

# **PROJECT MANUAL**

FOR

NOGALES HIGH SCHOOL  
PORTABLE LOCKER AND RESTROOM INTERIM HOUSING

## **OWNER**

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PROJECT W2110000AR  
SEPTEMBER 2023

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PROJECT W2110000AR  
DSA APPLICATION NO. 03-123338  
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## SECTION 10 14 00

### SIGNAGE

#### 1. PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Plastic/acrylic signs.
- B. Metal signs.
- C. Letters and numbers.
- D. Cast metal plaques.
- E. Fire wall barrier identification signs.
- F. Precast Concrete Monument Sign.

##### 1.2 REFERENCES

- A. CBC - California Building Code, (CCR) California Code of Regulations, Title 24, Part 2.
- B. 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design.

##### 1.3 REGULATORY REQUIREMENTS

- A. Conform to CBC - California Building Code, (CCR), Title 24, Part 2 and the 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design for accessibility requirements.
- B. Raised characters shall comply with CBC Section 11B-703.2:
  - 1. Depth: Raised characters shall be 1/32-inch (0.8 mm) minimum above their background and shall be sans-serif uppercase and be duplicated in Braille.
  - 2. Height: Raised character height shall be 5/8-inch (15.9 mm) minimum and 2 inches (51 mm) maximum based on the height of the uppercase letter "I". CBC Section 11B-703.2.5.
  - 3. Finish and Contrast: Characters and their background shall have a non-glare finish. Character shall contrast with their background with either light characters on a dark background or dark characters on a light background. CBC Section 11B-703.5.1.
  - 4. Proportions: Raised character proportions shall be selected from fonts where the width of the uppercase letter "O" is 60% minimum and 110% maximum of the height of the uppercase letter "I". Stroke thickness of the uppercase letter "I" shall be 15% maximum of the height of the character. CBC Section 11B-703.2.4 and 11B-703.2.6.
  - 5. Character Spacing: Spacing between individual raised characters shall comply with CBC Section 11B703.2.7.
  - 6. Line Spacing: Spacing between individual raised characters shall comply with CBC Section 11B-703.2.8.
  - 7. Format: Text shall be in a horizontal format. CBC Section 11B-703.2.9.
  - 8. Braille: Braille shall be contracted (Grade 2) and shall comply with CBC Sections 11B-703.3 and 11B-703.4. Braille dots shall have a domed or rounded shape and shall comply with CBC Figure 11B-703.3.1.



9. Mounting Height: Tactile characters on signs shall be located 48" minimum to the baseline of the lowest Braille cells and 60" maximum to the baseline of the highest line of raised characters above the finish floor or ground surface. CBC Section and Figure 11B-703.4.1.
10. Mounting Location: A tactile sign shall be located per CBC Section and Figure 11B-703.4.2 as follows:
  - (a) alongside a single door at the latch side.
  - (b) on the inactive leaf at double doors with one active leaf.
  - (c) to the right of right hand at double doors with two active leaves.
  - (d) on the nearest adjacent wall when there is no wall space at the latch side of a single door.
  - (e) at the right side of double doors with two active leaf's.

(For all cases, a clear floor space of 18" x 18" minimum, centered on the tactile characters, shall be provided beyond the arc of any door swing between the closed position and 45-degree open position.)

- C. Visual characters shall comply with CBC Section 11B-703.5 and shall be 40" minimum above finish floor or ground. Visual character stroke thickness of the uppercase letter "I" shall be 10% minimum and 20% maximum of the height of the character. CBC Section 11B-703.5.7.
  1. Line Spacing between the baselines of separate lines of characters within a message shall be 135% min. and 170% max. of the character height per CBC Section 11B-703.5.9.
  2. Character Spacing between individual adjacent characters shall be 10% min. and 35% max. of character height per CBC Section 11B-703.5.8.
- D. Pictograms shall comply with CBC Section 11B-703.6.
- E. Symbols of accessibility shall comply with CBC Section 11B-703.7.
- F. Variable message signs shall comply with CBC Section 11B-703.8.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and protect products to site under provisions of Section 01 61 00.
- B. Package signs, labeled in name groups.

## 2. PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acrylic Signs:
  1. Architectural Sign Identity, [www.architecturalsignidentity.com](http://www.architecturalsignidentity.com).
  2. ASI - Sign Systems, [www.asisignage.com](http://www.asisignage.com).
  3. Best Manufacturing, [www.bestsigns.com](http://www.bestsigns.com).
  4. Bravo Sign and Design, [www.bravosign.com](http://www.bravosign.com).
  5. CA Signs, [www.casigns.com](http://www.casigns.com).
  6. Mohawk Sign Systems, [www.mohawksign.com](http://www.mohawksign.com).
  7. Neiman and Company, [www.neimanandco.com](http://www.neimanandco.com).

8. Signs and Lucite Products, Inc., [www.adasignscalifornia.com](http://www.adasignscalifornia.com)
9. Signtec, [www.signtec.com](http://www.signtec.com).
10. Southwell Company, [www.southwellco.com](http://www.southwellco.com).
11. Vomar Products, Inc., [www.vomarproducts.com](http://www.vomarproducts.com).
12. Substitutions: Under provisions of Section 01 25 13.

B. Letters and Numbers:

1. ARK Ramos, [www.arkramos.com](http://www.arkramos.com).
2. ASI - Sign Systems, [www.signage.com](http://www.signage.com).
3. Bravo Sign and Design, [www.bravosign.com](http://www.bravosign.com).
4. Gemini, [www.gemini.signproducts.com](http://www.gemini.signproducts.com)
5. Matthews, [www.matthewssigns.com](http://www.matthewssigns.com).
6. Nelson-Harkins Ind., [www.nelson-harkins.com](http://www.nelson-harkins.com).
7. Neiman and Company, [www.neimanandco.com](http://www.neimanandco.com).
8. Southwell Company, [www.southwellco.com](http://www.southwellco.com).
9. Signs and Lucite Products, Inc., [www.adasignscalifornia.com](http://www.adasignscalifornia.com).
10. Signtec, [www.signtec.com](http://www.signtec.com).
11. Vomar Products, Inc., [www.vomarproducts.com](http://www.vomarproducts.com).
12. Substitutions: Under provisions of Section 01 25 13.

C. Metal and Traffic Signs:

1. Four S Company, (877) 597-1288. No URL available.
2. Signs and Lucite Products, Inc., [www.adasignscalifornia.com](http://www.adasignscalifornia.com)
3. Signtec, [www.signtec.com](http://www.signtec.com).
4. Traffic Management Inc., [www.trafficmanagement.com](http://www.trafficmanagement.com).
5. Substitutions: Under provisions of Section 01 25 13.

## 2.2 MANUFACTURED UNITS

- A. Room Control Signage: Mohawk Sign Systems, Series 200A, Format D Sand Carved Process, with 1/32 inch raised border and letters with integral California round top contracted Grade 2 braille dots with dot spacing in compliance with CBC Table 11B-703.3.1 raised a minimum of 1/40 inch. Material shall be 1/8 inch thick x 6 inch high MP plastic plate of length required with 1 inch high helvetica medium lettering; mechanical mounting with copy centered on plate. Allow for twelve letters and three numerals for each sign. Signage to be in compliance with the requirements of Article 703 of the 2010 ADA Standards for Accessible Design and CBC, California Building Code (CCR), Title 24, Part 2, Section 11B-703.

- B. Tactile Exit Signage: Mohawk Sign Systems, Series 200A, Format D Sand Carved Process, with 1/32 inch raised border and letters with integral California round top contracted Grade 2 braille dots with dot spacing in compliance with CBC Table 11B-703.3.1 raised a minimum of 1/40 inch. Material shall be 1/8 inch thick x 6 inch high MP plastic plate of length required with 1 inch high helvetica medium lettering; adhesive and mechanical mounting with copy centered on plate. Provide signs at locations shown on the drawings. Signage to be in compliance with the requirements of Article 703 of the 2010 ADA Standards for Accessible Design and CBC, California Building Code (CCR), Title 24, Part 2, Section 1011.4 and 11B-703.
- C. Pictorial Symbol Signage: Mohawk Sign Systems, Series 200A, Format D Sand Carved Process, with 1/32 inch raised border and letters with integral California round top contracted Grade 2 braille dots with dot spacing in compliance with CBC Table 11B-703.3.1 raised a minimum of 1/40 inch. Material shall be 1/8 inch thick MP plastic plate of size indicated with lettering and symbols as indicated; adhesive and mechanical mounting with copy centered on plate. Provide sign in locations shown on the drawings. Signage to be in compliance with the requirements of Article 703 of the 2010 ADA Standards for Accessible Design and CBC, California Building Code (CCR), Title 24, Part 2, Section 11B-703.
- D. Entrance and Restroom Signage:
1. Restroom Doors: Acrylic plastic signs equivalent to that as detailed on the drawings; 12 inch circle and triangle with international symbol of accessibility in accordance with CBC, California Building Code, (CCR), Title 24, Part 2, Section 11B-216.8 and 11B-703.7.2.6.
  2. Building Entrance: Equivalent to 5 inch square, reflective decal accessible sign in accordance with CBC, California Building Code (CCR), Title 24, Part 2, Section 11B-216.6 and 11B-703.7.2.1.
- E. Accessible Gate Signage: 0.080 inch thick aluminum sheet sign of size indicated. Paint with reflectorized paint. Graphics and text to be as indicated. Attach sign to adjacent fence with 12 gage wire ties at each corner. Mount sign at 5'-0" from grade to center of sign. Sign shall be in conformance with CBC, California Building Code (CCR), Title 24, Part 2, Section 11B-206.4.7 and 11B-404.1.1.
- F. Safe Dispersal Area Sign: 0.080 inch thick aluminum sheet sign in size indicated. Paint with reflectorized paint. Text to be as indicated. Mount and attach sign to adjacent fence fabric, post, or wall as indicated on drawings. Sign shall be in conformance with CBC, California Building Code (CCR), Title 24, Part 2, Section 1028.5.
- G. Traffic Signage:
1. Van Parking Stall: 12 inch x 18 inch 0.080 inch thick aluminum accessible sign in accordance with CBC, California Building Code, (CCR), Title 24, Part 2, Section 11B-502.6 and 11B-703.7.2.1 with separate 12 inch wide x 4 inch high sign with "Van-Accessible" wording and additional language below symbol of accessibility that states "Minimum Fine \$250.00." Mount on 2 inch diameter standard weight galvanized steel pipe post.
  2. Auto Parking Stall: 12 inch x 18 inch 0.080 inch thick aluminum accessible sign in accordance with CBC, California Building Code, (CCR), Title 24, Part 2, Section 11B-502.6 and 11B-703.7.2.1 with additional language below symbol of accessibility that states "Minimum Fine \$250.00." Mount on 2 inch diameter standard weight galvanized steel pipe post
  3. Drive Approach: 18 inch x 24 inch 0.080 inch thick aluminum tow-away sign with local address and police phone number in accordance with CBC, California Building Code, (CCR), Title 24, Part 2, Section 11B-502.8.1. Mount on 2 inch diameter standard weight galvanized steel pipe post.
  4. Passenger Loading Zone: 12 inch x 18 inch 0.080 inch thick aluminum sign as detailed on drawings. Mount on 2 inch diameter standard weight galvanized steel pipe post.
- H. Accessories: Provide all anchors, adhesives, and accessories for a complete installation.

### 3. PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means installer accepts existing surfaces.

#### 3.2 INSTALLATION - GENERAL

- A. Install in accordance with manufacturer's instructions.
- B. Install true, plumb, level and adequately secured to substrate.
- C. Clean and polish.

END OF SECTION

## SECTION 32 12 16

### ASPHALT PAVING

#### 1. PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Weed killer.
- B. Geotextile paving grid.
- C. Recycled base.
- D. Headers and stakes.
- E. Asphaltic concrete paving.
- F. Surface sealer.
- G. Pavement striping.
- H. Recycled composite wheel stops.

##### 1.2 REFERENCES

- A. ASTM D979 - Standard Practice for Sampling Bituminous Paving Mixtures.
- B. ASTM D2041 - Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
- C. ASTM D2726 - Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures.
- D. ASTM D2950 - Standard Test Method for Density of Bituminous Concrete In Place by Nuclear Methods.
- E. ASTM D3549 - Standard test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens.
- F. Southern California Chapter, American Public Works Association - Standard Specifications for Public Works Construction.
- G. Redwood Inspection Service - Standard Specifications for Grades of California Redwood Lumber.
- H. Storm Water Quality Association - Storm Water Best Management Practice Handbook (BMP Handbook) Construction Edition.
- I. TAI (The Asphalt Institute) - Manual Series No. 2 (MS-2).

##### 1.3 QUALITY ASSURANCE

- A. Perform work in accordance with Standard Specifications for Public Works Construction.
- B. Mixing Plant: Conform to State of California standards.
- C. Obtain materials from same source throughout.

##### 1.4 REGULATORY REQUIREMENTS

- A. Conform to applicable Los Angeles County standards for paving work on public property.

## 1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not place asphalt when base surface temperature is less than 40 degrees F.
- B. Perform asphalt paving waste management techniques as defined in Section 4 of the Storm Water Best Management Practice Handbook, (BMP Handbook) Construction Edition.

## 2. PART 2 PRODUCTS

### 2.1 GEOTEXTILE PAVING GRID

- A. Polypropylene Triax Geogrid TX160-16 as manufactured by Tensar International Corp., [www.tensarcorp.com](http://www.tensarcorp.com).
- B. Substitutions: Under provisions of Section 01 25 13.

### 2.2 AGGREGATES

- A. Provide aggregates consisting of crushed stone, gravel, sand, or other sound, durable mineral materials processed and blended, and naturally combined.
- B. Recycled Base Aggregate: Crushed bituminous asphalt and concrete paving and concrete and masonry complying with requirements of Section 200-2.4 for Crushed Miscellaneous Base of the Standard Specifications for Public Works. Free of any deleterious or detrimental material.
- C. Aggregates for asphaltic concrete paving: In accordance with Section 203.6.2.2. of Standard Specifications for Public Works Construction.

### 2.3 WEED KILLER

- A. Commercial chemical for weed control, registered by EPA. Dry, free-flowing, dust-free chemical compound, nonflammable, not creating a fire hazard when applied in accordance with the manufacturer's recommendations, soluble in water, and capable of being spread dry or in solution.
- B. Weed Killer products:
  - 1. Oust: E.I. Dupont de Nemours and Co., [www.dupont.com](http://www.dupont.com).
  - 2. Casoron 4G: Uniroyal Chemical Co., Inc., [www.cromptoncorp.com](http://www.cromptoncorp.com).
  - 3. Substitutions: Under provisions of Section 01 25 13.

### 2.4 HEADERS AND STAKES

- A. Headers: Construction heart grade redwood in compliance with the Standard Specifications for Grades of California Redwood Lumber.
- B. Stakes: Redwood of grade specified for headers.
- C. Nails: Common, galvanized, 12d minimum.

### 2.5 COMPOSITE FIBER] WHEEL STOPS

- A. Prefabricated composite recycled parking stops, 3-1/2 inch high x 5-3/4 inches wide x 48 inch long manufactured of a recycled blend of vinyl, nylon and plastic, gray color.
  - 1. Power Stop manufactured by Collins and Aikman, [www.powerbond.com](http://www.powerbond.com).
  - 2. Model STWHLSTD-DS manufactured by Barco Products, [www.barcoproducts.com](http://www.barcoproducts.com)
- B. Pre-drill parking stops for two dowel anchors.

- C. Dowels: Galvanized steel, 1/2 inch diameter, minimum 12 inch length.
- D. Substitutions: Under provisions of Section 01 25 13.

## 2.6 PAVEMENT STRIPING PAINT

- A. Vinyl emulsion type, white color, except at accessible parking spaces, provide blue color. Blue color to be equal to Color 15090 in accordance with Federal Standard 595C.
- B. Striping products:
  - 1. W801 Vin-L-Stripe Traffic Paint, manufactured by Dunn-Edwards, [www.dunnedwards.com](http://www.dunnedwards.com).
  - 2. Substitutions: Under provisions of Section 01 25 13.

## 2.7 ASPHALTS

- A. Comply with provisions of Standard Specifications for Public Works Construction, Section 203-1:
  - 1. Paving asphalt : PG-64-10
  - 2. Tack coat : SS-1h

## 2.8 ASPHALTIC PAVING MIX

- A. Provide hot plant mixed asphaltic concrete paving materials in accordance with Section 203-6 of Standard Specifications for Public Works Construction:
  - 1. Base Course Mix : B
  - 2. Parking and Drive Area Mix : C2
  - 3. Hardscape Play Area Mix : D2
  - 4. [Binder Course - Running Track : C2]
- B. Asphalt concrete paving mix to have 5 to 7 percent asphalt cement content by weight in accordance with TAI Publication MS-2.

## 2.9 SEAL COAT

- A. Hardscape Play Areas: Guardtop ultra high performance coolseal sealcoat, [www.guardtop.com](http://www.guardtop.com).
- B. Parking Lot and Drive Areas: Emulsified asphalt and mineral aggregate mix complying with Section 203-9 of Standard Specifications for Public Works Construction, using Type SS-1h asphalt emulsion.
- C. Substitutions: Under provisions of Section 01 25 13.

## 3. PART 3 EXECUTION

### 3.1 INSPECTION

- A. Verify compacted subgrade is dry and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.
- C. Beginning of installation means acceptance of substrate.

### 3.2 PREPARATION

- A. Apply weed killer to entire area to be paved. Follow manufacturer's application directions.

- B. Install headers and stakes to achieve arrangement of paving shown on the Drawings.

### 3.3 PLACEMENT OF GEOTEXTILE PAVING GRID

- A. Place rolls of geotextile paving grid in position and roll out onto subgrade. Anchor beginning of roll to subgrade with 11-gauge, 6 inch x 1 inch x 6 inch sod staples at 4'-0" on center.
- B. Unroll geotextile paving grid in direction of travel so that long dimension of roll is perpendicular with traffic pattern.
- C. Overlap ends and edges of rolls by 2 feet. Secure ends and edges of adjacent rolls with zip ties.
- D. Overlap geotextile paving grid in direction that base course will be spread.
- E. Cut and overlap geotextile paving grid to accommodate curves with sharp shears. Cut grid to conform to manhole covers and other immovable protrusions.
- F. Maintain geotextile paving grid taut during base course installation.
- G. Do not drive track propelled equipment directly on geotextile paving grid.
- H. If damage occurs to geotextile paving grid, remove damaged area and place new section of grid overlapping damaged area by 3 feet in all directions. Secure new section of grid with zip ties spaced at 24 inches on center.

### 3.4 PLACEMENT OF GRANULAR BASE COURSE

- A. Spread granular base material to compacted thickness shown on the Drawings.
- B. Do not displace geotextile paving grid during placement.
- C. Thickness tolerance: Minus 0.0 inch to plus 0.5 inch.
- D. Smoothness tolerance: 3/8 inch in 10 feet.
  - 1. Deviations: Correct by removing materials, replacing with new materials, and reworking and recompacting as required.
- E. Moisture content: Only the amount needed to achieve the specified compaction.

### 3.5 PLACEMENT OF ASPHALTIC CONCRETE FINISHED PAVING

- A. Remove all loose materials from compacted base.
- B. Adjust frames and covers, if so required, to meet final grades.
- C. Tack Coat:
  - 1. Apply tack coat at the rate of 0.05 to 0.10 gallon per square yard to all existing pavement, curbs, gutters, manholes, and the like immediately before asphalt concrete is placed.
  - 2. Avoid smearing adjacent surfaces. Remove spillage and clean affected areas.
- D. Spreading Asphaltic Concrete Materials:
  - 1. Spread material in a manner which requires the least handling.
  - 2. Spread asphalt concrete to compacted thickness shown on drawings.
  - 3. Where thickness of asphalt concrete paving will be 3 inches or less, spread in one layer.



4. Where thickness of asphalt concrete paving will be more than 3 inches, spread in two layers. Surface course shall be a minimum of 1 inch thick.
  5. Prime asphalt surface between layers.
  6. Offset layers of paving a minimum of 6 inches.
- E. Rolling:
1. After material has been spread to proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown.
  2. Roll in at least two directions until no roller marks are visible.
- F. Compacting:
1. Average density according to ASTM D2041 to be 92 percent but not less than 90 percent and not more than 96 percent.

### 3.6 TOLERANCES

- A. Free from birdbaths.
- B. Flatness, Parking Lot, and Drive Areas: Maximum variation of 1/8 inch in 6 feet.
- C. Flatness, Hardscape Play Areas: 1/8 inch in 10 feet.
- D. Compacted Thickness: Within 1/4 inch.
- E. Variation from True Elevation: Within 1/2 inch.

### 3.7 REPAVING

- A. Where existing pavement is cut, removed, or disturbed, existing pavement shall be saw cut.
- B. Where excavations are 12 inches or less in width, existing pavement to be cut 12 inches greater in length and width of excavation.
- C. Where excavations are greater than 12 inches in width, existing pavement to be cut 24 inches greater in length and width of excavation.
- D. Where existing pavement being cut is to be overlaid, pavement cutting outside limits of excavation is not required.
- E. Repaving shall match existing paving, but shall not be less than 3 inches of asphalt concrete placed upon 12 inches of crushed aggregate base in compliance with Section 200-2.2 of the Standard Specifications for Public Works Construction.

### 3.8 SEAL COAT

- A. Apply seal coat to hardscape play areas and parking and drive areas in accordance with manufacturer's instructions in two separate coats. Do not apply seal coat until 30 days after initial placement of asphaltic concrete paving.

### 3.9 PAVEMENT STRIPING

- A. Layout line markings and other painting in accordance with Drawings. Lines shall be 4 inches wide.

- B. Clean surfaces to be painted. Apply paint in accordance with manufacturer's directions only when weather conditions permit proper application. Machine apply paint in as many coats as are required to provide opaque markings.

### 3.10 WHEEL STOPS

- A. Place wheel stops at all parking stalls as indicated.
- B. Anchor permanently in place with two steel rods.

### 3.11 FIELD QUALITY CONTROL

- A. Field inspection and testing of granular base and of asphalt concrete paving mix will be performed under provisions of Section 01 45 29.
- B. Testing firm to take samples and perform tests in accordance with TAI MS-2 and as specified.
- C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- D. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D3549.
- E. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- F. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to ASTM D979.
- G. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D2041, and compacted as specified.
- H. In-place density of compacted pavement will be determined by testing core samples according to ASTM D2726.
  - 1. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.
  - 2. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D2950 and correlated with ASTM D2726.
- I. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

### 3.12 PROTECTION

- A. Immediately after placement, protect pavement under provisions of Section 01 61 00 from mechanical injury for 2 days.
- B. Protect all new placed pavement from landscape irrigation overspray and planter area soil erosion.

### 3.13 FLOOD TEST

- A. Perform flood test of finished paving by use of water tank truck.
- B. Where water ponds to a depth of more than 1/8 inch, fill or otherwise correct to provide proper drainage.
- C. Feather and smooth edge of fill so that joint between fill and original surface is invisible.

END OF SECTION

## SECTION 32 31 13

### CHAIN LINK FENCES AND GATES

#### 1. PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Fence framework, fabric, and accessories.
- B. Privacy slats.
- C. Excavation for post bases.
- D. Concrete anchorage for posts and center drop for gates.
- E. Manual gates and related hardware.

##### 1.2 REFERENCES

- A. ASTM A90 - Standards Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.
- B. ASTM A392 - Zinc-Coated Steel Chain Link Fence Fabric.
- C. ASTM A428 - Weight of Coating on Aluminum-coated Iron or Steel Articles.
- D. ASTM A491 - Aluminum-Coated Steel Chain Link Fence Fabric.
- E. ASTM F567 - Installation of Chain-Link Fence.
- F. ASTM A653 – Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- G. ASTM F668 - Poly (Vinyl Chloride) (PVC) Coated Steel Chain Link Fence Fabric.
- H. ASTM F900 - Industrial and Commercial Swing Gates.
- I. ASTM A924 – General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
- J. ASTM F 1043 - Standard Specification for Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework.
- K. ASTM F1083 - Pipe, Steel, Hot-dipped Zinc-coated (Galvanized) Welded for Fence Structures.
- L. ASTM F1184 - Industrial and Commercial Horizontal Slide Gates.
- M. ASTM F1043 - Strength and Protective Coatings on Metal Industrial Chainlink Fence Framework.
- N. CBC - California Building Code, (CCR) California Code of Regulations, Title 24, Part 2, California State Accessibility and Egress Standards.

##### 1.3 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in commercial quality chain link fencing with five years documented experience.
- B. Installation: ASTM F567.

## 1.4 REGULATORY REQUIREMENTS

- A. Conform to disabled person access and emergency egress requirements of the CBC California Building Code, (CCR) California Code of Regulations, Title 24, Part 2.
- B. Fences, Gates and Hardware:
  - 1. Gates that are part of the accessible route shall meet all the requirements of an accessible door in compliance with CBC Section 11B-404.
  - 2. The levers of lever actuated latches or locks for accessible gates shall be curved with a return to within 1/2" of the gate surfaces to prevent catching on the clothing or persons. California Referenced Standards Code. T-24 Part 12, Section 12-10-202, Item (F).
  - 3. Swing doors and gate surfaces within 10" of the finish floor or ground shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within 1/16" of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped. CBC Section 11B-404.2.10.

## 2. PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Framework: ASTM F1083; Schedule 40 steel pipe, standard weight, one piece without joints, finish same as fabric.
- B. Acceptable Equivalent: ASTM F1043; Group 1A pipe with minimum yield strength of 30,000 pounds per square inch; SS40 as manufactured by Allied Tube and Conduit Fence Division, [www.atcfence.com](http://www.atcfence.com).
- C. Fabric: ASTM A392, Class 1, zinc coated wire fabric. ASTM A491 aluminum coated wire fabric. ASTM F668, Class 2b, PVC coated.

### 2.2 COMPONENTS

- A. Line Posts: 2 inch NPS steel pipe.
- B. Corner and Terminal Posts: 3 inch NPS steel pipe.
- C. Gate Posts: 3 inch NPS steel pipe.
- D. Top and Brace Rail: 1-1/4 inch NPS, plain end, sleeve coupled steel pipe.
- E. Fabric: 2 inch diamond mesh steel wire, interwoven, 9 gage thick, top and bottom selvage knuckle end closed.
- F. Caps: Cast steel or malleable iron, galvanized; sized to post dimension, set screw retained.
- G. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings: Steel.
- H. Tension Wire: 7 gage thick steel, single strand.
- I. Swinging Gates: Constructed of tubular members welded at all corners in conformance with ASTM F900 and the following:
  - 1. Gate Posts: 3 inch NPS steel pipe for gates up to 6 foot for a single gate or a single leaf of a double gate. 4 inch NPS steel pipe for gates over 6 foot in width.
  - 2. Gate Frames: 1-1/4 inch NPS steel pipe, for welded fabrication with vertical intermediate brace at maximum 6 foot spacing and horizontal brace on all gates.
  - 3. Gate Fabric: To match adjacent fencing.

4. Gate Hardware: Fork type latch with gravity drop and provision for padlock; three 180 degree gate hinges per leaf.
  - (a) Mortise lock keyed 2 sides: Schlage Commercial Latch L9010, [www.schlage.com](http://www.schlage.com) or Sargent Lock No. 8126, [www.sargentlock.com](http://www.sargentlock.com).
  - (b) Cylinder lock keyed 2 sides: Schlage Commercial Latch No. L9066, [www.schlage.com](http://www.schlage.com).
  - (c) Paddle exit device: Adams Rite No. 4710 with paddle assembly No. 4590. [www.adamsrite.com](http://www.adamsrite.com).
  - (d) Panic bar exit device: Von Duprin AX-PA-99L x 996-03 626, [www.vonduprin.com](http://www.vonduprin.com). Rim cylinder 20-057-ICX 626 with permanent core 23-030-626, [www.schlage.com](http://www.schlage.com).
  - (e) Kickplate: Commercial quality cold rolled steel conforming to ASTM A653 galvanized to G60 coating class according to ASTM A924 with minimized spangle, mill phosphatized, 0.067 inch thick, with all exposed edges hemmed. Finish to match fencing.
  - (f) Security Screen: Perforated commercial quality cold rolled steel conforming to ASTM A653 galvanized to G60 coating according to ASTM A924 with minimized spangle, mill phosphate, 0.067 inch thick, 1 / 4 inch diameter holes on 3 / 8 inch staggered centers, 40 percent open. All exposed edges hemmed. Finish to match fencing.
  - (g) Substitutions: Under provisions of Section 01 25 13.

### 2.3 PRIVACY SLATS

- A. Material: Polyethylene tubular slats, not less than 0.023 inch thick, manufactured from virgin polyethylene containing UV inhibitor, sized to fit mesh specified for direction indicated; with bottom lock strips.
- B. Color: As selected by Architect from manufacturer's full range.

### 2.4 FINISHES

- A. Galvanized: ASTM F1043; 1.8 oz/sq ft coating for schedule 40 pipe. ASTM A90; 1.0 oz/sq ft coating for Class 1A pipe.
- B. Aluminum Coating: ASTM A428; 0.40 oz/sq ft.
- C. Vinyl Coating: ASTM F668, Class 2b PVC coating Grey color on galvanized coating.
- D. Accessories: Same finish as framing.

## 3. PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install framework, fabric, accessories and gates in accordance with ASTM F567.
- B. Provide fence of height indicated.
- C. Space line posts at intervals not exceeding 10 feet.
- D. Set terminal, gate and corner posts plumb, in 12 inch diameter concrete footings with top of footing 6 inches below finish grade. Slope top of concrete for water runoff. Footing depth below finish grade: 42 inches for gate and corner posts, 36 inches for line posts.
- E. Provide top rail through line post tops and splice with 7 inch long rail sleeves.
- F. Brace each gate and corner post back to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail, one bay from end and gate posts.

- G. Install center and bottom brace rail on corner and gate leaves.
- H. Stretch fabric between terminal posts or at intervals of 100 feet maximum whichever is less.
- I. Do not stretch fabric until concrete has cured 28 days.
- J. Position bottom of fabric 2 inches above finished grade.
- K. Fasten fabric to top rail, line posts, braces, and bottom tension wire with wire ties maximum 15 inches on centers.
- L. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- M. Install bottom tension wire stretched taut between terminal posts.
- N. Install gates with fabric to match fence. Install three hinges per leaf, latch, catches.
- O. Install privacy slats in vertical direction. Securely lock bottom in place.
- P. Ground fencing that encloses electrical power distribution equipment as required by National Electric Safety Code, Article IEEE C2.
- Q. Install accessible gate hardware at 3'-4" to centerline of hand activated operable gate opening hardware.
- R. Install 10 inch high smooth metal kickplate on each side of accessible gate. Mount 2 inches above finished grade.
- S. Install security screening on accessible gate and on each side of accessible gate a minimum of 4 feet from both hinge and strike sides of gate. Attach screen to fence and gate posts with flat head self-tapping sheet metal screws at maximum 12 inches on center to match hole spacing.

### 3.2 ERECTION TOLERANCES

- A. Maximum Variation from Plumb: 1/4 inch.
- B. Maximum Offset from True Position: 1 inch.
- C. Components shall not infringe adjacent property lines.

END OF SECTION

## **SECTION 33 10 00**

### WATER UTILITIES

#### 1. PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Water mains, valves, fittings, and accessories.

##### 1.2 REFERENCES

- A. AWWA C651 - Standard for Disinfecting Water Mains.
- B. AWWA C900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 inch through 12 inch for Water.
- C. AWWA C901 - Standard for Polyethylene Pressure. Pipe and Tubing 1/2 inch through 3 inch, for Water Service.
- D. AWWA M23 - Manual for PVC Pipe-Design and Installation.
- E. ASTM B88 - Seamless Copper Water Tube.
- F. CDA - Copper Development Association, Copper Tube Handbook.

##### 1.3 REGULATORY REQUIREMENTS

- A. Conform to applicable code for materials and installation of the Work of this Section.

##### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Submit product data for pipe and pipe accessories.
- C. Submit reports on piping disinfecting.

##### 1.5 PROJECT RECORD DOCUMENTS

- A. Submit documents under provisions of Section 01 77 00.
- B. Accurately record location of pipe runs, connections, and depths.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

#### 2. PART 2 PRODUCTS

##### 2.1 PIPE AND PIPE FITTINGS

- A. General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in potable water systems.
- B. Piping: Provide pipes of the following materials, of weight/ class indicated. Provide pipe fittings and accessories of same material and weight/class as pipes , with joining method as indicated.



- C. Polyvinyl Chloride (PVC) Pipe: AWWA C900, Class 150.
  - 1. Fittings: Integral wall (thickened bell end), integral sleeve reinforced bell end or elastomeric gasket couplings meeting the requirements of AWWA C900.
- D. Polyethylene (PE) Pipe: AWWA C901, Class 160.
  - 1. Fittings: Copper alloy or nylon barbed insert type with 2 strap-type stainless steel clamps over pipe at each insert.

## 2.2 PIPE IDENTIFICATION

- A. Metallic-Lined Plastic Underground Warning Tapes: Polyethylene plastic tape with metallic core, 6 inches wide by 4 mils thick, solid blue in color with continuously printed caption in black letters "CAUTION - WATER LINE BURIED BELOW."
- B. Nonmetallic Piping Label: Engraved plastic-laminate label, for installation on main electrical meter panel; not less than 1 inch by 3 inches, with captions "CAUTION - THIS STRUCTURE HAS A NONMETALLIC WATER SERVICE."

## 2.3 PIPE ACCESSORIES

- A. Valves and Fittings: Conform to AWWA Specifications. All valves and fittings shall be designed for an operating pressure larger than the design pressure of lines on which they are installed.
- B. Gate Valves: Double disk parallel seat type, iron body, bronze mounted inside screw, non-rising stem, flanged or screw filling standard hub nut.
- C. Access Boxes: Unless otherwise specified in accordance with Section 22 30 00.

## 2.4 FILL MATERIAL

- A. Sand: Type specified in Section 31 20 00.

# 3. PART 3 EXECUTION

## 3.1 EXAMINATION

- A. Verify that trench cut is ready to receive work, and excavations, dimensions, and elevations are as indicated.
- B. Beginning of installation means acceptance of existing conditions.

## 3.2 PREPARATION

- A. Hand trim excavations to required elevations. Correct over excavation with fill material of sand.
- B. Remove large stones or other hard matter which could damage drainage tile or impede consistent backfilling or compaction.

## 3.3 INSTALLATION - PIPE AND FITTINGS

- A. Maintain separation of water main from sewer piping in accordance with code.
- B. Install pipe to indicated elevation to within 5/8 inches.
- C. Route pipe in straight line.
- D. Install pipe to allow for expansion and contraction without stressing pipe of joints.
- E. Slope water pipe and position drains at low points.

- F. Form and place concrete for thrust restraints at each elbow or change of direction of pipe.
- G. Polyvinyl Chloride (PVC) Pipe: Install in accordance with AWWA M23.
- H. Polyethylene (PE) Pipe: Install in accordance with manufacturer's installation instructions.
- I. Install warning tape during back-filling of trench for underground water service piping. Locate 8 inches below finished grade directly over piping. Attach non-metallic piping label permanently to main electrical meter panel.
- J. Water Main Connection: Arrange and pay for tap in water main, of size and in location as indicated, from water Purveyor.
- K. Water Service Termination: Terminate water service piping 5'-0" from building foundation in location and invert as indicated. Provide temporary pipe plug for piping extension into building.

#### 3.4 INSTALLATION OF VALVES

- A. General: Install valves as indicated with stems pointing up. Provide valve box over underground valves.

#### 3.5 FIELD QUALITY CONTROL

- A. Piping Tests: Conduct piping tests before joints are covered, and after thrust blocks have sufficiently hardened. Fill pipeline 24 hours prior to testing, and apply test pressure to stabilize system. Use only potable water.
- B. Hydrostatic Test: Test at not less than 1-1/2 times working pressure for two hours.

#### 3.6 ADJUSTING AND CLEANING

- A. Use disinfecting procedure prescribed by authority having jurisdiction.
- B. In case a method is not prescribed by that authority, use procedure described in AWWA C651, or as described below:
  - 1. Fill system or part thereof with water/chlorine solution containing at least 50 ppm of chlorine. Valve off system or part thereof and allow to stand for 24 hours.
  - 2. Drain system or part thereof of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine. Valve off system or part thereof and allow to stand for three hours.
  - 3. Flush system with clean potable water until chlorine does not remain in water coming from system.
- C. Prepare reports for all disinfecting activities and submit to Architect.

END OF SECTION

## SECTION 33 30 00

### SANITARY UTILITIES

#### 1. PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Sanitary drainage piping, fittings, and accessories.
- B. Connection of building sanitary drainage system to municipal sewers.
- C. Cleanout access.

##### 1.2 REFERENCES

- A. ASTM D2855 - Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
- B. ASTM D3212 - Specifications for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- C. ASTM D3034 - Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

##### 1.3 REGULATORY REQUIREMENTS

- A. Conform to applicable code for materials and installation of the Work of this Section.

##### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Submit product data for pipe and pipe accessories.

##### 1.5 PROJECT RECORD DOCUMENTS

- A. Submit documents under provisions of Section 01 77 00.
- B. Accurately record location of pipe runs, connections, manholes, cleanouts and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

#### 2. PART 2 PRODUCTS

##### 2.1 SEWER PIPE MATERIALS

- A. Plastic Pipe: ASTM D3034, Type PSM, SDR35 wall thickness, polyvinyl chloride (PVC) material; bell and spigot style solvent sealed end joints.

##### 2.2 PIPE ACCESSORIES

- A. Fittings: Same material as pipe, molded or formed to suit pipe size and end design, in required 'T', bends, elbows, cleanouts, reducers, traps, and other configurations required.

##### 2.3 PIPE IDENTIFICATION

- A. Metallic-Lined Underground Warning Tapes: Polyethylene plastic tape with metallic core, 6 inches wide by 4 mils thick, solid blue in color with continuously printed caption in black letters "CAUTION - SANITARY SEWER LINE BURIED BELOW."

## 2.4 CLEANOUTS

- A. Cleanouts: Cast-iron ferrule and countersunk brass cleanout plug, with round cast-iron access frame and heavy-duty secured, scoriated cast-iron cover.

## 2.5 FILL MATERIAL

- A. Sand: Type specified in Section 31 20 00.

# 3. PART 3 EXECUTION

## 3.1 EXAMINATION

- A. Verify that trench cut is ready to receive work, and excavations, dimensions, and elevations are as indicated.
- B. Beginning of installation means acceptance of existing conditions.

## 3.2 PREPARATION

- A. Hand trim excavations to required elevations. Correct over excavation with fill material of sand.
- B. Remove large stones or other hard matter which could damage drainage tile or impede consistent backfilling or compaction.

## 3.3 INSTALLATION - PIPE

- A. Extend sanitary sewerage system to connect to building sanitary drain, of sizes and in locations indicated.
- B. Solvent cement PVC pipe and fittings in accordance with ASTM D2855 and install piping in accordance with ASTM D2321.
- C. Place pipe on minimum four inch deep bed of sand.
- D. Lay pipe to slope gradient noted on Drawings with maximum variation from true slope of 1/8 inch in 10 feet.
- E. Install warning tape during back-filling of trench for underground sanitary sewer piping. Locate 8 inches below finished grade directly over piping.
- F. Install sand at sides and over top of pipe. Provide top cover to minimum compacted thickness of 12 inches.
- G. Place sand in maximum 6 inch lifts, consolidating each lift.
- H. Increase compaction of each successive lift. Refer to Section 31 20 00 for compaction requirements. Do not displace or damage pipe when compacting.
- I. Connect to municipal sewer system.

## 3.4 INSTALLATION - CLEANOUTS

- A. Install cleanouts and extension from sewer pipe to cleanout at grade as indicated.
- B. Set cleanout frame and cover in concrete block 18 x 18 x 12 inches deep.
- C. Set top of cleanouts flush with paved surfaces. Elsewhere, set top 1 inch above surrounding earth grade.
- D. Install accessories as indicated.
- E. Set top of frame and covers flush with paved surfaces. Elsewhere, set top 3 inches above grade.

3.5 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Section 01 45 29.

3.6 PROTECTION

- A. Protect finished installation under provisions of Section 01 61 00.
- B. Protect pipe from damage or displacement until backfilling operation is in progress.

END OF SECTION