

TECHNICAL SPECIFICATIONS FOR



Bid No. 5382 - Kern Valley High School: ESSER III Outdoor Learning Project

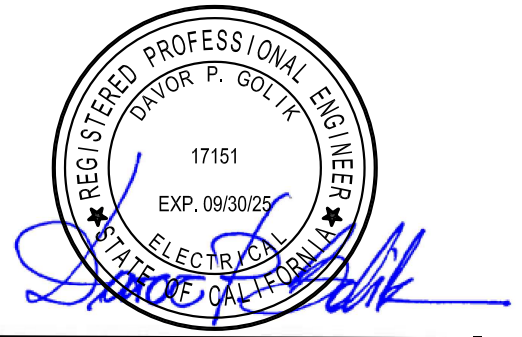


***DVBE COMPLIANCE AND DEPARTMENT OF INDUSTRIAL
RELATIONS (DIR) PUBLIC WORKS COMPLIANCE MONITORING
FEDERALLY FUNDED PROJECT***

**KERN HIGH SCHOOL DISTRICT
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**SITE IMPROVEMENTS FOR & INCLUDING
I-SHADE STRUCTURE @ KERN VALLEY HIGH SCHOOL
2811 PASADENA LANE
LAKE ISABELLA, CA., 93240
FOR
KERN HIGH SCHOOL DISTRICT
BAKERSFIELD, KERN COUNTY, CA.**

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-123901 INC:
REVIEWED FOR
SS FLS ACS
DATE: 01/30/2024

**APPROVED
KERN HIGH SCHOOL DISTRICT**

By _____
Board Resolution

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SUBMITTALS

The following Supplemental Conditions apply to school projects and are in addition to the General Conditions, Section 10. Items in this Section modify the General Conditions and shall take precedence thereover. Unaltered portions of the General Conditions shall remain in effect.

PART 1 GENERAL

1.01 SECTION INCLUDES

- a. Submittal procedures
- b. Construction Progress Schedules
- c. Proposed Products List
- d. Shop Drawings
- e. Product Data
- f. Samples
- g. Manufacturers' Instructions
- h. Manufacturers' Certificates

1.02 RELATED SECTIONS

- a. Section 01 45 00 - Quality Control: Manufacturers' field services and reports.

1.03 SUBMITTAL PROCEDURES

- a. Transmit each submittal with AIA Form G810 or Architect-approved form.
- b. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.
- c. Identify project, general contractor, construction manager, prime contractor or supplier; pertinent drawing sheet and detail number(s), and specification section number, as appropriate.
- d. Apply general contractor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction work, and coordination of information, is in accordance with the requirements of the work and contract documents.
- e. Deliver to Architect at business address. Coordinate submission of related items. Architect shall have a minimum of 15 calendar days for review of all submittals.
- f. Identify variations from contract documents and product or system limitations, which may be detrimental to successful performance of the completed work.
- g. Provide space 4" x 4" for contractor and architect review stamps.

- h. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- i. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
- j. All submittals, except shop drawings, required shall be submitted within 15 days unless noted otherwise or as shown on drawing from date of award of contract for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner.

1.04 PROPOSED PRODUCTS LIST

- a. Within 15 days after date of award of contract, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- b. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.05 SHOP DRAWINGS

- a. Submit in the form of one reproducible transparency and seven opaque reproductions.
- b. After review, distribute in accordance with Paragraph 1.03 above and for Record Documents described in Section 10, Article 53 - Contract Closeout.
- c. All shop drawings shall be submitted within 30 days after the award of the contract.

1.06 PRODUCT DATA

- a. Submit the number of copies, which the contractor requires, plus three copies, which will be retained by the Architect.
- b. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this project.
- c. After review, distribute in accordance with Paragraph 1.03 above and provide copies for Record Documents described in Section 10, Article 53 - Contract Closeout.

1.07 SAMPLES

- a. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- b. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect's selection.
- c. Include identification on each sample, with full project information.
- d. Submit the number or samples specified in individual specification sections; one of which will be retained by Architect.
- e. Reviewed samples, which may be used in the work, are indicated in individual specification sections.
- f. Submit particleboard samples 3, 4"x6" sample boards along with test reports indicating product meets specifications per Section 12 32 00, 2.01 d., if applicable.

1.08 MANUFACTURER'S INSTRUCTIONS

- a. When specified in individual specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- b. Identify conflicts between manufacturers' instructions and contract documents.

1.09 MANUFACTURER'S CERTIFICATES

- a. When specified in individual specification sections, submit manufacturers' certificate to Architect for review, in quantities specified for Product Data.
- b. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- c. Certificates may be recent or previous test results on material or product, but must be acceptable to the Architect.

END OF SECTION
03/05/2008

REGULATORY REQUIREMENTS

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

The following Supplemental Conditions apply to school projects and are in addition to the General Conditions, Section 10. Items in this Section modify the General Conditions and shall take precedence thereover. Unaltered portions of the General Conditions shall remain in effect.

PART 1 GOVERNING (REVIEWING AND APPROVING) AGENCY

The Governing (Reviewing and Approving) Agency for this project shall be:

DIVISION OF THE STATE ARCHITECT

PART 2 STATE LAWS AND REGULATIONS

2.01 The project shall be constructed under the complete jurisdiction of all laws of the State of California governing the construction of public buildings, to-wit:

2021 I.B.C., Volumes 1 & 2 with 2022 C.B.C. Amendments

- a. Contractor shall comply with California Building Code C.B.C., Titles 19 and C.C.R. Title 24 (2019 C.B.C.), Parts 1, 2, 6, 9, 11 & 12 in addition to all other applicable regulations. Contractor shall keep a copy of the latest edition of Titles 19, and Title 24, Parts 1, 2, 6, 9 & 12 on the job site at all times, and keep it available for reference use. Nothing in these plans or specifications shall be construed to permit work not conforming to these codes. A copy of stamped plans and specifications shall be kept on the job site and made available to the Owner's Inspector. The provisions of all applicable building codes and ordinances shall be considered a minimum requirement. Where the requirements of these Contract Documents exceed those of such codes or ordinances, these Contract Documents shall govern.
- b. All laws governing the employment of labor, qualifications for employment, posting of minimum wage rates, hours of work, employment of aliens, payment of employees, convict-made materials, domestic and foreign materials and accident prevention.
- c. Title 19 of the California Code of Regulations entitled "Public Safety".
- d. General Industrial Safety Orders: Each and every Contractor shall observe and conform to the provisions of Title 8, California Code of Regulations bearing upon safe and proper use, construction, disposal, etc., of materials, machinery and building appurtenances as therein set forth.
- e. Code Rules and Safety Orders: All work and materials shall be in full accordance with the latest rules and regulations of the California State Fire Marshal; the safety orders of the Division of Industrial Safety, Department of Industrial Relations, and any State Laws or Ordinances. Nothing in these plans and specifications is to be construed to permit work not conforming to these Codes.
- f. Title 24, CBC, Part 2, 2022 C.B.C. (2021 IBC)
- g. Title 24, CBC, Part 3, 2022 C.E.C. (2023 NEC)
- h. Title 24, CBC, Part 4, 2022 C.M.C. (2021 UMC)
- i. Title 24, CBC, Part 5, 2022 C.P.C. (2022 UPC)
- j. Title 24, CBC, Part 9, 2019 C.F.C. (2022 IFC) National Standard 35.04.1.3
- k. Title 24, CBC, Part 6, 2022 C.E.C.
- l. Title 24, CBC, Part 11, 2019 C.G.C.
- m. Title 19, CCR, Public Safety, Div. 1, State Fire Marshal Regulations.
- n. Occupational Health & Safety Act. (OSHA)

All of the above laws and regulations, through referral herein, are as much a part of the Contract as if they were incorporated in their entirety in this Section.

2.02 ALTERATION REHABILITATION OR RECONSTRUCITON PROJECTS

Pursuant to Section 4-317 (c) Part 1, Title 24, CCR, requires the following notes to be **added** to the specifications:

“Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the DSA approved documents wherein the finished work will not comply with Title 24, California Code of Regulations, a construction change document, or a separate set of plans and specifications , detailing and specifying the required repair work shall be submitted to and approved by DSA before proceeding with the repair work .”

PART 3 TESTS AND INSPECTIONS

- a. Tests and Inspections shall be as specified in Section 01 45 00 00.
- b. The Architect or Registered Engineer in general responsible charge shall designate the testing of materials consistent with the needs of the project and shall issue specific instructions to the testing agency.

END OF SECTION
01/20/2020

QUALITY CONTROL

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 SCOPE OF WORK

The work of this Section shall include the furnishing of all labor, materials and equipment required to complete all the tests and inspections of materials indicated on the drawings and as specified herein.

1.02 WORK INCLUDED

- a. Earthwork: Inspection of subgrade improvement operations, compacted fill and field density tests.
- b. Concrete Work: Testing and certification of concrete ingredients, compression cylinders, reinforcing steel and placement inspections.
- c. Structural Steel: Sampling and testing of required specimens, inspection of structural fabrication, shop welding and field welding as required.

1.03 OWNER'S INSPECTOR

- a. An inspector employed by the Owner in accordance with the requirements of State of California Code of Regulations, Title 24 will be assigned to the work. His duties are specifically defined in Part 1, Title 24, C.C.R., Sec. 4-342.
- b. The work of construction in all stages of progress shall be subject to the personal continuous observation of the inspector. He shall have free access to any or all parts of the work at any time. The General Contractor shall furnish the inspector reasonable facilities for obtaining such information as may be necessary to keep him fully informed respecting the progress and manner of the work and the character of the materials. Inspection of the work shall not relieve the General Contractor from any obligation to fulfill this Contract.
- c. The Architect shall have the right to reject materials and workmanship, which are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the Owner. If the General Contractor does not correct such rejected work within a reasonable time, fixed by written notice, the Owner may correct same and charge the expense to the General Contractor. Should it be considered necessary or advisable by the Architect at any time before final acceptance of the entire work to make an examination of the work already completed by removing or tearing out the same, the General Contractor shall on request promptly furnish all necessary facilities, labor and materials.

If such work is found to be defective in any respect due to the fault of the General Contractor or his subcontractor, he shall defray all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and material necessarily involved in the examination and replacement shall be allowed the General Contractor.

1.04 COOPERATION

- a. **Laboratory:** Shall cooperate with all trades whose work affects or is affected by the tests and inspections.
- b. **Cooperation:** The General Contractor shall cooperate with and provide testing laboratory opportunity and assistance in taking samples, making field tests and making inspections.

1.05 SPECIAL PROVISIONS

- a. **Governing Agency:** Shall be as specified in Section 01 41 00.
- b. **Laboratory:** To be approved by Owner, Architect, Structural Engineer and Governing Agency. Laboratory shall be in the employ of the Owner. (Laboratory of Record may not be selected or known at time of bid or award of contract). [See Title 24, Part 1, Section 4-335(b)]
- c. **Duties of Testing Laboratory:** Inspect stock, mark identified stock, select and mark test specimens, perform required tests, inspections as specified, furnish required reports and certificates.
- d. **Reports:** To be executed immediately upon conclusion of each procedure and forwarded to:

Architect	Contractor	Owner
Subcontractor	Job Inspector	
Governing Agency		

- (1) One copy of all tests reports shall be forwarded to The Division of the State Architect, the architect, the structural, and the project inspector by the testing agency within 14 days of the date of the test. Such reports shall include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations as required shall also be reported. The reports shall show that the material or materials were sampled and tested in accordance with the requirements of Title 24 and with the approved plans and specifications. In the case of materials such as masonry, concrete or steel, test reports shall show the specified design strength. All reports of the test results shall also state definitely whether or not the material or materials tested comply with requirements. Reports of the test results of materials not found to be in compliance with the requirements shall be forwarded immediately to the Division of the Sate Architect, the architect, the structural engineer and the project inspector. [See Title 24, Part 1, Section 4-335(d)]
- (2) **Verification of Test Reports:** Each testing agency shall submit to the Division of the State Architect a verified report in duplicate covering all of the tests which are required to be made by that agency during the progress of the project. Such report shall be furnished each time that work on the project is suspended, covering the tests up to that time, and at the completion of the project, covering all tests. [See Title 24, Part 1, Section 4-335(e)]
- e. **Payment:** The Owner shall pay for all tests. When in the opinion of the Architect or the Division of the State Architect, additional tests are required, then such tests and inspection shall be paid for by the Owner but the amount paid shall be

deducted from the Contract Price. Examples of such additional tests are: Tests of material substituted for previously accepted materials, unidentified materials, retests made necessary by the failure of materials to comply with the requirements of the specifications and load tests necessary because certain portions of the structure have not fully met specification or plan requirements.

- f. Selection of Samples: All samples and specimens for testing shall be selected by the inspector or by the testing laboratory, but not by the Contractor. The Contractor shall, at his own expense, furnish, package, mark and deliver all samples to be tested, when so directed by the inspector, testing laboratory, or as required by the specifications. Delivery of samples to the testing laboratory shall be made in ample time to allow tests to be made without delaying construction. No extra time will be allowed for the completion of the work by reason of delay in testing samples. The General Contractor shall allow free access at all times to the representatives of the testing laboratory to the sources from which samples are taken.
- g. Preparation of Specimens: Taken by and at expense of fabricator under direction of testing laboratory and machined or prepared to conform to appropriate ASTM specification. Cost of machining specimens is considered part of the testing.
- h. Architect reserve the right to demand for test and special examination any materials or part thereof to insure compliance with specifications, and may reject for satisfactory replacement, any material or part judged defective as a result thereof. Applies also to materials or sources of same substituted for those previously approved. Such tests or examinations, even though not specified shall be performed as and when required. Costs paid for by Owner, but the amount paid shall be deducted from the Contract.

1.06 RELATED & APPLICABLE CODES

**TITLE 24, PART 2 (2013 CBC) VOLUME 2
TESTS AND INSPECTION REQUIREMENTS**

**FOUNDATIONS AND RETAINING WALLS
CHAPTER 18A**

INSPECTION:

- 1. Pier Foundations 1705 A.8

**CONCRETE
CHAPTER 19A**

MATERIALS:

- 1. Portland Cement 1705 A.3.2; 1910 A.1
- 2. Concrete Aggregates 1705 A.3.2; 1903 A.5
- 3. Reinforcing Bars 1705 A.3.2; 1910 A.2

QUALITY:

- 1. Proportions of Concrete 1910 A.1; Table 1705 A.3, Item 5
- 2. Strength Tests of Concrete 1905 A.1.16; Table 1705 A.3, Item 6, ACI 318-14, Sec. 26.12
- 3. Splitting Tensile Tests
- 4. Shotcrete Proportions 1908 A.2

INSPECTION:

- | | |
|---------------------------------------|---------------------------------------|
| 1. Batch Plant | 1705 A.3.3 |
| 2. Waiver of Batch Plant | 1705 A.3.1 |
| 3. Preplacement and Placing | 105 A.3.5; 1705 A.3.6 |
| 4. Post-Installed Anchors in Concrete | 1910 A.5; Table 1705 A.3, Items 4a&4b |

STEEL**CHAPTER 22A****MATERIALS:**

- | | |
|----------------------|----------|
| 1. Structural Steel | 2205 A.1 |
| 2. Cold Formed Steel | 2210 A.1 |
| 3. Identification | 2203 A.1 |

QUALITY:

- | | |
|--|----------------------|
| 1. Tests of Structural and Cold Formed Steel | 2211 A.1 |
| 2. Tests of High Strength Bolts, Nuts, Washers | 2213 A.1 |
| 3. Steel Joists | 2207 A; 1705 A.2.3.1 |
| 5. Non Destructive Weld Tests | 1705 A.2.3.1 |

INSPECTION:

- | | |
|---------------------|----------------------|
| 1. Shop Fabrication | 1704 A.2.5; 1705 A.2 |
| 2. Welding | 1705 A.2.1 |

PART 2 EXECUTION

2.01 EARTHWORK (Refer to Section 31 20 00)

- a. Testing Agency: Any required foundation consultation, examination or testing shall be done by an approved Geotechnical Engineer, per T24, Section 3304.1. Costs paid by Owner.
- b. Consultation or Procedures for this part of the work shall be only as requested by the Architect and Structural Engineer at the timework on the site is commenced and may consist of the following:
 - (1) Examination of exposed subgrades resulting from the cutting operation, including field density tests if considered necessary.
 - (2) Verify completed foundation excavations.
 - (3) Continuous inspection of any required filling and backfilling, including field density tests if considered necessary.
 - (4) Imported or Native Fill Material: Approved material, perform suitability tests for compaction, qualities and optimum moisture if required.
 - (5) Provide Continuous Inspection Supervision during removal and recompaction of existing soil and placement of fill.
 - (6) Inspect and approve completed footing excavations.
 - (7) Field Density Tests: Shall be made on samples from material in place as required to verify proper compaction densities of fills and backfills.

- c. Densities and Method: Densities specified relate to ASTM Designation D-1557 Method A.

2.02 CONCRETE (Refer to Sections 03 10 00 & 32 13 13)

a. Inspections:

- (1) Notification: The General Contractor shall notify the following people, giving advance notice prior to commencing the designated work:

Person Notified	Advance Notice	Prior to Commencing	For Inspection	
Architect	24 hours	Form Work	Excav.	
Architect & Inspector	Form & Steel	24 hours	Pouring	Conc.
Governing Agency	Form & Steel	48 hours	Pouring	Conc.

- (2) No concrete shall be poured except in the presence of the Owner's Inspector and only after the forms and reinforcing steel have been approved by the Structural Engineer or his representative.
- (3) Batch Plant Inspections: When transit mixed concrete is used, continuous inspection shall be maintained at the plant by a qualified concrete technician who shall issue tickets certifying that quantities and quality of all materials used in the concrete are in accordance with these specifications and the approved design mix. The Owner will pay the costs of this inspection. This inspection will not be required for non-structural concrete (as defined in Paragraph (4) following).
- (4) Bonded Weightmaster Certificates: Non-structural concrete such as floor slabs on grade, walks, curb & gutter, etc., shall not require continuous batch plant inspection, but instead, a bonded weightmaster shall furnish notarized affidavits certifying that quantities and quality of all materials used in the concrete are in accordance with these specifications and the approved mix design. Waiver of batch plant inspection shall comply with Title 24, 2007 C.B.C., 1997 UBC, Vol 2, Sec. 1704A.4.4.

b. Tests: All concrete materials to be tested and reported prior to any use of same.

- (1) Portland Cement: Shall be tested in accordance with T24, Section 1905A.1.1 and 1905A.6 and ASTM C-150. One sample shall be taken for each 100 tons of cement except that when used in bulk loading ready mix plants where separate bins for pretested cement are not available, grab samples shall be taken for each shipment of cement placed in the bin with not less than one sample being taken for each day's pour and such samples shall be subsequently tested if required by the Architect, structural engineer or the Division of the State Architect.
- (2) Aggregate: Shall be in conformance with T24, Sec. 1704A.4.4 and 1903A.3
- (3) Reinforcing Steel: To be tested prior to use for compliance with T24, Sections 1916A.2 and 1903A.8 and ASTM A-615 requirements, and comply with quality standards of T-24, Section 2102A.2.10.

- (a) Samples: To be selected by representative of testing laboratory from material at the building site or place of distribution, to consist of two (2) pieces, each 18 inches (18") long of each size, furnished, cut and prepared for testing by Contractor, marked and delivered by representative of testing laboratory.
- (b) Tests: One (1) tension and one (1) bend tests shall be made of each size of reinforcing steel including wire fabric. One (1) series of tests shall be made for each ten (10) tons or fraction thereof of each size of reinforcing steel if the bundles as delivered can be identified as to heat number and the mill analysis accompany the report. If they cannot be identified as to heat number, then one (1) series of tests shall be made from each two and one-half (2-1/2) tons or fraction thereof.

(4) Cylinder Tests: Shall comply with T24, 1905A.6.

- (a) Three (3) cylinders of concrete shall be made for each fifty- (50) cubic yards of each grade of concrete or fraction thereof being placed each day. Each cylinder shall be dated, given a number, the point in the structure from which the sample was taken noted thereon and the slump noted thereon.
- (b) Test cylinders shall be made at the job and stored in the testing laboratory in accordance with ASTM C-31. At the end of twenty-four (24) hours after making, the cylinders shall be stored under moist curing conditions at approximately 70 degrees F. and maintained therein until tested. The cylinders shall be tested in accordance with ASTM C-31. The cylinders shall develop the following minimum ultimate compressive strengths:

Design Strength	7 Day Test	28 Day Test	Location Used
3000 p.s.i.	1800 p.s.i.	3000 p.s.i.	Flatwork
4500 p.s.i.	2700 p.s.i.	4500 p.s.i.	Foundations

- (c) If the strengths of the first two cylinder tests are satisfactory, the third cylinder shall not be tested, but destroyed. The third cylinder shall be tested if the strengths of the first two cylinders are not satisfactory.
- (d) If the strength of the cylinders does not meet the minimum as mentioned above, core tests of the hardened concrete shall be made in accordance with T24, Section 1905A.6.5, and ASTM C-31. If the core tests show the concrete strength to be deficient, the concrete shall be deemed defective and removed. The General Contractor shall pay all costs of these core tests.

- c. Laboratory Designed Mixes: See Paragraph 3.01, Proportioning of Concrete Mixes, Section 03 10 00, Concrete Work.
- d. Mix Design;
 - (1) Mix design to be stamped and signed by a California registered Civil Engineer.

- (2) Maximum w/c ratio shall be 0.50.

2.03 STRUCTURAL STEEL (Refer to Section 05 12 00)

- a. Inspections: All structural welding, both shop and field welding shall be done under the supervision of a qualified welding inspector, qualified in accordance with T24, Section 1704 A.3.1, the American Welding Society, CWI or CAWI, approved by the Architect, Structural Engineer and the Governing Agency. The inspector shall furnish the Architect, Structural Engineer and Governing Agency with a report on forms supplied that the welding which is required to be inspected is proper and has been done in conformity with the plans and specifications. He shall check the material, equipment and procedure as well as the welds and the ability of the welder. The welding inspector shall be employed by the testing laboratory. Inspection of welding shall be according to T24, Sec. 1704 A.3.1. Inspection of shop fabrication shall be according to T24, Sec. 1704 A.3.2.
- b. Tests:
 - (1) All structural steel that is to be tested will be listed per T24, Section 2212A.1 on the "Order for Tests and Inspections" sheet which is issued at the start of the job. It shall be tested and approved by the testing laboratory prior to fabrication or delivery to the site.
 - (2) If the steel can be identified in accordance with ASTM A-6 and is accompanied by mill analysis and test reports for each heat, it may be used without testing. Identification of the steel at the fabricator's plant shall be made by a representative of the testing laboratory.
 - (3) When the steel cannot be identified or its source is questionable, one set of tension and bend tests shall be made for each 5 tons or fractional part thereof for each size to be used.
 - (4) Automatic End Welded Studs: In accordance with T24, Sec. 2212A.3.
 - (5) Ultrasonic Testing: All full penetration butt welds of beams to columns and of columns to base, plates shall be tested ultrasonically in accordance with procedures for testing and acceptance criteria established in the "Structural Welding Code, AWS D1.1", latest edition.
 - (6) High strength bolts: Shall be tested in accordance with the inspection procedure established in the "Specification for Structural Joints Using ASTM A-325 or A-490 Bolts, and T24, Section 1704A.3.3

END OF SECTION
02/28/2019

CONSTRUCTION WASTE MANAGEMENT

DIVISION 00 AND 01 ARE A PART OF THIS SECTION.

PART 1 GENERAL

1.01 Waste Management Goals:

1. This project will recycle or salvage for reuse a minimum of **50%** by weight of the non-hazardous waste generated on-site.
2. This project shall reuse or recycle **100%** of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing.
3. Waste reduction will be achieved through building design, and reuse and recycling efforts will be maintained throughout the construction process.
4. The General Contractor shall be responsible for monitoring the documentation of all waste generated during the project. Sub-contractors and the General Contractor will be required to provide designated dumpsters/bins for particular categories of waste. All contractors hauling waste or responsible for hauling waste shall be required to provide documentation of the amount of waste removed from the site, location to which waste was hauled, and the amount of waste that was recycled. The General Contractor will coordinate locations of such bins so as to not impact access to work on the project while maintaining proximity to the work.

1.02 Waste Prevention Planning:

1. Compliance with CCR, Title 24, Part 11 2019 Green Building Standards Code, City of Bakersfield Solid Waste Division and the Kern County Waste Management Department mandatory recycling requirements for businesses. C.O.B.S.W.D. and K.C.W.M.D. recyclables include:
 - a. newspaper
 - b. corrugated cardboard
 - c. white and colored office paper
 - d. glass bottles and jars
 - e. metal cans
2. Compliance with C.O.B.S.W.D., K.C.W.M.D. and Kern County Bena Road Landfill bans, i.e. no disposal of tires, appliances, yard waste, mandatory recyclables, hazardous waste, batteries, fluorescent tubes, and large metal items.
3. Project Construction Documents – Requirements for waste management which will be included in all work. The General Contractor will contractually require all subcontractors to comply with the CCR, Title 24, Part 11 2019 Green Building Standards Code and the C.O.B.S.W.D., K.C.W.M.D. recycling requirements. A copy of this Construction Waste Management Plan will accompany all Subcontractor Agreements and require subcontractor participation.
4. The Construction Waste Reduction Plan shall be implemented and executed as follows and as on the chart:
 - a. Salvageable materials will be diverted from disposal where feasible.
 - b. There will be a designated area on the construction site reserved for a row of dumpsters each specifically labeled for respective materials to be received.
 - c. Before proceeding with any removal of construction materials from the construction site, Recycling Coordinators will inspect containers for compliance with CCR, Title 24, Part 11 2019 Green Building Standards Code and C.O.B.S.W.D.. K.C.W.M.D. requirements.
 - d. Wood cutting will occur in centralized locations to maximize reuse and make collection easier.
 - e. Hazardous waste will be managed by a licensed hazardous waste vendor.

1.03 Communication & Education Plan:

1. The General Contractor will conduct an on-site pre-construction meeting with subcontractors. Attendance will be required for the subcontractor’s key field personnel. The purpose of the meeting is to reinforce to subcontractor’s key field employees the commitments made by their companies with regard to the project goals and requirements.
2. Waste prevention and recycling activities will be discussed at the beginning of each weekly subcontractor coordination meeting to reinforce project goals and communicate progress to date.
3. As each new subcontractor comes on site, the recycling coordinators will present him/her with a copy of the Waste Management Plan and provide a tour of the recycling areas.
4. The subcontractor will be expected to make sure all their crews comply with the Waste Management Plan.
5. All recycling containers will be clearly labeled. Containers shall be located in close proximity to the building(s) under construction in which recyclables/salvageable materials will be placed.
6. Lists of acceptable/unacceptable materials will be posted throughout the site.
7. All subcontractors will be informed in writing of the importance of non-contamination with other materials or trash.
8. Recycling coordinators shall inspect the containers on a weekly basis to insure that no contamination is occurring and precautions shall also be taken to deter any contamination by the public.

1.04 Motivation Plan:

1. The project team will develop and publish a project mission statement that can be distributed to the subcontractors, attached to subcontracts, and posted at the jobsite.
2. The General Contractor will conduct a pre-award meeting for subcontractors. Subcontractors under consideration will be required to attend the meeting to review project goals and requirements with the project team. Attendance will be a prerequisite for award of subcontracts. A sign-off will be required by subcontractors attending the meeting that the project goals are understood. This document will be an attachment to every subcontract. Copies of the attachment will be posted prominently at the jobsite.

1.05 Evaluation Plan:

1. The General Contractor will develop, update, and post at the jobsite a graph indicating the progress to date for achieving the project’s waste recycling goal of 50% by weight of the total project waste stream.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 Expected Project Waste, Disposal, and Handling:

The following charts identify waste materials expected on this project, their disposal method, and handling procedures:

Material	Quantity	Disposal Method	Handling Procedure
Land clearing debris		Keep separate for reuse and or wood sale	Keep separated in designated areas on site.
Clean dimensional wood and palette wood		Keep separate for reuse by on-site construction or recycle at designated recycle location.	Keep separated in designated areas on site. Place in “Clean Wood” container.

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Material	Quantity	Disposal Method	Handling Procedure
Plywood, OSB, particle board		Reuse, landfill	Keep separated in designated areas on site. Place in "Trash" container.
Asphalt		Grind, reuse, recycle	Store on site until reuse on project or recycle by hauling to designated location.
Painted or treated wood		Reuse, landfill	Keep separated in designated areas on site. Place in "Trash" container.
Concrete		Recycle	
Concrete Masonry Units		Keep separate for re-use by on-site construction or by site employees	Keep separated in designated areas on site
Metals		Recycle	Keep separated in designated areas on site. Place in "Metals" container.
Gypsum drywall (unpainted)		Recycle	Keep scraps separate for recycling – stack on pallets in provided on site. All scrap drywall will be taken back by contractor to drywall supplier
Paint		Reuse or recycle	Keep separated in designated areas on site
Insulation		Reuse, landfill	
Flooring		Reuse, landfill	
Carpet and pad		Reuse or recycle with carpet manufacturer	
Glass		Glass Bottles	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container
Plastics		Plastic Bottles Plastic bags/scrap Reuse, Recycle	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container
Beverage		Recycle	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container
Cardboard		Recycle	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container

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Material	Quantity	Disposal Method	Handling Procedure
Paper and newsprint		Recycle	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container
TOTAL			

3.02 Responsible Party for Waste Disposal:

1. General Contractor shall monitor all waste management activities and collect all documentation of recycling and disposal.
2. Earthwork Contractor shall regrind existing paving and haul to location designated by Owner including documentation of amounts hauled. Reuse as required or permitted on this project.
3. Concrete Contractor shall provide separate bins for concrete waste, including hauling to recycling facility and documentation of all amounts.
4. Concrete Masonry Contractor shall provide separate bins for CMU was including hauling to recycling facility and documentation.
5. Metal Stud/Drywall Contractor shall provide separate bins for metal stud waste and drywall waste including hauling to recycling facility and documentation.
6. Demolition Contractor shall provide hauling and recycling or disposal of materials generated from demolition of existing building/s including documentation of material recycled and disposed of in landfill.
7. The General Contractor shall provide separate bins for metal (other than metal studs), cardboard, plastic, glass and aluminum containers and general trash and debris including documentation and hauling to recycling facility.
8. Name of landfill for disposal of non-recyclable waste: Contractor shall determine
 - a. Transfer Stations: Contractor shall determine
 - b. Landfills (ultimate disposal location): Contractor shall determine
9. Landfill tipping fee: \$_____ / ton Contractor shall verify
10. Estimate of waste for landfill disposal: Contractor shall verify

3.03 Recycling Calculation example:

1. If all construction waste was disposed in landfill:
 _____ tons = _____ lbs/2000 lbs/ton , _____ tons x \$_____/ton = \$_____
2. With recycling: TOTAL = \$_____

3.04 Recycling locations:

1. Asphalt
 - a. A/C Materials, 4717 Mendian Ave., Bakersfield, CA 93308 – 322-3424

- b. A&M Disposal & Recycling, 4233 Quinn Rd., Bakersfield, CA 93308 – 399-5575
 - c. Asphalt & Concrete Recycling, 4801 Wible Rd., Bakersfield – 396-8695
 - d. Griffith Company, 3950 Shell St., Bakersfield, CA – 831-7331
 - e. Granite Company, 21541 Bear Mountain Blvd., Arvin, CA 93203 – 854-3051
 - f. Valley Tree Construction, 4233 Quinn Rd., Bakersfield, CA 399-1783 or 872-5145
2. Building Materials
- a. California Material Exchange (CalMax) – 877-520-9703
3. Cardboard & Corrugated
- a. BARC – 397-3622
 - b. Golden State Metal, 2000 E Brundage Ln, 327-3559
 - c. JC Pallet Co., 5800 State Rd., 393-2229
 - d. Sierra Metals, 1620 E Brundage Ln, 327-7073
4. Commercial Recycling
- a. Revive Recycling, 3624 Buck Owens Blvd., Ste 7, 322-7374
5. Concrete
- a. See Asphalt – above
6. Drywall
- a. Hondo Inc., 20807 Stockdale Hwy, 589-1042
 - b. Quality Soil Amendments, 20807 Stockdale Hwy, 587-4457
7. Glass/Plastic Containers
- a. Golden State Metals, 1620 E Brundage Ln, 327-3559
 - b. Sierra Metals, 1620 E Brundage Ln, 327-7073
 - c. Smurfit-Stone Recycling, 2710 O St, 327-3841
8. Pallets
- a. JC Pallet Co., 5800 State Rd., 393-2229
 - b. Kern County Bena Road Landfill, 17 miles east of Bakersfield, off Tower Line Rd on Bena Rd, open Sunday-Saturday 8 am to 4 pm.
9. Paper – Office/Mixed
- a. BARC – 2240 S Union Ave, 834-2272
 - b. Sierra Metals, 1620 E Brundage Ln, 327-7073

- c. Smurfit-Stone Recycling, 2710 O St, 327-3841
- 10. Scrap Metals
 - a. Golden State Metals, 1620 E Brundage Ln, 327-3559
 - b. Sierra Metals, 1620 Brundage Ln, 327-7073
 - c. Midway Recycle/Western Scrap, 7200 Downing Ave., 589-9712
 - d. Nix Scrap Metals, 1100 James Rd., 387-1216
 - e. Rick's Recycling, 2200 S. Union Ave, 832-3248
- 11. Mixed Waste
 - a. Metro Recycling Corp, 58 Mt Vernon Ave., 1 mi south of 58, 661-201-3535
- 12. Landfill
 - a. General Trash
 - i. Kern County Bena Road Landfill, 17 miles east of Bakersfield, off Tower Line Rd on Bena Rd, open Sunday-Saturday 8 am to 4 pm. Also accepts for recycling: large appliances, asphalt, concrete, pallets, and green waste.

RECYCLING OPERATIONS

Action ***	Who	When
<input type="checkbox"/> Choose bins/collection methods	_____	_____
<input type="checkbox"/> Order bins - oversee deliver	_____	_____
<input type="checkbox"/> Site bins/collection sites for optimum convenience	_____	_____
<input type="checkbox"/> Sort or process wood	_____	_____
<input type="checkbox"/> Sort or process metal	_____	_____
<input type="checkbox"/> Sort or process cardboard	_____	_____
<input type="checkbox"/> Sort or process drywall	_____	_____
<input type="checkbox"/> Sort or process <u>CSWD mandatory items</u> (material)	_____	_____
<input type="checkbox"/> Sort or process _____ (material)	_____	_____
<input type="checkbox"/> Schedule material pickups/dropoffs	_____	_____
<input type="checkbox"/> Protect Materials from Contamination	_____	_____
<input type="checkbox"/> Document material pickups/dropoffs	_____	_____

*** Depending on the service option chosen, these may be the responsibility of either the field personnel, the hauler, a full-service recycling contractor, or the subcontractors.

COMMUNICATION PLAN - Except for mandatory items (*), check other items intended to be used.

Action	Who	When	Completed
<input type="checkbox"/> Complete Construction Waste Mgmt. Plan*	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Hold Orientation/Kick-off Meeting*	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Update & Progress in Weekly Job-Site Meetings*	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Encourage Just-In-Time Deliveries	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Post Targeted Materials (Signage)	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Distribute Tip Sheets for Job-Site Personnel	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Post Goals/Progress (Signage)	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> _____	_____	_____	<input type="checkbox"/>

MOTIVATION PLAN - Except for mandatory items (*), check other items intended to be used.

Action	Who	When	Completed
<input type="checkbox"/> Use formal agreements committing Subs to program	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Require Mis-Sorters to Re-Sort Bin	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Provide Stickers, T-Shirts, or Hats	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Public Recognition of Participating Subs	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Letters of Recognition	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Awards Luncheon	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> _____	_____	_____	<input type="checkbox"/>

EVALUATION PLAN - Except for mandatory items (*), check other items intended to be used.

Action	Who	When	Completed
<input type="checkbox"/> Perform Short Form Waste Audit	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Perform Full Waste Audit	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Perform Mid-Course Assessment	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Perform Monthly Cost and Materials Tracking*	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> Perform Final Evaluation*	_____	_____	<input type="checkbox"/>
<input type="checkbox"/> _____	_____	_____	<input type="checkbox"/>

SECTION 01 74 19A
CONTRACTOR'S CONSTRUCTION WASTE AND RECYCLING PLAN

(Submit After Award of Contract and Prior to Start of Work)

Project Title:		
Contract or Work Order No.:		
Contractor's Name:		
Street Address:		
City:	State:	Zip:
Phone: ()	Fax: ()	
E-Mail Address:		
Prepared by: (Print Name)		

Date Submitted:		
Project Period:	From:	TO:

Reuse, Recycling or Disposal Processes To Be Used

Describe the types of recycling processes or disposal activities that will be used for material generated in the project. Indicate the type of process or activity by number, types of materials, and estimated quantities that will be recycled or disposed in the sections below:

- 01 - Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick)
- 02 - Salvaging building materials or salvage items at an off site salvage or re-use center (i.e. lighting, fixtures)
- 03 - Recycling source separated materials on site (i.e. crushing asphalt/concrete for reuse or grinding for mulch)
- 04 - Recycling source separated materials at an off site recycling center (i.e. scrap metal or green matls)
- 05 - Recycling commingled loads of C&D matls at an off site mixed debris recycling center or transfer station
- 06 - Recycling material as Alternative Daily Cover at landfills
- 07 - Delivery of soils or mixed inerts to an inert landfill for disposal (inert fill).
- 08 - Disposal at a landfill or transfer station.
- 09 - Other (please describe)

Types of Material To Be Generated

Use these codes to indicate the types of material that will be generated on the project

- | | | | | |
|---|---------------------|------------------|--------------------------|-----------------|
| A = Asphalt | C = Concrete | M = Metals | I = Mixed Inert | G = Green Matls |
| D = Drywall | P/C=Paper/Cardboard | W/C = Wire/Cable | S= Soils (Non Hazardous) | |
| M/C = Miscellaneous Construction Debris | R = Reuse/Salvage | W = Wood | O = Other (describe) | |

Facilities Used: Provide Name of Facility and Location (City)

Total Truck Loads: Provide Number of Trucks Hauled from Site During Reporting Period

Total Quantities: If scales are available at sites, report in tons. If not, quantify by cubic yards. For salvage/reuse items, quantify by estimated weight (or units).

SECTION I - RE-USED/RECYCLED MATERIALS

Include all recycling activities for source separated or mixed material recycling centers where recycling will occur.

Type of Material	Type of Activity	Facility to be Used/Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) M	04	ABC Metals, Los Angeles	24	355		
a. Total Diversion			0	0	0	0

[PROJECT TITLE]
[DATE]

**SECTION 01 74 19A
CONTRACTOR'S CONSTRUCTION WASTE AND RECYCLING PLAN**

Continued

SECTION II - DISPOSED MATERIALS						
<i>Include all disposal activities for landfills, transfer stations, or inert landfills where no recycling will occur.</i>						
Type of Material	Type of Activity	Facility to be Used/Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) D	08	DEF Landfill, Los Angeles	2	35		
b. Total Disposal				0	0	0

SECTION III - TOTAL MATERIALS GENERATED						
<i>This section calculates the total materials to be generated during the project period (Reuse/Recycle + Disposal = Generation)</i>						
				Tons	Cubic YD	Other Wt.
a. Total Reused/Recycled				0	0	0
b. Total Disposed				0	0	0
c. Total Generated				0	0	0

SECTION IV - CONTRACTOR'S LANDFILL DIVERSION RATE CALCULATION						
<i>Add totals from Section I + Section II</i>						
				Tons	Cubic Yards	Other Wt.
a. Materials Re-Used and Recycled				0		
b. Materials Disposed				0		
c. Total Materials Generated (a. + b. = c.)				0	0	0
d. Landfill Diversion Rate (Tons Only)*				#DIV/0!		

* Use tons only to calculate recycling percentages: $Tons\ Reused/Recycled/Tons\ Generated = \% \text{ Recycled}$

Contractor's Comments (Provide any additional information pertinent to planned reuse, recycling, or disposal activities):

Notes:

- Section 01151A is a Division 01 General Requirement under CSI MasterFormat 1998 Edition.
For CSI MasterFormat 2004 Edition, this Section may be renumbered as follows:
Under Division 00, Procurement and Contracting Requirements, Project Forms 00 60 00
Use: Section 00 62 22 Construction Waste Diversion Plan
- Suggested Conversion Factors: From Cubic Yards to Tons (Use when scales are not available)
Asphalt: .61 (ex. 1000 CY Asphalt = 610 tons. Applies to broken chunks of asphalt)
Concrete: .93 (ex. 1000 CY Concrete = 930 tons. Applies to broken chunks of concrete)
Ferrous Metals: .22 (ex. 1000 CY Ferrous Metal = 220 tons)
Non-Ferrous Metals: .10 (ex. 1000 CY Non-Ferrous Metals = 100 tons)
Drywall Scrap: .20
Wood Scrap: .16

SECTION 01 74 19B
CONTRACTOR'S REUSE, RECYCLING, AND DISPOSAL REPORT

(Submit With Each Progress Payment)

Project Title:		
Contract or Work Order No.:		
Contractor's Name:		
Street Address:		
City:	State:	Zip:
Phone: ()	Fax: ()	
E-Mail Address:		
Prepared by: (Print Name)		

Date Submitted:		
Period Covered:	From:	To:

Reuse, Recycling or Disposal Processes Used

Describe the types of recycling processes or disposal activities used for material generated in the project. Indicate the type of process or activity by number, types of materials, and quantities that were recycled or disposed in the sections below:

01 - Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick)
 02 - Salvaging building materials or salvage items at an off site salvage or re-use center (i.e. lighting, fixtures)
 03 - Recycling source separated materials on site (i.e. crushing asphalt/concrete for reuse or grinding for mulch)
 04 - Recycling source separated materials at an off site recycling center (i.e. scrap metal or green mats)
 05 - Recycling commingled loads of C&D mats at an off site mixed debris recycling center or transfer station
 06 - Recycling material as Alternative Daily Cover at landfills
 07 - Delivery of soils or mixed inerts to an inert landfill for disposal (inert fill).
 08 - Disposal at a landfill or transfer station.
 09 - Other (please describe) _____

Types of Material Generated

Use these codes to indicate the types of material that were generated on the project

A = Asphalt C = Concrete M = Metals I = Mixed Inert G = Green Mats
 D = Drywall P/C=Paper/Cardboard W/C = Wire/Cable S= Soils (Non Hazardous)
 M/C = Miscellaneous Construction Debris R = Reuse/Salvage W = Wood O = Other (describe)

Facilities Used: Provide Name of Facility and Location (City)
 Total Truck Loads: Provide Number of Trucks Hauled from Site During Reporting Period
 Total Quantities: If scales are available at sites, report in tons. If not, quantify by cubic yards. For salvage/reuse items, quantify by estimated weight (or units).

SECTION I - RE-USED/RECYCLED MATERIALS

Include all recycling activities for source separated or mixed material recycling centers where recycling occurred.

Type of Material	Type of Activity	Facilities Used/Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) M	04	ABC Metals, Los Angeles	24	355		
a. Total Diversion			0	0	0	0

**SECTION 01 74 19B
CONTRACTOR'S REUSE, RECYCLING, AND DISPOSAL REPORT
Continued**

SECTION II - DISPOSED MATERIALS						
<i>Include all disposal activities for landfills, transfer stations, or inert landfills where no recycling occurred.</i>						
Type of Material	Type of Activity	Facilities Used/Location	Total Truck Loads	Total Quantities		
(ex.) D	08	DEF Landfill, Los Angeles	2	Tons	Cubic YD	Other Wt.
b. Total Disposal				0	0	0

SECTION III - TOTAL MATERIALS GENERATED						
<i>This section calculates the total materials generated during the project period (Reuse/Recycle + Disposal = Generation)</i>						
				Tons	Cubic YD	Other Wt.
a. Total Reused/Recycled				0	0	0
b. Total Disposed				0	0	0
c. Total Generated				0	0	0

SECTION IV - CONTRACTOR'S LANDFILL DIVERSION RATE CALCULATION						
<i>Add totals from Section I + Section II</i>						
		Tons	Cubic Yards	Other Wt.		
a. Materials Re-Used and Recycled		0				
b. Materials Disposed		0				
c. Total Materials Generated (a. + b. = c.)		0	0	0		
d. Landfill Diversion Rate (Tons Only)*		#DIV/0!				

* Use tons only to calculate recycling percentages: $Tons\ Reused/Recycled/Tons\ Generated = \% \text{ Recycled}$

Contractor's Comments (*Provide any additional information pertinent to planned reuse, recycling, or disposal activities*):

Notes:

- Section 01151A is a Division 01 General Requirement under CSI MasterFormat 1998 Edition.
For CSI MasterFormat 2004 Edition, this Section may be renumbered as follows:
Under Division 00, Procurement and Contracting Requirements, Project Forms 00 60 00
Use: Section 00 62 22 Construction Waste Diversion Plan
- Suggested Conversion Factors: From Cubic Yards to Tons (Use when scales are not available)
Asphalt: .61 (ex. 1000 CY Asphalt = 610 tons. Applies to broken chunks of asphalt)
Concrete: .93 (ex. 1000 CY Concrete = 930 tons. Applies to broken chunks of concrete)
Ferrous Metals: .22 (ex. 1000 CY Ferrous Metal = 220 tons)
Non-Ferrous Metals: .10 (ex. 1000 CY Non-Ferrous Metals = 100 tons)

Drywall Scrap: .20
Wood Scrap: .16

MINOR DEMOLITION FOR REMODELING

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 CODES AND ORDINANCES

All work is to be conducted in complete accordance with all applicable provisions of local and State safety and health ordinances.

1.02 DESCRIPTION AND CONDITION OF PREMISES

- a. The area affected by this Contract is set forth in "Scope of Work" below and has been used for the designated occupancy since original construction.
- b. Plans are available for the area of work at the office of the Architect for review by the Contractor. It is the intent and purpose of this Contract that the Contractor demolish all of the work as specified herein or on the plans, regardless of material of which it is constructed.
- c. Contractor shall accept the premises in the condition as found on the first day of work under the Contract. He shall assume all risk regarding damage or loss, whether by reason of fire, theft or other casualty or happening to specified area. No such damage or loss shall relieve the Contractor from Contract obligation to complete this work.

1.03 SCOPE OF WORK

- a. Scope of work shall include all labor, materials, equipment, transportation and appliances to complete the work of demolition and site restoration as hereinbelow specified and as per drawings and as reasonably required to complete the contract.
- b. Clearing and removal from work area all vegetation, rubbish and material (concrete, glass, wood, etc) and all other items required to complete the work in this contract.
- c. Disposal legally and off the site of all debris, rubbish and salvage.
- d. Construction and provision of proper barricades, signs and protective structures and devices.
- e. Responsibility of cleanliness and safety of work area and all other affected premises during the period of the Contract.
- f. Filling, backfilling and grading of site as specified.

1.04 SURVEY OF EXISTING CONDITIONS

The bidders are required to examine the building and determine for themselves the extent of the work included in this Contract.

1.05 WORKING AREA

A portion of the building site shall be allotted to the Contractor for the prosecution of his work. He shall confine his operations to this area and shall provide barricades or guards as required by the City and/or County Code requirements.

1.06 RESPONSIBILITY AND COORDINATION

- a. Responsibility accrues to the Contractor for the condition, good order, health and safety of all premises and individuals his work may affect.
- b. It shall be the responsibility of the Contractor to notify any utility companies and the owner concerning the cutting off or restoring of service or of relocating or modifying any such service that the work of this contract may require. He shall protect and maintain in operation any utility or sewer line that is required to remain operative during the period of the contract that his work may affect.
- c. The Contractor shall coordinate and require such cooperation of the various trades as will be necessary to complete each and every part of the work, even though not specifically indicated, noted or detailed on the drawings or specified.

1.07 PERMITS AND LICENSES

The Contractor shall secure, take out and/or maintain all required permits, approvals and licenses necessary to legally complete this work and shall be responsible for insuring that each and every one of his subcontractors is properly and duly licensed and have required permits to perform any of their work requiring same.

1.08 SALVAGE MATERIALS

- a. The Owner reserves the right to retain ownership of any equipment or fixtures removed from the building. All removed equipment or fixtures shall be stored neatly in an area designated by the Owner for a period of 48 hours after the Owner's representative has been notified. All items that are not claimed by the Owner within the specified time period shall be removed from the site and properly disposed of.
- b. All salvage materials removed from the building shall be placed in neat piles and stacks in the working area and removed from the site at the earliest practicable date.

- c. The Contractor shall not dispose of the improvements or materials removed from the building at the site by sale, gift, or in any manner whatsoever to the general public; provided however, that these provisions shall not be construed as limiting or prohibiting the sale or disposal of such salvage to duly licensed contractors or material men. The Contractor shall assume all responsibility arising out of such operation.

PART 2 EXECUTION

2.01 DEBRIS

All debris resulting from the demolition shall be removed and hauled away from the site immediately. Debris and rubbish shall not be allowed to accumulate on the site. Such material shall be sprinkled while being handled or loaded to relieve annoyance to the balance of the premises and to the neighborhood. No burning of rubbish shall be permitted at the site.

2.02 PROTECTION

- a. The Contractor shall enclose the area with fence barricades as per City and/or County code requirements. Barricades shall be substantially and neatly erected and braced and in areas near existing buildings where hazards may exist from falling materials, shall be constructed in a manner to intercept any materials that may fall as a result of demolition work.
- b. Barricades and fences shall have substantial gates, equipped with good locks and the working area shall be kept securely locked at all times work is in progress.
- c. The Contractor shall provide signs and post warnings in all necessary places to exclude all persons except those directly connected with the work from entering the working area or where vehicles are operating or materials are being stored. The Contractor shall be responsible for preventing unauthorized persons from entering the working area.
- d. The Contractor shall execute demolition work to insure protection of adjacent buildings, shrubs, trees and lawns from damage, which might occur from any cause and shall not interfere with use of adjacent buildings or safe passage to and from same.

2.05 UTILITIES

- a. It shall be the responsibility of the contractor to notify any utility companies and the owner concerning the cutoff and restoration of service or of relocating or modifying any such service that the work in this contract may require. He shall protect and maintain in operation any utility or sewer line that is required to remain operative during the period of the contract that his work may affect.

- b. The Contractor shall keep a record as to location and size of all capped pipe and/or conduit during demolition on a blue line print furnished by the Architect.

2.06 SCAFFOLDING, LADDERS, ETC.

All temporary construction, scaffolding, ladders, runways, hoistways, etc., shall be furnished and maintained by the Contractor as required and shall comply with all laws, ordinances, rules and regulations governing the construction and use of same.

2.07 CLEANING

- a. Upon completion of the work, the Contractor shall remove all protections, tools, materials, plant apparatus and rubbish or debris of any sort and leave the premises neat and orderly.
- b. The Contractor shall also inspect any other areas or premises of public or private property that may have been damaged, made dirty or otherwise disorderly as a result of his work and restore to good order any such area or premises.

END OF SECTION
03/05/2008

CONCRETE WORK

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 SCOPE OF WORK

The work of this section shall include the furnishing of all labor; materials and equipment required to complete the concrete work as indicated on the drawings and as specified herein.

1.02 WORK INCLUDED (But not limited to the following items)

- a. Provide and install modular Shade Structure concrete pier footings reinforced, in place, block out for base plate installation.
- b. Provide and install formwork and shoring.
- c. Install Anchor Bolts
- d. Protection and patching of concrete.
- e. Cost of concrete mix designs
- f. Clean up work related to this Section.

1.03 RELATED WORK

- a. Reinforcing steel is specified in Section 03 21 00.
- b. Filling, backfilling and compaction are specified under Section 31 20 00.
- c. The cost of testing all materials, *including cement and aggregate* shall be paid by the Owner. The Contractor shall cooperate in furnishing test materials so that tests may be completed prior to their installation.

1.04 TESTS AND INSPECTIONS

- a. Refer to Section 01 45 00, Quality Control, for these requirements.
- b. No work of this Section shall be covered until inspected by the Testing Lab or Inspector or his authorized representative.
- c. Tests and evaluation shall conform to T24, Sec. 1903A.

1.05 SPECIAL REQUIREMENTS

All concrete shall be mixed, formed, placed and cured, finished and protected in conformance with the recommendations of the Portland Cement Association and the American Concrete Institute unless otherwise shown or noted in these specifications.

1.06 DEFECTIVE CONCRETE

Concrete not meeting the minimum strength requirement, not formed as indicated, not true to intended alignment, which has large voids or rock pockets, which has wood or debris embedded in it, which has a surface deviation of greater than one-eighth inch (1/8") in ten feet (10'-0") or does not fully conform to the specifications shall be deemed defective and if so directed by the Architect, shall be removed and replaced with concrete complying with the drawings and specifications. Precast panels or other concrete damaged due to erection operations shall be deemed defective concrete.

1.07 Quality Assurance

Perform work in accordance with CALTRANS Standard Specifications and local governing regulations if more stringent than herein specified.

PART 2 PRODUCTS

2.01 MATERIALS

- a. Portland Cement: Shall conform to ASTM C 150, Type V, and T24, Sec. 1903A.2 with the following modifications:
- (1) The cement shall not contain more than 0.60% total alkali when calculated as Sodium Oxide.
 - (2) The percentage of Tricalcium Silicate shall not be limited.
 - (3) Cement shall be stored in such a manner as to protect it from inclusion of foreign material and damage by moisture. Only one (1) brand of cement shall be used for this work.
- b. Aggregates: Shall conform to ASTM C-33-86 except as modified below.
- (1) Fine aggregate: Shall consist of a washed natural sand of hard, strong and durable particles, which do not contain more than two percent (2%) by weight of deleterious substances such as clay lumps, shale, schist, alkali, mica, coated grains, or soft and flaky particles. Fine aggregate shall be graded uniformly from fine to coarse and when combined with coarse aggregate shall meet the requirements of Table 1.
 - (2) Coarse Aggregate: Shall consist of a clean, hard, fine grained, sound crushed rock, or washed gravel. It shall contain not more than five percent (5%) by weight of flat, thin, elongated, or laminated material nor more than two percent (2%) by weight shale or cherty material. Coarse aggregate shall be graded uniformly from one fourth inch (1/4") in size to maximum size and when combined with fine aggregate shall meet the requirements of Table 1.

TABLE I
GRADING OF COMBINED AGGREGATES

Sieve Number or Size in Inches (Woven Wire Cloth)	Percent by Weight		
	1-1/2" Max.	1" Maximum	3/4" Maximum
Passing a 1-1/2"	95-100	---	---
Passing a 1"	70-90	90-100	---
Passing a 3/4"	50-80	70-95	90-100
Passing a 3/8"	40-60	45-70	55-75
Passing a #4	35-55	35-55	40-60
Passing a #8	25-40	27-45	30-46
Passing a #16	16-34	20-38	23-40
Passing a #30	12-25	12-27	13-28
Passing a #50	2-12	5-15	5-15
Passing a #100	0-3	0-5	0-5

- c. Water: Shall be clean and free from deleterious acids, alkali, oil and organic matter and shall be potable.

- d. Admixture: Water-reducing admixture shall be Pozzolith 322N, T-24, Section 1903A6.6 Zeecon "H", Grace WRDA-79 or approved equal, conforming to ASTM 494 and Vapor and Water proofing Admixture shall be as manufactured by SPG, Vapor Lock 20/20
- e. Manufactured Grout: Shall be non-shrink, non-metallic, non-corrosive and high strength, conforming to Corps. of Engineers CRD-621. W.R. Meadows #588 or approved equal.
- f. Form Release: Provide form-coating material, which conforms to the regulations of the local air quality management district in force at the time of application. Use a non-staining, non-residual, chemically active release agent. DEBOND FORM COATING, manufactured by L&M Construction Chemicals, Inc. or "Crete Lease 880 VOC", by Cresset Chemical Company.
- g. Fly Ash: Shall comply with ASTM C618, class NORF (Class C is not permitted) Not more than 15% by weight of fly ash shall be substituted for ASTM C150 Portland Cement.

PART 3 EXECUTION

3.01 PROPORTIONING OF CONCRETE MIXES

- a. Strength: The minimum ultimate (28 day) compressive strength of foundation concrete shall be 4500 p.s.i. Its strength shall be at least 2700 p.s.i. at the age of 7 days and at least 4500 p.s.i. at 28 days. Structural concrete shall contain at least 6-1/4 sacks (588 pounds) of cement per cubic yard of concrete.
- b. Proportions: The Contractor shall propose to the Architect and Engineer *Laboratory Designed Mixes* based on the following limitations. The mix design shall be approved prior to use and signed by a California licensed Engineer. The mix designer shall determine the relative amounts of cement, admixtures, fine and coarse aggregate and mixing water in accordance with T24 Method B or Method C, Section 1905A.2.3. The Contractor shall pay the costs of concrete mix designs, including the cost of aggregate, gradation analysis where required.

TABLE II
CONCRETE MIXES
Complies with C.B.C. Title 24

Sacks of Cement Concrete Type	Maximum Size of Aggregate	# of 94 lb sacks per Cubic yard. of Concrete	Gallons of Water per Cubic yard of Concrete
4500 psi	3/4"	6.25	35.28

- c. Minimum Cement Content: The minimum cement contents indicated above may be reduced by a maximum of 0.25 sacks per cubic yard, subject to the approval of the Architect, if the resulting mix design can be substantiated by:
 - (1) The recent experience of the laboratory with the materials and facilities of the manufacturer, and
 - (2) Documented test results of trial batching or of the use of the specific mix on prior work.
- d. Admixture: The admixture shall not be used to replace cement.
- e. Slump: The amount of mixing water used (including free moisture carried by the aggregate) shall not exceed the maximum allowed in Table III. In addition, the

amount used shall be the minimum necessary to produce the following maximum allowable slumps but, in no case shall the water/cement ratio exceed 0.45:

Concrete foundations..... 4" maximum

The slump test shall conform to ASTM C-143.

- f. Aggregate Size: ¾" maximum
- f. Fly Ash may be added but not more than 15% by weight of Fly Ash shall be substituted for ASTM C150 Portland Cement.

3.02 PROPORTIONING OF GROUT AND DRYPACK (Handmixed)

- a. Grout: Shall be composed of one (1) volume of portland cement and three (3) volumes of fine aggregate and only enough water to make the mixture flow under its own weight.
- b. Drypack: Shall be composed as for grout except that only enough water shall be added to set the mixture (no free water and no slump). Drypack will be tamped into place.
- c. Do not use grout or drypack that has been mixed longer than thirty (30) minutes.

3.03 GROUT (Manufactured)

Manufactured grout shall be used at all 'blocked-out' and imbedded steel or aluminum items and as shown on structural drawings.

3.04 FORMS

- a. General Construction Requirements: Forms shall be constructed of wood built true to line and grade, mortar tight, and sufficiently rigid to prevent excessive deflection between supports. The arrangement and construction shall be subject to the approval of the Engineer, but responsibility for adequacy of the forms shall rest with The Contractor. Forms shall be arranged so as to properly receive and engage other construction and all anchorage sleeves, inserts, bolts, conduit, or other devices shall be installed prior to the placing of concrete.
- b. Forms for Exposed Concrete: All exposed concrete shall be formed with 5/8" (minimum) Douglas Fir "Plyform" placed with the grain of the outer plies in the direction of their span, or Softwood Plywood, PS 1-83, APA Plywood, B-B or HDO, Ext. sanded. Form construction shall insure that the concrete surfaces will conform to the tolerances of "Recommended practices for Concrete Form Work" (A.C.I. 347). The supporting studs or joists shall be spaced not more than twelve inches (12") center to center. The surfaces of the forms shall be smooth and free from irregularities. Wall form panels shall be placed with their long dimension horizontal and so as to form continuous horizontal joints. All exposed sharp corners shall be formed with 3/4" chamfers or fillets. All formwork to be new, mill oiled and edge sealed bearing legible inspection trademark.
- c. Forms for Unexposed Concrete: Lumber Douglas Fir 2 inches x 4 inches - minimum per WCLIB Rules No. 16, Construction or No. 2 and better, surfaced 1 side and 2 edges minimum for tight fit, dimensions as required to support loads.
- d. Form Ties or Bolts: Shall be used to fasten the forms. They shall be of sufficient strength and number to prevent spreading of the forms. They shall be of such type that they can be entirely removed or cut back one inch (1") or more from the finished concrete surface. Wire ties will not be permitted.
- e. Form Coating: Forms shall be coated with form release applied shortly before the concrete is placed but prior to placing the reinforcement.

- f. Cleaning: All dirt, chips, sawdust, nails and other foreign matter shall be completely removed from the forms before concrete is placed. Forms previously used shall be thoroughly cleaned of all dirt, mortar and other foreign matter before being reused.
- g. Removal: The forms shall not be removed until the concrete has sufficiently hardened to permit their removal with safety, but in no case in less time than as follows:
 - Pier Columns, Stem Walls.....**48 hours**
 No portion of the forming and shoring system may be removed less than 12 hours after placing. All removal shall be accomplished in such a manner as to prevent injury to the concrete. Comply with T24, Sec. 1906A.2.
- h. Foundation Concrete: Shall be placed directly into neat excavations provided the trench walls are stable as determined by the Architect or IOR subject to approval of the Division of the State Architect. In such cases, the minimum formwork shown on the structural drawings is mandatory to insure clean excavations immediately prior to and during the placing of concrete.
- i. Top of forms not more than 1/8" in 10 feet.
- j. Vertical face on longitudinal axis not more than 1/4" in 10 feet.
- k. Provide 2% cross slope at all concrete walks, unless otherwise noted.

3.05 EMBEDDED ITEMS

- a. The Contractor shall cooperate with all tradesmen to insure that all conduit, anchor bolts, sleeves, inserts, weld plate, etc. are properly installed and secured in correct position. All embedded items shall be thoroughly clean and free from rust, scale, oil or other foreign matter. All embedded items, including bolts, shall be securely held in their final positions by means of wood templates *before* any concrete is poured.
- b. Pipes, other than electrical conduit, shall not be embedded in structural concrete. Conduit shall be located within the middle half of the slab and its outside diameter shall not be greater than one third (1/3) of the slab thickness.
- c. The Contractor shall properly form all reglets and rebates required in the concrete to receive flashings, frames and other equipment. Dimensions and details shall be obtained from the equipment to be provided for.

3.06 MIXING

Transit Mixed Concrete: Shall be mixed and delivered in accordance with the requirements of T24, Section 1905A. Transit mixed concrete shall not be delivered to the work with the total specified amount of water incorporated therein. Two and one-half (2-1/2) gallons of water per cubic yard shall be withheld but may be incorporated in the mix under the supervision of the project Inspector. Transit mixed concrete shall be mixed for a period of not less than ten (10) minutes at a peripheral drum speed of approximately two hundred (200) feet per minute and mixing shall be continued until discharge is complete. Concrete will be rejected if not discharged within one and one-half (1-1/2) hours during normal weather or forty-five (45) minutes during hot weather after the addition of cement to the aggregates. The manufacturer of the transit mixed concrete shall furnish with each mixer truck a certificate stating the quantity of cement water, fine aggregate, coarse aggregate and admixture (if used) in each batch delivered to the I.O.R.

3.07 PLACING

- a. General: Concrete shall be used while fresh and before it has taken an initial set. Retempering partially hardened concrete with additional water will not be permitted. Concrete shall be placed in horizontal layers of such thickness that can be satisfactorily consolidated with vibrators. The concrete shall be placed as nearly as possible in its final position and the use of vibrators for extensive shifting of fresh concrete shall not be permitted. Fresh concrete shall not be permitted to fall more than six feet (6'-0") without the use of adjustable length pipes of "elephant trunks". The use of chutes in conveying concrete will not be permitted except with the Structural Engineer's approval and only if segregation does not occur and concrete of proper consistency flows freely. Once concreting is started, it shall be carried on as a continuous operation at such a rate that the concreting surface is at all times plastic and flows readily until the section is completed between predetermined construction joints.
- b. Compacting: All concrete, including slabs, shall be thoroughly compacted by means of high frequency internal vibrators. The vibrators shall not be attached to or held against the forms or reinforcing.
- c. Cold Weather Requirements: Concrete shall not be placed on frozen ground, nor shall it be mixed or placed when atmospheric temperature is below 35 degrees F., unless means are employed to heat the aggregates and water so the concrete shall have a minimum temperature of 50 degrees F. The concrete shall then be protected from freezing or frost for a period of five (5) days after placing by a means acceptable to the Structural Engineer and the Division of the State Architect. Calcium Chloride shall not be added to the mix. Provide proper and adequate heating system capable of maintaining temperature between 50 degrees and 70 degrees F. for the required curing period. Do not use combustion heaters during the first 24 hours unless precautions are taken to prevent concrete exposure to exhaust gases containing carbon dioxide.
- d. Hot Weather Requirements: The maximum placing temperature of concrete, when deposited, shall be 90 degrees F. Concrete (excepting foundations) shall not be placed when the maximum air temperature is expected to exceed 100 degrees F. on the day of placement unless specifically approved by the Structural Engineer. Such approval may require any or all of the following precautions:
 - (1) Provide shade for slabs to be finished after 11:00 a.m.
 - (2) Store all materials and equipment in the shade.
 - (3) Take special care to obtain the coolest mixing water available. Note that the use of ice may be required in order that the maximum temperature of the mix at the time of depositing does not exceed 90 degrees F.
 - (4) Forms to receive concrete shall be kept cool by sprinkling until the pour has started.
 - (5) A fog spray of water shall be used to keep concrete surfaces moist during the finishing operation and until curing is commenced.
 - (6) The use of an approved water reducing retarder (admixture).

3.8 FORMED SURFACES

- a. After form removal, all fins and ridges shall be removed from the concrete surfaces. All exterior form bolts shall be removed to a depth of at least one-inch (1") below the surface of the concrete. Voids and holes left by removal of form ties shall be cleaned and filled with mortar. Mortar shall consist of one (1) part by volume of cement to two (2) parts of sand. Rock pockets shall be chipped out down to sound material and filled with mortar.
- b. Architectural concrete or concrete surfaces to be left permanently exposed shall be patched as mentioned above and then honed smooth, rubbed and sacked. Coat areas completely with grout, wood float, let set and then rub with burlap.

3.9 CLEAN UP

- a. Upon completion of all other work in the building, all interior and exterior finished concrete surfaces shall be swept clean and all mortar, plaster, paint, oil and stains removed therefrom.
- b. The Contractor shall remove from the premises all surplus material, equipment and debris which are the result of his operations.

END OF SECTION
02/11/2020

REINFORCING STEEL

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 SCOPE OF WORK

The work of this section shall include the furnishing of all labor, materials and equipment required to complete the reinforcing steelwork as indicated on the drawings and as specified herein.

1.02 WORK INCLUDED (But not limited to the following items)

- a. Furnish, bend and install reinforcing steel for all concrete work.
- b. Accessories for all reinforcing work.
- c. Clean up work related to this Section.
- d. All reinforcing steel shall be epoxy coated

1.03 RELATED WORK

- a. Placing concrete is specified in Sections 03 10 00 & 32 13 13.

1.04 TESTS AND INSPECTIONS

- a. Refer to Section 01 45 00, "Quality Control", requirements.
- b. *The Owner shall engage a testing laboratory to perform material evaluation tests.***
- c. No materials of this section shall be placed into the work until sampling, testing and certifications have been approved by the Architect.
- d. No work of this section shall be covered or concealed until inspected by the Inspector of Record, his authorized representative **or the Owner's Inspector.**
- e. *Where samples are taken from bundles as delivered from the mill, with the bundles identified as to heat number, and provided mill analyses accompany the report, then one tensile test and one bend test will be made from a specimen of each 10 tons or fraction thereof of each size of reinforcement steel.***
- f. *Where positive identification of the heat number cannot be made, or where random samples are taken, then one series of tests will be made from each 2-1/2 tons or fraction thereof of each size of reinforcement steel.***

PART 2 PRODUCTS

2.01 MATERIALS

- a. Reinforcing Bars:
(1) #3 and smaller - ASTM A615, Grade 40.

- (2) *Larger than #3 - ASTM A615, Grade 60, unless noted otherwise.*
- (3) *Welded Rebar: ASTM A706, Grade 60.*
- (4) *Spiral Rebar: ASTM A-82, cold drawn bars. Reinforcement shall comply with C.B.C. Section 1910 A.2.*

- b. Welded Wire Fabric: (WWF) shall be electric welded steel wire fabric conforming to ASTM A-185.
- c. Welded Steel Deformed Wire Fabric: Shall conform to ASTM A-497.
- d. Smooth Dowels: Shall conform to ASTM A-615, Grade 60.
- e. Reinforcing Wire: Shall be cold drawn steel wire conforming to ASTM A-82.
- f. All reinforcing shall be new, clean, free from oil, dirt, loose mill scale, excessive rust, mortar, or other coatings that would destroy or reduce the bond.

PART 3 EXECUTION

3.01 CLEANING

Before use, reinforcement shall be cleaned so as to be free of mortar, oil, dirt, loose mill scale and loose rust or other coatings that would destroy or reduce the bond.

3.02 BENDING

- a. *Minimum bend diameters shall conform to ACI 318-19.*
- b. *Bars shall be bent cold.*
- c. *Measure bend diameters on the inside of the bar.*

MINIMUM DIAMETER OF BENDS

<u>Bar size</u>	<u>Min. Diameter</u>
Nos. 3 through 8	6 bar diameter
Nos. 9 through 11	8 bar diameter
Nos. 14 & 18	24 bar diameter
Stirrups or ties	
Nos. 5 or smaller	4 bar diameter

3.03 PLACING

Reinforcing shall be accurately placed in accordance with the drawings and meeting CRSI and shall be securely tied in position with at least No. 16 gage annealed wire at all bar intersections. Metal chairs and bolsters (at 32" o.c. each way max.) shall be used to hold all steel above the form bottoms at the proper distance. Metal spacers shall be used to secure the proper spacing of the steel. Precast concrete dobies (at 48" o.c. max.) shall be used to support reinforcing steel off the ground in footings and off the soffit of concrete exposed to weather. The clear distance between parallel bars shall not be less than 1-1/2 times the bar

diameter, but in no case less than 1-1/2" nor less than 1-1/3 times the maximum size of coarse aggregate.

3.04 SPLICING

Splicing shall not be permitted without the approval of the Structural Engineer unless detailed on Structural Drawings. Splices shall be made with a lap of at least Class "C" unless noted otherwise. The bars shall be placed in contact and wired together in such a manner as to maintain a clearance of not less than the minimum clear distance to the other bars and to the surface of the concrete. In general, stagger splices at least 4'-0". Splice wire mesh with a lap of at least the dimension of one mesh + 2". Welded splices shall be in accordance with CBC Title 24, 1903 A.8.

3.05 TOLERANCES

Reinforcement shall be placed in specified positions meeting CRSI requirements, but not less than the following tolerances:

- a. Depth: + 1/4" for members 24" or less in depth.
- b. Depth: $\pm 1/2$ " for members greater than 24" in depth.
- c. Length: ± 1 ".

3.07 WELDED REINFORCING

- a. All welding of rebar shall conform with American Welding Society specifications AWS D1.4/D1.4M:2018, latest edition as modified by CBC Standard No.19-1.
- b. If mill test reports are not available, chemical analysis shall be made of bars, representative of the bars to be welded. Bars conforming to ASTM A-706-89 may be assumed to have a C.E. = 0.55. Bars with a C.E. above 0.75 shall not be welded. Welding shall not be done on or within 2 bar diameters of any bent portion of a bar, which has been bent cold. Welding of crossing bars shall not be permitted for assembly of reinforcement, unless authorized by the Structural Engineer and approved by the Division of the State Architect.

3.08 CLEAN UP

The contractor shall remove from the site all surplus material, equipment and debris which are the results of his operations.

END OF SECTION
03/05/2008

FINISH CARPENTRY

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 SCOPE OF WORK

The work of this Section shall include all labor, material, equipment and appliances required to complete all the work shown on the drawings and/or specified hereunder.

1.02 WORK INCLUDED

- a. Provide barricades and temporary fencing around work area as required.
- b. Laying out of the work.
- c. Construct Shade Structure and install onto foundation .
- d. Cutting and patching as required by the work of other trades.
- e. All rough hardware, including bolts, expansion anchors bolts, nails, etc., for attachment of steel to concrete.
- f. Installation of anchor bolts and rebar.
- g. Clean the structure and site upon completion of all work.

PART 2 PRODUCTS

2.01 LUMBER

- a. **Grading, Size and Pattern:** Lumber shall bear the official grade mark of the appropriate inspection agency on the wide face of each piece. Lumber shall be surfaced, milled or worked to patterns as indicated on the drawings. The Architect shall have the right to reject any lumber which in his opinion is unsuitable for the intended use, subject to the re-inspection procedure prescribed in Paragraph 700 of the "Standard Grading and Dressing Rules No. 16". Latest edition, published by the West Coast Lumber Inspection Bureau.
- b. **Grades and Species:** All lumber, unless otherwise specified, shall be well seasoned Douglas fir and shall comply with the requirements of "Standard Grading and Dressing Rules No. 17, latest edition, of the West Coast Lumber Inspection Bureau. Delivery to job site and installation of lumber with a moisture content of greater than 19% is not permitted. All lumber shall be "Grade Marked" KD or SD by a recognized lumber grading agency and 2x members shall be dried so that moisture content does not exceed 19 percent. All framing lumber shall be of the D.F. grades as indicated on the structural drawings.

2.02 PLYWOOD

- a. Plywood shall be per details on drawings including use, thickness, type, and APA approvals.

2.04 BUILDER'S ROUGH HARDWARE

- a. **Nailing:** Nails shall be common wire nails of the sizes indicated on the plans. Nails for hangers and other special fastenings shall be those furnished by the manufacturer of the fastenings. See the drawings for Nailing Schedule. Stripping and subfloor nails - "Stronghold annular or ring shank nails" or equal.
- b. **Bolting:** Holes for bolts shall be bored true to line and one-sixteenth of an inch (1/16") larger in diameter than the bolt. Bolts shall be unfinished unless otherwise noted. Standard cut washers shall be installed under bolt heads and nuts that would otherwise bear on wood surfaces. Bolts and washers shall be furnished by the Miscellaneous Iron Contractor and installed by this Contractor. Where plate washers or malleable iron washers are specified on the plans, the following sizes shall be provided. Retighten nuts/bolts prior to close-in. See structural drawings for washer sizes, unless otherwise noted.
- b. Lag Screws shall be screwed and not driven into predrilled holes. The pre-drilled holes shall be 0.75 times the diameter of the screws, unless otherwise noted on structural drawings.
- d. **Miscellaneous Fasteners:** Light-gauge fasteners, including, clips, etc., shall be manufactured by the Simpson Company or equal. Power Driven Fasteners shall be "Simpson", "Hilti" or equal and shall be used only where indicated on the plans.

2.05 EXPANSION BOLTS

Hilti SS KB-TZ2 or Simpson SS Strong Bolt-2 or approved equal..

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- a. **Nailing:** Nails shall not be driven closer together than their required penetration; nor closer to the edge of timber than one-half (1/2) their required penetration. Where necessary, wood shall be pre-drilled to prevent splitting. All framing shall be strongly nailed, bridged, blocked and trussed to make a rigid structure. Where structural wood members have been split and/or otherwise changed to the extent as to materially impair their strength, they shall be removed and properly replaced.
- b. **Work and Relations with Other Contractors:** The Carpentry Contractor's responsibilities include:
 - (1) Notice to other Contractors, in ample time as not to delay the work progress, to place portions of their work as is embedded, built-in, attached to or supported by work being executed. Any cutting or patching necessitated by any subcontractor's failure or delay to comply with notice is subcontractor's responsibility.
 - (2) Major cutting or boring of rough carpentry and work affecting finish carpentry, for other contractors and trades. Other contractors will do their own minor cutting or boring for installation of pipe, conduits and ducts.
 - (3) Responsibility for proper placing of all work embedded in or related to concrete in proper time and manner. Assist and direct or place same.
 - (4) Responsibility for proper placing of all required backing for wall and ceiling plaster expansion screeds and miscellaneous trim.

- c. **Cleaning Site:** All wood, form lumber, shavings, sawdust, rubbish and debris shall be cleaned from the building and building site. Upon completion of the building the grounds shall be left broom clean and in an orderly and acceptable condition.
- d. **Cleaning:** Clean glass, hardware, plumbing fixtures, light fixtures, switch plates, service outlets and grilles upon completion of the work and leave in a clean, acceptable condition.

3.02 SPECIAL REQUIREMENTS

- a. **Laying Out Site and Structure:** The Partial Site plan shall be followed in laying out the Shade; however, it shall be checked against the P.C. Drawing and all dimensions shall be verified.
- b. **Damage:** The Contractor shall protect this work from damage of any kind until completion and acceptance of the building.

END OF SECTION
08/07/2018

FRAMED FABRIC STRUCTURE

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1: GENERAL

1.01 SUMMARY

- A. A single, State of California-licensed fabric shade structure provider shall be responsible for the design, wet-stamped engineering drawings, foundation plan utilizing Drilled Pier Recessed Steel Base Plate with option Spread Footing with Recessed Base Plate, and plant fabrication. The intent of this specification is to have only one shade provider be responsible for all the functions listed above.

1.02 SUBMITTALS

- A. With Bid Submittals:
 - 1. Provide proof of approved to DSA (Division of the State Architect) specifications and a current DSA Pre-Checked (PC) number.
 - 2. Provide specifications for fabric color range, in a digital (PDF) or paper document, showing available color choices.
 - 3. Provide proof of all quality assurance items including.
 - a. Approved DSA PC engineering with a current approved "A" number.
 - b. A list of at least 3 reference projects in California that have been installed within a minimum of 12 years.
 - c. Proof of General Liability, Professional Liability, and Umbrella insurance.
 - d. Proof of an Internal Quality Control Inspection Program.

1.03 QUALITY ASSURANCE

- A. Fabrication is limited to firms with proven experience in the design and fabrication of fabric shade structures, and such firms shall meet the following minimum requirements. No substitutions shall be allowed for the following:
 - 1. A single shade structure provider shall design, engineer, and manufacture the fabric shade structures.
 - 2. Shade structure provider shall have an approved DSA PC Engineering drawing for the work shown herein with a current approved "A" number at the time of bid, or the ability to provide engineering for DSA Plan Approval within the time frame allowed for delivery date noted on bid form.

3. Shade structure provider shall have at least 10 years' experience in the design, engineering, and manufacturing of shade structures, engineered to California Building Code requirements with similar scope.
4. Shade structure provider shall provide proof with bid submittal of a minimum of \$1,000,000 General/Public Liability insurance, \$3,000,000 Professional Liability (PL) insurance, and additional \$5,000,000 Umbrella/Excess Liability insurance.
5. The fabric shade structure provider shall have a Corporate Quality Control program/manual, which describes their complete quality assurance program, and provide copies of the last three (3) site inspections.

1.04 WARRANTY

- A. The shade structure provider shall provide a 12-month warranty on all labor and materials for fabric properties.
- B. A supplemental warranty from the manufacturer shall be provided for a period of 10 years (pro-rated) on fabric and 10 years on the structural integrity of the steel, from date of substantial completion.
- C. The warranty shall not deprive the Owner of other rights the Owner may have under the provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

PART 2: PRODUCTS

2.01 GENERAL

- A. The shade structure will be pole-mounted, with fabric roofs, using attachment points or as shown on plans. The Basis of Design is the "Mariner" product by USA Shade. Approved equal products will be allowed. Minimum entry heights shall be ten feet 10', utilizing maximum steel column thickness included in the DSA approved engineering drawings. Installation shall not be part of this section. Shade structure provider shall supply all parts and components for installation of their product submitted.
- B. The structures shall be manufactured by Shade Structures, Inc., dba USA SHADE & Fabric Structures, **or approved equal** with valid DSA pre-checked (PC) approval at time of bid that includes the engineering drawings, fabric roof, steel cables, all fasteners, and erection of structure(s), including foundations design.
 1. To qualify as an approved equal, please submit product documentation, specifications, fabric samples, and all quality assurance criteria at least 10 working days prior to bid in order to be considered. No substitutions will be allowed after the deadline. Any approval of alternate manufacturers shall be by addendum prior to the bid date and shall not be

allowed without written notification. Substitutions shall be submitted to Kern High School District.

2. The fabric shade structure(s) shall conform to the current adopted version of the California Building Code.
3. All fabric shade structures are designed and engineered to meet the minimum of 115mph Wind Load, Risk Category II, Exposure C, and Seismic (earthquake) Load based on Seismic Design Category D, Seismic Risk Category II, and a Live Load of 5psf. All fabric shade structures shall be engineered with a zero-wind pass-through factor on the fabric. When ASD Steel Design Method is used based on CBC Section 1605A.3.1, the load combinations Dead Load + 0.75 Live load + 0.75 Wind Load, and 0.6 Dead Load + Wind Load must be analyzed. NO EXCEPTIONS.

C. Steel:

1. All steel members of the fabric shade structure shall be designed in strict accordance with the requirements of the "American Institute of Steel Construction" (AISC) Specifications and the "American Iron and Steel Institute" (AISI) Specifications for Cold-Formed Members and manufactured in an IAS- (International Accreditation Service) accredited facility for Structural Steel Fabrication under CBC Section 1704.2.5.2.
2. All connections shall have a maximum internal sleeving tolerance of .0625" using high-tensile strength steel sections with a minimum sleeve length of 6".
3. All non-hollow structural steel members shall comply to ASTM A-36. All hollow structural steel members shall be cold-formed, high-strength steel and comply with ASTM A-500-10, Grade B. All steel plates shall comply with ASTM A-572, Grade 50. All galvanized steel tubing shall be triple-coated for rust protection using an in-line electroplating coat process. All galvanized steel tubing shall be internally coated with zinc and organic coatings to prevent corrosion.
4. Special inspection requirements by a DSA approved independent inspection agency shall follow and meet the T & I list as approved by DSA. The shop fabrication shall include welding of all steel members and identification of steel and fabric material through mill certification, or material testing. Uncertified steel shall be tested to the requirements of 2016 CBC, Section 2203.A.1.

D. Bolts:

1. All structural field connections of the shade structure shall be designed and made with high-strength bolted connections using ASTM A-325, Grade B.
2. Where applicable, all stainless-steel bolts shall comply with ASTM F-593, Alloy Group 1 or 2. All bolt fittings shall include rubber washers for water-

tight seal at the joints. All nuts shall comply with ASTM F-594, Alloy Group 1 or 2.

E. Welding:

1. All shop-welded connections of the fabric shade structure shall be designed and performed in strict accordance with the requirements of the "American Welding Society" (AWS) Specifications. Structural welds shall be made in compliance with the requirements of the "pre-qualified" welded joints, where applicable and by certified welders. No onsite or field welding shall be permitted.
2. All full penetration welds shall be continuously inspected by an independent inspection agency and shall be tested to the requirement of the 2019 CBC, Section 2204A.1.

F. Powder Coating:

1. Galvanized steel tubing preparation prior to powder coating shall be executed in accordance with solvent cleaning SSPC-SP1. Solvents such as water, mineral spirits, xylol, and toluol, which are to be used to remove foreign matter from the surface. A mechanical method prior to solvent cleaning, and prior to surface preparation, shall be executed according to Power Tool Cleaning SSPC-SP3, utilizing wire brushes, abrasive wheels, needle gun, etc.
2. Carbon structural steel tubing preparation prior to powder coating shall be executed in accordance with commercial blast cleaning SSPC-SP6 or NACE #3. A commercial blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, mill scale, rust, coating, oxides, corrosion, and other foreign material.
3. Powder coating shall be sufficiently applied (minimum 3 mils thickness) and cured at the recommended temperature to provide proper adhesion and stability to meet salt spray and adhesion tests, as defined by the American Society of Testing Materials.
4. Raw powder used in the powder coat process shall have the following characteristics:
 - a. Specific gravity: 1.68 +/- 0.05
 - b. Theoretical coverage: 114 +/- 4ft²/mil
 - c. Mass loss during cure: <1%
 - d. Maximum storage temperature: 80°F

- e. Interpon® 800 is a high-durability TGIC powder coating designed for exterior exposure. Tested against the most severe specifications, Interpon 800 gives significantly improved gloss retention and resistance to color change or approved equal.
- G. Tension Cable: Steel wire rope cable is determined based on calculated engineering loads.
- 1. 0.25" (nominal) galvanized 7x19 strand core wire rope shall be used for tension loads up to 4,500 lbs.
 - 2. 0.375" (nominal) galvanized 7x19 strand core wire rope shall be used for tension loads up to 9,000 lbs.
 - 3. 0.5" (nominal) galvanized 6x19 strand core wire rope shall be used for tension loads up to 13,500 lbs.
- H. Fabric Roof Systems:
- 1. UV Shade Fabric:
 - 2. Colourshade® Flame Retardant shade fabric is made of a UV-stabilized, high-density polyethylene (HDPE), as manufactured by Multiknit® (Pty) Ltd. HDPE mesh shall be a heat-stentered, three bar Rachel-knitted, lockstitch fabric with one monofilament and two tape yarns to ensure that the material will not unravel if cut. Raw fabric rolls shall be 9.8425 feet wide or approved equal
 - 3. Fabric Properties:
 - a. Life Expectancy: minimum 8 years with continuous exposure to the sun
 - b. Fading: minimum fading after 5 years (3 years for Red)
 - c. Fabric Mass: 5.31 oz/yd² ~ 5.6 oz/yd² (180gsm ~ 190gsm)
 - d. Fabric Width: 9.8425 feet (3m)
 - e. Roll Length: 164.04 feet (50m)
 - f. Roll Dimensions: 62.99 inches x 16.5354 inches (160cm x 42cm)
 - g. Roll Weight +/- 66 lbs (+/- 30kg)
 - h. Minimum Temp: -13°F (-25°C)
 - i. Maximum Temp: +176°F (80°C)
 - j. Fabric shall meet the following flame spread and fire propagation

tests:ASTM E-84

- k. NFPA 701 Test Method 2
 - l. California's Office of the State Fire Marshal, Registered Flame-Resistant Product
4. Stitching & Thread:
- a. All sewing seams are to be double stitched.
 - b. The thread shall be GORE® TENARA® mildew-resistant sewing thread, manufactured from 100% expanded PTFE (Teflon™) **or approved equal**. Thread shall meet or exceed the following:
 - 1) Flexible temperature range
 - 2) Very low shrinkage factor
 - 3) Extremely high strength, durable in outdoor climates
 - 4) Resists flex and abrasion of fabric
 - 5) Unaffected by cleaning agents, acid rain, mildew, salt water, and is unaffected by most industrial pollutants
 - 6) Treated for prolonged exposure to the sun
 - 7) Rot resistant
5. Shade and UV Factors:
- a. Shade protection and UV screen protection factors shall provide minimum 81% UV block and 79% - 86% shade.

END OF SECTION
08/02/2023

EARTHWORK

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 SCOPE OF WORK

The work of this section shall include the furnishing of all labor, materials and equipment required to complete the clearing and grubbing, excavation, backfilling and compacted fill work as indicated on the drawings and as specified herein.

1.02 WORK INCLUDED (But not limited to the following items)

- a. Clearing and removal from site of all vegetation, rubbish and material (concrete, glass, wood, etc.) from previous use of the property not indicated on the drawings to remain.
- b. Excavating soil under buildings for compacted fill, if required.
- c. Preparing of area upon which fill is to be placed and placing of compacted fill.
- d. Furnish imported fill material, if required.
- e. Excavating for all footings, floor slabs, walks, walls, curbs, pits, etc.
- f. Proper bracing and shoring of all excavation where necessary to prevent caving.
- g. Backfilling foundations, placing and compacting fill for slabs and as required for area grading.
- h. Subgrading and preparation of subgrade for asphaltic concrete surfacing.
- i. Applying water to obtain compaction required in fills.
- j. Final finish grading.
- k. Top soil fill in areas indicated.
- l. Cleaning of site of all material excavated and not used and disposing of away from site.

1.03 RELATED WORK

- a. Excavating, trenching and backfilling for the plumbing, electrical or mechanical trades which is specified under the section to which it applies.
- b. Vapor barrier under concrete floor slabs is specified in Section 03 10 00.

1.04 OWNER'S REPRESENTATIVE

- a. The earthwork operations will be under the direct inspection of the Geotechnical Engineer of Record for this Project, who shall be registered by the State as a Professional Engineer and who will be employed by the Owner. Refer to Section 01402, Tests and Inspections.
- b. The Geotechnical Engineer shall be the Owner's representative in control of all earthwork. The Geotechnical Engineer will approve or disapprove fill materials; will make appropriate tests and pass or reject compacted fill and will designate for removal any unsuitable materials, which may remain at the bottom of the excavated area after the limits of excavation indicated by the drawings have been reached.
- c. The contractor shall comply with the instructions of the Geotechnical Engineer as to the aspects of the work described above and shall cooperate with the Geotechnical Engineer in his performance of these duties.

1.05 GEOTECHNICAL REPORT

- a. Unless otherwise noted, the recommendations found in the soils report for site preparation shall be followed but shall not be considered a part of this section. It shall be incumbent upon this contractor to review the soils report on file in the Architect's office. No additional monies will be allowed for any costs incurred due to negligence of the contractor in not reviewing the soils report.

1.06 PROTECTION

- a. Protection of Property: Care shall be taken to prevent damage to adjoining property and this contractor shall make good any damage resulting from this operation.
- b. Maintain protections and barricades as required. Cooperate with other trades requiring access.
- c. Survey work furnished by the owner, such as horizontal and vertical control survey monuments, bench marks, etc., shall be carefully maintained. Said work, if disturbed or destroyed, shall be replaced by the contractor's surveyor at the contractor's expense.
- d. Loads of material moving to or from the site shall be trimmed to prevent droppings along the street.

1.07 UNDERGROUND PIPES, CONDUITS AND UTILITIES

- a. Observe applicable regulations in work affecting underground utilities. Protect active utilities from damage and remove or relocate only as indicated or specified. Remove and plug or cap inactive or abandoned utilities encountered in

excavating or grading. In absence of specific requirements, plug or cap at least 5 feet outside building walls.

- b. Excavating or trenching for new pipe, conduit or utility lines within five feet of building lines and under exterior walks, drives or pavement is subject to provisions of these specifications with respect to protection from moisture, backfilling and grading.
- c. Lines Containing Liquid: Check for leaks and certify to owner. Run such lines at least 5 feet outside building lines wherever possible.
- d. Notify utility companies and owner for all utilities to be cut off, modified or relocated. Maintain active utilities and protect same. No utilities shall be cut off without first obtaining permission from the Owner.

1.08 DRAWINGS AND SPECIFICATIONS

Cuts and Fills: The grades shown on the drawings do not necessarily indicate a balance of cut and fill. Any excess earth not needed for filling shall be removed from the site. Any earth required for filling shall be furnished by the contractor and shall meet the requirements under materials section for earth fill.

1.09 INSPECTION OF SITE

The contractor shall accept the site as he finds it at the time of submitting his bid for this work and no allowances will be made for any error or negligence resulting from his failure to inspect the site prior to submitting his bid proposal.

1.10 LAWS AND ORDINANCES

All excavating, bracing, barricading, backfilling, etc., shall be done in accordance with all applicable laws and/or ordinances.

1.11 ASTM STANDARD SPECIFICATIONS

Where reference is made to ASTM Standard Specifications, the latest issue of such specifications shall apply, except where other specific issue dates are identified in the Soils Report, T24, Part 2, or the applicable C.B.C. Standard.

1.12 SURFACE WATER

Surface water shall be controlled by grading as necessary to prevent erosion, damming or ponding in the bottom of structural excavations.

1.13 ALLOWABLE TOLERANCES

Maximum variation from indicated grades shall be 1/10 of one foot.

PART 2 PRODUCTS

2.01 MATERIALS

- a. Earth for filling and backfilling shall be acceptable to the Architect and Geotechnical Engineer and shall be free from all objectionable material and shall be a clean, granular material suitable for compaction. Must be tested and approved by the Soils Engineer.
- b. Top Soil: A fertile, friable, loamy soil, free from toxic amounts of acids and alkalis, capable of sustaining healthy plant life. To be approved by Architect.
- c. Imported soils shall consist of essentially granular, silty sands with low expansion potential and free of grasses, weeds, debris, rocks larger than 4" in maximum dimension and soluble sulfates in excess of 200 parts per million. Import fill shall contain sufficient silt and clay binders to render them stable in footing trenches and capable of maintaining specified elevation tolerances during paving operations.
- d. Imported soils to be used as engineered fill should also meet the following gradation and quality criteria:

(1) Maximum Percent Passing #200 Sieve	50
(2) Maximum Liquid Limit	40
(3) Maximum Plasticity Index	14
(4) Minimum R-Value	50
(a) Pavement Areas Only	
(5) Maximum Expansion Index	20
(a) Per 2010 CBC Standard 18-2	
(b)	
- e. Only soils passing DTSC standards shall be allowed.
- f. Pea Gravel- to be used for drainage course material (backfill) and decorative finishes shall be screened gravel that consists of clean, washed, small round stones which will be retained by a No.4 (4.75mm) sieve and will pass a 3/8"(9.5mm) sieve.

PART 3 EXECUTION

3.01 SITE CLEARING

Clear the building site of all vegetation and rubbish, including all brush, grass, weeds, trees, roots, concrete slabs and footings, A.C. paving, tin cans, glass, wood, brick and large rocks (1-1/2" or larger), etc. Strip the entire property and easements down to bare earth. All vegetation and rubbish cleared and stripped from the site shall be removed from the site and legally disposed of.

3.02 PREPARATION OF AREA UPON WHICH FILL IS TO BE PLACED

- a. **Clearing and grubbing-** should consist of stripping grasses; removing existing structures, foundations, slabs, and miscellaneous concrete; removing buried utility lines; locating and removing or disposing of abandoned septic tanks and seepage pits (dry well) if any are encountered during site clearing and grubbing operations.
- b. **Stripping-** Prior to soil compaction, existing ground surfaces should be stripped of surface vegetation. A stripping depth of one inch should be adequate. In no instances should stripped material be used in engineered fill or blended with and compacted in original ground.
- c. **Slabs and Pavements-** Shall be completely removed. Asphaltic concrete fragments may be used in fill provided they are broken down to a maximum dimension of two inches and adequately disbursed within a friable soil matrix. Soil-AC mixtures should not be used above the elevation bottom of the lowest structure footing.
- d. **Foundations-** Existing at the time of grading should be completely removed.
- e. **Basements and septic tanks-** located in proposed structure areas should be completely removed. Basements or septic tanks situated outside the structure areas may be removed or disposed of by breaking the walls down to not less than two feet below finished grade; breaking the bottom out to provide drainage, and back-filling and compacting the resulting cavity using a sand slurry or by placing and compacting acceptable soils engineered fill. If a sand slurry is used, no compaction tests will be required.
- f. **Seepage pits-** in proposed structure areas should be removed to a minimum depth of five feet below finished grade or two feet below existing ground, whichever is lower. If a portion of the pit liner is to be abandoned in place, the void should be backfilled with sand slurry. In no instances should liners be left in place within a depth of two feet below existing ground.
- g. **Backfilling Cavities-** All voids or depressions created by clearing and grubbing operations should be backfilled with either on-site soils or acceptable imported fill materials. Materials used to backfill cavities should be placed and compacted in accordance with Paragraph 3.06.
- h. After the area to be filled is cleared, it shall be plowed or scarified to the depth of at least twelve (12) inches, and until the surface is free of ruts or uneven features which will tend to prevent uniform compaction. It shall then be compacted to a depth of at least twelve (12) inches in accordance with specifications for compacting fill material in Paragraph 3.03.

3.03 PLACING, SPREADING AND COMPACTING FILL MATERIAL

- a. The fill material shall be placed in layers which, when compacted, shall not exceed six inches (6"). Each layer shall be spread evenly and shall be thoroughly mixed

during the spreading to insure uniformity of material in each layer. When the moisture content of the fill material is below that specified by the Engineer, water shall be added until the moisture content is as specified. When the moisture content of the fill material is above that specified by the Engineer, the fill material shall be aerated by blading or other satisfactory methods until the moisture content is as specified.

- b. After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted to not less than ninety percent (90%) of maximum dry density in accordance with ASTM D 1557-78, Method A, shall be by self-propelled multiple-wheel pneumatic tired rollers or other approved types of rollers. Rollers shall be of such design that they will be able to compact the fill to the specified density. Rolling shall be accomplished while the fill material is at the specified moisture content. Rolling of each layer shall be continuous over its entire area and the roller shall make sufficient trips to insure that the desired density has been obtained.
- c. Field density tests shall be taken as directed by the Engineer and when these tests indicate that the density of any layer of fill or portion thereof is below the required ninety percent (90%) density, that particular layer or portion shall be reworked until the required density has been obtained.
- d. The fill shall be brought to within 0.1' plus or minus of the finished grades and the surface shall be bladed to a smooth and uniform surface.
- e. Placing on Slope: Where the slope of the sub-grade surface on which fill is to be placed is 10:1 or steeper, bench the sub-grade in flat benches or at least ten feet (10'-0") in width prior to filling thereon. Prepare and compact each bench in accordance with the specifications for site preparations. Benching, preparation and compaction of the benched sub-grade may be done simultaneously with the filling operation; and the material excavated in benching may be mixed and compacted with new fill unless deemed unsuitable by the Soils Engineer. All fill materials shall be subject to the approval of the Engineer as excavated and placed.

3.04 PREPARATION OF FLOOR SLAB SUBGRADE IN CUT AREAS

Subgrade for concrete floor slabs in cut areas shall be prepared as in 3.02 above. The compacted subgrade shall be bladed to a smooth and uniform surface.

3.05 EXCAVATIONS

- a. The bottom of all excavations shall be smooth, level and firm and at the depth called for on the drawings. Any excavation made deeper than indicated on the drawings shall not be backfilled but filled with concrete by the concrete contractor. Concrete mix shall be of the same mix as specified for footings.
- b. All excavations shall be kept free of standing water by pumping, draining or any means necessary to this end.

- c. Sides of footings may be formed by neat excavations if banks will stand without caving. If caving results, footing excavations shall be made to a line not less than 18" beyond each face of the footing to permit installation and removal of forms. Faces of footings abutting a property line shall be formed in all cases.
- d. The contractor shall bear all costs for additional work on account of overexcavation.

3.06 BACKFILLING

- a. After forms are stripped and concrete surfaces approved, the space between the earth banks and the concrete shall be filled with clean earth. The backfill material shall be placed in layers, which, when compacted, shall not exceed six (6) inches in depth. It shall be moistened with water to bring it to the optimum moisture content and thoroughly compacted by means of mechanical compactors to indicated grades and to a density equal to that of the soil at the bottom of the footings, but not less than 90% of the maximum dry density in accordance with ASTM D 1557-78T, Method A.
- b. The backfill may be compacted by means of flooding (ponding) and jetting if the backfill and foundation material is granular (sandy) and free draining after compaction. This method shall be used only if approved ahead of time by the Structural Engineer. This method shall *not* be used under areas that will receive concrete slabs or A.C. paving. The backfill shall be placed in layers not over three (3) feet deep. Flooding shall not be used to compact the top foot below finish grade - use two 6" moistened layers as called for above. It may be necessary to use vibratory or other compaction equipment along with the flooding to obtain the required 90% compaction.

3.07 TOP SOIL

Place 12" of specified material in planters and planted areas; 6" of same in lawn or turf areas.

3.08 GRADING

After fill and backfill work has been completed, the areas outside of the building shall be finish graded to the indicated grades. Finish grades of lawn areas in general: 1" below walk grades; planted areas: 2" below walk grades; in planters: 6" below tops of planter walls. The areas inside of the building to receive slabs or other construction work shall be fine finish graded to the required grades. All grading shall be left even and free of all debris, shall be to the grades indicated on the drawings and shall be raked clean just prior to the owner's acceptance of the completed building.

3.09 DISPOSAL AND CLEANUP

- a. Rubbish, Debris, Rocks, Trees, etc.: Hauled away from site promptly and legally disposed of.
- b. Topsoil Strippings: Legally dispose of off site.
- c. Excess earth resulting from cutting and excavation to be legally disposed of off the site or hauled to an area as designated and stockpiled.
- d. Dust and Noise Abatement: During entire period of construction and during loading, keep area and material being loaded sprinkled to reduce dust in air and annoyance to premises and neighborhood. Exercise all reasonable means to abate undue noise.
- e. Clean up site, remove all debris and leave premises in clean and orderly condition.

3.10 CERTIFICATION OF GRADES

- a. The contractor and the soils engineer shall, at the conclusion of the grading work, certify to the Architect that the grading has been performed in accordance with the specifications and is satisfactory for its intended use.
- b. Building Pad Certifications - The Contractor shall arrange for and hire a licensed Land Surveyor or Civil Engineer with authority to practice Land Surveying registered in the State of California to verify the depth and extents of all building over excavations. In addition, the Surveyor or Civil Engineer shall record final elevations of building pads and pavement subgrade. These elevations shall be signed and sealed by the Surveyor or Civil Engineer, labeled "As Graded Elevations", and transmitted to the Architect before work commences on the building foundations.

3.11 Excess Water Control

- a. Do not place, spread, or roll any fill material during unfavorable weather conditions. Do not resume operations until moisture content and fill density are satisfactory to the Engineer.
- b. Provide berms or channels to prevent flooding of subgrade.
- c. Where soils have been softened or eroded by flooding or placement during unfavorable weather, remove all damaged areas and re-compact as specified for Filling below.
- d. Provide and maintain, at all times during construction, ample means and devices with which to promptly remove and dispose of all water from every source entering the excavations or other parts of the work. Dewater by means which will ensure dry excavations and the preservation of the final lines and grades of bottoms of excavations.
- e. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil

material. Apply water in manner to prevent free water appearing on surface during or subsequent to compaction operations.

- f. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
- g. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by disking, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

END OF SECTION
08/21/2014

TERMITE CONTROL

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 SCOPE OF WORK

The work of this section shall include the furnishing of all labor, materials and equipment required to complete the "preconstruction" soils treatment under and adjacent to structures to provide a uniform toxic barrier in all routes of termite entry.

1.02 PROTECTION

Allow no disturbance of treated soil between application of poison and pouring of concrete.

1.03 GUARANTEE

- a. Furnish to Owner a written five (5) year warranty against subterranean termites.
- b. Warranty shall cover against invasion or propagation of subterranean termites, damage to building or building contents caused by termites; repairs to building or building content so caused.
- c. Areas of infestation appearing within the warranty period shall be retreated at no additional cost to the Owner.
- d. Areas of damage of building or building contents shall be repaired at no additional cost to the Owner for both material and labor to a maximum cost of \$5,000.00 per each building location.
- e. Make an inspection of the Work once each year at no additional cost to the Owner for a total period of 5 years following date of Notice of Completion for the purpose of detecting termite infestation.
- f. If termite infestation is found during that 5 year period, retreat according to prevailing practices of the trade within 10 days after such infestation is discovered.
- g. Owner reserves the right to renew warranty for an additional 5 years. Contractor shall provide the Owner with a proposal prior to beginning work for the cost of the additional 5 year warranty for the Owners review and comments.

PART 2 PRODUCTS

2.01 MATERIALS

Apply one of the following chemicals as a water emulsion at concentrations and volume specified. If impervious soils make a reduction in volume of solution necessary, increase percentage of toxicant used in proportion to insure same amount of insecticide be used per linear or square foot.

Demon TC, as manufactured by Zeneca
Premise
Dominion

Equal as approved by Architect. See Div. 00, Section 10, Article 19.

PART 3 EXECUTION**3.01 APPLICATION**

- a. Apply in strict conformance with the manufacturer's recommendations.
- b. All termite control must be performed by a state licensed structural pest control company.

3.02 APPLICATION RATES

- a. Surface Preparation:
 - 1. Remove foreign matter which could decrease effectiveness of treatment on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and foundations. Toxicants may be applied before placement of compacted fill under slabs, if recommended by toxicant manufacturer.
- b. Apply in accordance with manufacturer's recommendation.
- c. Apply under all building pads, footings and areas within 2'-0" of buildings.
 - 1. Allow not less than 12 hours for drying after application before beginning concrete placement or other construction activities.
- d. Apply to substrate immediately prior to the installation of the membrane vapor barrier to avoid losses due to evaporation.
 - 1. When substrate is crushed rock fill applied below membrane vapor barrier, apply additional treatment to soil prior to installation of fill.
- e. Footing trenches shall be treated not more than 24 hours prior to concrete pour.
- f. Treat critical locations such as utility footing penetrations and expansion joints with linear treatment at the manufacturer's recommended rate.
 - 1. Treat inside of utility trenches for a minimum of 48" beyond the building pad.
- g. Reapply soil treatment solution to areas disturbed by subsequent excavation or other construction activities following application
- h. Take precautions to protect adjoining property and areas designated for planting.
- i. Application Rates shall be as follows unless otherwise specified or approved by the Architect:
 - 1. One gallon per 10 sq. ft. as overall treatment under slab and attached porches.
 - 2. 4 gallons per 10 lin. ft. along inside and outside of exterior foundation walls, and around utility services and other features, that will penetrate slab.
 - 3. 2 gallons per 10 lin. ft. in voids of unit masonry foundation walls or piers.

END OF SECTION
10/3/2013

VEGETATION CONTROL

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 SCOPE OF WORK

The work of this Section shall include the furnishing of all labor, materials and equipment required to complete the sterilization to prevent seed germination and plant growth, under paving, sidewalks and other areas indicated on the drawings.

1.02 PROTECTION

Take necessary precautions to protect adjoining property and areas designated for planting on building site.

1.03 Certification

No products shall be sprayed or spread unless the applicator has been licensed and certified by the State of California to disperse product specified in this section or approved by the State of California for the intended use.

PART 2 PRODUCTS

2.01 Materials:

- a. Contractor shall submit State of California approved product for weed eradication

PART 3 EXECUTION

- 3.01 Apply in accordance with the manufacturer's recommendation, state and federal guidelines.

END OF SECTION
05/15/2008

CONCRETE PAVING

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

- a. 6" concrete paving, expansion joints, tooling, broom finish and dowels

1.02 RELATED SECTIONS

- a. Site grading, Section 31 20 00
- b. Reinforcing steel, Section 03 21 00

1.03 QUALITY ASSURANCE

- a. Comply with the latest publications for materials and operations of the following:
 - 1. The American Society for Testing and Materials (ASTM).
 - 2. American National Standards Institute (ANSI).
 - 3. The American Concrete Institute (ACI).
 - 4. Portland Cement Associations (PCA).
 - 5. State Building Codes.
 - 6. State of California, Department of Transportation (CALTRANS) Standard Specifications, latest edition.
- b. Certify in writing that Contractor has not less than five years experience in the field of providing specified finishes.
- c. Perform work specified herein under the personal and constant supervision of a competent construction superintendent experienced in this class of work.
- d. Provide slump tests for checking consistency of concrete mixture shall be made in accordance with ASTM C-143.
- e. Pay for any and all re-inspection, re-testing, re-design required due to the failure of concrete to meet requirements.
- f. For additional reference information, consult Portland Cement Association booklet; Cement Mason's Guide to Building Concrete Walks, Drives, Patios, and Steps.
- g. All concrete work: True to lines and grade as indicated on the drawings. Be responsible for proper drainage, without birdbaths, on all concrete paving surfaces. Bring discrepancies or omissions on drawings, or conditions on the site, which prevents proper drainage to the attention of the Architect in writing for corrections before work proceeds.

- h. All Construction: Conform to current applicable codes and ordinances.
- i. Coordinate placement of embedded items to avoid block-outs and cutting in finished work.

1.04 SUBMITTALS

- a. Submit manufacturer's certification that materials meet specification requirements.
- b. Submit mix design for 3,000 psi for Concrete Flatwork, signed by licensed California Engineer with w/c ration of 0.50 or less.

1.05 PACKAGING, DELIVERY, STORAGE AND HANDLING

- a. Deliver packaged materials in manufacturer's original, unopened containers bearing manufacturer's name and brand.
- b. Protect materials delivered against inclusion of foreign matter.
- c. Store materials in dry location and protect against water.

1.06 JOB CONDITIONS

- a. Inspection:
 - 1. Examine areas for conditions under which work is to be performed. Report in writing to Architect all conditions contrary to those shown on the drawing or specified herein and all other conditions that will affect satisfactory execution of work such as improperly constructed substrates or adjoining work. Do not proceed with work until unsatisfactory conditions have been corrected.
 - 2. Start of work constitutes acceptance of the conditions under which work is to be performed. After such acceptance, be responsible for correcting all unsatisfactory and defective work resulting from such unsatisfactory condition at own expense.
- b. Do not start work until temperature is at least 50 degrees F and rising, or if rain is predicted within eight hours.
- c. Owner will select a qualified testing laboratory to take samples for testing during the course of the work as considered necessary. Cost of such test will be paid for by Owner. Cooperate in making tests and be responsible for notifying the designated laboratory in sufficient time to allow taking of sample at time of placement.
- d. If test shows that concrete is below specified strength, remove all such concrete, as directed by Architect. Pay for removal of low strength concrete and its replacement with concrete of proper specified strength and testing.

PART 2 PRODUCTS

2.01 MATERIALS

- a. Cement: Shall conform to ASTM C-150, Type II, low alkali.

- b. Concrete: Concrete paving shall be 6" thick, 3,000 psi, unless otherwise indicated; conforming to Section 90 of the State Standard Specifications.
- c. Aggregate: Shall be 3/4 inch maximum, conforming to ASTM C-33.
- d. Water/cement ratio: Shall not exceed 0.50.
- e. Reinforcing: Shall conform to ASTM A-615, Grade 60, #4 deformed bars & - 1/2" & 5/8" dia. smooth dowels. Smooth Dowels shall be use at expansion joints.
- f. Curing Compound: Shall conform to AASHTO Des. M148, Type 2, Class A, white pigmented, except the loss of water in the water retention test should not exceed 0.04 grams per square centimeter of surface.
- g. Expansion Joints: Shall be 1/2"x6" polypropylene expansion board by Sika Corp. with #637 Sika's Westec Expansion Board Cap & seal at 20'o.c., install per manufacturer's instructions. Control Joints shall be 1/8"w x 1-1/4"deep tooled joints at 5'o.c.
- h. Water: Shall be clean and free from deleterious acids, alkali, oil, and organic matter, and shall be potable.
- i. Slump: Maximum slump shall be 4" maximum, conforming to ASTM C-143.
- j. Form Release: Shall be a 100% chemically reactive release agent conforming to Corps of Engineers CEGS-03300, Section 10.8. Form oil, diesel oil or kerosene is **not allowed**.
- k. Dowels at Expansion Joints: Shall be 1/2" dia x 18" smooth dowels, installed with "Speed-Load" by Sika-Greenstreak #PSD 1/2x9LT or approved equal.
- l. Dowels at (E) Concrete: Shall be 5/8" dia x 18" smooth dowels, installed with "Speed-Dowel" by Sika-Green Streak #PSD012/#4TX or approved equal.
- m. Vapor Barrier: Not required for 6" concrete
- n. Vapor Barrier Adhesive & Tape: Shall be 3M or approved equal
- o. Manufactured Grout: Shall be non-shrink, non-metallic, non-corrosive and high strength, conforming to Corps of Engineers CRD-621. W.R. Meadows #588-10k or approved equal.
- p. Concrete Sealer: Shall be Bone Dry Pro Admix TDS penetrating permanent concrete sealer or Armor SX5000 or approved equal.
- q. Concrete Hardener: Shall be Armor S200 or approved equal.

PART 3 EXECUTION

3.01 SUBGRADE PREPARATION

- a. Subgrade for the concrete: Grade to plus or minus 0.1 feet. Compact all subgrade on which concrete is to be placed to a depth of 12 inches below shovel footings to a relative compaction of 90 percent prior to placing of any concrete.
- b. Protect the subgrade from damage after the preparation has been completed. This contractor shall be responsible for all additional fine grading as required.
- c. Test the completed subgrade for grade and cross section by means of a template supported on side forms. Wet the subgrade and forms thoroughly, immediately in advance of placing concrete.

3.02 FORMS

- a. Forms: Shall be smooth on the side placed next to the concrete, with a true smooth upper edge, and rigid enough to withstand the pressure of fresh concrete without distortion.

- b. All forms shall be thoroughly cleaned and coated with form release to prevent the concrete from adhering to them. Depth of face forms for concrete curbs, equal to the full face height of the curb.
- c. Carefully set forms to alignment and grade; conform to the required dimensions. Hold forms rigidly in place by stakes. Brace at 12" o.c. at plywood (5/8" min.) forms and 24" o.c. at 2x forms. Use clamps spreaders and braces where required to insure rigidity in the forms.
- d. Do not remove the form on the front of curbs in less than one hour nor more than six hours after the concrete has been placed. In no event shall forms be removed while the concrete is sufficiently plastic to slump. Do not remove side forms for gutters and sidewalks in less than 12 hours after the finishing has been completed.

3.03 CONCRETE PAVING

- a. Fresh concrete shall be struck off and compacted until a layer of mortar has been brought to the surface. The surface shall be finished to grade and cross-section with a float, troweled smooth and finished with a broom. The float shall not be less than 10 feet in length and not less than 6 inches in width. Brooming shall be transverse to the line of traffic and, if water is necessary, it shall be applied to the surface immediately in advance of brooming. Test all valley gutters to prove conformance with Article 3.03 e.
- b. Expansion joints 1/2 inch wide shall be constructed at all turns and opposite expansion joints in adjacent curb. Where curb is not adjacent, expansion joints shall be constructed at intervals of 20 feet. Expansion joints shall be filled with polypropylene joint filler conforming to the provisions in Section 2.01 g, "Expansion Joint". Control joints shall be constructed at 5-foot maximum spacing. Tool contraction joints minimum 1-1/4 inch deep with a jointing tool after surface has been finished.
- c. Where concrete borders are to be placed around or adjacent to manholes, drop inlets, or other miscellaneous structures in gutter depressions, island paving, or driveway areas, such structures shall be constructed to final grade before the borders are constructed.

3.04 CONCRETE FINISHES

Broom Finish: Texture with medium broom finish to produce a uniform, non-skid (broom) finish on all surfaces with less than a 6% slope. Texture shall be a heavy broom finish on all surfaces with greater than 6% slope.

3.05 CONCRETE CURING

- a. Spray the entire surface of the concrete uniformly with a white pigmented curing compound. Should the film of compound be damaged from any cause before the expiration of 72 hours, repair the damaged portions immediately with additional compound.
- b. Surface so newly placed concrete to be cured by the pigmented curing compound shall be kept moist or wet until the curing compound is applied and the curing compound shall not be applied until all patching or surfacing finishing has been completed.

- c. The curing compound shall be delivered to the work in ready-mixed form. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. The compound shall not be diluted or altered in any manner.
- d. Curing compound that has become chilled to such an extent that it is too viscous for satisfactory application shall be warmed to a temperature not exceeding 100 degrees F.
- e. Apply the curing compound to the exposed surface per manufacturer's recommendations.

3.07 CLEAN UP

- a. Upon completion of other work in buildings, all concrete paving surfaces shall be swept clean and all mortar and stains removed therefrom.
- b. The Contractor shall remove from the premises all surplus material, equipment, and debris as a result of work in this Section.

END OF SECTION
02/05/2020