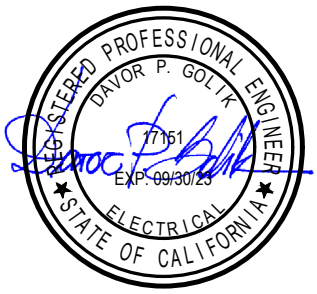
SCARCHITECT, INC.
1601 New Stine Rd., Suite 280
Bakersfield, CA 93309
(661) 397-4377, FAX 397-4378



DPG ENGINEERING, INC.
6702 N. Cedar, Suite-205
Fresno, CA 93710
(559) 275-5144, Fax (559) 900-4929

(10) 24X40 PORTABLE CLASSROOMS
AT
ROOSEVELT ELEMENTARY SCHOOL

2324 VERDE STREET
BAKERSFIELD, CA 93306
FOR
BAKERSFIELD CITY SCHOOL DISTRICT
BAKERSFIELD, KERN COUNTY, CALIFORNIA
A#03-123198
FILE# 15-6

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-123198 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/31/2023

APPROVED
BAKERSFIELD CITY SCHOOL DISTRICT

By_____
Board Resolution

INDEX

NOT USED

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NOT USED

DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

NOT USED

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DIVISION 33 – UTILITIES

NOT USED

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.

b. Section 10, Article 53, Contract Closeout.

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’s email address. Coordinate submission of related items. Architect shall have a minimum of 21 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.

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.

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
03/07/2023

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 (2022 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. (2020 NEC w/NFPA 70)

h. Title 24, CBC, Part 4, 2022 C.M.C. (2021 UMC)

i. Title 24, CBC, Part 5, 2022 C.P.C. (2021 UPC)

j. Title 24, CBC, Part 9, 2022 C.F.C. (2021 IFC)

k. Title 24, CBC, Part 6, 2022 C.E.C.

l. Title 24, CBC, Part 11, 2022 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 REHABILITIATION 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
11/01/2022

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.

1.03 OWNER'S INSPECTOR

a. A DSA Certified project 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. Their 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. 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 Owner 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 to 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: A DSA Accepted testing laboratory directly employed by the District (Owner) shall conduct all the required tests and inspection for the project and shall be approved by Owner, Architect, Structural Engineer and Governing Agency. (Laboratory of Record may not be selected or known at time of bid or award of contract).

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	Structural Engineer	Contractor
Owner	Subcontractor	Job Inspector
Governing Agency		

(1) One copy of all tests reports shall be forwarded to The Division of the State Architect by the testing agency. 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 specifications. Test reports shall show the specified design strength. They shall also state definitely whether or not the material or materials tested comply with requirements.

(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.

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 and Structural Engineer 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 (2022 CBC) VOLUME 2
TESTS AND INSPECTION REQUIREMENTS

FOUNDATIONS AND RETAINING WALLS
CHAPTER 18A

INSPECTION:

1. Piles	1705 A.7
2. 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. Shotcrete Aggregates	1908 A.3
4. Reinforcing Bars	1705 A.3.2; 1910 A.2
5. Prestressing Steel and Anchorage	1705 A.3.2; 1910 A.3

QUALITY:

1. Proportions of Concrete	1910 A.1; Table 1705 A.3, Item 5
2. Strength Tests of Concrete	1905 A.1.15; Table1705 A.3, Item 5, ACI 318 Sec. 26.4, 26.12
3. Splitting Tensile Tests	
4. Shotcrete Proportions	1908 A.2
5. Shotcrete Cores	1908 A.5
6. Composite Construction Cores	1910 A.4

INSPECTION:

1. Batch Plant	1705 A.3.3
2. Waiver of Batch Plant	1705 A.3.3.1
3. Preplacement and Placing	1705A.3.5; 1705A.3.6
4. Prestressed Concrete	1705 A.3.4
5. Shotcrete	1705 A.19; 1908 A
6. Reinforcing Bar Welding	1903 A.8; Table 1705 A.2.1

7. Post-Installed Anchors in Concrete	1910 A.5; Table 1705 A.3, Items 4a&4b
8. Reinforcing Bar Welding	1903A.8; 1705A.3.1; Table 1705 A.3 Item 2; Table 1705 A.2.1, Item 5b

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.

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 WORK (Refer to Section 03 10 00)

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	24 hours	Pouring Conc.	Form & Steel
Governing Agency	48 hours	Pouring Conc.	Form & Steel

   (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, 2013 C.B.C., 2012 IBC, Vol 2, Sec. 1705A3.3.2.

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 1916A.1 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. 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. Welded rebar shall be inspected and certified per T24, Section 1704 A.3.1.1 and 1705.2.2.1.2.

(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.6.2.

(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
2500 p.s.i.	1500 p.s.i.	2500 p.s.i.	Flatwork
3000 p.s.i.	1800 p.s.i.	3000 p.s.i.	Foundations, slab on grade, curbs

(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 shall be 0.50.

END OF SECTION
09/21/2023

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 2022 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 2022 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 2022 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.

Material	Quantity	Disposal Method	Handling Procedure
Plywood, OSB, particle boar		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/scraps 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

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**
☐ Choose bins/collection methods		
☐ Order bins - oversee deliver		
☐ Site bins/collection sites for optimum convenience		
☐ Sort or process wood		
☐ Sort or process metal		
☐ Sort or process cardboard		
☐ Sort or process drywall		
☐ Sort or process CSWD mandatory items (material)		
☐ Sort or process _____ (material)		
☐ Schedule material pickups/dropoffs		
☐ Protect Materials from Contamination		
☐ 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**
☐ Complete Construction Waste Mgmt. Plan*			☐
☐ Hold Orientation/Kick-off Meeting*			☐
☐ Update & Progress in Weekly Job-Site Meetings*			☐
☐ Encourage Just-In-Time Deliveries			☐
☐ Post Targeted Materials (Signage)			☐
☐ Distribute Tip Sheets for Job-Site Personnel			☐
☐ Post Goals/Progress (Signage)			☐
☐ _____			☐

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

Action	**Who**	**When**	**Completed**
☐ Use formal agreements committing Subs to program			☐
☐ Require Mis-Sorters to Re-Sort Bin			☐
☐ Provide Stickers, T-Shirts, or Hats			☐
☐ Public Recognition of Participating Subs			☐
☐ Letters of Recognition			☐
☐ Awards Luncheon			☐
☐ _____			☐

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

Action	**Who**	**When**	**Completed**
☐ Perform Short Form Waste Audit			☐
☐ Perform Full Waste Audit			☐
☐ Perform Mid-Course Assessment			☐
☐ Perform Monthly Cost and Materials Tracking*			☐
☐ Perform Final Evaluation*			☐
☐ _____			☐

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

SECTION 01 74 19A

CONTRACTOR'S CONSTRUCTION WASTE AND RECYCLING PLAN

Continued

SECTION II - DISPOSED MATERIALS								
Include all disposal activities for landfills, transfer stations, or inert landfills where no 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.) D	08	DEF Landfill, Los Angeles			2	35		
b. Total Disposal						0	0	0

SECTION III - TOTAL MATERIALS GENERATED						
This section calculates the total materials to be generated during the project period (Reuse/Recycle + Disposal = Generation						
				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					
Add totals from Section I + Section II					
	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 = % Recycled*

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

Notes:

1. 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

2. 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 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 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 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 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								
Include all disposal activities for landfills, transfer stations, or inert landfills where no recycling occurred.								
Type of Material	Type of Activity	Facilities 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						
This section calculates the total materials generated during the project period (Reuse/Recycle + Disposal = Generation						
				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					
Add totals from Section I + Section II					
	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 = % Recycled*

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

Notes:

1. 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:
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2. 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) Drywall Scrap: .20
   Non-Ferrous Metals: .10 (ex. 1000 CY Non-Ferrous Metals = 100 tons) Wood Scrap: .16

DEMOLITION

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 compete accordance with all applicable provisions of local and State safety and health ordinances.

1.02 DESCRIPTION AND CONDITION OF PREMISES

a. The building(s) affected by this Contract is set forth under Part 2, Paragraph 2.07, Schedule.

b. Plans for the structure(s) may be available at the office of the Architect (verify) 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, regardless of material of which 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 building(s). 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 specified under Part 2, Paragraph 2.07, Schedule, and as per drawings and as reasonably required to complete the contract.

b. Disposal legally and off the site of all debris, rubbish and salvage.

c. Construction and provision of proper barricades, signs and protective structures and devices, as required by City and/or County.

d. Responsibility of cleanliness and safety of work area and all other affected premises during the period of the Contract.

1.04 SURVEY OF EXISTING CONDITIONS

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

1.05 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 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.

1.06 PERMITS AND LICENSES

a. 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.

b. Prior to start of any demolition, the County of Kern Environmental Health Services Department and Basic Compliance Engineering shall be given 48 hour notice by the Contractor.

c. Comply with San Joaquin Valley Air Pollution Control District Regulations

1.07 SALVAGE MATERIALS

a. The Owner reserves the right to retain ownership of any equipment or fixtures removed from the building (if any) and/or any item determined to be of value including but not necessarily limited to: casework, stainless steel, toilet accessories, toilet partitions, copper piping, plumbing fixtures, mechanical equipment, copper wiring, light fixtures. All removed equipment and/or fixtures shall be removed, cleaned and stored neatly in an area designated by the Owner for a period of 72 hours after the Owner's representative has been notified. The district's facilities planning representative shall be notified in writing. All items that are not claimed by the Owner within the specified time period shall be removed from the site and the contractor shall legally dispose of them. The specified time period is exclusive of weekends or holidays and shall start upon the Facilities Planning's receipt of written notice.

b. The District shall be given the opportunity to examine and remove any of the items salvaged from the project. It is the Contactor's responsibility to protect the salvaged items during the 72 hour period. Should any of the salvaged items be

disposed before the District has examined them, the Contractor shall reimburse the District for these items. 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 once it has been determined that the District does not wish to retain the item or items in question..

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 what so ever 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 relive annoyance to the balance of the premises and 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.

2.03 USE OF EXPLOSIVES will not be permitted.

2.04 UTILITIES

This 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.

2.05 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.

2.06 CLEANING

a. Upon completion of the work, this 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.

2.07 SCHEDULE OF WORK

a. See Demolition Plan(s).

b. Trees and shrubs as indicated on the plan and their roots, stumps, etc., within the working area are to be removed.

c. Filling, backfilling and grading of site as shown on Demolition plan.

END OF SECTION
06/03/2009

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 concrete, plain and reinforced, in place.
b. Provide and install formwork and shoring.
c. Placing only of bolts, anchors, frames, inserts.
d. Provide and install control and expansion joints.
e. Curing, protection and patching of concrete.
f. Finishing concrete surfaces.
g. Concrete slabs for plumbing, electrical.
h. Cost of concrete mix designs.
i. Clean up work related to this Section.

1.03 RELATED WORK

a. Reinforcing steel is specified in Section 03 21 00.
b. 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 Engineer or his authorized representative.
c. Tests and evaluation shall conform to T24, Sec. 1903A.
d. Vapor and Waterproofing Admixture representative shall verify all concrete batches prior to concrete mix leaving plant. Installing contractor shall be an approved SPG installer.

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.

PART 2 PRODUCTS

2.01 MATERIALS

a. Portland Cement: Shall conform to ACI 318-19, 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.

      a.) Crushed fine aggregate otherwise known as Crusher fines, or "rock dust" shall be 100% passing #4 sieve screen and shall be spread and compacted while damp to moist. At the time of concrete placement, the blotter layer should be dry to damp, compacted, and smooth. Concrete should not be placed if the blotter layer is wet as it will act as a water reservoir beneath the concrete and all apparent advantages of its use will be nullified. The blotter layer should not be sprayed with water prior to concrete placement.

   (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. Concrete Slab Control Joints: Shall be one of the following types as indicated and located on the drawings:

(1) Construction Joints: Shall be Burke #NC-203 "Keyed Kold Joint", or approved equal, 26 gauge galvanized steel continuous joint form with #54-505 removable kap at exterior slabs and #54-510 kap at interior slabs. Seal exterior joints with Sikaflex 2c, color as selected.

(2) Expansion Joints: Shall be formed with Burke 1/2" x 4" fiber expansion joint with Burke 1/2" x 1/2" removable plastic cap. Sealant shall be two-part polyurethane, Sikaflex 2c, color as selected.

(3) Control Joints: Shall be 1/8" w x 1-1/4" d tooled or saw-cut joints. Control joints may be plastic "Zip-Strips" by Burke or W.R. Meadows (1-1/2" dp. min.).

e. Sealer/Hardener/Curing Compound for exterior concrete: Shall conform to ASTM C-309, Type I, Class A. Provide and apply per manufacturers recommendations, W.R. Meadows “Med-Cure”; Nox-crete Inc. “Bro-Cure”; Curecrete Chemical Co. “Ashford Formula”, or approved equal. The compound shall *not* be of wax base and shall not impair in any way the application of floor coverings,

f. 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. Vapor and Water proofing Admixture shall be as manufactured by SPG, Vapor Lock 20/20.

g. Manufactured Grout: Shall be non-shrink, non-metallic, non-corrosive and high strength, conforming to Corps. of Engineers CRD-621. Silkagrout 212, W.R. Meadows #588 grout or approved equal.

h. 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.

i. 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 structural concrete shall be 3000 p.s.i. (4000 p.s.i. at foundations). Its strength shall be at least 1800 p.s.i. at the age of 7 days and at least 3000 p.s.i. at 28 days. Structural concrete shall contain at least 5 sacks (470 pounds) of cement per cubic yard of concrete. (Per Soils Report). Where non-structural `concrete paving' is required, its compressive strength shall be 2500 p.s.i. Its strength shall be at least 1500 p.s.i. at 7 days and at least 2500 p.s.i. at 28 days.

b. Proportions: The Contractor shall propose to the Architect an Engineered *Laboratory Designed Mix/es with Engineers Stamp/seal* based on the following limitations. The mix design shall be approved prior to use. 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 table 19A-A3 of C.B.C. Title 24

Sacks of Cement Concrete Type	Maximum Size of Aggregate	Minimum 94 lbs. per Cubic yard. of Concrete	Maximum Gallons Water per 94 lbs. Sack of Cement
3000 psi	3/4”	5.75	7.3
	1” 5.50	7.3	
	1-1/2”	5.25	7.3
2500 psi	3/4”	5.50	7.6
	1”	5.25	7.6
	1-1/2”	5.50	7.6
3000 psi	3/8”	6.75	5.8
4000 psi	1"	6.00	5.66

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 Engineer, 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. Vapor and Water proofing admixture shall be added in quantities as approved by admixture manufacturer and shall be inspected by manufacturer’s representative at the batch plant. Contact SPG at 310-650-4263 for Vapor and Moisture admixture inspection.

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 .5:

Concrete cast on metal deck ..... 3" maximum
Concrete foundations ..... 4" maximum
Precast wall panels/slabs (Flatwork) ..... 4" maximum
All other concrete ..... 5" maximum

The slump test shall conform to ASTM C-143.

f. Aggregate Size:

Type of Work	Max.	Aggregate Size
Joists or walls	Less than 5" wide	3/4"
Beams or walls	5" to less than 8" wide,	
slabs above grade	Less than 6" thick,	
floor slabs on grade		1"
All other concrete		1-1/2"

g. 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 embedded 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 plys in the direction of their span. 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.

c. 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.

d. Form Coating: Forms shall be coated with form release applied shortly before the concrete is placed but prior to placing the reinforcement.

e. 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.

f. 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:

Columns, Walls, Vertical Forms	24 hours
Slabs	7 days
Joists, Beams and Girders	14 days

All removal shall be accomplished in such a manner as to prevent injury to the concrete. Comply with T24, Sec. 1906A.2.

g. Foundation Concrete: Shall be placed directly into neat excavations provided the trench walls are stable as determined by the Architect or Structural Engineer 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 an d during the placing of concrete.

3.07 EMBEDDED ITEMS

a. The Contractor shall cooperate with all tradesmen to insure that all conduit, anchor bolts, sleeves, inserts, hangers, 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.

3.08 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 job.

3.09 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. Concrete Slab Construction Joints: Per T24, Sec. 1906A.4.
   (1) All vertical members, such as walls and columns, shall be poured at least two (2) hours before horizontal members are poured therein to permit the concrete in the vertical members to take its initial settlement.

   (2) After the pour has been completed to the construction joint and the concrete has hardened, the entire surface of the joint shall be thoroughly cleaned of surface laitance.

   (3) A modified mix of concrete as hereinbefore specified with fifty percent (50%) of the coarse aggregate omitted may be deposited on horizontal construction joints before proceeding with the regular specified mix. This same modified mix may be used where conditions make puddling difficult or where reinforcing is congested.
   (4) The location of construction joints shall be as shown on the plans or as approved by the Structural Engineer and the Architect. All construction joints shall be keyed.

   (5) Maximum spacing shall be 20 feet on center for sidewalks, 20 feet on center for curbs and gutters, 10 feet on center for mow strips, 20 feet on center for retaining walls.

d. Concrete Slab Expansion Joints:
   (1) Expansion joints shall be placed around all steel columns, buttresses, etc. to relieve restriction of movement.

   (2) Expansion joints shall be placed at sidewalks/concrete paving spaced at 20' o.c. max.

   (3) Expansion joints shall be placed at sidewalks used to separate buildings. Place parallel with walk on one side min.

(4) Expansion joints shall be placed at curbs/gutters and V-gutters spaced at 20' o.c. max.

(5) Expansion joints shall be placed at mow-strips, spaced at 10' o.c. max.

(6) Expansion joints shall be placed at all change of directions in concrete slabs, walls, sidewalks, curbs, etc., typical unless noted otherwise.

e. Concrete Slab Control Joints:

(1) Joints in concrete slabs on grade shall be spaced a maximum of 15'-0" o.c. for interior reinforced slabs and 4'-0" o.c. for exterior non-reinforced & reinforced concrete slabs. Joints shall be located where shown on plans.

(2) Saw-cut control joints shall be cut within three (3) hours of finishing slab as indicated on plans. All control joints shall be tooled to a round edge. No hard edges shall be permitted.

(3) Control joints 20' or shorter in length may be done with zip strips, only if strip can be installed in straight line.

f. 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.

g. 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).

3.10 CONCRETE FINISH AND LOCATION

a. White Pigmented Curing Compound*: Shall be applied to all exterior concrete slabs/walks/curbs/gutters, etc., verify applications of clear or white with Architect.

b. Clear Curing Compound*: Shall be applied to all exterior concrete slabs/walks/curbs/gutters, etc., verify application of clear or white with Architect.

c. Broomed Concrete Finish: shall medium on all surfaces less than 6% slope and heavy broom finish or all surfaces greater than 6% slope.

3.11 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.

3.12 TOOLING AND MARKINGS (EXTERIOR)

a. General: All exposed flat work shall be tooled as indicated on drawings, or as otherwise specified, with additional markings as required where structures and/or items penetrate through slab. Tooling to be uniform, straight, and minimum 1/8" wide x 1-1/4" deep.

b. Planter walls, curbs, etc. shall have chamfer joints, tool markings, etc., as directed, to control cracking. Markings, etc., shall be continuous across tops and down backs.

3.13 CONCRETE FINISHING GENERAL REQUIREMENTS

a. Workmanship: Employ only skilled workmen, experienced in their respective trades and work. All work performed in a first class workmanlike manner, subject to approval of Architect, or project Inspector

b. Markings: Notify Architect in sufficient time prior to completion of setting forms for exterior flat work to permit on-site review of proposed control, construction and expansion joint locations.

c. Finishing Samples: Prepare three- (3) foot square flatwork samples of the following finishes (where indicated for use on this job) for Owner's approval:
Broom finish (medium)
Samples of finished surfaces shall be made and submitted to the Architect for approval not less than (10) days prior to installing concrete work. Samples to remain intact for comparison until flat work completed.

d. Finishing: Concrete shall be allowed to stand long enough to evaporate excess surface water, but not until initial set takes place. Surfaces to receive ceramic tile

*Clear or white curing compounds shall not be applied to curbs or slabs, which are to receive paint or striping.

to be broomed. Other surfaces wood floated to a true, level surface and then hand troweled to a smooth surface, free from imperfections. Finish surfaces shall not deviate more than one-eighth inch (1/8") from a ten-foot straight edge laid in any direction. Exposed concrete wearing surfaces troweled, additionally, to a hard polished finish. Unless otherwise directed, brooming, if selected, to be performed at right angles to slope. Follow slopes and lines as indicated.

e. Curing:
   (1) All newly placed concrete shall be kept moist until application of permanent curing.

   (2) Slabs poured in hot or dry weather shall have a fog spray applied to them commencing during the troweling and they shall be kept wet until the placement of permanent curing, which shall be done immediately after final troweling.
   (3) All concrete shall be permanently cured by one of the following methods:
      (a) Sealer/Hardener/Curing compound spray-applied per manufacturer's recommendations.
      (b) Pigmented curing compound spray-applied per manufacturer's recommendations.
      (c) Clear curing compound spray-applied per manufacturer's recommendations.

3.14 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
09/21/23

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.

1.03 RELATED WORK

a. Placing concrete is specified in Section 03 10 00.

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 or Structural Engineer.

d. No work of this section shall be covered or concealed until inspected by the Engineer, 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. Smooth Dowels: Shall conform to ASTM A-615, Grade 60. 1/2" diameter and smaller bars shall be Grade 40.

c. Reinforcing Wire: Shall be cold drawn steel wire conforming to ASTM A-82.

d. 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

Bar size	*Min. Diameter*
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: ± 1/2" for members greater than 24" in depth.

c. Length: ± 1".

3.06 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
09/21/23

ELECTRICAL SCOPE & GENERAL REQUIREMENTS

DIVISIONS 00 AND 01 ARE A PART OF THIS SECTION

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

A. All work under Section 26 01 00, Electrical Scope and General Requirements Specifications, are subject to the General, Supplementary, Special Conditions and other Division I Specification Sections preceding this section. This Contractor will be responsible for and govern by all requirements. Drawings indicate the general arrangement of the electrical layout and work included. The Contractor will follow Drawings in laying-out and checking of Drawings of other trades to verify locations and spaces in which work will be installed.

1.02 SCOPE

A. This portion of the work includes furnishing of all labor and materials necessary for a complete wiring system to outlets and all equipment shown on the Drawings or covered by this section of the Specifications. In general, the work includes the following:

1. Complete system of branch circuit wiring and equipment including all wiring devices and plates on all outlets.

2. A new lighting fixture system complete with lamps as shown on Plans including all appurtenances as required.

3. Raceways, wiring, fused disconnect switches, etc., for equipment covered by other sections of these Specifications.

4. All hangers, anchors, sleeves, chases and supports for fixtures, electrical equipment and materials including earthquake bracing.

5. All disconnection and removal of existing electrical facilities not to be reused.

6. Include payment of all required insurances, electrical permits, fees and taxes unless specifically shown "BY OTHERS".

1.03 SITE VISITATIONS

A. The Contractor will carefully examine the site and existing buildings, compare the Drawings with the existing electrical installations and thoroughly familiarize himself with all existing conditions within the scope of this work. By the act of submitting a bid, the Contractor will be deemed to have made such examination, accepted such conditions and to have made allowance in preparing his figure.

1.04 RULES AND REGULATIONS

A. All work and materials shall be in full accordance with the latest rules and regulations of the following:

1. California Electric Code, 2022 Edition
2. California Building, Mechanical and Plumbing Codes
3. California Code of Regulations
4. California State Fire Marshal Rules

B. Before the Final Certificate of Payment will be issued, the Contractor shall deliver to the Owner all Certificates, Permits, Record Drawings and Instructions/Parts Manuals.

C. Nothing in these Plans and Specifications is to be construed to permit work <u>not</u> conforming to these codes.

1.05 MATERIALS AND SUBSTITUTIONS

A. All equipment and materials shall be new and UL (Underwriters Laboratories) approved and of the best quality. When specific trade names are used in connection with materials they are mentioned as standards but, this implies no right upon the part of the Contractor to substitute other materials or methods without <u>prior</u> approval.

B. When approval is given for use of equipment differing from that shown on the Drawings regarding foundations, space of piping, duct work, wiring, insulation, etc., changes required to accommodate such differences shall be accomplished at <u>no cost to the Owner</u>.

C. This Contractor shall order equipment in a timely manner to prevent any delays in the construction schedule and he shall bear any penalty by vendors to meet schedules.

D. <u>Submittals:</u>

1. Shop Drawings and Product Data: Within ten days after an award of this contract, but prior to manufacture or installation of any equipment, prepare complete Shop Drawings and Brochures for materials/equipment as required by each section of the Specification. Submit eight complete sets for review.

2. Prior to submission of the Shop Drawings and Project Data review and certify that they meet the Contract Documents and conform to existing field conditions. Field verify installation methods, voltage requirements and coordinate with other trades.

3. Verify all dimensional information to ensure proper clearance installation of equipment. Check all materials and equipment after arrival on the jobsite and verify compliance with the Contract Documents. A minimum period of two weeks, exclusive of transmittal time, will be required each time Shop Drawings and/or Brochures are submitted or resubmitted for review. This time shall be considered by the Contractor when scheduling a submittal date.

4. Review of Shop Drawings and Brochures shall not relieve the Contractor of responsibility for dimensions and/or errors that may be contained therein or deviations from the Contract Documents requirements. It shall be clearly understood that noting of some errors, but overlooking others, does not grant the Contractor permission to proceed in error. Regardless of any information contained in the Shop Drawings and Brochures the requirements of the Contract Documents shall govern and are not waived or superseded in any way by the review of the Shop Drawings and Brochures.

5. Certifications shall be written or in the form of rubber stamp impressions as follows:

> I hereby certify that these Shop Drawings and/or Brochures have been checked prior to submittal, and that it complies in all respects with the requirements of the Contract Drawings, Specifications, and existing field conditions for this project.
>
> (Name of Contractor)
>
> _____
>
> Signed _____
>
> Title _____Date _____

6. Observe the following rules when submitting the Shop Drawings or Brochures:

   a) Each Shop Drawing shall indicate in the lower right-hand corner and each brochure shall indicate on the front cover the following:
      1) Title of the sheet or brochure
      2) Name and location of the building
      3) Names of the Architect
      4) Name of the Electrical Engineer
      5) Name of Contractor
      6) Subcontractor's Manufacturer, Supplier and Vendor
      7) Date of submittal
      8) Date of correction and revision.

7. Unless the above information is included, the submittal will be returned for resubmittal.

8. Shop Drawings shall be done in legible scale and shall contain sufficient plans, elevations, sections and isometrics clearly describing the equipment or apparatus and the Engineer/ Draftsmen skilled in this type of work. Shop Drawings shall be drawn to at least 1/4" = 1'-0" scale.

9. The manufacturers shall publish brochures to be submitted which contain complete and detailed engineering and dimensional information. Brochures submitted shall contain only information relevant to the particular equipment or materials to be furnished. The Contractor shall not submit catalogs that describe several different items in addition to those items to be used unless all irrelevant information is marked out or unless each manufacturer is identified and submitted separately.

1.06 GENERAL COORDINATION

A. The Drawings indicate diagrammatically the desired location or arrangement of conduit runs, outlets, equipment, etc., and are to be followed as closely as possible. It shall be the Contractor's responsibility to verify and coordinate the location of all outlets and raceways with other trades.

1.07 CUTTING, PATCHING AND MATCHING

A. This Contractor shall do all cutting required for the proper installation of his work and shall repair any damage done by himself or his workmen. The Contractor shall coordinate with that of other parties.

B. Wherever possible, work shall be done in a concealed and neat workmanlike manner requiring the least amount of cutting of studs, plates and woodwork. Such cutting or notching is allowed only after consultation with and by permission of the Engineer.

C. All patching shall be of the same materials, workmanship and finish as existing and shall accurately match all surrounding work. All work shall be done under the Architect's instructions and when required by the trade that did the original work.

1.08 INTERPRETATION OF Drawings AND Specification

A. The Engineer's decision will be final on interpretation of the Drawings and Specifications. Whenever the words "AS MAY BE DIRECTED", "SUITABLE" or "APPROVED EQUAL" or other words of similar intent and meaning are used inferring that judgment is to be exercised, it is understood that it is the judgment of the Engineer referred to.

1.09 CLEANING OF EQUIPMENT, MATERIALS AND PREMISES

A. All electrical equipment shall be thoroughly cleaned of dirt, rust, cement, plaster, etc., and all cracks and corners scraped out clean. Surfaces to be painted shall be carefully cleaned of grease and oil spots and left smooth and clean and in proper condition to receive paint finish.

1.10 RECORD Drawings

A. At the beginning of the project, one full-sized print of each applicable Drawing will be issued to the Contractor for use in preparing Record Drawings. "RECORD" conditions shall be recorded on the prints as the project progresses. Upon completion of the work, the Contractor shall forward it to the Architects' Office after first securing the Inspector's verification by signature.

1.11 EARTHQUAKE RESTRAINT

A. All electrical equipment shall have a means to prohibit excessive motion during an earthquake. Equipment that vibrates during normal operation shall have isolators with mechanical stops. All transformers are considered to vibrate during operation.

B. All electrical equipment and connections shall be designed to resist lateral seismic forces equal to value shown on Drawings of equipment weight with allowable working code capacity increased by 1/3 or 1.5 times the same value for the weight yield capacity. Connections shall be the same except the 1/3 increase <u>will not be allowed</u>.

1.12 IDENTIFICATION

A. <u>Conductors:</u>

1. All power and signal conductors shall be identified in accordance with the following schedule:

a) 120/208 Volts, 3-phase, 4-wire Wye: Red-Black-Blue, Neutral White.

b) 277/480 Volts, 3-phase, 4-wire Wye: Brown-Orange-yellow, Neutral Grey.

c) Bond or grounding conductor (GWG): Green

d) Special system conductors shall be color coded and labeled

2. Brady Labels shall be used to identify terminals and destination of feeders, branch circuits, signal and control circuits, etc., at all terminations and junction boxes and shall be coordinated with the nameplates in all boxes and equipment.

3. All terminals in the switchboards, panels, relays, switches, devices, starter terminals, etc., shall have Brady Labels for identification to identify both ends of all wiring. Wires #8 and smaller to be terminated on terminal strips squared-type 9080K with white marking strip and screw lugs for wire size.

B. Nameplates: The Contractor shall furnish and install 1" x 3" x 3/32" thick laminated black Bakelite nameplates with a white core, unless specifically shown as red with a white core, engraved to produce white letters on black background for all items of electrical equipment including 2-pole and 3-pole circuit breakers, panelboards, starters, relays, time switches and disconnect switches. They shall screw them in place.

C. Panels: Panels having single-pole circuit breakers shall be provided with typed schedules mounted in welded metal holders behind plastic.

D. Devices: All devices shall have their branch circuit identified on the back side of device plate with a permanent type black marker, i.e., CT A-21.

1.13 MECHANICAL AND OTHER SPECIAL EQUIPMENT

A. Mechanical Coordination: PRIOR to commencing construction, this Contractor shall arrange a conference with the Mechanical/Plumbing Contractors and equipment suppliers to verify type, sizes, locations, requirements, controls and diagrams of all equipment furnished by them. In writing, he shall inform the Electrical Engineer that all phases of coordination of this equipment have been covered. If any unusual conditions or problems, they are to be enumerated them at this time.

B. Mechanical Wiring: All electrical line voltage wiring, fused disconnects and conduits shall be furnished and installed by this Contractor unless otherwise shown.

C. Miscellaneous Equipment: Contractor shall be responsible for electrical hook-up and connection to all electrical equipment whether furnished by this Contractor or others. This includes all special mechanical equipment and equipment furnished by the Mechanical Contractor.

1.14 GUARANTEE

A. This Contractor agrees to replace or repair to the satisfaction of the Owner, any part of the installation that may fail due to defective material and/or workmanship, or failure to follow Plans and Specifications for one year after final acceptance. He shall further obtain from the manufacturers of special equipment (i.e., control systems) their respective guarantees and service manuals and deliver to Owner.

PART 2 PRODUCTS

2.01 RACEWAYS

A. Unless specifically shown otherwise, this Contractor shall furnish and install a complete steel conduit system for all wiring, including control and signal wiring.

B. All conduits shall be rigid threaded hot dipped galvanized type.

C. All conduits installed underground shall have a minimum coverage of 1'-6" below finished grade and shall have a 4" concrete envelope.

D. Steel conduit Joints shall be sealed with conductive pipe compound T & B Kopr-Shield before making up.

E. Steel conduits installed below grade shall be wrapped with Minnesota Mining Company Scotch Wrap #51 using half-lap for double thickness. Conduit surfaces shall be clean and dry before wrapping.

F. Minimum size for lighting, power and signal shall be a 3/4" conduit.

G. Steel EMT sizes 4" and smaller may be used within hollow dry spaces of the building, and shall not be run exposed below 8' above a finished floor.

H. All raceway fittings, locknuts, couplings, elbows, etc., shall be hot dipped galvanized steel finish with plastic throats or bushings. No cast-type fittings shall be used.

I. Seal-type flexible conduit shall be used in lengths not greater than 18" at motors and other machinery to prevent the transmission of vibration. All flexible conduits shall have a copper bond wire either integral or pulled in. Flexible conduit shall be supported at both ends and every 24".

J. All conduit fittings, locknuts, couplings, elbows, etc., shall be hot dipped galvanized finish with plastic bushings. No competitive type fittings shall be used.

K. Non-Metallic Conduit.

1. Rigid non-metallic PVC, UL Labeled conduit with factory ells and fittings approved for the purpose may be used under the following conditions:
   a) Where the voltage is 600 Volts or less.
   b) All conduits in earth under buildings or protected by permanent paving may be Schedule 40 PVC.
   c) Any conduit running through planters or unprotected in earth shall be encased in 3" of concrete. All raceways above grade shall be steel.

d) All non-metallic runs shall have a bond wire for the interconnection of all conducting portions per Table 250-94 of the California Electric Code (CEC).

e) Use factory elbows. PVC shall not be bent in the field.

2.02 CONDUCTORS

A. All conductors shall be delivered to the site in their original unbroken packages plainly marked or tagged as follows: UL Labels, size, kind and insulation of wire, name of the manufacturing company and trade name of the wire.

B. All conductors to be a minimum of 98% conductivity soft drawn copper, minimum #12 AWG unless shown otherwise. Conductors #8 and larger shall be stranded type "THHN/THWN" 600 Volt insulation. Conductors #10 and smaller shall be solid copper "THHN/THWN".

C. All branch circuits, fixture wiring joints, splices and taps for conductors #10 and smaller to be made with "SCOTCHLOCK" connectors.

D. Two bolt type solderless connectors or T & B "color keyed“ compression lugs shall be used on #8 and larger conductors.

2.03 WIRING DEVICES

A. Furnish and install wiring devices and plates as shown on the Drawings and described in these Specifications. Where more than one wiring device is mounted in the same location, such devices shall be mounted in a multi-gang plate. Single-gang combination interchangeable devices shall not be used. Wiring devices shall be Specification grade or better.

B. Convenience outlets shall consist of a Specification grade duplex receptacle mounted in an outlet box in the wall flush with the finished plaster or surface rated 20 AMPS, 125 Volts, 3-wire, back and side wired.

C. Local switches shall be quiet toggle-type, totally enclosed, AC rated ,20 AMPS, 120/277 Volt.

D. Device plates shall be provided for all devices with the number of gangs and openings necessary. They shall be satin brushed stainless steel in toilets and kitchens with plastic to match devices in other finished areas.

2.04 OUTLET BOXES

A. Outlet boxes for concealed work shall be one piece pressed steel knock out type with zinc or cadmium coating. Boxes shall not be smaller than 4" square nominal size unless otherwise indicated. Provide extension rings, plaster rings and covers necessary for flush finish.

B. Bar hangers shall be used to support outlet boxes in stud or furred partitions and ceilings. Attachment screws, devices, etc., shall be of the proper type to secure boxes to metal studs. Use expansion shields to concrete and masonry.

C. Provide approved knock-out seals on all unused open knock-out holes. Where used for lighting fixtures outlet boxes shall be equipped with fixture studs.

2.05 DISCONNECTING DEVICES

A. Disconnecting devices shall be provided as shown or as required by NEC. Switches shall be motor rated and in proper NEMA enclosure.

1. Motors 1/3 HP and less: Switches shall be of the toggle-type quick make and break rated 2 HP, 250 Volts AC with the number of poles required provided with flush mounting wall plates or in suitable surface mounting NEMA enclosures.

2. Motors ½ HP and larger: Disconnecting switches shall be Type HD fused 3-pole, 600 Volts in proper NEMA enclosures with proper size FRN fuses. Provide three spare fuses of each type to the Owner.

B. Circuit breakers utilized as disconnecting devices shall comply with the requirements stated in other articles of this section and NEC.

2.06 PULL BOXES AND WIREWAYS

A. Pull and junction boxes shall be installed as shown to ease the pulling of wire and to comply with NEC requirements.

B. Wireways to be constructed in accordance with UL 870 for wireways, auxiliary gutters and associated fittings. Every component including lengths, connectors and fittings shall be UL listed.

2.07 TERMINAL CABINETS AND CLOSETS

A. Cabinets and fronts shall be in accordance with NEMA Standard Publication No. PB1-1971 and UL Standards No. 67. Fronts shall include doors and have flush brushed stainless steel cylinder tumbler-type locks with catches and spring loaded door pulls. The flush lock shall not protrude beyond the front of the door. All locks shall be keyed like the panelboard locks. Fronts shall have adjustable indicating trim clamps completely concealed when the doors are closed. Doors shall be mounted by completely concealed steel hinges. Fronts shall not be removable with the door in the locked position. A frame and card with a clear plastic covering shall be provided on the inside of the door. Fronts shall be of code gauge full finished steel with rust inhibiting primer and bake enamel finish.

2.08 PANELBOARDS

A. Furnish panelboards shown on Plans and described herein. All cans shall be a minimum of 20" wide and 5.75" deep unless otherwise shown. They shall be totally flat or equal with flush keyed locks.

B. Panelboards shall be UL listed.

C. Breakers for switching lights shall be rated for switching duty.

D. Fronts shall be sheet steel painted standard gray over a rust inhibitor. They shall be equipped with a door, flush hinges, flush proper cylinder tumbler lock; metal circuit card holder and quarter turn adjustable trim clamps.

E. The panel shall consist of reinforced galvanized sheet steel frame with copper bus bars and circuit breakers properly supported to prevent vibration breakage in handling. All terminals shall be solderless type suitable for specified conductors of size indication. Bus bars shall be sequence phased.

F. Branch circuit breakers shall be "bolt-on" and fully interchangeable without disturbing adjacent units. All 2 and 3-pole breakers shall have common trips with a minimum IC of 10,000 AIC.

G. All breakers applying fluorescent or HID fixtures shall have padlock handle lock-off devices.

H. All spaces shall have hardware.

I. Provide separate blocks for neutrals and grounds as required.

PART 3 EXECUTION

3.01 INSTALLATION

A. The layout and installation of electrical work shall be coordinated with the overall construction schedule to prevent delay in completion of the project.

B. Dimensions and information regarding accurate locations of equipment and structural limitations and finish shall be verified with other sections.

C. The Drawings do not show all the offsets, bends, special fittings or junction pull boxes necessary to meet job conditions and shall be provided as required.

D. Electrical equipment, outlets, junction and pull boxes shall be installed in accessible locations, avoiding obstructions, preserving headroom and keeping openings and passageways clear.

E. Minor adjustments in the locations of equipment shall be made where necessary providing such adjustments do not adversely affect function of the equipment. Major adjustments for the location of equipment shall be previously approved and detailed on the Record Drawings.

3.02 STRUCTURAL FITTINGS

A. Furnish and install the necessary sleeves, inserts, hangers, anchor bolts and related structural items. Install at the proper time.

3.03 NOISE CONTROL

A. Outlet boxes at opposite sides of partitions shall not be placed back-to-back, nor shall through boxes be employed except where specifically permitted on the Drawings by note to minimize transmission of noise between occupied spaces.

B. Ballasts, contactors, starters and like equipment that are noticeably noisier than other similar equipment on the project will be deemed defective and shall be replaced at Engineer's request.

3.04 RACEWAYS AND FITTINGS

A. Surface raceways shall be coordinated with cabinet work. It shall be installed plumb and square with adjacent surfaces.

B. Minimum size of any conduit for lighting, power and signal shall be 3/4" conduit unless shown otherwise.

C. Furnish and install "seal-offs" in all conduit runs through areas of different temperature.

D. Where applicable, wiring methods shall be in accordance with requirements for installation in damp and/or hazardous areas.

E. All concealed conduits shall be installed in as direct a line as possible between outlets. EMT shall be approved for dry locations with steel plastic bushed set screw fittings. No more than four quarter bends or their equivalent will be allowed between outlets. Feeder conduits shall follow arrangements shown on plans unless a change is authorized. Branch circuit conduits shall in general follow arrangement as shown as far as structural conditions permit. All exposed runs shall parallel buildings, walls or partitions and be supported on Kindorf Hangers to meet Title 24, Part 6, CAC.

F. In general, all conduits shall be sloping to drain. Bends that place a trap in a conduit shall be avoided. Provide drip fitting as required. Dux-Seal high ends of all underground raceways.

G. All conduit runs shall be mechanically and electrically continuous from outlet to outlet. Conduit size or type shall not be changed between outlets.

H. Chrome escutcheon plates shall be used on all conduit penetrating walls, floors or ceilings.

I. Expansion joints shall be provided at building expansion joints or as required due to length of run or difference in temperatures.

J. Flexible steel conduits shall be used for short runs not over 24" from motors or other vibrating equipment to junction boxes. Where specifically approved by the Engineer, flexible steel conduit may be used when conditions make the use of other conduit impracticable. Fittings shall be of the screwed wedge type. All flex shall have green copper bond wire. Flex conduits shall be independently suspended.

K. All fittings that are exposed or in damp areas shall have sealing glands and proper gaskets. Fittings in hazardous areas shall be of the type approved for the particular hazard.

L. Roof Penetrations: Where raceways penetrate roofing or similar structural area, provide 26 galvanized iron roof jacks sized to fit tightly to a raceway for a weather-tight seal and with flange extending a minimum of 9" under roofing on all sides. Completely seal openings between inside diameters of roof flashing and outside diameters if penetrating raceways. Coordinate with work required under Roofing Section of the Specifications.

M. Fire Penetration Seals: Seal all penetrations for work of this section through fire rated floors, walls and ceilings to prevent the spread of smoke, fire, toxic gas or water through the penetration either before, during or after the fire. The fire rating of the penetration seal shall be at least that of the floor, wall or ceiling into which it is installed so that the original fire rating of the floor or wall is maintained as required by Article 300-21 of the California Electrical Code (CEC).

N. Where applicable, provide OZ Type CFSF/I and CAFSF/I fire seal fittings for conduit and cable penetrations through concrete and masonry walls, floors, slabs and similar structures. Where applicable, provide 3M fire barrier sealing penetration system and/or Thomas & Bett Flame Safe Fire Stop System and/or ChaseFoam fire stop system including wall wrap, partitions, caps and other accessories as required. All manufacturers' instructions and recommendations for installation of sealing fittings and barrier sealing systems.

3.05 CONDUCTORS AND CONNECTORS

A. All branch circuits and fixture wiring joints, splices and taps for conductors #10 and smaller shall be made with 3M "Scotchlocks" or approved equal.

B. Circuit and signal terminations to single-screw or push-on terminals shall be done with insulated "Sta-Kons" or approved equal terminals.

C. Bolt-type solderless connectors shall be torqued with a torque wrench according to the manufacturer's recommendations then retightened after 24-48 hours before taping. Owners' inspector shall be informed of this procedure during the waiting period and shall witness the act of retightening.

D. All splices shall be taped with Scotch #88 plastic electrical tape with “Scotch Fill” where necessary for a smooth joint. For other than normal temperatures or conditions

Scotch #27 or #2520 shall be used. All connections and splices shall be electrically perfect and in strict accordance with all code requirements.

E. Wire in panels, cabinets, pull boxes and wiring gutters shall be squared, labeled and neatly grouped with "Ty-Raps" and fanned out to the terminals.

F. Wiring Devices: Wiring devices shall be securely fastened to the outlet box. Where the outlet box covers are back from the finished walls, device shall be built out with washers so that it is rigidly held in place to the box. Provide metal extenders in flammable construction per CEC. All device screw slots shall be left in a vertical orientation.

3.06 OUTLET BOXES

A. Outlet boxes for concealed work shall be one steel knock-out type with zinc coating. Boxes shall not be smaller than 4" square nominal size unless otherwise indicated. Provide extension rings, plaster rings and covers necessary for flush finish.

B. Bar hangers shall be used to support outlet boxes in stud or furred partitions and ceilings. Attachment screws, devices, etc., shall be of the proper type to secure boxes to metal studs complemented by expansion shields to concrete and masonry.

C. Provide approved knock-out seals on all unused open knock out holes. Where used for lighting fixtures, outlet boxes shall be equipped with fixture studs.

3.07 JUNCTION AND PULL BOXES AND WIREWAYS

A. Boxes shall be installed square and plumb. An engraved nameplate shall be installed indicating the function of each box on the exterior in unfinished areas and on the interior in finished areas.

B. Install wireways with strip-type connectors with self-retained mounting screws. Use hangers with two-piece hook-together features to permit preassembling of wireway and hanger bottom plate before hanging on a preinstalled upper bracket.

3.08 TERMINAL CABINETS AND CLOSETS

A. Install level and identify per schedule.

B. All conductors shall be squared, labeled and "Ty-Rapped".

C. Location:

1. Unless otherwise indicated on the Drawings, install all panels with the top of the trip 6'-0" above the finished floor.

2. Space permitting, surface mount panels where they are not visible to the public.

3. Panels to have protective cover over any electrical panel with overhead water piping. Cover to be 18" by width of a panel.

D. Directory: Mount a typewritten directory behind glass or plastic in a metal holder welded to the inside of each panel door showing circuit numbers and complete description of all outlets (one each circuit).

3.09 PRECAST CONCRETE PULL BOXES AND MANHOLES

A. Contractor shall provide a minimum of 3-6" of sand base material suitable to receive the manhole. The base material shall be impacted and graded level at proper elevation to receive the manhole in relation to the conduit grade or ground cover requirements as designated in the Plans. Sealants used between the joints of the manhole are at the Contractor's discretion unless otherwise specified. If grout is used it should consist of two-parts plaster sand to one-part cement with sufficient water added to make the grout flow under its own weight.

B. The grout should be poured into a water soaked groove and filled to the top of the groove unless a double amount is to be used as a further precaution against leakage. In this case the mastic sealant should be placed on the two shoulders of the groove. The next section of manhole should be placed while the foaming action is in process. Contractor shall verify grades with the Architect and shall set holes and boxes level at proper grades.

C. All conduits penetrating the pull box shall have seals to prevent water from entering the raceway.

3.10 DISCONNECT DEVICES

A. Disconnect devices shall be identified as to location of the device controlled.

3.11 SUPPORTS AND ANCHORS

A. Provide inserts, anchors, supports, rods, brackets and miscellaneous items to adequately support and secure the electrical systems and equipment.

B. Secure hangers, brackets, conduit straps, supports and electrical equipment to surfaces by means of toggle bolts on hollow masonry; expansion shields and machine screws or standard preset inserts on concrete or masonry; machine screws or bolts on metal surfaces; wood screws on wood construction.

C. Power driven or velocity driven inserts may be not used unless specifically approved by the engineer, and where their use does not affect finished appearance of work.

They may not be used in prestressed slabs, beams, purlins, precast members or in tension.

D. Seismic Requirements: Provide vertical and lateral supporting equipment to resist application of seismic forces per CAC, Title 24.

END OF SECTION 26 01 00

FIRE ALARM SYSTEM

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The general provisions of the Contract, including General and Supplementary, Special Conditions and General Requirements, apply to the work specified in this Section.

1.02 FIRE ALARM SYSTEM IN GENERAL

A. Contractor shall install and furnish a complete and operational fire evacuation and fully automatic detection system, as well as a signal conductor and raceway system as required in accordance with Title 24, Part 2, Section 907.2.3 and conform to Title 24, Part 3, Article 760. The system shall be monitored by an approved supervising station. The system shall include the following:

1. All equipment, conduit, wire and labor necessary to provide for a complete and operational system as specified herein and shown on the drawings.

2. Contractor shall submit fire alarm system shop drawings to the Engineer for approval **PRIOR** to installation.

B. All materials, wiring and equipment shall be furnished and installed in strict compliance with the preceding sections and all applicable requirements of:

1. Local fire authority having jurisdiction

2. California Electrical Code (CEC), 2022 Edition

3. National Fire Protection Association Standard 72

4. Manufacturer of the fire alarm system

5. Underwriters' Laboratories, Inc.

6. California State Fire Marshal

7. California Fire Code, 2022 Edition

1.03 FIRE ALARM SYSTEM MANUFACTURER REQUIREMENTS

A. The manufacturer of the fire control system shall submit as part of his construction submittals:

1. Factory component technical detail showing full compliance with function as specified.

2. Factory calculations for all power requirements for specified system, including standby power, all certified in writing by the manufacturer's engineer in charge of the project.

3. Manufacturer's certification that it maintains an office within 50 miles of the project, and that it maintains sufficient spare parts and personnel at that location to ensure the Owner of a continually maintained and serviced system.

4. List of factory personnel responsible for jobsite installation and supervision of the system who shall be available as required by the Contractor, Engineer, Architect or Owner.

5. **WRITTEN CERTIFICATION** that all component parts to be used in this system are of his manufacturer, or are California State Fire Marshal listed and to be used for the purposes intended.

6. At the completion of the manufacturer's installation of the system to the contractor's wire backbox and appurtenances, he shall:

a) Provide the Engineer with five (5) copies of his final system report which shall be on the manufacturer's standard forms provided by him and contain the following information:

1) Serial numbers and location of all major components.

2) Testing information verifying all annunciation devices and signaling function are as specified and required.

3) Provide the Engineer their copies of his factory logo's Record Drawings of the system, including final labeling, color coding and locations for all devices in the system.

4) Manufacturer's final tests shall be in the presence of the Engineer and Owner, or his representatives, as well as the authorities having jurisdiction.

1.04 OPERATING INSTRUCTION, WARRANTY AND SERVICE

A. The manufacturer shall provide a qualified representative to instruct the Owner, or his representative, in the operation of the system.

B. This contractor and the manufacturer shall warranty the systems for a period of one (1) year from the date of acceptance by the Owner. Emergency repair and/or replacement of manufacturer provided equipment for the system shall be accomplished by this contractor, at **NO** additional cost to the Owner as long as such repair and/or replacement occurs during the warranty period, and is directly or indirectly caused by faulty workmanship or defect of material installed. Upon completion of the installation of the Fire Protective Signaling equipment, a satisfactory test of the entire system shall be made in the presence of the enforcing agency.

1.05 FIRE ALARM SYSTEM OPERATION

A. Activation of any alarm initiating device shall:

1. Activate fire alarm audible and visible devices.

2. Transmit the alarm condition to an approved remote receiving station.

3. Report alarm condition and zone on LCD displays of the main fire alarm control panel and remote annunciators.

END OF SECTION 28 31 11

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. 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 2022 CBC Standard 18-2	

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 1557-12, 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
10/14/2022

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

ASPHALTIC CONCRETE

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. Rolling and preparing the finish sub-grade to receive asphaltic concrete.

b. Laying of aggregate base and paving with asphaltic concrete of all areas as indicated on the drawings.

c. Redwood header boards around the areas to be paved with asphaltic concrete unless otherwise noted.

d. Fog seal.

1.03 RELATED WORK

a. Vegetation control is specified under Section 32 05 13.02.

b. Finish grading is specified under Earthwork, Section 31 20 00; however, rolling preparation of finish grade under asphalt paving is part of this contract.

1.04 GUARANTEE

In addition to the guarantee as specified elsewhere in these Specifications, this Contractor shall repair or restore to first class condition any portion of the asphaltic concrete paving in which creeping, shoving, cracking, raveling, softening or other defects that are due to improper placing or defective materials that appear or become apparent within one (1) year from the date of acceptance.

PART 2 PRODUCTS

2.01 MATERIALS

a. Hot-Mix Asphaltic Concrete, Type “B”, uniformly graded aggregate to 1/2" maximum medium grading, graded as per State of California Division of Highways, Standard Specifications Section 39 and intimately mixed with 5 - 6-1/2% Asphalt. Asphalt shall be Performance Grade PG64-10. No R.A.P. (Reclaimed Asphalt Pavement) shall be used.

b. Redwood: All heart foundation grade redwood.

c. Redwood Headers: 3x6 redwood.

d. Aggregate Base: Class 2, 3/4" aggregate graded as per State of California Division of Highways, Standard Specifications, Section 26.

e. Fog Seal: Asphalt emulsion SS-1/SS-1h mixed with water 1:1.

PART 3 EXECUTION

3.01 INSPECTION

a. Verify gradients and elevations of sub base are correct.

b. Beginning of installation means acceptance of substrate.

3.02 TOLERANCES

a. Flatness: Maximum variation of 1/4 inch, measured with 10-foot straight edge.

b. Compacted Scheduled Thickness: Within 1/4 inch of design thickness.

c. Variation from True Elevation: Within 1/2 inch.

3.03 INSTALLATION

a. Preparation of Grade: All base over which asphaltic concrete is to be placed shall be rolled with a three (3) to five (5) ton roller, making seven (7) passes over all of the areas to receive asphaltic concrete.

b. Paving for Vehicular Traffic: Asphaltic concrete and aggregate base shall be placed to thicknesses shown on the plans. Asphalt concrete shall be placed and compacted in accordance with Section 39 and base material shall be spread and compacted in accordance with Section 26 of the State of California, Division of Highways Standard Specifications. The finish shall have no variations greater than one-quarter inch (1/4") in ten feet (10'-0") and the texture of finish shall be uniform and at a maximum density for the type of aggregate used.

c. Header boards: Unless otherwise noted, place redwood header boards around the areas to be paved with asphaltic concrete. To secure the header boards, use 1" x 4" x 1'-6" long redwood stakes at four feet (4'-0") on center.

d. Fog Seal: Spray the entire area after the paving is completed at a rate of approximately 0.1 gallon per square yard as per Section 37 of the State specifications.

3.04 GENERAL REQUIREMENTS

a. Layout of Work: This contractor shall lay out his work and be responsible for the accuracy of the measurements.

b. Cooperation: This contractor shall cooperate with the other trades in establishing the time of commencing and completing the work of this section.

c. Approvals: The material source from which asphaltic concrete is procured shall be approved by the Architect.

d. Protection of Other Work: Care shall be taken to prevent damage to existing property, concrete slabs and to any of the new work performed under the contract and shall make good any damage resulting from this operation.

e. Inspection of Site: This contractor shall be held to have examined the site and satisfied himself to the existing conditions and the conditions under which he will be obliged to operate.

END OF SECTION
05/15/2008

CHAIN LINK FENCES AND GATES

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 and required to complete the fencing indicated on the drawings and specified herein.

1.02 WORK INCLUDED

a. All chain link fencing, posts, headrails, braces, fittings, fabric, hardware and gates.

b. Excavation and concrete footings for chain link fence work.

c. All redwood slats at fences and gates.

1.03 RELATED WORK

Concrete design and concrete mow strips - see Section 03 10 00.

1.04 GENERAL REQUIREMENTS

a. Workmanship: Only skilled workmen experienced in their respective trades and work shall be employed. All work shall be performed in a first-class workmanlike manner and shall be subject to the approval of the Architect.

b. Measurements: The contractor shall take measurements of the building site and verify the dimensions indicated on the drawings.

c. Completeness: The contractor shall furnish and install all appurtenances required to give a complete and satisfactory fence.

d. Responsibility: The contractor shall be responsible for properly locating the fence within the property lines.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

a. MASTER-HALCO

b. Substitutions: See Div.00, Section 10, Article 19, whenever any material is specified by name and/or number thereof, such specifications shall be deemed to be used for the purpose of facilitating a description of the materials and establishing quality, and shall be deemed and construed to be followed by the words "or approved equal". No substitution will be permitted which has not been submitted for prior approval by the Architect. All materials shall be new and the best of their class and kind and free of visible defects. Sufficient descriptive literature and/or samples must be furnished for any materials submitted as

"equal" substitutes. All materials shall be guaranteed for a period of one (1) year against material defects and workmanship.

2.02 MATERIALS

a. Chain Link Fencing: Shall be 6'-0" high typically or as indicated on drawings.

(1) Fabric shall be "Galv-After" chain link wire heavily zinc coated (galvanized) by the hot-dip process AFTER WEAVING full heights as shown on plans. Fabric shall be made of No. 9 gauge class cone (1) coated wire with 2" mesh and 1.20 oz/ft. zinc coating.

(2) Tensile Strength Test: The wire pickets of which this fabric is made is to stand a tensile strength test of 70,000 pounds per square inch based on the cross sectional area of the galvanized wire.

(3) Galvanizing Test: Chain link fabric to comply with ASTM A239.

b. Posts shall conform to Table I. Length of posts shall be compatible with the specified fence height, or shall be as detailed. The term "Terminal posts" shall apply to end, corner, and pull posts. The term "Line posts" is defined as the vertical posts installed between terminal posts. The term "Gate posts" shall apply to the post supporting the weight of the gate.

TABLE 1

Post Type	Fabric Heights	Size	Weight (lb./l.f.)
Terminal	6 ft. or less	2.875" o.d.	5.79
	6'-1" to 12'-0"	4" o.d.	9.11
	Over 12'-0"	6.625" o.d.	18.97
Line	12'-0" or less	2.375" o.d.	3.65
	Over 12'-0"	2.875" o.d.	5.79
	Gate Leaf Widths	Post Size	
Gate	6'-0" or less	2.875" o.d.	5.79
	6'-1" to 13'-0"	4" o.d.	9.11
	13'-1" to 18'-0"	6.625" o.d.	18.97
	18'-1" to 23'-0"	8.625" o.d.	28.55
Sliding Gate	Varies	Same as terminal post	

c. Line Posts: Shall be hot-dip galvanized, Class I steel pipe, Grades A and B, 1.2 oz. zinc-coated, Schedule 40, per ASTM A-120. See Table 1 for pipe diameter and weights for applicable heights.

d. End, Corner, Pull and Gate Posts: Shall be hot-dip galvanized, Class I steel pipe, Grades A and B, 1.2 oz. zinc-coated, Schedule 40, per ASTM A-120. See Table 1 for pipe diameter and weights for applicable heights. Install corner posts at the beginning and at all ends of all radii.

e. Depth and Setting of Posts: All posts shall be set three feet (3') min. in concrete footings. Concrete base shall be 39" deep x 10" diameter for line posts and 39"

deep x 14" diameter for end/gate posts, unless otherwise noted. The cement shall extend three inches (3") below bottom of all posts.

f. Top and Bottom Rails and Bracing: Shall be hot-dip galvanized pipe (1.66") o.d., weight 2.27 pounds per linear foot. Attach fabric to top rail with 13 ga. annealed galvanized wire, double wrapped at 12" o.c.

g. Post Tops: Shall be hot-dip galvanized. All posts fitted with heavy ornamental tops.

h. Fittings: Shall be heavy weight malleable wrought iron or heavy weight pressed steel and shall be hot-dip galvanized. Fabric shall be fastened to end corner and gate posts with 1/4" x 3/4" stretcher bars and not less than 1/8" x 3/4" wide stretch bar bands at one foot (1'-0") center to center.

i. Fabric Attachment: Fabric shall be fastened to line posts with 9 ga. annealed galvanized wire, single wrapped approximately at eighteen inch (18") centers minimum 5 per post.

j. Gates: Gate frames to be made of hot-dip galvanized pipe (1.90") o.d., weight 2.72 pounds per linear foot. Gate corners shall be welded. Fabric to be same as in fence. Gates to be complete with heavy weight malleable iron hinges and catches. Single gate to have a fork latch with padlock attachment, double gates shall have drop-bar with gate holdbacks.

k. Rolling Gates: Supply 6" round wheels with two (2) (1.66") o.d. rail track on the side of the fence.

l. Concrete: See Section 03 10 00.

m. Latches: Shall be fork-latch type and attachments for padlock locking on all gates.

n. Finish: All materials entering into the construction of this fence shall be heavily hot dip galvanized.

o. Tension Wire: Shall be 7 ga. coil spring class III steel wire, 1.2 oz. zinc coated attached to fabric with 9 ga. hog rings at 24" o.c.

p. Slatted Chain Link: Shall be 3-1/2"x 5"x 9 gauge galvanized chain link "Woodlink" with 1/4"x 2-1/4" redwood slats per manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION AND VERIFICATION OF DRAWINGS AND SITES

It shall be The Contractor's responsibility to report to the Architect any deviations between the drawings, specifications and the site. Failure to do so prior to the installing of equipment, shall be done at The contractor's expense.

3.02 ORDINANCES AND REGULATIONS

All local, municipal and state laws and rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications and their provisions shall be carried out by the contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations or requirements of same. However, when these specifications and/or drawings call for or describe materials, workmanship or

construction of a better quality, higher standard or larger size, specification and/or drawings shall take precedence over the requirements of said rules and regulations.

3.03 INSTALLATION

a. Headrails and top of fabric shall be level and true to line.
b. Posts shall be spaced not over ten foot (10'-0") centers or where shown on plans.
c. Fencing shall stair-step up or down retaining walls, grades, curbs, etc., in a level, perpendicular and satisfactory fashion.

3.04 CLEAN UP

All excess soil, debris, rubbish, etc., which results from work performed under this section shall be cleaned up and removed from the site. It shall be legally disposed of off site.

END OF SECTION
10/17/2022