TP-5	
SAMPLE NUMBER						
DEPTH (feet)	0-6.0	2.0-10.0	5.0-9.0	0-3.0	3.0-7.0	
pH VALUE	8.60	8.47	8.54	8.38	8.37	
RED-OX (mv)	+610	+613	+626	+606	+616	
SULFATE (mg/Kg)	10065	12760	4675	12788	10478	
SULFIDE (mg/Kg)	Nil	Nil	Nil	Nil	Nil	
TOTAL SALTS (mg/Kg)	18480	21112	11648	22064	19152	
CHLORIDE (mg/Kg)	1125	1325	475	1175	650	



LABORATORY DIRECTOR

- NOTES:
1. The soil:water extract ratio was 1:5, the results are in mg/Kg in the soil.
 2. The standard methods used for the determinations are AWWA 4500 H pH Value, ASTM D 1498 Red-Ox, AWWA 4500 E-SO₄ Turbidimetric, AWWA 4500-S D Methylene Blue, AWWA 2510 Electrical Conductivity and AWWA 4500-Cl B Argentometric.
 3. Nil is less than 1.0 mg/Kg.

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ACT LAB NO: 15551(c)-2 DATE: June 25, 2009
PROJECT NO: 20082529E1 P.O.:
SUBMITTED BY: Geotechnical & Environmental LAB ID: 09-0034
Services
ANALYZED BY: Kurt D. Ergun

REPORT OF DETERMINATION

AWWA 2540 C

SOIL SIEVE SIZE = -10 MESH

<u>Sample No.</u>	<u>Location</u>	<u>Depth (feet)</u>	<u>Solubility Percent</u>
	TP-2	0-6.0	1.85
	TP-3	2.0-10.0	2.11
	TP-4	5.0-9.0	1.16
	TP-5	0-3.0	2.21
	TP-5	3.0-7.0	1.92



LABORATORY DIRECTOR

Notes: The results for each constituent denote the percentage of that analyte, at a 1:5 (soil:water) extraction ratio, which is present in the soil.

[illegible]

**PRELIMINARY GEOTECHNICAL EVALUATION REPORT
CLV- WPCF SOLAR PHOTOVOLTAIC PROJECT
LOCATED NEAR THE SOUTHWEST CORNER OF
VEGAS VALLEY DRIVE AND TREE LINE DRIVE
CLARK COUNTY, NEVADA**

As previously described the majority of the southern 2/3 of the site has been used as a spoils dump area for soils and debris, likely from nearby construction projects. Many of the piles are contiguous from end-dump trucks, except one large pile of imported reddish-brown cobbles located within the southern portion of the site parallel to the Las Vegas Wash. Within the piles are scattered large caliche boulders, large pieces of crushed asphalt pavement and waste concrete, plastic wire insulation, and various landscape debris. The spoils vary in soil type from boulders and cobbles to poorly graded gravels to clays and silts. The actual depths and lateral extent of the fill piles are unknown, but it is likely that spread fill exists across the site and beneath the spoils piles to depths of at least a few feet to several feet.

It is our understanding that the owner may want to use the on-site soils as structural fill at the site. GES obtained bulk samples and performed laboratory testing on the samples to evaluate the suitability of the soils in the piles for use as structural fill. Bulk samples were obtained from the fill piles at 5 locations throughout the site with a back-hoe. The soils sampled at each location were blended so the resulting bulk sample was a composite of the materials obtained at each location. The locations of the 5 sample locations, C-1 through C-5, are shown on Figure A-2.

GES performed laboratory testing on each of the bulk samples to evaluate the physical and engineering properties of the soils and evaluate the suitability of the soils for use as structural fill. Laboratory testing included grain size distribution (ASTM D 9999), Atterberg Limits (STM D 4318), remolded swell tests (Southern Nevada Amendments to the 2006 International Building Code), maximum laboratory dry density (ASTM D 1557) and corrosivity tests including pH, reduction-oxidation potential, sulfate, sulfide, total salt and chloride tests, and total soluble solids. The test results are presented on Figures C-1 through C-10 in Appendix C. Detailed descriptions of the laboratory tests performed are also presented in Appendix B.

The debris observed in the fill soils, including organics, wire, trash, and concrete pieces are not suitable for use as structural fill and should be removed from the site. Generally the soils in the fill piles will be suitable for use as structural fill provided they are processed to meet the criteria for imported structural fill presented in Section 4.1. of this report.

The tests performed and the applicable import criteria from Section 4.1. of this report are presented in the following table:

Laboratory Test Summary

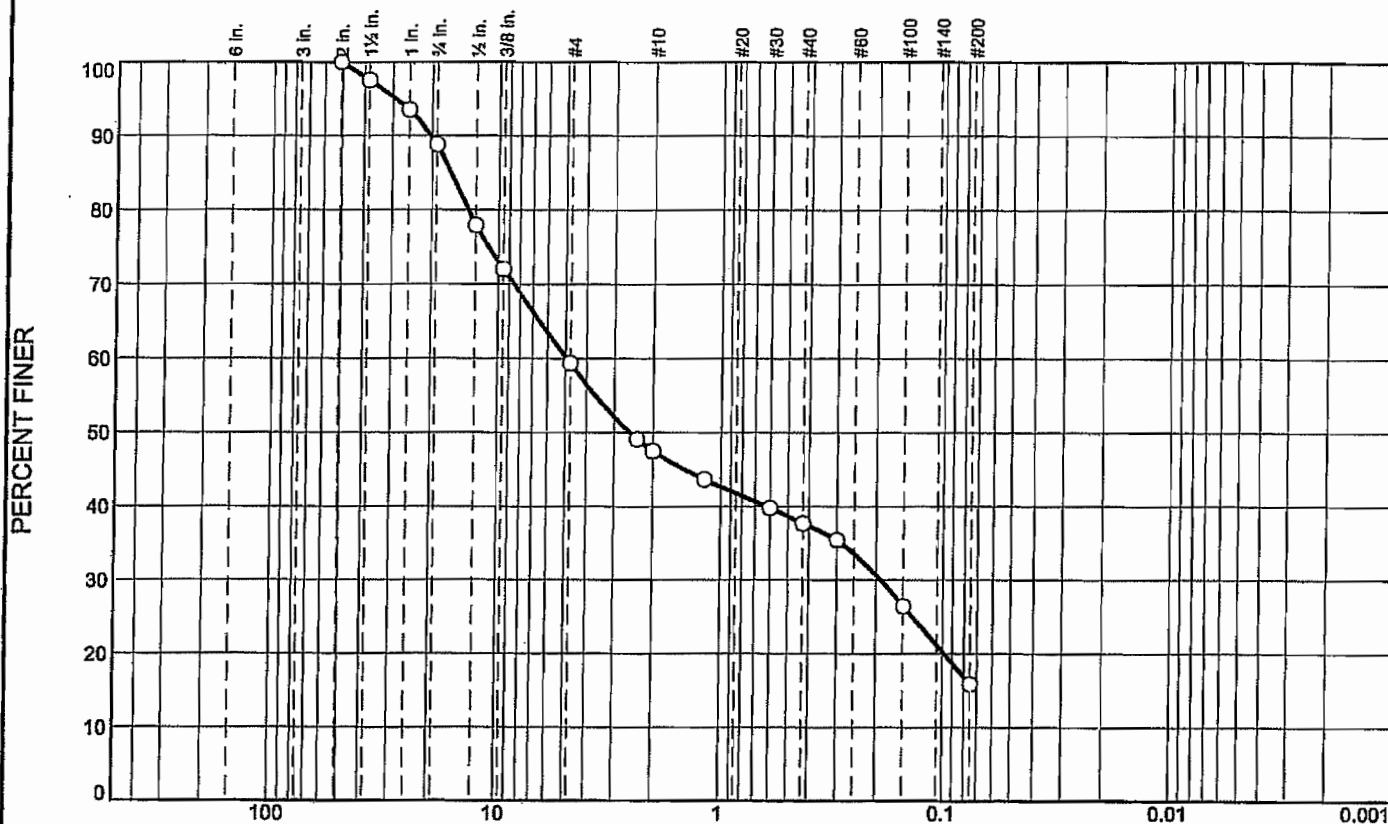
Type of Test	Import Criteria*	Sample Location				
		C-1	C-2	C-3	C-4	C-5
Passing the No. 200 Sieve, %	15-50	15.9	28.5	30.9	46.8	48.6
Liquid Limit	≤ 35	No-Value	28	No-Value	No-Value	32
Plasticity Index	≤ 15	Non Plastic	9	Non Plastic	Non Plastic	11
Maximum Dry Density, pcf	—	—	136.5	—	124.5	—
Optimum Moisture, %	—	—	8.0	—	11.5	—
Remolded Swell Potential (Section 1802.3.3 of the SNBCA), %	< 8	5	4	1	11	15
Chemical Testing	pH	—	8.62	8.75	8.58	8.32
	Red-Ox, mV	—	+608	+603	+605	+625
	Sulfate, %	≤ 1.00	0.65	0.06	0.12	0.99
	Sulfide, %	—	Nil	Nil	Nil	Nil
	Total Salts, %	—	1.19	0.40	0.54	1.30
	Chloride, %	—	0.05	0.02	0.03	0.59
	Solubility, %	≤ 2.00	1.19	0.37	0.54	1.30

*Import Criteria presented in Section 4.1. of this report

Based on the laboratory test results the soils sampled at locations C-1 through C-3 satisfy the import criteria while the soils sampled at location C-4 and C-5 do not based on the swell potential; the material samples at location C-5 also does not meet the solubility criteria. It may be possible to process fill pile soils that do not satisfy the import criteria to bring the material into accordance with the import criteria.

These results are for informational purposes only and do not constitute an acceptance of the material for placement as structural fill. Prior to any uncontrolled fill piles being used as structural fill they should be sampled and tested for suitability due to the variation in the material in the fill piles. If fill pile soils are to be placed as structural fill during construction, after acceptance by the Geotechnical Consultant, any debris or trash, including concrete pieces, should be removed from the fill piles and properly disposed of off-site. Structural fill should be free of material greater than 4 inches in nominal dimension and should be processed and placed in accordance with the recommendations in this report.

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	11.2	29.5	11.9	9.7	21.8	15.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2	100.0		
1.5	97.5		
1	93.5		
.75	88.8		
.5	78.0		
.375	72.0		
#4	59.3		
#8	49.1		
#10	47.4		
#16	43.6		
#30	39.8		
#40	37.7		
#50	35.4		
#100	26.4		
#200	15.9		

* (no specification provided)

Material Description

Silty sand with gravel

PL= NP Atterberg Limits LL= NV PI= NP

Coefficients
 D₈₅= 16.3987 D₆₀= 4.9344 D₅₀= 2.5619
 D₃₀= 0.1903 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= SM AASHTO= A-1-b

Remarks

ENTERED BY: AS

Sample Number: C-1
 Location: C-1 STOCKPILE

Date: 09/22/09



**GEOTECHNICAL &
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 SERVICES, INC.**

Client: CH2M HILL
 Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC
 PROJECT

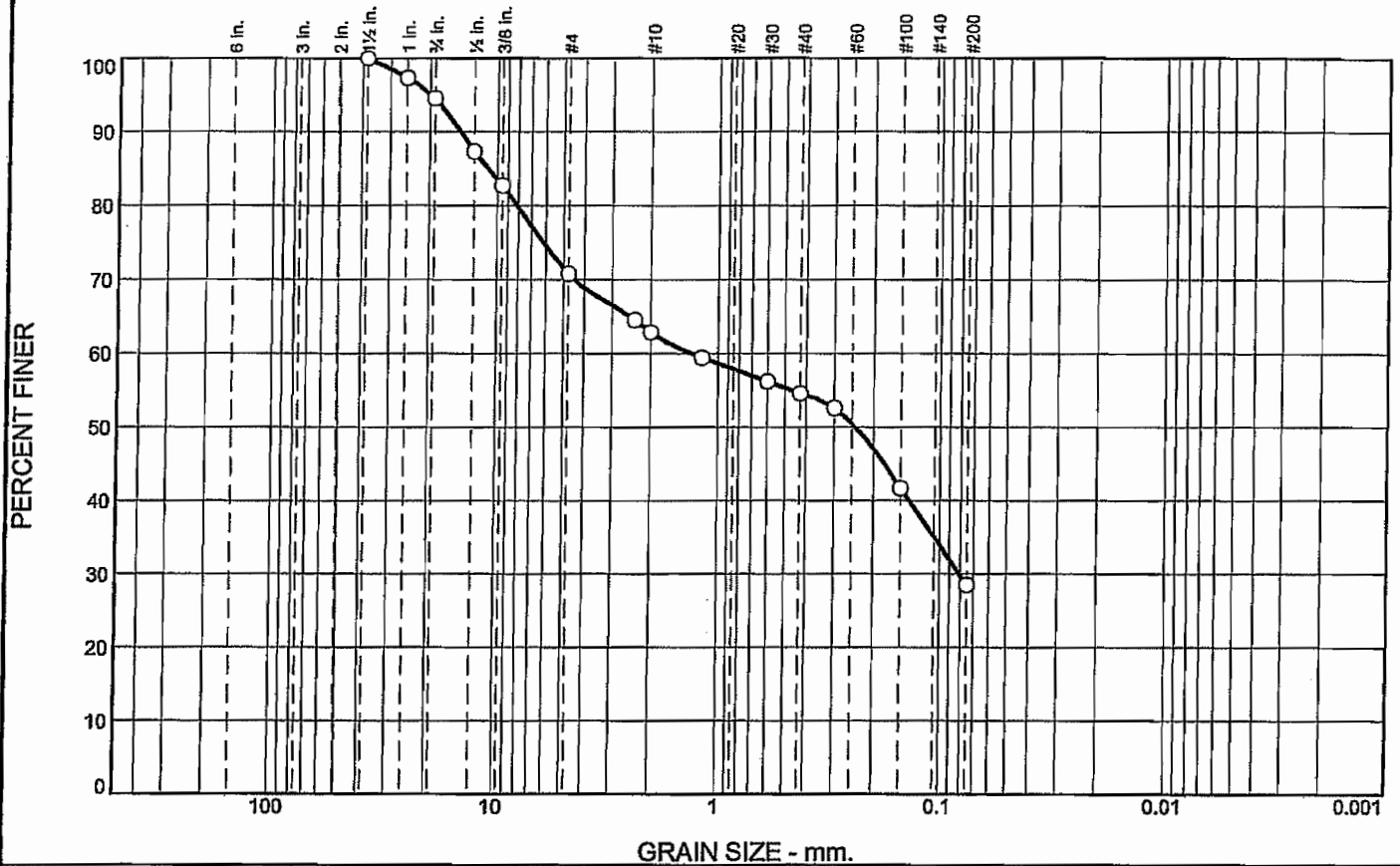
Project No: 20092529E1

Figure C-1

Tested By: AS

Checked By: AS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.5	23.7	7.9	8.3	26.1	28.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	97.3		
.75	94.5		
.5	87.3		
.375	82.8		
#4	70.8		
#8	64.5		
#10	62.9		
#16	59.4		
#30	56.2		
#40	54.6		
#50	52.6		
#100	41.7		
#200	28.5		

* (no specification provided)

Material Description

Clayey sand with gravel

Atterberg Limits

PL= 19

LL= 28

PI= 9

Coefficients

D₈₅= 10.9926

D₆₀= 1.3249

D₅₀= 0.2415

D₃₀= 0.0812

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= SC

AASHTO= A-2-4(0)

Remarks

ENTERED BY:AS

Sample Number: C-2
Location: C-2 STOCKPILE

Date: 06/22/09



**GEOTECHNICAL &
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SERVICES, INC.**

Client: CH2M HILL

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

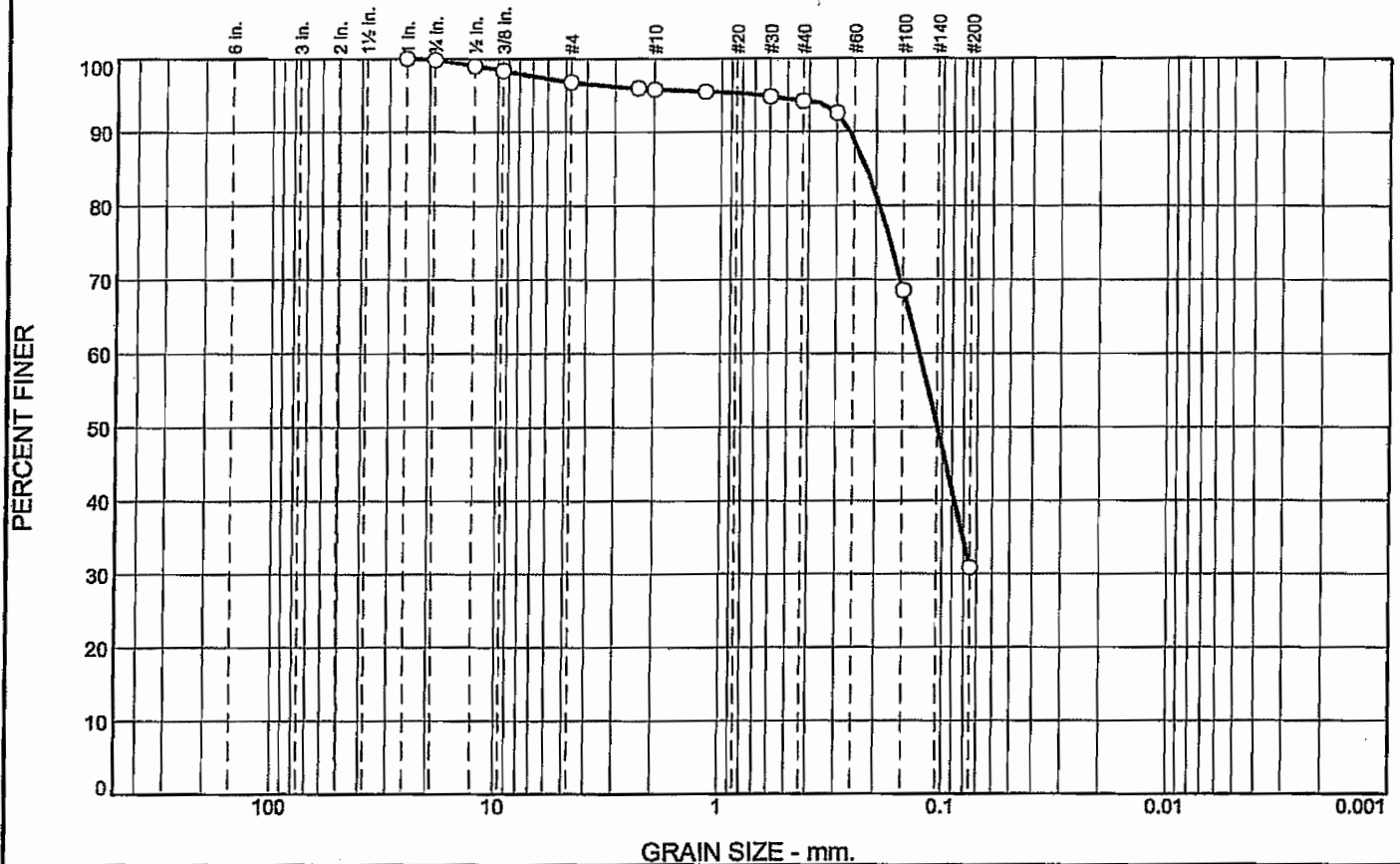
Project No: 20092529E1

Figure C-2

Tested By: AS

Checked By: AS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.2	3.1	0.9	1.7	63.2	30.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	99.8		
.5	99.0		
.375	98.3		
#4	96.7		
#8	95.9		
#10	95.8		
#16	95.4		
#30	94.8		
#40	94.1		
#50	92.6		
#100	68.5		
#200	30.9		

* (no specification provided)

Material Description

Silty sand

Atterberg Limits

PL= NP

LL= NV

PI= NP

Coefficients

D₈₅= 0.2203

D₆₀= 0.1268

D₅₀= 0.1053

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= SM

AASHTO= A-2-4(0)

Remarks

ENTERED BY:AS

Sample Number: C-3
Location: C-3 STOCKPILE

Date: 06/22/09



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SERVICES, INC.**

Client: CH2M HILL

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

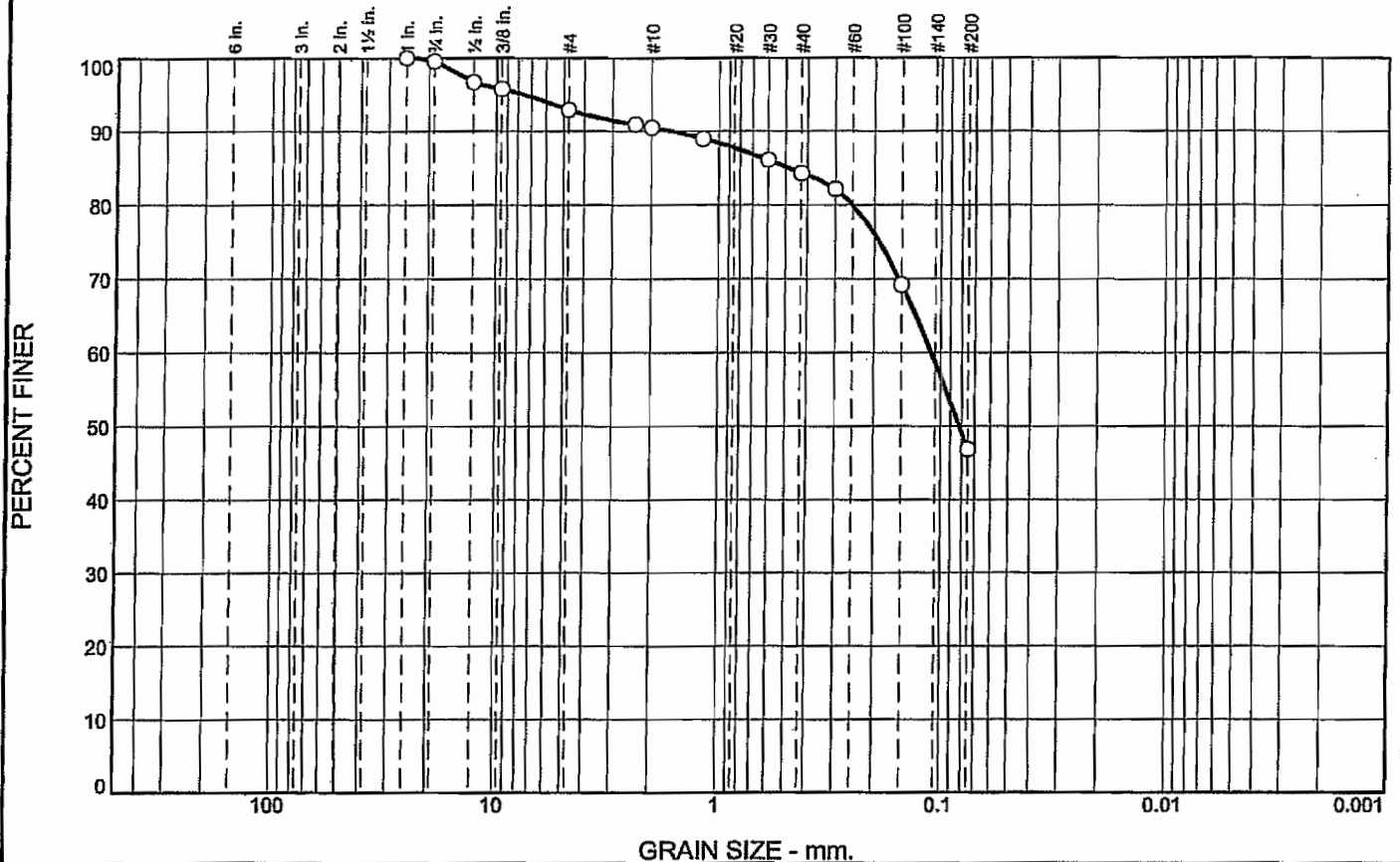
Project No: 20092529E1

Figure C-3

Tested By: AS

Checked By: AS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.5	6.6	2.4	6.2	37.5	46.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	99.5		
.5	96.7		
.375	95.8		
#4	92.9		
#8	90.9		
#10	90.5		
#16	89.0		
#30	86.1		
#40	84.3		
#50	82.2		
#100	69.2		
#200	46.8		

* (no specification provided)

Material Description

Silty sand

Atterberg Limits

PL= NP

LL= NV

PI= NP

Coefficients

D₈₅= 0.4829

D₆₀= 0.1104

D₅₀= 0.0822

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS=

AASHTO= A-4(0)

Remarks

ENTERED BY:AS

Sample Number: C-4
Location: C-4 STOCKPILE

Date: 06/22/09



**GEOTECHNICAL &
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SERVICES, INC.**

Client: CH2M HILL

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

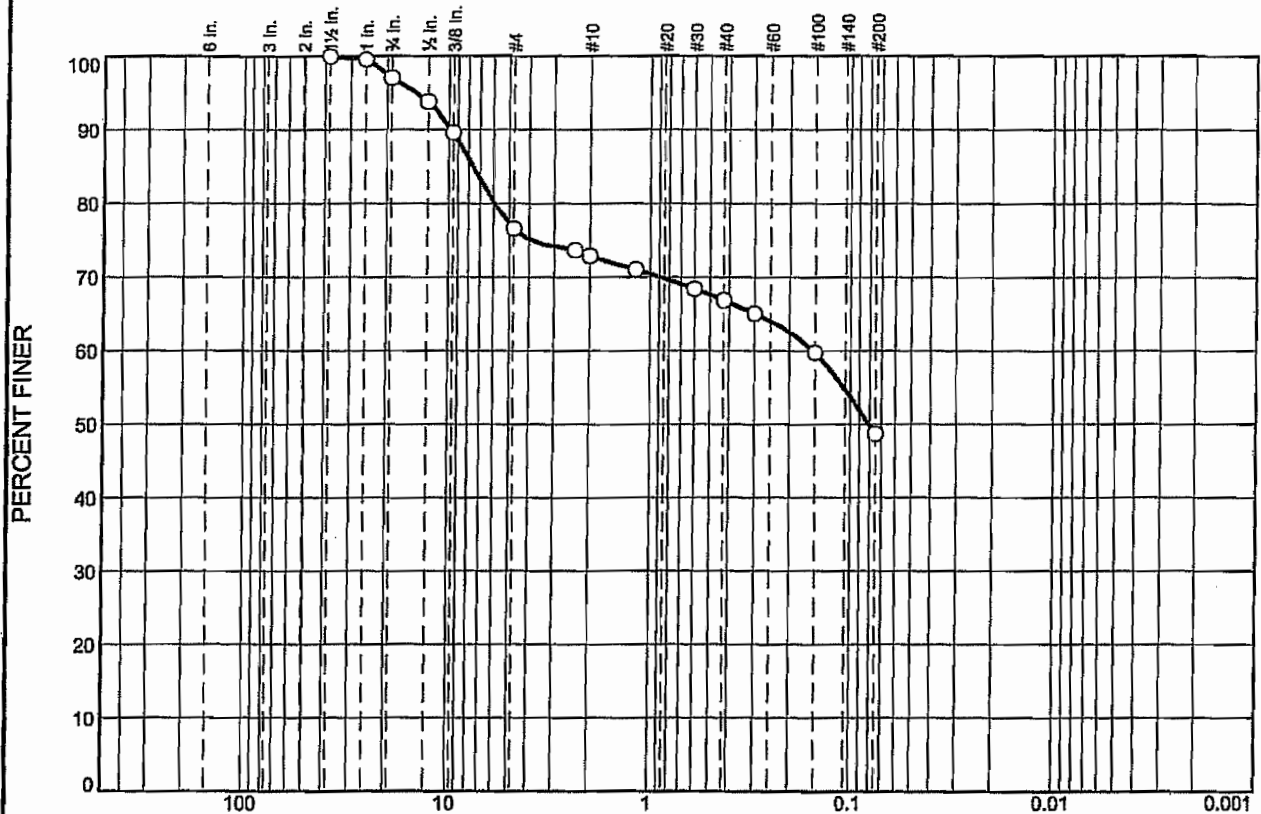
Project No: 20092529E1

Figure C-4

Tested By: AS

Checked By: AS

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.9	20.5	3.7	6.0	18.3	48.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	99.6		
.75	97.1		
.5	93.8		
.375	89.6		
#4	76.6		
#8	73.6		
#10	72.9		
#16	71.0		
#30	68.4		
#40	66.9		
#50	65.1		
#100	59.7		
#200	48.6		

* (no specification provided)

Material Description

Clayey sand with gravel

Atterberg Limits

PL= 21 LL= 32 PI= 11

Coefficients

D₈₅= 7.5625 D₆₀= 0.1536 D₅₀= 0.0808
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SC AASHTO= A-6(3)

Remarks

ENTERED BY:AS

Sample Number: C-5
Location: C-5 STOCKPILE

Date: 06/22/09



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SERVICES, INC.

Client: CH2M HILL

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC
PROJECT

Project No: 20092529E1

Figure C-5

Tested By: AS

Checked By: AS

COMPACTION TEST REPORT

Curve No.: 09-0034

Project No.: 20092529E1

Date: 6/26/09

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

Location: C-2 STOCKPILE

Elev./Depth:

Sample No. C-2

Remarks:

MATERIAL DESCRIPTION

Description: Clayey sand with gravel

Classifications -

USCS: SC

AASHTO: A-2-4(0)

Nat. Moist. =

Sp.G. = 2.65

Liquid Limit = 28

Plasticity Index = 9

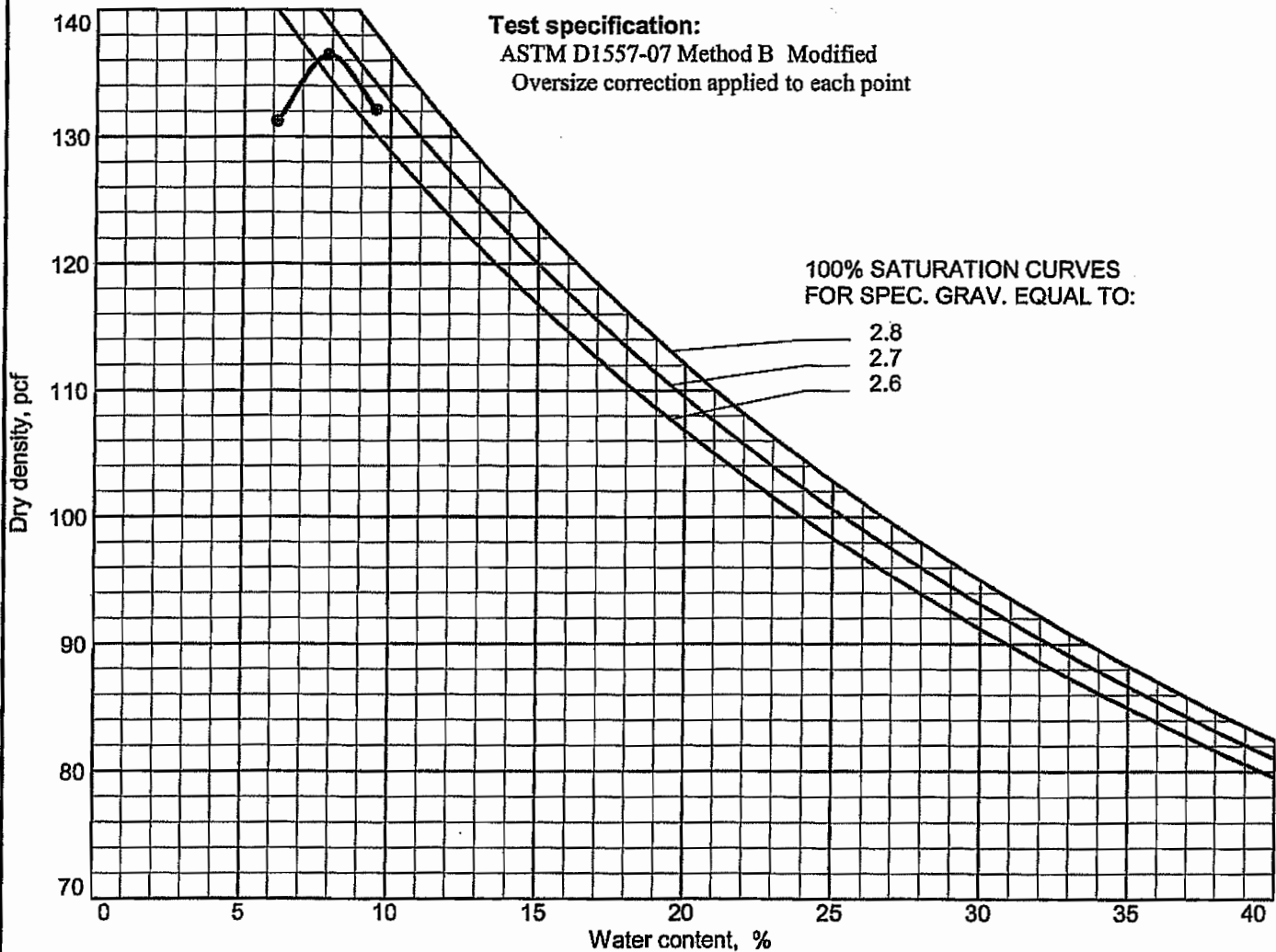
% > 3/8 in. = 17.2 %

% < No.200 = 28.5 %

ROCK CORRECTED TEST RESULTS

Maximum dry density = 136.5 pcf

Optimum moisture = 8.0 %



COMPACTION TEST REPORT

Curve No.: 09-0034

Project No.: 20092529E1

Date: 6/26/09

Project: CITY OF LAS VEGAS-WPCF SOLAR PHOTOVOLTAIC PROJECT

Location: C-4 STOCKPILE

Elev./Depth:

Sample No. C-4

Remarks:

MATERIAL DESCRIPTION

Description: Silty sand

Classifications -

USCS: SM

AASHTO: A-4(0)

Nat. Moist. =

Sp.G. = 2.65

Liquid Limit = NV

Plasticity Index = NP

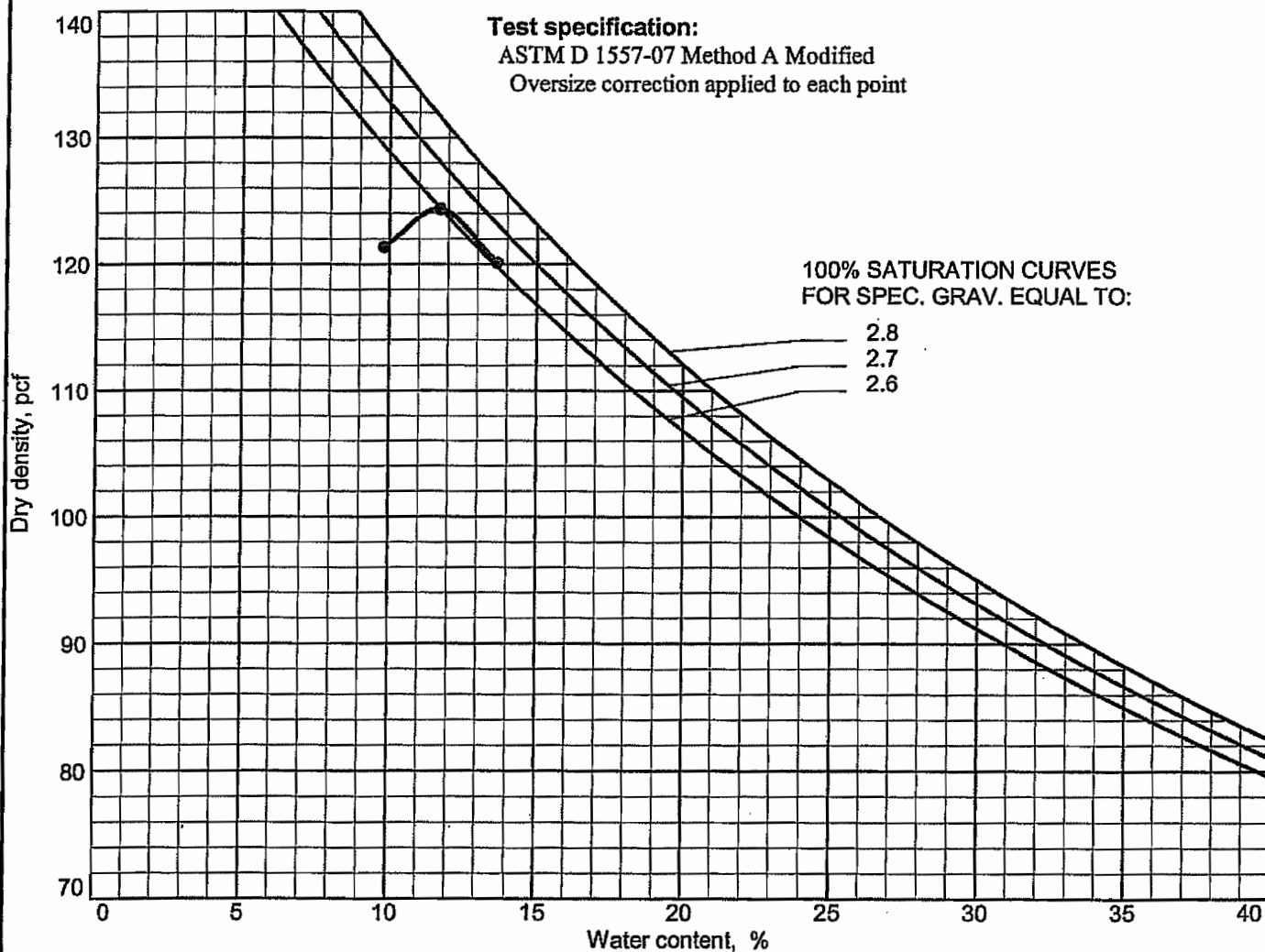
% > No.4 = 7.1 %

% < No.200 = 46.8 %

ROCK CORRECTED TEST RESULTS

Maximum dry density = 124.5 pcf

Optimum moisture = 11.5 %





GEOTECHNICAL &
ENVIRONMENTAL
SERVICES, INC.

SWELL/EXPANSION TEST SUMMARY

7150 Placid Street
Las Vegas, Nevada 89119
(702) 365-1001

Project Name: CLV-WPCF Solar Photovoltaic Project Client: CH2M HILL
Project No.: 20092529E1 Test Method: SNBC 1802.3.3 (60pcf surcharge) and ASTM D 4546 (others)
Sample Dates: 6/3/2009 and 6/4/2009 Report Date: June 26, 2009

LAB NUMBER	SAMPLE LOCATION	SAMPLE DEPTH (feet)	USCS	TEST CONDITION	SURCHARGE LOAD (psf)	INITIAL DRY DENSITY ¹ (pcf)	INITIAL MOISTURE CONTENT ² (%)	FINAL MOISTURE CONTENT (%)	EXPANSION ³ (%)
09-0034	C-1	N/A	SC	REMOLDED	60	10.2	17.4	112.7	5
09-0034	C-2	N/A	SC	REMOLDED	60	10.1	16.8	112.7	4
09-0034	C-3	N/A	SM	REMOLDED	60	10.4	14.3	112.4	1
09-0034	C-4	N/A	SM	REMOLDED	60	10.2	19.6	112.6	11
09-0034	C-5	N/A	SC	REMOLDED	60	10.4	23.5	112.4	15

1 Remolded samples were remolded to approximately 92% of the estimated soil maximum dry density (AASHTO T180)

2 Moisture content prior to oven drying.

3 Positive values refer to swell. Negative values refer to collapse.

Atlas Consultants, Inc.

6000 S. Eastern Avenue, Suite 10J • Las Vegas, Nevada 89119
(702) 383-1199 • Fax (702) 383-4983

CHEMICAL
PHYSICAL

member of
AMERICAN SOCIETY FOR
TESTING MATERIALS

LABORATORY NO: 15551(b)

DATE: June 18, 2009

SAMPLE:

P.O.:

MARKED: 20092529E1

LAB ID: 09-0034

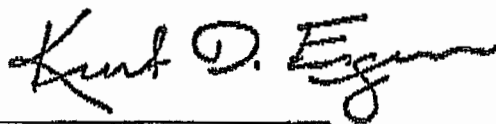
SUBMITTED BY: Geotechnical & Environmental Services

SOIL STEVE = -10

ANALYZED BY: Kurt D. Ergun

REPORT OF DETERMINATION

BORING NUMBER	C-1	C-2	C-3	C-4	C-5	
SAMPLE NUMBER						
DEPTH (feet)	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	
pH VALUE	8.62	8.75	8.58	8.43	8.32	
RED-OX (mv)	+606	+603	+605	+622	+625	
SULFATE (mg/Kg)	6545	632	1238	7150	9928	
SULFIDE (mg/Kg)	Nil	Nil	Nil	Nil	Nil	
TOTAL SALTS (mg/Kg)	11872	3696	5432	12992	32144	
CHLORIDE (mg/Kg)	450	150	275	400	5925	



LABORATORY DIRECTOR

- NOTES:
1. The soil:water extract ratio was 1:5, the results are in mg/Kg in the soil.
 2. The standard methods used for the determinations are AWWA 4500 H pH Value, ASTM D 1498 Red-Ox, AWWA 4500 E-SO₄ Turbidimetric, AWWA 4500-S D Methylene Blue, AWWA 2510 Electrical Conductivity and AWWA 4500-Cl B Argentometric.
 3. Nil is less than 1.0 mg/Kg.

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CHEMICAL
PHYSICAL

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TESTING MATERIALS

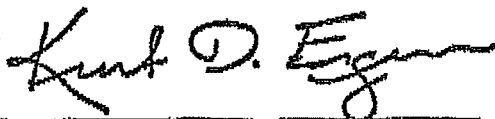
ACT LAB NO: 15551(b)-2 DATE: June 25, 2009
PROJECT NO: 20092529E1 P.O.:
SUBMITTED BY: Geotechnical & Environmental LAB ID: 09-0034
Services
ANALYZED BY: Kurt D. Ergun

REPORT OF DETERMINATION

AWWA 2540 C

SOIL SIEVE SIZE = -10 MESH

<u>Sample No.</u>	<u>Location</u>	<u>Depth (feet)</u>	<u>Solubility Percent</u>
	C-1	stockpile	1.19
	C-2	Stockpile	0.37
	C-3	Stockpile	0.54
	C-4	Stockpile	1.30
	C-5	Stockpile	3.21



LABORATORY DIRECTOR

Notes: The results for each constituent denote the percentage of that analyte, at a 1:5 (soil:water) extraction ratio, which is present in the soil.

Appendix C
Clark County Planning Commission
Notice of Final Action



Department of Comprehensive Planning Land Use Planning

500 S Grand Central Pky • Box 551744 • Las Vegas NV 89155-1744
(702) 455-4314 • Fax (702) 455-3271

A CENTURY OF SERVICE

Barbara Ginoulas, Director • Rod Allison, Assistant Director



NOTICE OF FINAL ACTION

August 27, 2009

THOMAS A. PERRIGO
731 SOUTH FOURTH STREET
LAS VEGAS, NV 89101

REFERENCE: ZC-0429-09

On the date indicated above, a Notice of Final Action was filed with the Clark County Clerk, Commission Division, pursuant to NRS 278.0235 and marking the commencement of the twenty-five (25) day limitation period specified therein.

The above referenced application was presented before the Clark County Board of County Commissioners at their regular meeting of **August 19, 2009** and was **APPROVED** subject to the conditions listed below and/or on the attached sheet. You will be required to comply with all conditions prior to the issuance of a building permit or a business license whichever occurs first.

Time limits to commence, complete or review this approval apply only to this specific application. A property may have several approved applications on it, each will have its own expiration date. It is the applicant's responsibility to keep each application current.

CONDITIONS:

Current Planning

- Certificate of Occupancy and/or business license shall not be issued without final zoning inspection;
- All applicable standard conditions for this application type.
- Applicant is advised that any change in circumstances or regulations may be justification for the denial of an extension of time; and that this application must be completed within 3 years of approval date or it will expire.

Civil Engineering

- Additional right-of-way dedication to include completing the cul-de-sac at the southerly termination of the Tree Line Drive alignment which may require the vacation of excess right-of-way;
- Construct full off-sites;
- Construct a trail from southerly intersection of Desert Inn Road extending north to existing trail near Vegas Valley Drive;
- Construction of trail to match as built;
- Coordinate connection and access to existing trail with Clark County Department of Public Works;
- Drainage study and compliance;
- Gates to be set back a minimum 50 feet;

BOARD OF COUNTY COMMISSIONERS

RORY REID, Chairman • SUSAN BRAGER, Vice-Chair
LARRY BROWN • TOM COLLINS • CHRIS GIUNCHIGLIANI • STEVE SISOLAK • LAWRENCE WEEKLY
VIRGINIA VALENTINE, P.E., County Manager



Department of Comprehensive Planning Land Use Planning

500 S Grand Central Pky • Box 551744 • Las Vegas NV, 89155-1744
(702) 455-4314 • Fax (702) 455-3271

A CENTURY OF SERVICE

Barbara Ginoulas, Director • Rod Allison, Assistant Director



- Any applicable vacations to be recordable prior to building permit issuance or applicable map submittal.

BOARD OF COUNTY COMMISSIONERS

RORY REID, Chairman • SUSAN BRAGER, Vice-Chair
LARRY BROWN • TOM COLLINS • CHRIS GIUNCHIGLIANI • STEVE SISOLAK • LAWRENCE WEEKLY
VIRGINIA VALENTINE, P.E., County Manager

TITLE 30 STANDARD CONDITIONS

Administrative Street Naming, Street Name Change, and Street Address System Change:

1. Applicant is responsible for street name signs in accordance with Clark County Standards.

Extensions of Time:

2. Unless otherwise stated, the original expiration day continues to be in effect.
3. **Administrative Extension of Time.** The expiration date of an application may be extended to match the expiration date for a subsequent related application, building permit, or map. Administrative extensions will expire at 5:00 p.m. on the specified expiration date unless the use or construction is commenced (construction must be completed for zone change extensions) or unless a different time period is stated in the conditions of approval (holidays and weekends will not extend the expiration day). All administrative extensions must be applied for prior to 5:00 p.m. on the expiration date.
4. **Extension of Time Subject to a Hearing.** This application will expire at 5:00 p.m. on the expiration date unless the use or construction is commenced (construction must be completed for zone change extensions) or unless a different time period is stated in the conditions of approval (holidays and weekends will not extend the expiration day). All extensions must be applied for prior to 5:00 p.m. on the expiration date.
5. All conditions imposed on the original approval and any new conditions must be satisfied.

Waiver of Conditions

1. All original conditions of approval are still in effect unless waived or amended.

Tentative/Final Map:

2. **Tentative Map.** This application will expire at 5:00 p.m. in four years from the date on which the Board of County Commissioners and/or Planning Commission took action unless a **Final Map** is recorded on all or part of the subdivision (holidays and weekends will not extend the expiration day).
3. If the property is located within one mile of the boundary of public sewerage treatment facility, an odor easement must be executed.
4. All geologic hazards must be plotted on a plot plan, and habitable structures shall comply with the restrictions specified in all applicable Building and Fire Codes.
5. Drainage and/or traffic studies must be submitted and approved and all improvements must comply with the approved studies. Further, street and flood channel dedication and/or improvements may be required.
6. All necessary utility easements will be retained or reserved. The property owner(s) must execute a Resolution of Intent if required.
7. All conditions of approval, applicable state statutes, and local ordinances must be satisfied, including all applicable Building and Fire Code requirements prior to recording the **Final Map**.
8. Approval of this application does not constitute approval of a liquor or gaming license or any other County issued permit, license, or approval.
9. The Board of County Commissioners and/or the Planning Commission have no authority to grant, promise or commit water service. Approval of this application does not constitute any commitment for water service or any commitment for priority status for future water service.
10. Plotting or relinquishing all utility easements.
11. Post Office and Fire Department approval of all street names.
12. If applicable, all beneficiaries of record to sign a consent statement to record with the **Final Map**.

Vacation and Abandonment:

13. **Vacation and Abandonment.** This application will expire in two years at 5:00 p.m. on the expiration date (holidays and weekends will not extend the expiration day) unless all conditions of approval have been satisfied and an **Order of Vacation** is recorded by the County. Any extension of time must be applied for prior to 5:00 p.m. on the expiration date. Vacation of easements and/or rights-of-way must conform to the plans as submitted with revisions as specified by the Board of County Commissioners and/or Planning Commission.
14. Drainage and/or traffic studies must be submitted and approved, and all improvements must comply with the approved studies. Additionally, street and flood channel dedications and/or improvements will be required.
15. If the property is located in a flood zone, a drainage study must be submitted and approved by the Regional Flood Control District prior to any permits.
16. All necessary utility easements will be retained or reserved.

RESOLUTION OF INTENT/AVIGATION EASEMENT CHECKLIST

1. All property owners must sign, unless one has power of attorney. If there is a power of attorney, a copy must be provided.
2. If owner has changed since time of land use application submittal, a copy of the deed will need to be returned with the original signed document. (In the event the owner has changed you may cross out the past owner and write in the new owner's name.)
3. Print name under each signature.
4. Notary stamp must be legible and not stamped over any text.
5. Notary must fill in owner's name (on space provided) when signing, date, state of...., and county of.
6. Applicant must submit original document, including any attached legals for Current Planning staff to obtain appropriate Commission Chair and Commission Clerk signature for recordation.
7. Faxed documents will not be accepted.
8. All signatures must be in black ink.
9. Document print should not be distorted and/or hole punched.
10. Once Current Planning has received the document from the owner/applicant it takes approximately three months for recordation; however, as long as the document is recordable (per Current Planning staff), you may go forward with the permit process. If you have any further questions, please do not hesitate to contact us at 455-4314.

**RESOLUTION OF INTENT
TO RECLASSIFY REAL PROPERTY**

WHEREAS Clark County Ordinance, Chapter 30.16.060
Table 3016-3(m)) provides for a Resolution of Intent for any re-zoning
in the public interest; and

WHEREAS, the County Commission deems such Resolution of
Intent necessary, just and a proper means of control in the public interest to prevent zone classifications for
speculative purposes only, and would still nevertheless enable applications to proceed with desired
construction and improvement of their properties on the basis of definite and specific commitment

WHEREAS, the Board of County Commissioners deems if appropriate in the interest of the
public that an intention to rezone be indicated so long as conditions and stipulations are complied with;
and

WHEREAS, this intention to reclassify real property shall become final and re-zoning
consummated upon the particular property herein described when the owner has completed the specified
proposed building program in full compliance with imposed conditions thereon;

NOW THEREFORE BE IT RESOLVED, that a regular meeting of the Board of County Commissioners held on the
19th day of August, 2009 , the following parcel of real property shall upon approval hereof be re-zoned for the
purpose and on conditions of compliance with enumerated imposed conditions herein as follows:

P-F (Public Facility) Zone

PLEASE SEE ATTACHED LEGAL DESCRIPTION

**CONDITIONS:
PLEASE SEE ATTACHED CONDITIONS**

INITIAL:

**COUNTY COMMISSION
RR**

PROPERTY OWNER'S INITIALS

ZC-0429-09

**RESOLUTION OF INTENT
TO RECLASSIFY REAL PROPERTY**

In the event that the Building program and the conditions imposed are not completed and completed within the time limit specified herein that this Intent to Reclassify shall terminate, expire, be null and void, and of no effect.

PASSED AND ADOPTED, AND APPROVED THIS 19th day of August, 2009
COUNTY COMMISSIONERS.

BY THE BOARD OF

Chairman
Rory Reid

ATTEST: SHIRLEY B. PARRAGUIRRE, COUNTY CLERK

BY:

DEPUTY

PROPERTY OWNER(S) SIGNATURE(S)
(If Corporation, grantor seal required)

STATE OF)
)SS
COUNTY OF)

On this _____ day of _____, 20_____, _____
(Property Owner's name as shown above)

personally appeared before me, a Notary Public in and for the said County and State, known to me to be the person(s) described in and who executed the foregoing instrument, who acknowledge to me that (he, she, they) executed the same freely and voluntarily.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at my office in the County, the day and year, in this certificate first above written.

Notary Public in and for said County and State
My Commission expires:

ZC-0429-09

Current Planning

- Certificate of Occupancy and/or business license shall not be issued without final zoning inspection;
- All applicable standard conditions for this application type.
- Applicant is advised that any change in circumstances or regulations may be justification for the denial of an extension of time; and that this application must be completed within 3 years of approval date or it will expire.

Civil Engineering

- Additional right-of-way dedication to include completing the cul-de-sac at the southerly termination of the Tree Line Drive alignment which may require the vacation of excess right-of-way;
- Construct full off-sites;
- Construct a trail from southerly intersection of Desert Inn Road extending north to existing trail near Vegas Valley Drive;
- Construction of trail to match as-built;
- Coordinate connection and access to existing trail with Clark County Department of Public Works;
- Drainage study and compliance;
- Gates to be set back a minimum 50 feet;
- Any applicable vacations to be recordable prior to building permit issuance or applicable map submittal.

2C429-09.
LP

A.P.N. 161-10-701-014

LEGAL DESCRIPTION

Lying within the West Half (W ½) of the Southeast Quarter (SE ¼) of Section 10, Township 21 South, Range 62 East, M.D.M., Clark County, Nevada, described as follows:

Lots 1 – 19 (inclusive), CE A, CE B, LOT C and the private streets as shown on the plat of Crestwood aka Vegas Valley & Tree Line Unit 1 as shown in the Office of the Clark County, Nevada Records in Book 137, Page 26 of Plats.



ADDENDA

City of Las Vegas

**PURCHASING & CONTRACTS DIVISION
CITY HALL, 1ST FLOOR
400 STEWART AVENUE
LAS VEGAS, NV 89101
(702) 229-6231 (702) 384-9964 FAX**

ADDENDUM #1

DATE: November 18, 2009

**Project Title: Design/Build Water Pollution Control Facility, 3 Megawatt Solar Power Site
RFP #: 090200-LD
PWP#: CL-2010-23**

NOTICE TO BIDDERS

The following additions, deletions and/or changes shall be made and incorporated into the referenced bid document.

- 1.1 REFERENCE:** Paragraph 1.4 PROPOSAL PREPARATION AND SUBMISSION
- ADD:** c. Documents in support of the proposal may also be included as appendix to the proposal and are not counted against the 25 page limit. Appendix to the proposal is limited to 500 pages. Appendix may include, but is not limited to, technical specifications and manufacturer's product information. It may also include illustrations and drawings up to a maximum 24x36 size. Information included in the proposal appendix should be directly pertinent to the proposal.
- 1.2 REFERENCE:** Bridging Document, Site Security Requirements, Page 15
- DELETE:** Third Sentence: "The site/perimeter fencing will be 6 foot tall with 2 foot long outward facing security pickets for a total height of 8 feet.
- REPLACE WITH:** "The site / perimeter fencing will be 7-foot tall with 1-foot long outward facing security pickets for a total height of 8-feet."
- 1.3 REFERENCE:** SECTION 1. DEFINITIONS, "RFP Documents"
- DELETE:** "RFP Documents" in its entirety.
- REPLACE WITH:** "RFP Documents" means the documents comprising the Request for Final Proposals for the Design-Build of the Water Pollution Control Facility 3 Megawatt Solar Power Site (RFP No. 090200-LD) and includes the following documents: Request for Final Proposals, Instructions (together with Proposal forms) and the Design-Build Contract and documents incorporated therein.
- 1.4 REFERENCE:** Bridging Document, Site Security Requirements, Page 15
- DELETE:** First sentence, fifth paragraph: The pre-fabricated metal building that will house electrical equipment shall be provided with security infrastructure.
- REPLACE WITH:** The pre-fabricated building that will house electrical equipment shall be provided with security infrastructure.

QUESTIONS AND ANSWERS:

- 1.5 QUESTION:** Last Day to Submit Questions. What is the final date to submit Questions?
- ANSWER:** Last day to submit questions is 12/28/09.
- 1.6 QUESTION:** What are the meeting intervals during design and preconstruction?
- ANSWER:** Project meetings between the Design Builder and City are expected to be Monthly during design and Weekly during construction.
- 1.7 QUESTION:** The scope of work indicates street improvements on Desert Inn Road. The bridging documents do not indicate any work on Desert Inn.
- ANSWER:** Clark County zone change and special use application on the site required offsite improvements on Desert Inn Road. However, those improvements would be in conflict with a future bridge across the Las Vegas Wash. Further clarification with Clark County Public Works is necessary to find out if the improvements can be deferred or if they will require that they are installed now.
- 1.8 QUESTION:** Has a Phase 1 Environmental study been completed for the site?
- ANSWER:** Phase 1 Environmental Assessment is provided on CD with this Addendum.
- 1.9 QUESTION:** Generator Interconnection. A copy of the small generator interconnection request is included as Appendix A. Has this application been submitted for approval?
- ANSWER:** The application has been submitted to Nevada Energy and the study is in progress. Results of the study are expected 12/07/09 and will be released as soon as they are available.
- 1.10 QUESTION:** The schedule of values does not list a superintendent. Can this form be adjusted to include non listed scope items?
- ANSWER:** Yes the schedule can be adjusted to include non listed items.
- 1.11 QUESTION:** Can we receive the proposal forms in electronic format?
- ANSWER:** Proposal forms are not available in electronic format.
- 1.12 QUESTION:** Are there any offsite landscape requirements?
- ANSWER:** City of Las Vegas does not have landscape requirements for the site other than what may be required by Clark County Development.
- 1.13 QUESTION:** In regards to the 4 drawings in the bridging documents (11x17's) are they available for our use in AutoCAD?
- ANSWER:** AutoCAD files for the site layout, site topography, and boundary survey are provided with this addendum on CD. Please note that the site layout drawing is provided for the sole purpose of illustration and was not intended to be used for detailed design. (It does not include controls that would be included in drawings for actual layout.)

- 1.14 QUESTION:** Per page 3 of the Bridging Documents, we wish to respectfully request a copy of the "Historical Billing Information" for the meters as described in the Existing System Description.
- ANSWER:** The historic billing information is provided with this addendum in electronic format on CD.
- 1.15 QUESTION:** On page 2 of the Bridging Document it states, "...Design-Builder to design and install a 3-megawatt (MW) alternating current (ac) (STC) ground-mounted SPS." Are we correct in assuming the 3 MW capacity is based on alternating current (ac) and not direct current (dc) even though there is a reference to STC meaning dc?
- ANSWER:** The intent is to provide a 3 MW alternating current (ac) capacity. What this means is the system will have to provide a larger MW (dc) STC design that after system losses, efficiency levels of gears, etc will result in 3 MW (ac) of capacity. Provide the calculations to show what the dc STC design capacity has to be in order to provide the 3 MW (ac) capacity.
- 1.16 QUESTION:** Are the Design-Builders to include any connection or other fees to NV Energy?
- ANSWER:** See addendum response 1.9.
- 1.17 QUESTION:** Can the Design-Builders obtain updated copies of the electric bills or usage records for each of the 7 meters listed in the Bridging Document at the WPCF?
- ANSWER:** See addendum response 1.14.
- 1.18 QUESTION:** On page 2 of the Bridging Document it states, "The project is located on 18+ acres at the Water Pollution Control Facility...". In the RFQ documents issued in phase 1 it indicated that the project was to encompass 25 acres. The Boundary & Easements plan shows 31.67 acres. Based on our investigation of the land parcels we believe the site may include parcel 16110701014 (25 acres) and 16110701001 (6.57 acres). Please confirm the actual site boundaries.
- ANSWER:** The site includes portions of parcels 161-10-701-001 and 161-10-701-014. Portions of those parcels are excluded for a Clean Water Coalition (CWC) construction staging area and a Clark County Sewer Lift Station near Vegas Valley. AutoCAD files Boundary and Topographic surveys for the site are being provided on CD with this addendum.
- 1.19 QUESTION:** Can the proposers obtain the drawings issued in the Bridging Documents in CAD format? In particular we are looking to obtain the Civil - Project Site Plan/C-2, the Boundary & Easements and the Aerial Topography plans.
- ANSWER:** See addendum response 1.13.


Lloyd E. Davis, Contracts Specialist

All other terms, conditions, specifications, and drawings remain unchanged.

City of Las Vegas

**PURCHASING & CONTRACTS DIVISION
CITY HALL, 1ST FLOOR
400 STEWART AVENUE
LAS VEGAS, NV 89101
(702) 229-6231 (702) 384-9964 FAX**

ADDENDUM #2

DATE: December 30, 2009

**Project Title: Design/Build Water Pollution Control Facility, 3 Megawatt Solar Power Site
RFP #: 092000-LD
PWP#: CL-2010-23**

NOTICE TO BIDDERS

The following additions, deletions and/or changes shall be made and incorporated into the referenced bid document.

2.1 REFERENCE: Proposal Deadline:

DELETE: January 14, 2010

REPLACE WITH: March 18, 2010

QUESTIONS AND ANSWERS:

2.2 QUESTION: The bridging documents indicate the drawing sheets to be included in the 30% submittal. To include all of these documents far exceeds a 30% response. Is it the intent of the RFP for these sheets to be complete? Same question regarding the specifications?

ANSWER: Provide a design that includes drawings and specifications that overall are at least 30% complete and include sufficient detail for the Proposer to be able to cost their proposal and for the Owner to be able to evaluate the proposal.

2.3 QUESTION: Attachment 1 Subconsultant List of the Pricing Proposal Form asks for the identification of MBE, WBE and/or DVBE qualifications, however, the bid instructions do not appear to describe the minimum requirements for the inclusion of the qualified subconsultants or how, if any, bid preference will be granted for the inclusion of these groups. Please clarify if any bid preference or added consideration will be given for the inclusion of qualified subconsultants.

ANSWER: There are no provisions within NRS that would allow for a bid preference for MBE, WBE and/or DVBE subconsultants. The request is made so that the City can measure the percentage and for internal reporting.

2.4 QUESTION: On Page 8 of the Bridging Documents, under inverters it is written that the "Inverters shall be located a minimum of 18 inches above the 100-year flood plain, or be protected from the 500-year flood level, whichever is greater". According to Dave Betley and Lance Weber at tClark County Development Services/Flood Control, there is no information on any 500 year flood levels nor do they have any knowledge of the 500-year flood levels. How should we address the requirements to meet the 500-year flood level in light of the County's response?

ANSWER: The requirement for "inverters to be located a minimum of 18 inches above the 100 year flood plain, or to be protected from the 500-year flood level, whichever is greater" is an owner selected level of protection, not a regulatory requirement. References for 500 year flood protection in the area of the project are made in several flood studies including. Berryman & Henigar. Las Vegas Wash Hydraulic Analysis Update Summary Report. September 1997. Berryman & Henigar. Flood Protection Study, Water Pollution Control Facility, City of Las Vegas. October 1996. Poggemeyer Design Group, Inc. Drainage Update for Water Pollution Control Facility. August 2002. Addendum #1, September, 2002. Poggemeyer Design Group, Inc. Technical Drainage Study for Water Pollution Control Facility. March 1999. Addendum #1, May 1999. Contact John Bettencourt at 702-229-6560 to make arrangements to view available studies.

2.5 QUESTION: The Bridging Documents state that we are to monitor the PV panels and to link to the Security/Surveillance into the CLV Water Pollution Control Facilities systems. We are proposing to run single mode fiber from the structure(s) across the was and across the street, entering the existing property from Vegas Valley Drive. Can we get the manufacturers of the CCTV, Access Control and the Scada systems, as well as the closest telecom closet/connection and also a contact for these systems?

ANSWER: Contact for SCADA systems is Jay Karvonen at (702) 281-5704 and jkarvonen@lasvegasnevda.gov. Communications should be run from Solar Site to WPCF Administration Building in 12-fiber single mode. Security System and contact is Bob Kalinowski at Diebold (914) 872-4471 Bob.Kalinowski@diebold.com.

Solar Field Integration to WPCF for CCTV and Security

Please find a list of the **KEY** components used at WPCF for interfacing considerations for the proposed Solar Field.

Networking Devices:

Manufacturer	Part Number	Description
Optelecom	XSNET1800SW/SA	6 PORT NON BLOCKING 4TX+2FX HARDENED FAST ETH SWITCH, MODULE
Optelecom	XSNETSFP/MM-1310	SFPMODULE MM 1310
Etherwan	EX3224S	Managed Ethernet switch w/16 Ports 10/100TX plus 1 Slot
Etherwan	EX2224S	Managed Ethernet switch w/24 ports 10/100TX plus 2 Slots
Etherwan	SC1000-1310	M1000 Gigabit Module For EX2224S or EX3224S Managed Switch

CCTV Devices:

Manufacturer	Part Number	Description
Optelecom	C-40 D/IP	MPEG4, DECODER, 2D DATA, 1D CC, 1 ST AUD, 1 SLT CRD
Optelecom	C-40 E/IP	MPEG4, ENCODER, 2D DATA, 1D CC, 1 ST AUD, 1 SLOT CARD
Optelecom	S-40E-SD/US	MPEG-4 VIDEO SERVER, DUAL CORE, DATA, CC (US PWR)
Pelco	SD4CBW-PG-E0	Spectra IV SE Grey Pendant Smoked Dome PTZ Camera
Pelco	CM9760L-48X16	CM9760 MATRIX LOOPING 48" X 16 OUT 120 VAC

Security Devices:

Manufacturer	Part Number	Description
Diebold	VIPE	Linx VIP-E Versatile Interface Panel Enhanced Module
Diebold	VIP	Linx- VIP-Versatile Interface Panel

- 2.6 QUESTION:** The site is comprised of multiple parcels, each one with their respective easements. Does the City of Las Vegas intend to lead the Revisionary Plan or Vacation process, or should this be initiated and managed by the RFP respondent?

ANSWER: If reversionary plan or vacation is necessary for development or operation of the solar project, then it should be initiated and managed by the design builder.

- 2.7 QUESTION:** The Bridging document on page 14/Utilities/Offsite/2nd bullet point states that the Design-Build Team is responsible for designing a new commercial water service installation to include water meter and backflow prevention device per LVVWD Construction Standards. In order for the Design-Build Team to design the appropriate water service, we will need the City of Las Vegas to indicate to us the following: a. the intended purpose of this water service b. There is an existing water service. Depending on the intended use, would we be allowed to hook up to the existing water service after the meter?

ANSWER: The intended use of the water service is for maintenance of the solar site and irrigation of any Clark County development required landscaping. It is acceptable to the City to use the existing water service if those requirements and Las Vegas Valley Water District requirements.

- 2.8 QUESTION:** Please clarify if the 30% submittal drawings will need to be stamped by Professional Engineers.

ANSWER: NRS requires that all documents prepared by professional engineers be signed and sealed. Seal may be accompanied by note indicating that the documents are for 30% proposal and are not intended for construction.

2.9 QUESTION: Bond required amounts are very high, this will generate an additional cost to the City of Las Vegas ~2% of contract amount covered by the bond (each bond is separate). The City is requesting that the General Contractor will need to have bonds as described in Section 7.01 of the Design Build Contract, while Subcontractors as per Section 7.03. The 3SD Team is comprised of four companies, responsible for the design and the execution project, the Team will provide the bond for the project, but also the team companies will perform some of the design and/or construction activities. Can the General Contractor issue a Bond to cover what it may be left (balance) after the other companies from the Team issue their respective bonds to cover their work?

ANSWER: The bonding requirements for the General Contractor are set by NRS and can't be changed. As far as the bonding requirements for Subcontractors those amounts are set by the City and will not be changed for this project. The City will require bonds as stated in Section 7.01 and 7.03, not issued against multiple contractors, but issued against the General Contractor for the amount of the total construction cost and against each of the subcontractors for the amount of their respective subcontracts.

2.10 QUESTION: What staging area is available for the project?

ANSWER : The solar site, as described in the bridging documents, is available for staging. The design-builder must coordinate construction activities with staging.

2.11 QUESTION: Bridging document says (page 10) that the fiber optic cabling is to connect to the WPCF SCADA system at the existing administration building. Page 13 says cable will tie into an existing communications tie-point on the Owner's Property to the west as the WPCF. Where exactly will the fiber cable terminate? How much trenching will be done by Designer/Builder on the WPCF site? What specifically is the termination hardware that will be provided by Owner and what is to be provided by D/P?

ANSWER : See response 2.5.

2.12 QUESTION: SGIA study was to be completed 12/7/09. Is this available? If not, when will it be available?

ANSWER : The Power Interconnection study will be issued for Design Builder use through an addenda as soon as it is available from Nevada Energy. Study is currently scheduled by Nevada Energy to be available 01/04/10.

2.13 QUESTION: Page 12 of bridging document under PV array structural support says use "... and aluminum support structures for corrosion resistance and durability. Use of ferrous metals... is not allowed." Does this mean that the mounting structure cannot be hot deep galvanized steel?

ANSWER : That is correct. Bridging document indicates that ferrous metals are not allowed for the Photovoltaic Array Structural Support Systems. However, if significant cost savings can be realized, Owner is open to proposals that include cost savings alternates.

2.14 QUESTION: Page 3 of BD says "At a minimum, low voltage switchgear and panelboards, station service transformer, inverters, and any other equipment containing sensitive electronics shall be housed in this building." Page 9 under inverters says "Provide shade structures, ventilation, cooling systems or other means of providing an environmental temperature within the inverter's operating range." Is it required to have inverters housed in a building? Is it required that all switchgear and panelboards for the inverters be housed in a building? Is a shade structure enough? If the inverters are rated full power at 120oF is a shade structure for the inverter still necessary?

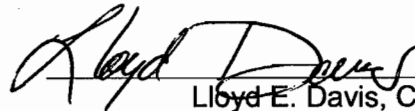
ANSWER : It is anticipated that the project will include a building for sensitive equipment. However, if significant cost savings can be realized, Owner is open to proposals that include cost savings alternates.

2.15 QUESTION: In the BD document on page 15 under Site Security Requirements it states "Gate shall be electrically powered and shall have provisions to accommodate all Owner-provide access and security devices" and "Coordinate with Owner to determine all required security infrastructure. What are the specific Owner requirements for site security? What are the specific Owner provided security devices?"

ANSWER : Gate entry is to be similar construction as Water pollution Control Facility Vegas Valley Entry with Push to Call intercom, camera, and badge swipe on both entry and exit. Gate area to be equipped with pole mounted area monitor pan, tilt, zoom camera.

All other terms, conditions, specifications, and drawings remain unchanged.

END OF ADDENDUM #2


Lloyd E. Davis, Contracts Specialist

City of Las Vegas

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(702) 229-6231 (702) 384-9964 FAX

ADDENDUM #3

DATE: January 6, 2010

Project Title: Design/Build Water Pollution Control Facility, 3 Megawatt Solar Power Site
RFP #: 090200-LD
PWP#: CL-2010-23

NOTICE TO BIDDERS

The following additions, deletions and/or changes shall be made and incorporated into the referenced bid document.

- 3.1 REFERENCE: Addendum # 2, Question 2.12, SGIA study available 1/4/10. The referenced study is attached to this addendum.

All other terms, conditions, specifications, and drawings remain unchanged.

END OF ADDENDUM #3



Lloyd E. Davis, Contracts Specialist



**DISTRIBUTION PLANNING DEPARTMENT
DISTRIBUTED GENERATION
DISTRIBUTION SYSTEM IMPACT STUDY**

Date:	<u>January 5, 2010</u>	ISD:	<u>December 31, 2010</u>
Est. Cap:	<u>5,000 kW</u>	Source Fdr.	<u>Winterwood 1220</u>
Planner:	<u>Jeff Hanson</u>	Cc:	<u>Distribution</u>
Subject:	<u>Company 76 Interconnection Request</u>		

Overview

This study addresses the interconnection request made by Interconnection Customer, herein referred to as Company 76, to interconnect a 5MW Photovoltaic project to the NV Energy distribution system located at 6291 Vegas Valley Dr., Clark County, Nevada. This study has been developed to address the Open Access Transmission Tariff (OATT) request for Interconnection dated July 28, 2009 for Energy Resource Interconnection Service (ER). The System Impact Study Agreement was signed on September 22, 2009. This study identifies Interconnection Customer interconnection requirements for the prospective 5 MW of Photovoltaic generation.

The purpose of this report is to evaluate the impacts the Company 76 Facility has on the NV Energy system. This study includes a short circuit analysis. This study has been performed at a high level providing a list of facilities, a non-binding good faith estimate of cost responsibility and construction time.

The requested in-service for the proposed project is December 31, 2010. NV Energy does not believe that this is a realistic in-service date. The construction schedule is highly dependent on the permitting process. Permitting can require from 6 to 18 months from filing to completion. Design and construction of facilities can usually be completed in 6 to 18 months once the permits are secured and the design component can often be started concurrent with the permitting process.

This study provides no guarantee of transmission service nor does it reserve a spot in the transmission queue for this project. A Transmission Service Request (TSR) would need to be submitted by the interconnection customer (or someone on its behalf) and accepted by the Transmission Provider in order for a request to reserve transmission capacity to be valid. TSRs are accepted on a first come first serve basis. Additional costs (study work, facilities, etc.) for such TSR and subsequent Transmission Service Agreement (TSA) will be as outlined in the OATT.

NV Energy has limited capability to follow fluctuations in intermittent resource output. Any adverse impact to the operations or reliability of NV Energy's system due to the intermittent nature of the proposed facility, or others like it, that may interconnect with NV Energy is outside the scope of this study. Options available to address such concerns will have to be addressed

taking into consideration the overall impact on the system of this facility's size and timing, and that of others like it.

Results

Steady state and fault duty analyses have been performed in this study. Based on the findings of the analyses and under the system conditions studied, the following conclusion was reached:

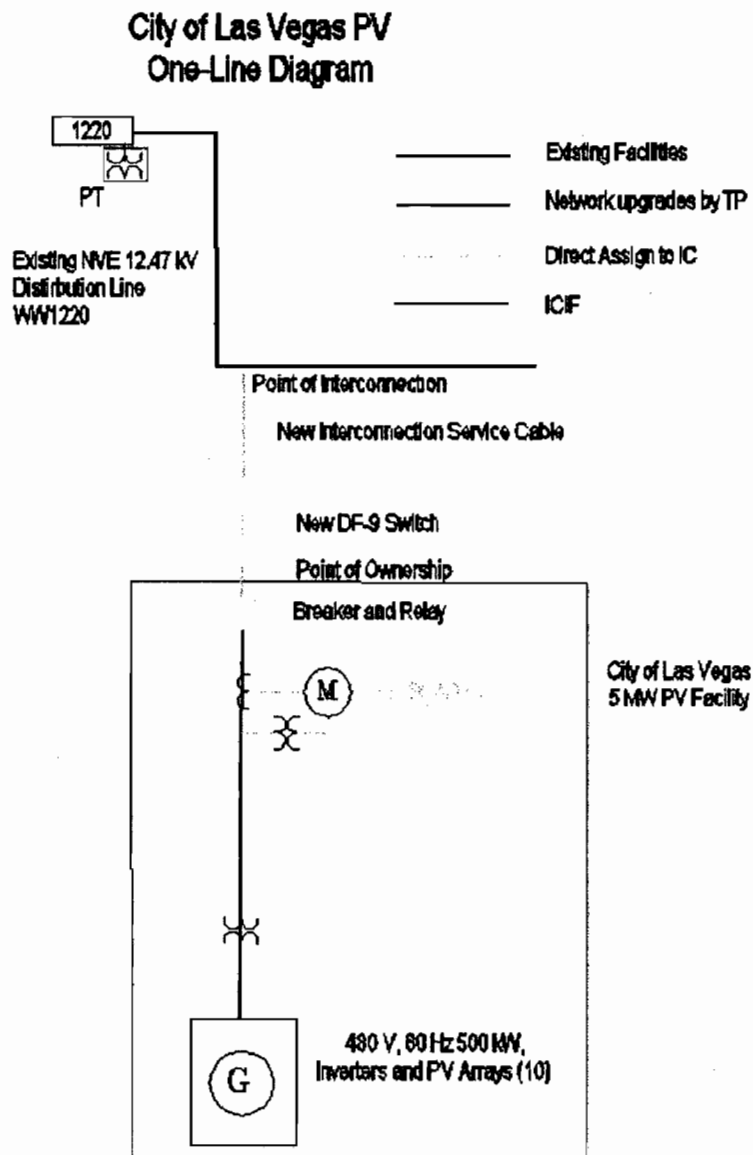
1. System Impacts — Under the conditions studied, no negative impacts will be imposed on the NV Energy distribution system nor transmission system from the proposed generation interconnection if built as required in this study. Operational issues that may arise from the interconnection of significant amounts of intermittent resources, such as the project, to NV Energy's system are outside the scope of this report.

Distribution System Improvements:

The scope of the Company 76 Photovoltaic project requires the below upgrades. These upgrades are considered Direct Assignment Facilities (DA -FERC) for the purposes of this study.

1. Install a 3-1000 MCM riser at pole P98584.
2. Install a DF-9 switch
3. Install approximately 800' of 3-1000 MCM cable in 1 of 2-6" conduits from pole P98584 to the DF-9 switch.
4. Install 3-1000 MCM cable in 1 of 2-6" conduits from DF-9 switch to the customer switchgear interconnection point.
5. Install a 12 kV breaker and appropriate relay (e.g. SEL351) at the point of interconnection on the Winterwood line.

Single Line Diagram:



General Requirements:

In addition to the standards previously identified for generation interconnection to the NV Energy System, all generation must follow the guidelines outlined below, irrespective of the interconnection location:

- In following NV Energy's guidelines, generation interconnections must not degrade the reliability of the NV Energy transmission system, as such, these transmission facility additions must be constructed following NV Energy design standards and planning criteria.
- Communications, SCADA, and real time metering requirements are required for all generation interconnections.
- WECC New Generation Interconnection Policy which requires compliance with the following policies:
 - ❖ NERC Planning Standards and Operating Policies
 - ❖ WECC Reliability Criteria for Transmission System Planning
 - ❖ WECC Minimum Operating Reliability Criteria
 - ❖ WECC Progress Report Policies and Procedures
 - ❖ WECC Policy Statement on Power System Stabilizers
 - ❖ Procedures for Regional Planning Project Review and Rating Transmission Facilities
 - ❖ Generation data validation through field testing
- Reactive power output from the generation facility shall be under the direction of NV Energy System Operation (or a designated system operator.) Generation from this facility shall be capable of producing reactive power (VARs) in a range of 95% leading to 95% lagging power factor measured at the Point of Interconnection.
- Continuously controlled reactive power capability, via thyristor or similar static switching means for periods up to 1 second qualifies for dynamic reactive power capability as part of the reactive resources required above. Fast mechanically switched reactive power capability does not qualify for continuous reactive power as part of the reactive resources required above

Capacitor Controls:

Based on the location of Company 76's PV site, the installation will impact three capacitor banks located on the Winterwood 1220 feeder. The capacitor control settings will need to be adjusted based on the size of the generator and time of operation. Distribution Planning is aware of the changes that will be required and will make the appropriate changes to the capacitor settings prior to commercial operation of this generator.

Mapping:

All Distribution generation installations will need to be appropriately mapped to ensure the safety of our personnel and to support Distribution Planning power flow analysis.

Single Phasing Protection:

Single phasing (loss of one phase) protection must be provided by the customer. Lack of such protection in addition to inherent phase load unbalance on distribution feeders may result in excessive phase load unbalance, potentially resulting in ground trip relay operation.

System Protection:

The addition of the PV Array will not significantly increase the fault current at the Winterwood 12kV bus. The change in feeder characteristics will require some modification to the protective relaying to ensure security and reliability.

Required system modifications are as follows and are considered Network Upgrade Facilities (NU) for the purposes of this study:

1. Install a voltage transformer on the line side of WW1220 breaker
This will allow for monitoring "hot-line" condition, in case generator failed to trip, to make sure the feeder breaker doesn't close/reclose into an island.

Required system modifications are as follows and are considered Direct Assignment Facilities (DA) for the purposes of this study:

2. Install a breaker and an appropriate relay (e.g. SEL351) at the point of interconnection
This is needed to prevent islanding of the generation, in combination with the communications link will allow for transfer trip of the generator breaker for any faults on the feeder or when Winterwood feeder breaker is open.
3. Install a communications link between generator and Winterwood Substation and an RTU at the PV site. It is anticipated that this will be a fiber optic link between Winterwood substation and the PV site (approximately 1.5 miles) that can be installed on existing overhead pole lines.
This is needed to prevent islanding of the generation, the communications link will transfer trip the generator breaker for any faults on the feeder or when Winterwood feeder breaker is open. Additionally, this communications link will utilize the protective relaying at the point of interconnection to conditionally transfer trip to the feeder breaker based on local disturbances that might not be visible from the substation. This same communications link can be utilized to provide SCADA data to dispatch concerning the plant operation.
4. Note: Installation shall be compliant with UL1741, IEEE Std. 1547-2003 and IEEE 929-2000.

Distribution Operations:

The Winterwood 1220 feeder has ties to the Winterwood 1211 feeder. Operational procedures will need to be developed to account for the generator installation and operation.

Definitions for Cost Allocations

- Network Upgrades (NU): The additions, modifications, and upgrades to the Transmission Provider's Transmission System required at or beyond the point at which the Interconnection Facilities connect to the Transmission Provider's Transmission System to accommodate the interconnection of the Generating Facility to the Transmission Provider's Transmission System. These facilities are secured by Interconnection Customer and owned by the Transmission Provider.
- Transmission Provider's Interconnection Facilities - also referred to as Direct Assignment Facilities (DA): Facilities or portions of facilities that are constructed by the Transmission Provider for the sole use/benefit of a particular Transmission Customer requesting service under the Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and may be subject to Commission approval. These facilities are paid for by the Interconnection Customer, built and owned by the Transmission Provider.
- Interconnection Customer's Interconnection Facilities (ICIF): Facilities and equipment that are located between the Generating Facility and the Point of Change of Ownership, including any modification, addition, or upgrades to such facilities and equipment necessary to physically and electrically interconnect the Generating Facility to the Transmission Provider's Transmission System. Interconnection Customer's Interconnection Facilities are sole use facilities. These facilities will be built and owned by the Interconnection Customer at its expense.

Cost Estimate:

The following estimates should be considered preliminary and nonbinding. The cost of the distribution facility to accommodate the interconnection of the project to NV Energy's system at the Point of Interconnection is estimated at \$390,000. Any changes to the scope of this project could change this cost estimate. The details of the estimate are shown in Table 1.

Table 1: Cost Estimates

Project Cost Estimates				
Project Facilities	Cost Responsibility	Total Estimate	Network Upgrade	Direct Assign
Substation Work				
PT Installation at Winterwood Substation	Network Upgrade	\$ 42,000	\$ 42,000	
12 kV Breaker and Relay (at PV Site)	Direct Assign	\$ 65,000		\$ 65,000
Distribution Lines				
Service and Switch and Fuse Cab	Direct Assign	\$ 100,000		\$ 100,000
Communications				
Fiber from Winterwood Sub to Site	Direct Assign	\$ 120,000		\$ 120,000
RTU (at PV site)	Direct Assign	\$ 30,000		\$ 30,000
Metering (at PV site)	Direct Assign	\$ 33,000		\$ 33,000
	Totals	\$ 390,000	\$ 42,000	\$ 348,000

Note: These estimates are given in 2009 dollars and do not include taxes. They will need to be revisited prior to the start of construction of this project. All costs will be tried to actual upon completion of construction.

Requirements:

- The connectivity for the telecom at the Customer Facility is the Customer's responsibility to coordinate with the local telecom company.
- The Interconnection Customer will have the obligation to acquire all permits (including NV Energy's).
 - If you are currently in the process of, or planning to, begin your site permitting, the site selection for NVE facilities must be coordinated with NVE. This coordination is critical to ensure that the site location(s), access to the location(s), communications paths at the location(s) and the required size for the NVE facilities are acceptable to NVE. Failure to do so may cause significant delays in the permitting process.
- Interconnection Customer will perform all construction of the ICIF.
- The Interconnection Customer shall be responsible for all of its facilities up to the NV Energy interconnection point.
- The Interconnection Customer shall be responsible for protecting its Generating Facility.

Please note that this evaluation only relates to the impact of this particular installation on Distribution System. Additional impact analysis from other functional areas may be needed for a complete evaluation.

City of Las Vegas

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ADDENDUM #4

DATE: January 21, 2010

**Project Title: Design/Build Water Pollution Control Facility, 3 Megawatt Solar Power Site
RFP #: 090200-LD
PWP#: CL-2010-23**

NOTICE TO BIDDERS

The following additions, deletions and/or changes shall be made and incorporated into the referenced bid document.

4.1 REFERENCE: Section 7.02 Acceptable Surety

DELETE: Section 7.02 in its entirety

REPLACE WITH: Section 7.02 Acceptable Surety, Revised per Addendum # 4

Section 7.02 Acceptable Surety, Revised per Addendum # 4

The bonds must be issued by a surety who is listed in Circular 570 (current edition) issued by the Department of Treasury, Fiscal Services as company holding a certificate of authority as an acceptable surety or reinsuring company of federal projects.

The Surety must be licensed to do business in the State of Nevada. Bonds issued by individuals as surety are not acceptable to the Owner. The Contractor shall require the agent who executes the bond on behalf of the Surety to attach to the bond a correct copy of the power of attorney authorizing the agent to execute the bond.

All other terms, conditions, specifications, and drawings remain unchanged.

END OF ADDENDUM #4


Lloyd E. Davis, Contracts Specialist

City of Las Vegas

PURCHASING & CONTRACTS DIVISION

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LAS VEGAS, NV 89101

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ADDENDUM #5

DATE: 02/10/10

Project Title: Design/Build Water Pollution Control Facility, 3 Megawatt Solar Power Site

RFP #: 090200-LD

PWP#: CL-2010-23

NOTICE TO BIDDERS

The following additions, deletions and/or changes shall be made and incorporated into the referenced bid document.

QUESTIONS AND ANSWERS:

- 5.1 **QUESTION:** ANSWER TO QUESTION 2.7: The intended use of the water service is for maintenance of the solar site and irrigation of any Clark County development required landscaping. It is acceptable to the City to use the existing water service if those requirements and Las Vegas Valley Water District requirements. Looks like the answer is incomplete, see highlighted words and provide feedback please.

ANSWER: Clarification: It is acceptable to the City to use the existing water service if those requirements and the Las Vegas Valley Water District requirements can be met.

- 5.2 **QUESTION:** ANSWER TO QUESTION 2.14: It is anticipated that the project will include a building for sensitive equipment. However, if significant cost savings can be realized, Owner is open to proposals that include cost savings alternates. This answer is not totally clear to us, looks like cost saving is the driving criteria. Shouldn't technical requirements and cost saving go hand on hand. The inverters that we are proposing does not require a shade structure, they are designed to meet technical requirements specified on the BD, their use will avoid the expenses related to shade structure (cost savings). If a bidder proposes an inverter w/o shade structure that does not meet the technical requirements but is cheaper because the lack of enclosure/shade structure will they have an advantage over others that meet the technical requirements, either using a shade structure or not?

ANSWER: The intent is for the Design-Build proposal to meet the requirements of the bridging documents. However, the owner does not want to stifle project creativity and will evaluate the design against the performance requirements.

- 5.3 **QUESTION:** Response to all Nevada Energy Interconnection Study Questions submitted thus far.

ANSWER: The Nevada Energy Interconnection study is a preliminary document designed to give basic information about how the project will connect to Nevada Energy Infrastructure. Final Nevada Energy design will not be complete in time for the Design Build Proposals. Nevada Energy improvements identified in the study and estimated cost at \$390,000 will be paid for directly by the city and not through the Design-Builder. Proposals should identify and include onsite improvements based on the Nevada Energy requirements identified.

5.4 **QUESTION:** RFI #13: Use of Modicon Quantum PLC. During Addendum 2 follow up with WPCF staff, it is our understanding the Owner has a preference to use a Modicon Quantum PLC for PV system, switchgear, metering and interface. Please confirm if this model and manufacturer of PLC is required or if alternative solutions are acceptable.

ANSWER: City Environmental Division has standardized on Modicon Quantum PLC for process control systems and prefers their use. However, it is understood that specific equipment and systems may have their own proprietary integrated, or vendor supplied, PLC. In that case, the requirement would be that all vendor supplied PLC pass the information and controls listed as requirements in the bridging documents to a single Modicon Quantum PLC dedicated for the project as the communications point to existing WPCF systems.

5.5 **QUESTION:** During Addendum 2 follow up with WPCF staff, it is our understanding the Owner has a preference to have a 25 pair phone cable supplied to the PV site. Please advise if a telephone cable is required.

ANSWER: 25 pair phone cable is not specified in the bridging documents. 25 pair phone cable can be identified as a project enhancement in the Design-Builder proposal.

5.6 **QUESTION:** In Addendum #3 provided NV Energy Table 1: Cost estimates The cost estimate is for NV Energy facility upgrades, modifications and expansions to serve the PV system. Will the cost identified in Table 1 be paid by the City, Owner, NV Energy or will these costs be the responsibility of the Design-Build contractor?

ANSWER: Costs from Nevada Energy Table 1, estimated at \$390,000 will be paid by the City directly, not through the Design-Build contract.

5.7 **QUESTION:** Addendum #2 references the intent of the bridging document to use aluminum support structures for the PV array. In researching this option with various photovoltaic manufacturers, aluminum support structures are not available, especially for systems with tracking mechanisms. We are being told that even in high corrosive areas, the hot dipped galvanized steel is utilized. Since aluminum is not really an industry option and in order to provide the most cost effective solution for the CLV, can galvanized supports be used?

ANSWER: Hot dipped galvanized supports along with galvanized hardware are acceptable for the supports of the PV arrays.

All other terms, conditions, specifications, and drawings remain unchanged.

END OF ADDENDUM #5



Lloyd E. Davis, Contracts Specialist



EXHIBIT D

PREVAILING WAGES



nevada

Office of the Labor Commissioner

2010 PREVAILING WAGE RATES CLARK COUNTY

DATE OF DETERMINATION: October 1, 2009

APPLICABLE FOR PUBLIC WORKS PROJECTS BID/AWARDED
OCTOBER 1, 2009 THROUGH SEPTEMBER 30, 2010

*Pursuant to NAC 338.040(3), "After a contract has been awarded, the prevailing rates of wages in effect at the time of the opening of bids remain in effect for the duration of the project."

As Amendments/Addenda are made to the wage rates, such wages will be posted to sites of the respective counties. Please review regularly for any amendments posted or contact our offices directly for further assistance with any amendments to the rates.

AIR BALANCE TECHNICIAN

ALARM INSTALLER

BOILERMAKER

BRICKLAYER

CARPENTER

CEMENT MASON

ELECTRICIAN-COMMUNICATION TECH

ELECTRICIAN-LINE

ELECTRICIAN-NEON SIGN

ELECTRICIAN-WIREMAN
ELEVATOR CONSTRUCTOR
FENCE ERECTOR
FLAGPERSON
FLOOR COVERER
GLAZIER
HIGHWAY STRIPER
HOD CARRIER-BRICK MASON
HOD CARRIER-PLASTERER TENDER
IRON WORKER
LABORER
MECHANICAL INSULATOR
MILLWRIGHT
OPERATING ENGINEER
OPERATOR-CRANES, PILEDRIVING & HOISTING EQUIPMENT
OPERATING ENGINEER-SURVEYOR
OPERATING ENGINEER-TUNNEL
PAINTER/TAPER/PAPERHANGER
PILEDRIVER (NON-EQUIPMENT)
PLASTERER
PLUMBER/PIPEFITTER
REFRIGERATION
ROOFER (Does not include sheet metal roofs)
SHEET METAL WORKER
SPRINKLER FITTER
*SURVEYOR (NON-LICENSED)
TAPER
TILE/TERRAZZO/MARBLE
TRAFFIC BARRIER ERECTOR
TRUCK DRIVER
WELL DRILLER
EQUIPMENT GREASER (RACK)
EQUIPMENT GREASER (GREASE TRUCK)
EQUIPMENT GREASER (GREASE TRUCK/MULTI-SHIFT)
TUNNEL, EQUIPMENT GREASER (GREASE TRUCK)
FIELD SOILS AND MATERIAL TESTER
FIELD ASPHALTIC CONCRETE (SOILS AND MATERIAL TESTER)

**PREVAILING WAGE RATES INCLUDE THE BASE RATE AS WELL AS ALL
APPLICABLE FRINGES**

NRS 338.010(21) "Wages" means:

- (a) The basic hourly rate of pay; and
- (b) The amount of pension, health and welfare, vacation and holiday pay, the cost of apprenticeship training or other similar programs or other bona fide fringe benefits which are a benefit to the workman.

NRS 338.035 Discharge of part of obligation of contractor or subcontractor engaged on public work to pay wages by making certain contributions in name of workman.

The obligation of a contractor engaged on a public work or a subcontractor engaged on a public work to pay wages in accordance with the determination of the Labor Commissioner may be discharged in part by making contributions to a third person pursuant to a fund, plan or program in the name of the workman.

CRAFT	RATE
AIR BALANCE TECHNICIAN	<u>ADD SHEET METAL ZO</u>
Air Balance Technician-Journeyman	58.52
Air Balance Technician-Foreman	62.95
Air Balance Technician-General Foreman	67.37
ALARM INSTALLER	
Alarm Installer-Journeyman	54.38
BOILERMAKER	
Boilermaker	59.50
BRICKLAYER	<u>ADD ZONE RATE-</u>
Bricklayer-Journeyman	45.46
CARPENTER	<u>ADD ZONE RATE</u>
Carpenter-Journeyman	48.70
Carpenter-Welder	49.70
Carpenter-Foreman	51.83
Carpenter-General Foreman	55.24
CEMENT MASON	<u>ADD ZONE RATE</u>
Cement Mason-Journeyman	46.28
Cement Mason-Foreman	48.28
Cement Mason-General Foreman	50.03
ELECTRICIAN- COMMUNICATION TECHNICIAN	<u>ADD ZONE RATE</u>
Installer/Technician	38.72

Senior Installer/Technician	54.38
Installer/Technician Foreman	58.78
Installer/Technician General Foreman	63.18

**ELECTRICIAN-
LINEMAN/GROUNDMAN/HEAVY
EQUIPMENT OPERATOR**

Groundman	34.82
Lineman	51.95
Foreman	56.89
General Foreman	61.90
Heavy Equipment Operator	42.69

ELECTRICIAN-NEON SIGN

Electrician-Neon Sign	44.31
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ELECTRICIAN-WIREMAN

ADD ZONE RATE

Wireman-Journeyman	54.74
Wireman-Cable Splicer	55.25
Wireman-Foreman	59.18
Wireman-General Foreman	63.62

ELEVATOR CONSTRUCTOR

Elevator Constructor-Journeyman Mechanic	46.01
Elevator Constructor-Mechanic In Charge	46.01

FENCE ERECTOR

Fence Erector	16.97
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FLAGPERSON

ADD LABORER ZONE R

Flagperson	41.44
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FLOOR COVERER

Floor Coverer-Joureyman	41.83
Floor Coverer-Foreman	46.76

GLAZIER

Glazier-Journeyman	54.72
Glazier-Foreman	58.81

HIGHWAY STRIPER

Highway Striper	24.34
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**HOD CARRIER-BRICK MASON
TENDER**

ADD LABORER ZONE R

Brick Mason 43.31

HOD CARRIER-PLASTERER TENDER

ADD LABORER ZONE R

Plasterer Tender-Journeyman 44.34

Plasterer Tender-Foreman 46.34

Plasterer Tender-General Foreman 47.34

IRON WORKER

SEE AMENDMENT 1

Ironworker-Journeyman 54.38

Ironworker-Foreman 57.68

Ironworker-General Foreman 61.04

LABORER

SEE GROUP CLASSIFICATIONS

ADD ZONE RATE

Group 1 42.94

Group 2 43.15

Group 3 43.25

Group 4 43.34

Group 5 43.44

Group 6A 46.10

Group 6B 45.60

Group 6C 45.35

Group 6D 45.96

Group 6E 45.60

Group 7 44.67

Foreman \$2.00 above highest paid journeyman supervised.

General Foreman \$3.00 above highest paid foreman supervised.

MECHANICAL INSULATOR

Mechanical Insulator-Journeyman 55.63

Mechanical Insulator-Foreman 58.99

Mechanical Insulator-General Foreman 62.36

MILLWRIGHT

ADD ZONE RATE

Millwright-Journeyman 49.70

Millwright-Welder 50.70

Millwright-Foreman 53.01

Millwright-General Foreman 56.65

OPERATING ENGINEER

SEE GROUP CLASSIFICATIONS

ADD ZONE RATE

Group 1 53.92

Group 2 54.87

Group 3 55.16

Group 4 56.65

Group 5	57.75
Group 6	56.87
Group 7	57.97
Group 8	56.98
Group 9	58.08
Group 10	57.10
Group 11	58.20
Group 12	57.27
Group 13	57.37
Group 14	57.40
Group 15	57.48
Group 16	57.60
Group 17	57.77
Group 18	57.87
Group 19	57.98
Group 20	58.10
Group 21	58.27
Group 22	58.37
Group 23	58.48
Group 24	58.60
Group 25	58.77

Add \$.50 per hour for "Special" Shift

Add \$1.00 per hour for "Multiple" Shift

**OPERATING ENGINEER:
CRANES, PILEDIVING, & HOISTING
EQUIPMENT**

SEE GROUP CLASSIFICATIONS

ADD ZONE RATE

Group 1

Engineer Oiler	57.60
Forklift Operator	56.51

Group 2

Truck Crane Oiler	57.60
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Group 3

A-Frame or Winch Truck Operator	56.51
Ross Carrier Operator (Jobsite)	56.51

Group 4

Bridge-Type Unloader and Turntable Operator	56.65
Helicopter Hoist Operator	56.65

Group 5

Hydraulic Boom Truck (Pitman)	56.87
Stinger Crane (Austin-Western or Similar Type)	56.87
Tugger Hoist Operator (1 Drum)	56.87

Group 6

Bridge Crane Operator	56.98
Cretor Crane Operator	56.98

Hoist Operator (Chicago Boom and Similar Type)	56.98
Lift Mobile Operator	56.98
Lift Slab Machine Operator (Vagtborg and Similar Types)	56.98
Material Hoist/Manlift Operator	56.98
Polar Gantry Crane Operator	56.98
Self Climbing Scaffold (or Similar Type)	56.98
Shovel, Backhoe, Dragline, Clamshell Operator (Over 3/4 YD. and up to 5 CU. YDS. M.R.C.)	56.98
Silent Piler	56.98
Tugger Hoist Operator (2 Drum)	56.98
<u>Group 7</u>	
Pedestal Crane Operator	57.10
Shovel, Backhoe, Dragline, Clamshell Operator (over 5 CU. YDS. M.R.C.)	57.10
Tower Crane Repairman	57.10
Tugger Hoist Operator (3 Drum)	57.10
<u>Group 8</u>	
Crane Operator (up to and including 25 ton capacity)	59.07
Crawler Transporter Operator	57.27
Derrick Barge Operator (up to and including 25 ton capacity)	57.27
Hoist Operator, Stiff Legs, Guy Derrick or Similar Type (up to and including 25 ton capacity)	57.27
Shovel, Backhoe, Dragline, Clamshell Operator (over 7 CU. YDS. M.R.C.)	57.27
<u>Group 9</u>	
Crane Operator (over 25 tons up to and including 50 tons M.R.C.)	59.07
Derrick Barge Operator (over 25 tons, up to and including 50 tons M.R.C.)	57.44
Highline Cableway Operator	57.44
Hoise Operator, Stiff Legs, Guy Derrick or Similar Type (over 25 tons, up to and including 50 tons M.R.C.)	57.44
K-Crane	57.44
Polar Crane Operator	57.44
Self Erecting Tower Crane Operator Maximum Lifting Capacity Ten (10) Tons. One (1) Ton Operator).	57.44
<u>Group 10</u>	
Crane Operator (over 50 tons, up to and including 100 tons M.R.C.)	60.49
Derrick Barge Operator (over 50 tons, up to and	58.44

including 100 tons M.R.C.)	
Hoist Operator, Stiff Legs, Guy Derrick or Similar Type (over 50 tons, up to and including 100 tons M.R.C.)	58.44
Mobile Tower Crane Operator (over 50 tons, up to and including 100 tons M.R.C.)	60.49
<u>Group 11</u>	
Crane Operator (over 100 tons, up to and including 200 tons M.R.C.)	60.99
Derrick Barge Operator (over 100 tons, up to and including 200 tons M.R.C.)	59.44
Hoist Operator, Stiff Legs, Guy Derrick or Similar Type (over 100 tons, up to and including 200 tons M.R.C.)	59.44
Mobile Tower Crane Operator (over 100 tons, up to and including 200 tons M.R.C.)	60.99
Tower Crane Operator and Tower Gantry	61.44
<u>Group 12</u>	
Crane Operator (over 200 tons up to and including 300 tons M.R.C.)	63.63
Derrick Barge Operator (over 200 tons up to and including 300 tons M.R.C.)	60.44
Hoist Operator, Stiff Legs, Guy Derrick or Similar Type (over 200 tons up to and including 300 tons M.R.C.)	60.44
Mobile Tower Crane Operator (over 200 tons up to and including 300 tons M.R.C.)	63.63
<u>Group 13</u>	
Crane Operator (over 300 tons)	65.00
Derrick Barge Operator (over 300 tons)	61.44
Helicopter Pilot	61.44
Hoist Operator, Stiff Legs, Guy Derrick or Similar Type (over 300 tons)	61.44
Mobile Tower Crane Operator (over 300 tons)	65.00
Add \$.50 per hour for "Special" Shift	-
Add \$1.00 per hour for "Multiple" Shift	-

OPERATING ENGINEER-SURVEYOR**SEE GROUP CLASSIFICATIONS****ADD ZONE
RATE**

Group 1	55.84
Group 2	56.65
Group 3	56.87
Group 4	57.15
Group 5	57.27
Group 6	57.37

Group 7	57.40
Group 8	57.77
Group 9	57.90
Group 10	58.40

OPERATING ENGINEER -TUNNEL**SEE GROUP CLASSIFICATIONS****ADD ZONE RATE**

Group 1	55.77
Group 2	56.72
Group 3	57.01
Group 4	57.15
Group 5	57.37
Group 6	57.48
Group 7	57.60
Group 8	57.77
Group 9	57.90

PAINTER

Painter-Journeyman	46.23
Painter-Foreman	49.35

PILEDRIIVER

Driveman, Rigman, Bridge and Dock Carpenter	58.47
Certified Welder	58.47
Piledriver-Foreman	62.05
Diver-Diving (wet pay)	58.47
Stand-By Diver	58.47
Tender	58.47

PLASTERER**ADD ZONE RATE**

Plasterer-Journeyman	44.69
Plasterer-Foreman	47.19
Plasterer-General Foreman	48.94

PLUMBER/PIPEFITTER

Plumber/Pipefitter-Journeyman	56.02
Plumber-Foreman	59.83
Plumber-General Foreman	63.65

REFRIGERATION

Refrigeration-Journeyman	36.24
Refrigeration-Foreman	36.24
Refrigeration-General Foreman	36.24

ROOFER

(Does not include sheet metal roofs)

Roofer-Journeyman	31.83
Roofer-Foreman	36.25

SHEET METAL WORKER**ADD ZONE RATE**

Sheet Metal-Journeyman	58.52
Sheet Metal-Foreman	62.95
Sheet Metal-General Foreman	67.37

SPRINKLER FITTER

Sprinkler Fitter-Journeyman	55.15
Sprinkler Fitter-Foreman	57.90
Sprinkler Fitter-General Foreman	60.15

TAPER

Taper	46.23
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**TILE SETTER/TERRAZZO
WORKER/MARBLE MASON****ADD ZONE RATE**

Tile Setter/Terrazzo Worker/Marble Mason-Finisher	32.48
Tile Setter	43.61
Terrazzo Worker/Marble Mason	46.04

TRAFFIC BARRIER ERECTOR**ADD LABORER ZONE RATE**

Traffic Barrier Erector	42.94
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TRUCK DRIVER**SEE GROUP CLASSIFICATIONS****ADD ZONE RATE**

Group 1	46.13
Group 2	46.23
Group 3	46.44
Group 4	46.62
Group 5	46.82
Group 6	47.12
Foreman \$1.00 above highest paid journeyman supervised.	48.12

WELL DRILLER**ADD OPERATING ENGINEER ZONE RATE**

Well Driller	56.87
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EQUIPMENT GREASER (RACK)**ADD
OPERATING
ENGINEER
ZONE RATE**

Equipment Greaser (rack)	55.16
EQUIPMENT GREASER (GREASE TRUCK)	<u>ADD</u> <u>OPERATING</u> <u>ENGINEER</u> <u>ZONE RATE</u>
Equipment Greaser (grease truck)	56.65
EQUIPMENT GREASER (GREASE TRUCK/MULTI-SHIFT)	<u>ADD</u> <u>OPERATING</u> <u>ENGINEER</u> <u>ZONE RATE</u>
Equipment Greaser (grease truck/multi-shift)	57.75
TUNNEL, EQUIPMENT GREASER (GREASE TRUCK)	<u>ADD</u> <u>OPERATING</u> <u>ENGINEER</u> <u>ZONE RATE</u>
Tunnel, Equipment Greaser (grease truck)	57.37
FIELD SOILS AND MATERIAL TESTER	<u>ADD</u> <u>OPERATING</u> <u>ENGINEER</u> <u>ZONE RATE</u>
Field Soils and Material Tester	54.87
FIELD ASPHALTIC CONCRETE (SOILS AND MATERIAL TESTER)	<u>ADD</u> <u>OPERATING</u> <u>ENGINEER</u> <u>ZONE RATE</u>
Field Asphaltic Concrete (soils and material tester)	54.87

 10/1/2009

Job Descriptions for Recognized Classes of Work

Regarding job descriptions for public works projects, please take notice of the following:

1. Pursuant to NAC 338.0095(1)(a), "A workman employed on a public work must be paid based on the class of work he or she actually performs on the public work and in accordance with the recognized class of the work."
2. The work description for a particular class is not intended to be jurisdictional in scope nor to

worker from performing the work of one or more classes.

3. Any person who believes that a type of work is not classified, or who otherwise needs clarification of job descriptions, shall contact the Labor Commissioner, in writing, for a determination of a particular type of work.
4. The job descriptions set forth or referenced herein supercede any and all descriptions previously determined by the Labor Commissioner in any settlement agreements or stipulations arising out of contested matters.
5. The following specific provisions, where applicable, shall prevail over any general provision:
 - Amendments to the prevailing wage determinations;
 - Group Classifications and/or descriptions recognized by the Labor Commissioner and determinations for a particular type of work in a particular county.

AIR BALANCE TECHNICIAN, includes but is not limited to:

Inspecting, testing, programming, documenting, adjusting and balancing heating, cooling and ventilating equipment to attain performance standards specified in the design of the systems.

ALARM INSTALLER, includes but is not limited to:

1. Installing or testing electrical protective signaling systems used to provide notification of fire, burglar alarm, or of the subscriber of the system;
2. Installing of wiring and signaling units;
3. Repairing electrical protective signaling systems
4. Starting up, programming and documenting systems;

BOILERMAKER, includes but is not limited to:

1. Constructing, assembling, maintaining and repairing stationary steam boilers and boiler house auxiliaries;
2. Aligning structures or plate sections to assemble boiler frame tanks or vats;
3. Assisting in the testing of assembled vessels, directing cleaning of boilers and boiler furnaces;
4. Inspecting and repairing boiler fittings, including, without limitation, safety valves, regulators, and auxiliary machines.

BRICKLAYER, includes but is not limited to:

1. Laying materials, including without limitation, brick, structural tile and blocks of concrete, cinder, including stone, to construct or repair walls, partitions, arches, sewers, and other structures;
2. Laying and aligning bricks, blocks or tiles to build or repair structures for high temperature equipment, kilns, ovens and furnaces; and
3. Fastening or fusing brick or other building materials to structures with wire clamps, anchor holes,
4. Pointing-cleaning-caulking of all types of masonry; caulking of window frames encased in masonry including grinding and cutting out on such work and sand blasting, steam cleaning and gunite work
5. Pointing, cleaning and weatherproofing of buildings, grain elevators and chimneys built of stone, including cutting out, sand blasting and gunite work on the same.

CARPENTER, includes but is not limited to:

1. Laying out, constructing, erecting, fabricating, installing and repairing structures and fixtures of w doors and hardware and the fastening of the same, inclusive of garage or overhead door openers, c ceiling systems using carpenter's hand tools and power tools;
2. Installing or erecting metal studs, drywall, lathing, wall partitions, prefabricated EFIS panels or an the interior or exterior of any building or structure, insulation and all types of ceilings;
3. Pre-cast concrete and concrete form work which includes but is not limited to: setting of templates erection, rigging and hoisting, stripping and removing of all forms which are to be reused;
4. Plywood decking, including, without limitation, stacking and installation of the plywood and the p
5. Cutting, setting, removing of beam sides and soffits, bracing, and pads;
6. Constructing all wood panel forms and frame wall;
7. Building, erecting and disassembling self-supporting scaffolds that are more than 14 feet in height
8. Laying out, cutting, joining, fitting of Foam Architectural Elements if same are attached mechanic
9. Shaping, cutting and planing by any means if done by hand or machine.

CEMENT MASON, includes but is not limited to:

1. Smoothing and finishing surfaces of poured concrete floors, walls, sidewalks and curbs to specific
2. Patching holes with fresh concrete or an epoxy compound;
3. Molding expansion joints and edges through the use of edging tools, jointers and straightedges;
4. Setting of curb and gutter forms one board high;

ELECTRONIC COMMUNICATION INSTALLER/TECHNICIAN, includes but is not limited to:

1. Pulling cable, installing and trimming devices, terminating loops, circuits, or other data gathering
2. Termination of main control panels, racks, or other head end equipment, as well as testing of all ci control panels and/or equipment;
3. Utilizing test equipment for the purpose of troubleshooting and verifying the integrity of the circui
4. Using hand tools to assemble and install data communication lines and equipment computer system
5. Disassembling equipment to adjust, repair or replace parts using hand tools;
6. Starting up, programming and documenting systems;
7. Measuring, cutting, splicing, connecting, soldering and installing wire and cable associated with c

ELECTRONIC COMMUNICATION SENIOR INSTALLER/TECHNICIAN, includes but is not li

May include the duties of the Installer/Technician; working with, supervising, and coordinating the work

ELECTRICIAN LINEMAN, includes but is not limited to:

1. Erecting and repairing wood poles and prefabricated light duty metal towers, cable and related equ and distribution power lines used to conduct electrical energy between generating stations, substat
2. Directing and assisting electrician ground men in attaching cross arms, insulators, lightning arrest equipment to poles and towers in preparation of erecting the poles or towers;
3. Climbing erected poles or towers and installing equipment such as transformers
4. Strings wire conductors between erected poles with assistance of ground helpers and adjusts slack and elongation of conductors due to temperature variations, using winch.

ELECTRICIAN GROUNDMAN, includes but is not limited to:

1. Working under the direct supervision of linemen, including the operation of jackhammers and ma

2. Loading and unloading of materials and equipment used by electrician lineman.
3. Does not include climbing poles, towers or other structures or working in the proximity of energiz

ELECTRICIAN-NEON SIGN, includes but is not limited to:

1. Installing, servicing and repairing plastic, neon and illuminated signs;
2. Ascending ladders or operating hydraulic or electric hoist to install, service, or examine sign to de
3. Wiring, rewiring or removing defective parts and installing new parts using electrician's tools;
4. Removing sign or part of sign for repairs, such as structural fabrication, scroll repair, or transform

ELECTRICIAN WIREMAN, includes but is not limited to:

1. Laying out plans, installing, testing and repairing wiring, electrical fixtures, apparatus and control
2. Measuring, cutting, bending, threading, assembling and installing electrical conduit by using tools pipe threader, or conduit bender;
3. Pulling wiring through conduit;
4. Splicing wires;
5. Connecting wiring to lighting fixtures and power equipment;
6. Installing control and distribution apparatus, including, without limitation, switches, relays and cir into place;
7. Connecting power cables to equipment, including, without limitation, electric ranges and motors, ;
8. Testing the continuity of a circuit to ensure electrical compatibility and safety of components usin; limitation, an ohmmeter, a battery and buzzer, and an oscilloscope;
9. As necessary, cutting and welding steel structural members;
10. Handling and installation of all electrical equipment, appliances, apparatus and materials at the site execution of the contract for the public work.

ELEVATOR CONSTRUCTOR, includes but is not limited to:

1. Assembling, installing, repairing and maintaining electric and hydraulic freight and passenger elev
2. Cutting pre-fabricated sections of framework, rails and other elevator components to specified dir and disc grinder;
3. Installing cables, counterweights, pumps, motor foundations, escalator drives, guide rails, elevator

FENCE ERECTOR, includes but is not limited to:

1. Erecting or repairing chain link, wooden, tortoise, wire/wire mesh, or temporary fencing;
2. Mixing and pouring concrete around bases of posts and tamping soil into post hole to embed post;
3. Digging post holes with a spade, post hole digger or power driven auger;
4. Aligning posts through the use of lines or by sighting;
5. Verifying vertical alignment of posts with a plumb bob or spirit level;

FLAG PERSON, includes but is not limited to:

1. Directing movement of vehicular traffic through construction projects;
2. Distributing traffic control signs and markers along site in designated pattern;
3. Informing drivers of detour routes through construction sites;

FLOOR COVERER, includes but is not limited to:

1. Applying blocks, strips or sheets of shock-absorbing, sound-deadening or decorative covering to floor;
2. Measuring and cutting covering materials, such as rubber, linoleum, astro-turf, or cork tile and flooring straightedge, linoleum knife and snips;
3. Spreading adhesive cement over floor to cement foundation material to floor for sound-deadening the board joints;
4. Rolling finished floors to smooth the floor and press cement into base and covering;
5. Fitting of devices for the attachment of carpet, linoleum, rubber and all resilient floor coverings and caps used in the installation of the foregoing materials and all other preparatory work;

GLAZIER, includes but is not limited to:

1. Installing, setting, cutting, preparing, or removal of glass, or materials used in lieu thereof, including doorways, showers, bathtubs, skylights and display cases;
2. Installing glass on surfaces, including, without limitation, fronts of buildings, interior walls and ceilings;
3. Installing pre-assembled framework for windows and doors designed to be fitted with glass panels and hand tools;
4. Loading and arranging glass, or materials used in lieu thereof, on trucks at the site of the public work.

HIGHWAY STRIPER, includes but is not limited to:

1. Painting highways, streets and parking surfaces by using manually propelled or mechanically propelled guns;
2. Installing any device or application of any material used in lieu of paint for traffic direction, including plastics, rumble bars and other similar materials;

HOD CARRIER-BRICK MASON TENDER, includes but is not limited to:

1. Tending to or assisting brick masons, bricklayers and stonemasons;
2. Mixing, packing, wheeling and tempering mortar and fire clay;
3. Mixing, supplying and holding materials or tools;
4. Mixing, handling and conveying all other materials used by brick masons, bricklayers and stonemasons;
5. Building scaffolds, trestles, boxes and swinging staging used exclusively by bricklayers and stonemasons;
6. Hanging cables and placing putlogs;
7. Carrying bricks and mortar in a hod;
8. Cleaning work area and equipment of bricklayers and stone masons.

HOD CARRIER-PLASTERER TENDER, includes but is not limited to:

1. Serving Plasterers in any capacity;
2. Handling materials after the materials are delivered as used by a Plasterer;
3. Building and handling all necessary trestle, scaffolding and planking of scaffolding for the exclusive use of the Plasterer;
4. Building mortar boxes, mortar boards and stands.

IRONWORKER, includes but is not limited to:

1. Performing duties, as part of a crew, to raise, place and unite girders, columns and other structural or structure frameworks;
2. Setting up hoisting equipment for raising and placing structural steel members;
3. Fastening steel members to cable of hoist, using chains, cable or rope;
4. Forcing steel members into final position using turnbuckles, crowbars, jacks, hand tools;

5. Aligning rivet holes in steel members with corresponding holes in previously placed steel member through holes;
6. Bolting aligned steel members to keep them in position until the steel members can be permanently welded;
7. Cutting and welding steel members;
8. Installing and repairing gates, iron doors, flagpoles, iron fences and roof decking;
9. Installing corrugated sheets when attached to steel frames;
10. Stud welding of all iron, steel and metal to structural steel;
11. Handling and setting of steel and metal joists;
12. Loading, unloading, hoisting, handling, signaling, placing and erecting of pre-stressed and pre-cast concrete members;
13. Handling, racking, sorting, cutting, bending, hoisting, placing, burning, welding and tying all materials.

LABORER, includes but is not limited to:

Perform tasks involving physical labor at building, highway, and heavy construction projects, tunnel and demolition sites. May operate hand and power tools of all types: air hammers, earth tampers, cement mixers, etc. May clean and prepare sites, dig trenches, set braces to support the excavation, and remove rubble and debris, and remove asbestos, lead, and other hazardous waste materials. May assist in the construction of buildings, bridges, and other structures.

MARBLE MASON, includes but is not limited to:

1. Cutting, tooling, and setting marble slabs in floors and walls of buildings and renovating and polishing buildings;
2. Trimming, facing and cutting marble to a specific size using a power saw, cutting and facing equipment;
3. Drilling holes in marble slabs and attaching brackets;
4. Spreading mortar on the bottom and sides of a marble slab and on the side of adjacent marble slab;
5. Setting blocks in positions, tamping a marble slab into place and anchoring bracket attachments with grout;
6. Filling joints between marble slabs with grout and removing excess grout with a sponge;
7. Cleaning and beveling cracks and chips on marble slabs using hand tools and power tools;
8. Heating cracked or chipped areas of a marble slab with a blowtorch and filling the defect with a color-matched resin;
9. Polishing marble slabs and other ornamental stone to a high luster by using hand tools and power tools.

MECHANICAL INSULATOR, includes but is not limited to:

1. Covering and lining structures with cork, canvas, tar paper, magnesia and related materials;
2. Installing blown-on insulation on pipe and machinery;
3. Lining of mechanical room surfaces and air handling shafts;
4. Filling and damming of fire stops and penetrations including, but not limited to, electrical and mechanical penetrations;
5. Foam applications for the purpose of thermal, acoustical, or fire protective purposes, including RTI mechanical or electrical systems;
6. Duct lining and duct wrapping, direct application and installation of fire protection of grease ducts for acoustical or thermal purposes;
7. Insulation of field joints on pre-insulated underground piping and the pouring of Gilsilite or its equivalent;
8. The application of material, including metal and PVC jacketing, on piping, fittings, valves, flanges, and equipment and any other hot or cold surface for the purpose of thermal control;

MILLWRIGHT, includes but is not limited to:

1. Installing machinery and equipment according to layout plans, blueprints and other drawings in industrial plants, mills, and other structures, using hand tools and power tools;

2. Dismantling machines by using hammers, wrenches, crowbars and other hand tools;
3. Assembling and installing equipment, including, without limitation, shafting, conveyors, monorail power tools;
4. Constructing foundations for machines by using hand tools and building materials, including, with
5. Assembling machines and bolting, welding, riveting or otherwise fastening them to a foundation or power tools; and
6. Repairing and lubricating machines and equipment (at the site of the public work) assembled and

OPERATING ENGINEER, includes but is not limited to:

Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrape tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other

PAINTER, includes but is not limited to:

1. All painting of walls, equipment, buildings, bridges and other structural surfaces by using brushes;
2. Application of wall coverings/wall paper;
3. Removing old paint to prepare surfaces before painting the surface;
4. Mixing colors or oils to obtain desired color or consistency;
5. Sanding surfaces between coats and polishing final coat to a specified finish;
6. Cutting stencils and brushing and spraying lettering and decorations on surfaces;
7. Washing and treating surfaces with oil, turpentine, mildew remover or other preparations;
8. Filling cracks, holes and joints with caulk, putty, plaster or other filler by using caulking gun or putty

PILEDRIIVER, includes but is not limited to:

1. Operating pile drivers mounted on skids, barge, crawler, treads or locomotive crane to drive piling without limitation, buildings, bridges and piers;
2. Barking, shoeing, splicing, form building, heading, centering, placing, driving, staying, framing, fitting and/or cutting off of piling;
3. Fabricating, forming, handling and setting of all such pre-cast, pre-stressed and post-stressed shapes, wharves, bulkheads, jetties, and similar structures;

PIPEFITTER, includes but is not limited to:

Assembling, installing, modifying and maintaining pipe systems, pipe supports and pneumatic equipment components for steam, hot water, heating, cooling, lubricating, sprinkling and industrial and processing systems;

- a. Cutting, threading and hammering pipe to specifications using tools, including, without limitation, pipe cutters and benders;
- b. Attaching pipes to walls, structures and fixtures, including without limitation, radiators or tanks, and other equipment;
- c. Coating non-ferrous piping materials by dipping in mixture of molten tin and lead to prevent erosion;

PLASTERER, includes but is not limited to:

1. Applying coats of plaster onto interior or exterior walls, ceilings, or partitions of buildings to produce finish, according to blueprints, architects' drawings and oral instruction;
2. Creating decorative textures in finish coat by using sand, pebbles or stones;
3. Installing guide wires on exterior surfaces of buildings to indicate thickness of plaster or stucco;

4. Applying weatherproof, decorative covering to exterior surfaces of a building;
5. Molding and installing ornamental plaster pieces, panels and trim;
6. Directing workers to mix plaster to a desired consistency;
7. Assembly of EFIS panels;
8. Laying out, cutting, joining, fitting and installation of Architectural Foam Elements which are trov
9. Applying, shaping, cutting, and planing in preparation for netting done by hand or machine;
10. All plaster or synthetic finishes applied to Foam Architectural Elements

PLUMBER, includes but is not limited to:

Assembling, installing and repairing pipes, fittings and fixtures for heating, water and drainage system outside of buildings which may therein require:

- a. Repairing and maintaining plumbing by replacing defective washers, repairing or mending broken
- b. Assembling pipe sections, tubing and fittings by using screws, bolts, solder, plastic solvent and ca
- c. Installing pipe assemblies, fittings, valves and fixtures, including, without limitation, sinks, toilets tools;
- d. Cutting openings in structures, excluding concrete, to accommodate pipe and pipe fittings by using
- e. Filling pipes and plumbing fixtures with water or air and observing pressure gauges to detect and l

REFRIGERATION MECHANIC, includes but is not limited to:

1. Installing and repairing industrial and commercial refrigeration systems;
2. Mounting compressors, condensers and other refrigeration components to the frame of a refrigerat welding equipment;
3. Assembling structural and functional components needed for refrigeration, including, without limi harnesses, valves, pumps, compressors, condensers, cores and pipes;
4. Installing expansion and control valves by using hand tools and acetylene welding equipment;
5. Cutting, bending, threading and connecting pipe from functional components to water, power or r
6. Fabricating and assembling components and structural portions of a refrigeration system;

ROOFER, includes but is not limited to:

1. Installing and covering roofs and structures with slate, asphalt, wood and other related materials, c knives, punches, hammers and other tools;
2. Spraying roofs, sidings and walls with material to bind, seal, insulate or soundproof sections of a s
3. Installation of all plastic, slate, slag, gravel, asphalt and composition roofing, and rock asphalt ma
4. Installation of all damp resisting preparations when applied on roofs with mop, three-knot brush, r
5. All types of preformed panels used in waterproofing;
6. Handling, hoisting and storing of all roofing, damp and waterproofing materials;
7. The tear-off and/or removal of roofing and roofing materials;

SHEET METAL WORKER, includes but is not limited to:

1. Fabricating, assembling, dismantling, installing or repairing:
 - o Sheet metal roofs, including #30 felt roofing paper installed to form a metal roofing system;
 - o Sheet metal parts or equipment, including, without limitation, duct work, metal lockers and
 - o Air-veyor and air-handling systems, regardless of materials used;
2. Setting up and operating fabrication machines to cut, bend and straighten sheet metal;
3. Shaping metal over anvils, blocks or forms using a hammer;

4. Operating soldering and welding equipment to join sheet metal parts;
5. Inspecting, assembling and smoothing seams and joints of burred surfaces;
6. Welding, soldering, bolting, riveting, screwing, clipping, caulking or bonding component parts to power tools and devices for lifting and handling;

SPRINKLER FITTER, includes but is not limited to:

Installing, dismantling, maintaining, repairing, adjusting and correcting all fire protection and fire cc piping or tubing, appurtenances and equipment pertaining thereto, including both overhead and underground mains, standpipes and hose connection to sprinkler systems, sprinkler tank heaters, air lines and thermal and alarm systems.

SURVEYOR, includes but is not limited to:

1. Planning ground surveys designed to establish base lines, elevation and other geodetic measurements;
2. Compiling data relevant to the shape, contour, gravitation, location, elevation and dimension of land of the Earth for engineering, map making, mining, land evaluation, construction and other purposes;
3. Surveying bodies of water to determine navigable channels and to secure data for construction of levee structures;
4. Computing data necessary for driving and connecting underground passages, underground storage

TAPER, includes but is not limited to:

1. Sealing joints between plasterboard or other wallboards to prepare a wall surface for painting or papering;
2. Mixing sealing compound by hand or with a portable electric mixer and spreading the compound with a trowel, broad knife, or spatula;
3. Filling cracks and holes in walls and ceilings with sealing compound ;
4. Applying texturing compound and primer to walls and ceiling to prepare a surface for a final finish;
5. Coating of joint compound or taping mud;

TERRAZZO WORKER, includes but is not limited to:

1. Applying cement, sand, pigment and marble chips to floors and stairways to attain durable and decorative specifications or drawings;
2. Spreading mixtures of sand, cement and water over surface with a trowel to form terrazzo;
3. Cutting metal division strips and pressing the metal division strips into a terrazzo base so that top of strips define level of finished floor surface;
4. Spreading mixtures of marble chips, cement, pigment and water over a terrazzo base to form a final finish;
5. Pre-casting terrazzo blocks in wooden forms.

TILE SETTER, includes but is not limited to:

1. Applying tile and materials made for tile in tile-like units to walls, floors, ceilings and promenades;
2. Applying glazed, unglazed, mosaic and other ceramic tiles, which are used as a surface on floors, walls and ceilings, which must be set to specific grade;
3. Applying and floating all setting beds into which glazed, unglazed, mosaic, or other ceramic tiles are set;
4. Leveling and plumbing tiles to a specified grade.

TILE, TERRAZZO AND MARBLE FINISHER, includes but is not limited to:

1. Supplying and mixing construction materials for a tile setter, terrazzo worker or marble setter;
2. Applying grout and finishing the surface of installed tile, terrazzo and marble;
3. Cleaning installed tile, terrazzo and tile surfaces;
4. Renovation and filling chipped, cracked and broken pieces of tile, terrazzo and marble;
5. Grinding and polishing tile, terrazzo and marble;
6. Assisting a tile setter, terrazzo worker or marble setter;

TRAFFIC BARRIER ERECTOR, includes but is not limited to:

Erects or places instruments to provide directional assistance to traffic on or near the public works const

TRUCK DRIVER, includes but is not limited to:

Driving a tractor trailer combination or a truck transport goods or materials at the site of a public work c
(Also, see descriptions listed with Truck Driver rates, if any)

WELL DRILLER, includes but is not limited to:

1. Setting, operating or tending to portable drilling rig machinery and related equipment to drill wells;
2. Extending stabilizing jackscrews to support and level a drilling rig;
3. Installing water well pumps;
4. Drillings wells for industrial water supplies, irrigation water supplies or water supplies for any oth
purposes; exploration; hole drilling for geologic and hydrologic information; and core drilling for

GROUP CLASSIFICATIONS

LABORER

Group 1

Construction Clean-Up

Dry packing of concrete & filling of form bolt holes

File grader, highway & street paving, airport runways & similar type heavy construction

Gas & oil pipeline laborer

Guinea chaser

Laborer, demolition or general construction ("General construction" does not include work otherwise cla

Laborer, packing rod steel & pans

Laborer, temporary water lines (portable type)

Landscape gardener

Nurseryman

Tarman and mortarman, kettelman, potman and man applying asphalt, lay-kold creosote, fine, and simila

Underground laborer, including caisson bellows

Scaffold Erector (under 14 ft.)

Landscape Decorative rock Installer – (Ponds, Waterfalls, Etc.)

Materials Handler – (incidental to trade)

Tool Crib

Light Crib

Light Tool Repairman

Landscape Gardener (Must have knowledge of plant materials and how to plant them. Lays out plant an

Mechanical Stabilized Earth Wall

Construction Clean Up
Certified Firewatch

Group 2

Asphalt raker, ironer, spreader, luteman
Buggymobile man
Cement dumper (on one yard or larger mixers & handling bulk cement)
Cesspool digger and installer
Chucktender (except tunnels)
Concrete core cutter
Concrete curer, impervious membrane and oiler of all materials
Concrete saw man, excluding tractor type, cutting, scoring old or new concrete
Gas and oil wrapper, pot tender and form man
Making and caulking of all non-metallic pipe joints
Operators and tenders of pneumatic and electric tools, vibrating machines, hand propelled trenching mechanical tools not separately classified herein
Operator of cement grinding machine
Riprap stonepaver
Roto-scraper
Sandblaster (pot tender)
Scaler
Septic tank digger and installer (lead man)
Tank scaler and cleaner
Tree climber, faller, chain saw operator, Pittsburgh chipper and similar type brush shredders

Group 3

Cutting torch operator
Gas and oil pipeline wrapper
Gas and oil pipeline laborer, certified
Jackhammer and/or pavement breaker
Laying of all non-metallic pipe, including landscape sprinklers, sewer pipe, drain pipe and underground
Mudcutter
Concrete vibrator operator, all sizes
Rock slinger
Scaler (using bos'n chair or safety belt or power tools)
Forklift (Incidental to Trade) – A journeyman shall hold OSHA certification at time of referral
Laying of all metallic and non-metallic pipe, p.v.c. and duct bank, including landscape sprinklers, sewer
Cement dumper (on one yard or larger mixers and handling bulk cement)
Concrete core cutter
Concrete curer, impervious membrane and oiler of all materials
Decorative rock installer (ponds, waterfalls, etc.)
Shotcrete/gunite

Group 4

Cribber or shorer, lagging, sheeting, trench bracing, hand guided lagging hammer
Head rock slinger
Powderman-blaster, all work of loading holes, placing and blasting of all powder and explosives of what such loading and placing
Sandblaster (nozzleman)
Steel header-board man

Group 5

Driller (core, diamond or wagon)

Joy driller model TW-M-2A, Gardner-Denver model DH 143 and similar type drills (in accordance with Laborers and Operating Engineers dated Miami, Florida, February 3, 1954)

Gas and oil pipeline fusion

Gas and oil pipeline wrappers, 6" pipe and over

Group 6

Miner and Bullgang

Group 7

Asbestos Abatement

Lead Abatement

Hazardous Waste Abatement

Petro-Chemical Abatement

Radiation Remediation

Microbial Remediation

\$.50 wage rate above group III when wearing protective suite or respirator

Employees shall be properly certified and/or licensed at time of dispatch.

OPERATING ENGINEER, includes but is not limited to:

Group 1

Bargeman

Blade Operator Assistant

Brakeman

Compressor Operator

Ditch Witch, with seat or similar type equipment

Elevator Operator - inside

Engineer Oiler

Forklift Operator (under 5 Tons)

Generator Operator

Generator, Pump or Compressor Plant Operator

Pump Operator

Signalman

Steam Cleaner/Pressure Washer

Switchman

Group 2

Asphalt-Rubber Plant Operator (Nurse Tank Operator)

Concrete Mixer Operator - Skip type

Conveyor Operator

Fireman

Forklift Operator (over 5 Tons)

Hydrostatic Pump Operator

Oiler Crusher (Asphalt or Concrete Plant)

PJU Side Dump Jack

Rotary Drill Helper (Oilfield)

Screening and Conveyor Machine Operator (or similar types)

Skiploader (wheel type up to ¾ yd. without attachment)

Tar Pot Fireman

Temporary Heating Plant Operator

Trenching Machine Oiler

Group 3

Asphalt-Rubber Blend Operator
Bobcat or similar type (Skid Steer)
Ford Ferguson (with dragtype attachments)
Helicopter Radioman (ground)
Stationary Pipe Wrapping and Cleaning Machine Operator

Group 4

Asphalt Plant Fireman
Backhoe Operator (Mini-Max or similar type)
Boring Machine Operator
Boring System Electronic Tracking Locator
Boxman or Mixerman (Asphalt or Concrete)
Chip Spreading Machine Operator
Concrete Cleaning Decontamination Machine Operator
Concrete Pump Operator (small portable)
Drilling Machine Operator, Small Auger Types (Texoma Super Economatic, or similar types - Hughes 100 or 200, or similar types - drilling depth of 30' maximum)
Guard Rail Post Driver Operator
Highline Cableway Signalman
Horizontal Directional Drilling Machine
Hydra-Hammer-Aero Stomper
Micro Tunneling (above ground tunnel)
Power Concrete Curing Machine Operator
Power Concrete Saw Operator
Power - Driven Jumbo Form Setter Operator
Power Sweeper Operator
Rock Wheel Saw/Trencher
Roller Operator (compacting)
Screed Operator (Asphalt or Concrete)
Trenching Machine Operator (up to 6 ft.)
Vacuum or Muck Truck

Group 5

No current classification

Group 6

Articulating Material Hauler
Asphalt Plant Engineer
Batch Plant Operator
Bit Sharpener
Concrete Joint Machine Operator (canal and similar type)
Concrete Planer Operator
Dandy Digger
Deck Engine Operator
Derrickman (Oilfield type)
Drilling Machine Operator, Bucket or Auger Types (Calweld 100 Bucket or similar types - Watson 1000 Auger or similar types - Texoma 330, 500 or 600 Auger or similar types - drilling depth

of 45' maximum)
Drilling Machine Operator (including water wells)
Hydrographic Seeder Machine Operator (straw, pulp or seed)
Jackson Track Maintainer, or similar type
Kalamazoo Switch Tamper, or similar type
Machine Tool Operator
Maginnis Internal Full Slab Vibrator
Mechanical Berm, curb or gutter (concrete or asphalt)
Mechanical Finisher Operator (concrete, Clary-Johnson-Bidwell or similar)
Micro Tunnel System (below ground)
Pavement Breaker Operator (truck mounted)
Road Oil Mixing Machine Operator
Roller Operator (asphalt or finish)
Rubber-Tired Earth Moving Equipment (single engine, up to and including 25 yds. struck)
Self-Propelled Tar Pipelining Machine Operator
Skiploader Operator (crawler and wheel type, over ¾ yd. and up to and including 1½ yds.)
Slip Form Pump Operator (power driven hydraulic lifting device for concrete forms)
Tractor Operator - Bulldozer, Tamper-Scraper (single engine, up to 100 h.p. flywheel and similar types, up to and including D-5 and similar types)
Tugger Hoist Operator (1 drum)
Ultra High Pressure Waterjet Cutting Tool System Operator
Vacuum Blasting Machine Operator
Welder - General

Group 7

Welder - General (Multi-Shift)

Group 8

Asphalt or Concrete Spreading Operator (Tamping or Finishing)
Asphalt Paving Machine Operator (Barber Greene or similar type)
Asphalt-Rubber Distributor Operator
Backhoe Operator (up to and including ¾ yd.) Small Ford, Case or similar.
Cast in Place Pipe Laying Machine Operator
Combination Mixer and Compressor Operator (Guniting Work)
Compactor Operator - self propelled
Concrete Mixer Operator - Paving
Crushing Plant Operator (Non Portable)
Drill Doctor
Drilling Machine Operator, Bucket or Auger Types (Calweld 150 Bucket or similar types - Watson 1500, 2000, 2500 Auger or similar types - Texoma 700, 800 Auger or similar types - drilling depth of 60' maximum)
Elevating Grader Operator
Grade Checker
Gradall Operator

Grouting Machine Operator
Heavy Duty Repairman
Heavy Equipment Robotics Operator
Kalamazoo Balliste Regulator or similar type
Kolman Belt Loader and similar type
Le Tourneau Blob Compactor or similar type
Loader Operator (Athey, Euclid, Sierra and similar types)
Master Environmental Maintenance Mechanic
Mobark Chipper or similar types
Ozzie Padder or similar types
PC 490 Slot Saw
Pneumatic Concrete Placing Machine Operator (Hackley-Presswell or similar type)
Portable Crushing Plant Operator
Pumpcrete Gun Operator
Rock Drill or similar types
Rotary Drill Operator (excluding Caisson type)
Rubber-Tired Earth Moving Equipment Operator (single engine, Caterpillar, Euclid, Athey Wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck)
Rubber-Tired Earth Moving Equipment Operator (multiple engine - up to and including 25 yds. struck)
Rubber-Tired Scraper Operator (self-loading paddle wheel type - John Deere, 1040 and similar single unit)
Self-Propelled Curb and Gutter Machine Operator
Shuttle Buggy
Skiploader Operator (crawler and wheel type over 1½ yds. up to and including 6½ yds.)
Soil Remediation Plant Operator (C.M.I. Enviro Tech Thermal or Similar Types) (Oiler Required Group)
Surface Heaters and Planer Operator
Tractor Compressor Drill Combination Operator
Tractor Operator (any type larger than D-5 - 100 flywheel h.p. and over, or similar - Bulldozer, Tamper, Scraper and Push Tractor, single engine)
Tractor Operator (boom attachments)
Traveling Pipe Wrapping, Cleaning and Bending Machine Operator
Trenching Machine Operator (over 6 ft. depth capacity, manufacturer's rating)
Trenching Machine with Road Miner Attachment (over 6 ft. depth capacity, manufacturer's rating)
Ultra High Pressure Waterjet Cutting Tool System Mechanic
Water Pull (compaction)

Group 9

Heavy Duty Repairman (Multi-Shift)

Group 10

Drilling Machine Operator, Bucket or Auger Types (Calweld 200 B Bucket or similar types - Watson 3000 or 5000 Auger or similar types - Texoma 900 Auger or similar types - drilling depth of 105' maximum)

Dual Drum Mixer
Heavy Duty Repairman-Welder Combination
Monorail Locomotive Operator (diesel, gas or electric)
Motor Patrol - Blade Operator (single engine)
Multiple Engine Tractor Operator (Euclid and similar type - except Quad 9 Cat.)
Pneumatic Pipe Ramming Tool and similar types
Pre-Stressed Wrapping Machine Operator (2 Operators required)
Rubber-Tired Earth Moving Equipment Operator (single engine, over 50 yds. struck)
Rubber-Tired Earth Moving Equipment Operator (multiple engine, Euclid, Caterpillar and similar - over 25 yds. and up to 50 yds. struck)
Tower Crane Repairman
Tractor Loader Operator (crawler and wheel-type over 6½ yds.)
Welder-Certified
Woods Mixer Operator (and similar Pugmill equipment)

Group 11

Dynamic Compactor LDC350 (or similar types)
Heavy Duty Repairman-Welder Combination (Multi-Shift)
Welder-Certified (Multi-Shift)

Group 12

Auto Grader Operator
Automatic Slip Form Operator
Drilling Machine Operator, Bucket or Auger Types (Calweld, Auger 200 CA or similar types - Watson, Auger 6000 or similar types - Hughes Super Duty, Auger 200 or similar types - drilling depth of 175' maximum)
Hoe Ram or similar with Compressor
Mass Excavator Operator - Less than 750 cu. yds.
Mechanical Finishing Machine Operator
Mobile Form Traveler Operator
Motor Patrol Operator (multi-engine)
Pipe Mobile Machine Operator
Rubber-Tired Earth Moving Equipment Operator (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)
Rubber-Tired Self-Loading Scraper Operator (paddle-wheel-Auger type self-loading - two (2) or more units)
Vermeer Rock Trencher (or similar type)

Group 13

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Push-Pull System (single engine, up to and including 25 yds. struck)

Group 14

Canal Liner Operator (not less than four (4) employees - Operator, Oiler, Welder, Mechanic, Grade Checker required)
Canal Trimmer Operator

Remote Controlled Earth Moving Equipment Operator (no one (1)

Operator shall operate more than two (2) pieces of earth moving equipment at one time - One Dollar (\$1.00) per hour additional to base rate)

Wheel Excavator Operator (over 750 cu. yds. per hour)

Group 15

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Push-Pull System (single engine, Caterpillar, Euclid, Athey Wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck)

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Push-Pull System (multiple engine - up to and including 25 yds. struck)

Group 16

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Push-Pull System (single engine, over 50 yds. struck)

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Push-Pull System (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

Group 17

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Push-Pull System (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

Tandem Tractor Operator (operating crawler type tractors in tandem - Quad 9 and similar type)

Group 18

Rubber-Tired Earth Moving Equipment Operator, operating in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - single engine, up to and including 25 yds. struck)

Group 19

Rotex Concrete Belt Operator (or similar types)

Rubber-Tired Earth Moving Equipment Operator, operating in Tandem (scrapers, belly dumps, and similar types in any combination, including compaction units - single engine, Caterpillar, Euclid, Athey Wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck)

Rubber-Tired Earth Moving Equipment Operator, operating in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, up to and including 25 yds. struck)

Group 20

Rubber-Tired Earth Moving Equipment Operator, operating in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - single engine, over 50 yds. struck)

Rubber-Tired Earth Moving Equipment Operator, operating in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

Group 21

Rubber-Tired Earth Moving Equipment Operator, operating in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

Group 22

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Tandem Push-Pull System (single engine, up to and including 25 yds. struck)

Group 23

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Tandem Push-Pull System (single engine, Caterpillar, Euclid, Athey Wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck)

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Tandem Push-Pull System (multiple engine, up to and including 25 yds. struck)

Group 24

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Tandem Push-Pull System (single engine, over 50 yds. struck)

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Tandem Push-Pull System (multiple engine, Euclid, Caterpillar and similar, over 25 yds. & up to 50 yds. struck)

Group 25

Concrete Pump Operator - truck mounted (Oiler required when boom over 105' or 36 meters)

Rubber-Tired Earth Moving Equipment Operator, operating equipment with the Tandem Push-Pull System (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

OPERATING ENGINEER-CRANES, PILEDIVING AND HOISTING EQUIPMENT

Group 1

Engineer Oiler
Forklift Operator

Group 2

Truck Crane Oiler

Group 3

A-Frame or Winch Truck Operator

Ross Carrier Operator (jobsite)

Group 4

Bridge-Type Unloader and Turntable Operator

Helicopter Hoist Operator

Group 5

Hydraulic Boom Truck (Pitman)

Stinger Crane (Austin-Western or similar type)

Tugger Hoist Operator (1 drum)

Group 6

Bridge Crane Operator

Cretor Crane Operator

Hoist Operator (Chicago Boom and similar type)

Lift Mobile Operator

Lift Slab Machine Operator (Vagtborg and similar types)

Material Hoist/Manlift Operator

Polar Gantry Crane Operator

Self Climbing Scaffold (or similar type)

Shovel, Backhoe, Dragline, Clamshell Operator (over 3/4 yd. and up to 5 cu. yds. M.R.C.)

Silent Piler

Tugger Hoist Operator (2 drum)

Group 7

Pedestal Crane Operator

Shovel, Backhoe, Dragline, Clamshell Operator (over 5 cu. yds. M.R.C.)

Tower Crane Repairman

Tugger Hoist Operator (3 drum)

Group 8

Crane Operator (up to and including 25 ton capacity)

Crawler Transporter Operator

Derrick Barge Operator (up to and including 25 ton capacity)

Hoist Operator, Stiff Legs, Guy Derrick or similar type (up to and including 25 ton capacity)

Shovel, Backhoe, Dragline, Clamshell Operator (over 7 cu. yds. M.R.C.)

Group 9

Crane Operator (over 25 tons, up to and including 50 tons M.R.C.)

Derrick Barge Operator (over 25 tons, up to and including 50 tons M.R.C.)

Highline Cableway Operator

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 25 tons, up to and including 50 ton M.R.C.)

K-Crane

Polar Crane Operator

Self-Erecting Tower Crane Operator Maximum Lifting Capacity ten (10) tons. One (1) ton operator).

Group 10

Crane Operator (over 50 tons, up to and including 100 ton M.R.C.)

Derrick Barge Operator (over 50 tons, up to and including 100 ton M.R.C.)

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 50 tons, up to and including 100 ton M.R.C.)

Mobile Tower Crane Operator (over 50 tons, up to and including 100 ton M.R.C.)

Group 11

Crane Operator (over 100 tons, up to and including 200 ton M.R.C.)

Derrick Barge Operator (over 100 tons, up to and including 200 ton M.R.C.)

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 100 tons, up to and including 200 ton M.R.C.)

Mobile Tower Crane Operator (over 100 tons, up to and including 200 ton M.R.C.)

Tower Crane Operator and Tower Gantry

Group 12

Crane Operator (over 200 tons, up to and including 300 ton M.R.C.)

Derrick Barge Operator (over 200 tons, up to and including 300 ton M.R.C.)

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 200 tons, up to and including 300 ton M.R.C.)

Mobile Tower Crane Operator (over 200 tons, up to and including 300 ton M.R.C.)

Group 13

Crane Operator (over 300 tons)

Derrick Barge Operator (over 300 tons)

Helicopter Pilot

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 300 tons)

Mobile Tower Crane Operator (over 300 tons)

SURVEYOR GROUP CLASSIFICATIONS

Group 1

Chainman

Group 2

Rodman

Group 3

Instrument man

Group IV

Global Position Systems Chainman and Rodman

Hydrographic Engineering Technician I (Chainman)

Group V

Party Chief

Group VI

E.D.M. or Fathometer Instrument man

Group VII

Certified Party Chief

Group VIII

Hydrographic Engineer Party Chief

Group IX

Certified Hydrographic Engineer Party Chief
Global Position Systems Party Chief

Group X

Chief of Parties
Two (2) or more crews

OPERATING ENGINEER-Tunnel

Group 1

Heavy Duty Repairman Helper

Group 2

Skiploader (wheel type up to $\frac{3}{4}$ yd. without attachment)

Group 3

Power - Driver Jumbo Form Setter Operator

Group 4

Dinkey Locomotive or Motorman (up to and including 10 tons)

Group 5

Bit Sharpener
Equipment Greaser (Grease Truck)
Slip Form Pump Operator (power driven hydraulic lifting device
for concrete forms)
Tugger Hoist Operator (1 drum)
Tunnel Locomotive Operator (over 10 and up to and including 30
tons)
Welder - General

Group 6

Backhoe Operator (up to and including $\frac{3}{4}$ yd.) Small Ford, Case
or similar
Drill Doctor
Grouting Machine Operator
Heading Shield Operator
Heavy Duty Repairman
Jumbo Pipe Carrier
Loader Operator (Athey, Euclid, Sierra and similar types)
Mucking Machine Operator ($\frac{1}{4}$ yd.)
Pneumatic Concrete Placing Machine Operator (Hackley-Presswell or
similar type)
Pneumatic Heading Shield (tunnel)
Pumpcrete Gun Operator
Tractor Compressor Drill Combination Operator
Tugger Hoist Operator (2 drum)
Tunnel Locomotive Operator (over 30 tons)

Group 7

Heavy Duty Repairman-Welder Combination

Group 8

No current classification

Group 9

Tunnel Mole Boring Machine Operator

TRUCK DRIVER, includes but is not limited to:Group 1

Drivers of dump trucks (less than 12 yds. water level), drivers of trucks (legal payload capacity less than 2,500 gal, pickup driver, service station attendant, teamster equipment (highest rate paid for dual craft or on site used for transportation of up to sixteen (16) passengers).

Group 2

Drivers of dump trucks (12 yds but less than 16 yds water level), drivers of trucks (legal payload capacity less than 2,500 gal), mix trucks (under 3 yds), dumpcrete trucks (less than 6 ½ yds water level), gas and oil pipeline working sizes of trucks, water and fuel truck drivers (2,500 gal to 4,000 gal), truck greaser, drivers of busses (on site used for transportation of up to sixteen (16) passengers), warehouse clerk.

Group 3

Drivers of dump trucks (16 yds up to and including 22 yds water level), drivers of trucks (legal payload capacity less than 2,500 gal), drivers of dumpster trucks, drivers of transit-mix trucks (3 yds but less than 6 yds), dumpcrete trucks (6 ½ yds water level), Carrier driver, highway water and fuel drivers (4,001 gallon but less than 6,000 gallon), stock room clerk.

Group 4

Drivers of transit-mix trucks (6 yds or more), drivers of dump trucks (over 22 yds. water level), drivers of fuel and water trucks (6,000 gallon and over).

Group 5

Drivers of trucks and trailers in combination (six axles or more).

Group 6

All Off-road Equipment, Truck Repairman, Transport Drivers and Drivers of Road Oil Spreader Trucks, Letourneau pulls, Terra Cobras and similar types of equipment, also PB and similar type trucks when per jurisdiction, regardless of types of attachment, including power units pulling off-highway belly dumps in

ZONE RATES**BRICKLAYER**

In addition to BRICKLAYER rates add the applicable amounts per hour, calculated based on a radius of Las Vegas, Nevada:

0-40 Miles	\$0.00
41-50 Miles	\$2.50
51-70 Miles	\$5.00
Over 70 Miles	\$7.50

The area within the city limits of Boulder City and Primm, Nevada shall be considered free zones.

CARPENTER

In addition to CARPENTER rates add the applicable amounts per hour, calculated based on a radius from Boulevard, Las Vegas:

Zone 1-0 to 40 miles	0.00
Zone 2-41 to 60 miles	2.50
Zone 3-Over 60 miles	4.25
Laughlin area	2.00

CEMENT MASON

In addition to CEMENT MASON rates add the applicable amounts per hour, calculated based on a radius from Boulevard, Las Vegas:

Zone 1-0 to 30 miles	0.00
Zone 2-31 to 50 miles	1.50
Zone 3-over 50 miles	3.25

ELECTRICIAN COMMUNICATION TECHNICIAN

In addition to ELECTRICIAN-Communication Technician rates add the applicable amounts per hour, calculated based on a radius from Boulevard, Las Vegas:

Zone 1 0-25 miles	0.00	
Zone 2 26-55 miles	2.50	
Zone 3 56 miles and over	3.50	

ELECTRICIAN-WIREMAN

In addition to ELECTRICIAN-Wireman rates add the applicable amounts per hour, calculated based on a radius from Boulevard, Las Vegas:

Zone 1-0 to 25 miles	0.00
Zone 2-26 to 55 miles	2.50
Zone 3-over 55 miles	3.50

LABORER

In addition to: LABORER, FLAGPERSON, HOD CARRIER BRICK MASON TENDER, HOD CARRIER TRAFFIC BARRIER ERECTOR rates add the applicable amounts per hour, calculated based on a radius from Boulevard, Las Vegas:

Zone 1-0 to 30 Miles	0.00
Zone 2-31 to 50 Miles	1.50
Zone 3-51 Miles and Over	3.25
Laughlin Area	2.25

MILLWRIGHT

In addition to MILLWRIGHT rates add the applicable amounts per hour, calculated based on a radius from Boulevard, Las Vegas:

Zone 1-0 to 20 miles	0.00
Zone 2-21 to 40 miles	1.50
Zone 3-41 miles and over	3.25

OPERATING ENGINEER

In addition to: OPERATING ENGINEER; CRANES, PILEDRIVING AND HOISTING EQUIPMENT, GREASER (RACK), EQUIPMENT GREASER (GREASE TRUCK), EQUIPMENT GREASER (GREASE TRUCK), FIELD SOILS AND MATERIAL TESTER and FIELD MATERIALS TESTER) rates add the applicable amounts per hour calculated from the City Hall of Las Vegas:

Zone 1-0 to 20 miles	0.00
Zone 2-21 to 40 miles	2.00
Zone 3-41 to 60 miles	3.00
Zone 4-over 60 miles	3.50

PLASTERER

In addition to PLASTERER rates add the applicable amounts per hour, calculated from the City Hall of

Zone 1-0 to 30 miles	0.00
Zone 2-31 to 50 miles	1.50
Zone 3-over 50 miles	3.25

SHEET METAL WORKER

In addition to SHEET METAL WORKER and AIR BALANCE rates add the applicable amounts per ho
of Las Vegas, Nevada:

Zone 1-0 to 30 miles	0.00
Zone 2-31 to 50 miles	2.50
Zone 3-51 to 100 miles	3.50 (including Laughlin)
Zone 4-over 100 miles	5.00

TILE/TERRAZZO WORKER/MARBLE MASON

In addition to TILE/TERRAZZO WORKER/MARBLE MASON rates add the applicable amounts per h
fifty (50) miles from the City Hall of Las Vegas, Nevada:

0-40 Miles	\$0.00
41-50 Miles	\$2.50
51-70 Miles	\$4.37
Over 70 Miles	\$6.87

The area within the city limits of Boulder City and Primm, Nevada shall be considered free zones.

TRUCK DRIVER

In addition to TRUCK DRIVER rates add the applicable amounts per hour, calculated from Las Vegas C

Zone 1-0 to 30 miles	0.00
Zone 2-31 to 50 miles	1.50
Zone 3-51 to 70 miles	2.50
Zone 4-Over 70 miles	3.50

**nevada**

Office of the Labor Commissioner

**2009-2010 PREVAILING WAGE RATES****AMENDMENT 1 (CLERICAL)**

CLASSIFICATION:	IRONWORKER
COUNTY:	CARSON, CHURCHILL, CLARK, DOUGLAS, ELKO, ESMERALDA, EUREKA, HUMBOLDT, LANDER, LINCOLN, LYON, MINERAL, NYE, PERSHING, STOREY, WASHOE AND WHITE PINE
EFFECTIVE DATE:	JANUARY 25, 2010

THE FOLLOWING REPRESENTS THE AMENDED WAGE RATES

IRONWORKER	
IRONWORKER-JOURNEYMAN	56.74
IRONWORKER-FOREMAN	60.04
IRONWORKER-GENERAL FOREMAN	63.40

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