

Specifications
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Section 1
Site Clearing

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Clearing and protection of vegetation.
- B. Removal of existing debris.

1.02 RELATED REQUIREMENTS

- A. Section 2 - Grading: Topsoil removal.
- B. Section 2 - Grading: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 SUBMITTALS

- A. Site Plan: Showing:
 - 1. Vegetation removal limits and protection of existing trees as noted.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Fill Material: As specified in Section 4 - Fill and Backfill

PART 3 EXECUTION

3.01 SITE CLEARING

- A. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- B. Clear and completely remove all fencing, trees, planting, and debris as noted on civil plans. The Contractor shall be responsible for determining the existing usage of any existing irrigation lines and shall obtain permission from the Owners of said lines, prior to any removal or crushing thereof. Any required to be relocated shall be brought to the attention of the Architect immediately, prior to proceeding.

3.02 EXISTING UTILITIES AND BUILT ELEMENTS

- A. Review the drawings and visit the site to determine all existing conditions, the nature of the structures, objects and materials to be encountered and all other facts concerning or affecting the scope of the work and intention of demolition. Information on the drawings showing existing conditions does not guarantee that other items may not be encountered. Remove all such items not shown on the drawings or specified to remain.
- B. Prior to bidding, Contractor shall perform any additional subsurface investigations necessary to completely familiarize and satisfy themselves as to the existing conditions in order to construct the facility
- C. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- D. Protect existing utilities to remain from damage.
- E. Do not disrupt public utilities without permit from authority having jurisdiction.
- F. Protect existing structures and other elements that are not to be removed.

3.03 VEGETATION

- A. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.
 - 1. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.
 - 2. Trees: Sell if marketable; if not, treat as specified for other vegetation removed; remove stumps and roots to depth of 36 inches.
 - 3. Fill holes left by removal of stumps and roots, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians.
- B. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

3.04 DEBRIS

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

Section 2
Grading

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal of topsoil.
- B. Rough grading the site for site structures.
- C. Finish grading.

1.02 RELATED REQUIREMENTS

- A. Section 1 - Site Clearing.
- B. Section 3 - Excavation.
- C. Section 4 - Fill: Filling and compaction.

1.03 SUBMITTALS

- A. Submit as-graded plan certifying the project was graded in conformance with the grading plan.
- B. Test Reports: Field Quality control tests to be supplied by Contractor.
- C. Certificate from Geotechnical Engineer for on-site work.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with Division of the State Architect standards.
 - 1. Maintain one copy on site.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Fill Materials: See Section 4.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey benchmark and intended elevations for the work are as indicated.
- B. Verify the absence of standing or ponding water.
- C. Review Soils Reports for the site and conform all work to the recommendations.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage above- and below-grade utilities to remain.
- D. Notify utility company to remove and relocate utilities.
- E. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.
- F. Protect site features to remain, including but not limited to benchmarks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.
- G. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.
- H. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.

3.03 ROUGH GRADING

- A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Do not remove topsoil when wet.
- C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
- D. Do not remove wet subsoil unless it is subsequently processed to obtain optimum moisture content.
- E. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.
- F. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.

3.04 SOIL REMOVAL

- A. Stockpile excavated subsoil on site stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

3.05 FINISH GRADING

- A. Before Finish Grading:
 - 1. Verify building and trench backfilling have been inspected.
 - 2. Verify subgrade has been contoured and compacted.
- B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.
- C. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.
- D. Place topsoil in areas indicated.
- E. Place topsoil to thickness as indicated.
- F. Place topsoil during dry weather.
- G. Remove roots, weeds, rocks, and foreign material while spreading.
- H. Near plants spread topsoil manually to prevent damage.
- I. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
- J. Lightly compact placed topsoil.
- K. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.06 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) from required elevation.
- B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).

3.07 REPAIR AND RESTORATION

- A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.
- B. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.08 FIELD QUALITY CONTROL

- A. See DSA PR 13-01 and California Code of Regulations (CCR), Title 24, Part 1, Chapter 4, Group 1, Articles 5 & 6 as necessary.
- B. See Section 4 for compaction density testing.

3.09 CLEANING

- A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.
- B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

Section 3
Excavation

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating for slabs-on-grade, paving, and site structures.
- B. Trenching for utilities outside the building to utility main connections.

1.02 RELATED REQUIREMENTS

- A. Section 2 - Grading: Grading.
- B. Section 4 - Fill: Fill materials, backfilling, and compacting.

PART 2 EXECUTION

2.01 EXAMINATION

- A. Verify that survey benchmark and intended elevations for the work are as indicated.
- B. Review Soils Report for the site and conform all work to the recommendations.

2.02 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. See Section 2 for topsoil removal.
- C. Locate, identify, and protect utilities that remain and protect from damage.
- D. Protect benchmarks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Architect.

2.03 EXCAVATING

- A. Excavate to accommodate new structures and construction operations.
- B. Notify Architect of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- C. Provide temporary means and methods, as required, to remove all water from excavations until directed by Architect. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.

2.04 FIELD QUALITY CONTROL

- A. See DSA PR 13-01 and California Code of Regulations (CCR), Title 24, Part 1, Chapter 4, Group 1, Articles 5 & 6 as necessary.

2.05 PROTECTION

- A. Divert surface flow from rains or water discharges from the excavation.
- B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.
- D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- E. Keep excavations free of standing water and completely free of water during concrete placement.

END OF SECTION

Section 4

Fill

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

- A. Section 2 - Grading: Site grading.
- B. Section 3 - Excavation: Removal and handling of soil to be re-used.

1.02 REFERENCE STANDARDS

- A. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18 in.) Drop 2021, with Errata (2022).
- B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)) 2012 (Reapproved 2021).
- C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method 2015, with Editorial Revision (2016).
- D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)) 2012 (Reapproved 2021).
- E. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method 2015.
- F. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.

1.03 SUBMITTALS

- A. Materials Sources: Submit name of imported materials source.
- B. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used, including manufactured fill.
- C. Compaction Density Test Reports.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. General Fill: Subsoil excavated on-site.
 - 1. Graded.
 - 2. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
 - 3. Conforming to Geotechnical Report.
- B. Structural Fill: Subsoil excavated on-site.
 - 1. Graded.
 - 2. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
 - 3. Conforming to Geotechnical Report.
- C. Granular Fill- Gravel - Class II. Angular crushed washed stone; free of shale, clay, friable material and debris.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Verify areas to be filled are not compromised with surface or ground water.
- C. Review Soils Report for the site and conform all work to the recommendations.

3.02 PREPARATION

- A. Scarify and proof roll subgrade surface to a depth of 6 inches to identify soft spots.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.
- C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

- A. Fill to contours and elevations indicated using unfrozen materials.
- B. Employ a placement method that does not disturb or damage other work.
- C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.

- E. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- F. Correct areas that are over-excavated.
 - 1. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.
- G. Compaction Density Unless Otherwise Specified or Indicated:
 - 1. Under paving, slabs-on-grade, and similar construction: 95 percent of maximum dry density.
 - 2. At other locations: 90 percent of maximum dry density.
- H. Reshape and re-compact fills subjected to vehicular traffic.
- I. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.04 FILL AT SPECIFIC LOCATIONS

- A. Use general fill unless otherwise specified or indicated.

3.05 TOLERANCES

- A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

3.06 FIELD QUALITY CONTROL

- A. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, ASTM D2922, or ASTM D3017.
- B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with AASHTO T 180, ASTM D1557 ("modified Proctor"), ASTM D698 ("standard Proctor"), AASHTO T 180, ASTM D1557 ("modified Proctor"), ASTM D698 ("standard Proctor"), AASHTO T 180, ASTM D1557 ("modified Proctor"), or ASTM D698 ("standard Proctor").
- C. If tests indicate work does not meet specified requirements, remove work, replace, and retest.
- D. Frequency of Tests: Per Geotechnical Engineer

3.07 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

Section 5
Concrete Paving

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete basketball courts for recreation and fire access.

1.02 RELATED REQUIREMENTS

- A. Section 2 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.
- B. Section 4 - Fill: Compacted subbase for paving.

1.03 PRICE AND PAYMENT PROCEDURES

- A. Provide concrete paving by the unit price method.

1.04 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).
- B. ACI 301 - Specifications for Concrete Construction 2020.
- C. ACI 305R - Guide to Hot Weather Concreting 2020.
- D. ACI 306R - Guide to Cold Weather Concreting 2016.
- E. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2022.
- F. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.
- G. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.
- H. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2022a.
- I. ASTM C150/C150M - Standard Specification for Portland Cement 2022.
- J. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) 2018.

1.05 SUBMITTALS

- A. Design Data: Indicate pavement thickness, reinforcement, and typical details.

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

- A. Comply with applicable requirements of ACI 301.
- B. Concrete pavement at vehicular paving as identified on plans.

2.02 FORM MATERIALS

- A. Form Materials: Comply with ACI 301.

2.03 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) yield strength; deformed billet steel bars; unfinished unless otherwise specified on plans.
- B. Dowels: ASTM A615/A615M, Grade 40 - 40,000 psi yield strength; deformed billet steel bars; unfinished finish unless otherwise specified on plans.

2.04 CONCRETE MATERIALS

- A. Obtain cementitious materials from same source throughout.
- B. Concrete Materials: Portland Cement Concrete

2.05 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Properties:
 - 1. Compressive strength: 3000 psi
 - 2. Water-Cement Ratio: Maximum 50 percent by weight.
 - 3. Maximum Slump: 3 inches.

2.06 MIXING

- A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

3.02 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient.

3.03 REINFORCEMENT

- A. Place reinforcement as indicated.
- B. Interrupt reinforcement at expansion joints.

3.04 COLD AND HOT WEATHER CONCRETING

- A. Follow recommendations of ACI 305R when concreting during hot weather.
- B. Follow recommendations of ACI 306R when concreting during cold weather.
- C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.05 PLACING CONCRETE

- A. Place concrete in accordance with State of California Highways standards.
- B. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

3.06 FINISHING

- A. Area Paving: Light broom, texture perpendicular to pavement direction.
- B. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.07 TOLERANCES

- A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- B. Maximum Variation From True Position: 1/4 inch

3.08 FIELD QUALITY CONTROL

- A. See DSA PR 13-01 and California Code of Regulations (CCR), Title 24, Part 1, Chapter 4, Group 1, Articles 5 & 6 as necessary.
- B. Compressive Strength Tests: ASTM C39/C39M; for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
 - 1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
 - 2. Perform one slump test for each set of test cylinders taken. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.
- C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.09 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

END OF SECTION