

TECHNICAL SPECIFICATIONS

PART 2 CONSTRUCTION MATERIALS

SECTION 200 - ROCK PRODUCTS

200-2 UNTREATED BASE MATERIAL

200-2.1 General Delete existing description and replace with the following: "Any base material used for the project work shall be Crushed Aggregate Base per Section 200-2.2 or Crushed Miscellaneous Base per Section 200-2.4."

SECTION 201- 1 PORTLAND CEMENT CONCRETE

The class of concrete for this project shall be 520-C-2500 with a maximum slump of 4" and natural gray color.

The contractor shall use 520-C-3250 at a minimum, if asphalt is to be placed sooner than seven (7) days from pedestrian ramp placement.

No hand mixing of concrete.

Truncated Domes cast in place with removable inserts to allow the replacement of the panel. Truncated Dome panel as manufactured by Armor Tile or approved equal. Truncated dome panel shall be color Yellow.

SECTION 202-2 CONCRETE BLOCK (Add the following)

202-2.2 Masonry Units – The CMU shall be "slump block", color = Tan. The capstone shall be Tan.

202-2.3.1 Mortar – The mortar color shall be Tan. The mortar cap shall be Tan.

203-9 SEALCOAT – ASPHALT BASED (Add the following) The seal coat used for this project shall comply with this section.

SECTION 203 – BITUMINOUS MATERIALS

203-1.1 General (Add the following)

The Contractor shall furnish the Engineer, at least two (2) weeks prior to the start of work, with a list of material sources together with Certificates of Compliance, indicating that materials to be incorporated in the work fulfill the requirements of these Specifications. The Certificates of Compliance shall be signed by the material supplier or representative. The Engineer may permit the use of paving materials, aggregate, cement line, anti-strip agents, asphalt, or any combination thereof prior to sampling and testing when accompanied by a Certificate of Compliance.

203-1.2 Testing Requirements (Add the following)

The paving asphalt for this project shall be PG 64-10.

203-6.1 General (Add the following)

Asphalt shall contain a maximum Recycled Asphalt Pavement (RAP) of 20%.

203-6.4.4 Composition and Grading (Add the following)

The aggregate grading to be used shall be Class C-2.

210-1.6.1.4 Traffic Control. Traffic control shall conform to Appendix A of the San Diego Regional Standard Drawings and the requirements of these Specifications.

214-4 PAINT FOR STRIPING AND MARKINGS (Add the following) The paint used for this project shall conform to these specifications.

PART 3

CONSTRUCTION METHODS

SECTION 300 - EARTHWORK

300-1 CLEARING AND GRUBBING.

300-1.1 General

Add the following:

Removal of bituminous pavement shall be along saw cut lines or by cold milling. Removal of concrete pavements, curbs and gutters shall be along existing control joints or expansion joints unless otherwise approved.

300-1.1 Demolition (Add the following)

Demolition of selected items within the restroom building as described on plan shall include all points of connection, piping, conduit, fixtures and connecting/supporting hardware. All removals shall be ground flush to the surrounding surfaces and protected from corrosion with epoxy sealant or paint.

All conduits along with supports are to be removed and capped to point of disconnect as indicated on plan.

All PVC piping shall be removed to nearest joint. All threaded piping shall be removed to nearest joint. All soldered piping shall be cut at a point of cleanest reconnect.

All CMU shall be demolished including foundation. All extending reinforcing steel shall be ground flush to surrounding surfaces and protected with epoxy paint or sealant.

Floor drains shall be removed including tail and P-Trap.

300-1.4 Payment

Delete the first paragraph and replace with the following:

Payment for **Bid Schedule Item 4** shall be measured and paid for on a lump sum basis. Payment shall include full compensation for removal and disposal of all resulting material including, but not limited to dumping fees, haul off, capping of irrigation, removal of excess soil, trees, stumps, bushes, vegetation, roots, shrubs, stone, brick, fences, drainage structures, concrete, railroad ties, asphalt pavement, metal hand railing, all rubbish and debris, whether above or below ground. It is the intent of this specification to provide for the removal and disposal of all obstructions and objectionable materials not specifically provided for elsewhere in the plans and specifications to complete all work as shown on the plans. No additional payment will be made.

300-1.4.1 Payment (Add the following)

Payment for **Bid Schedule Item 5** shall include all work from Section 300-1.1 Demolition shall be measured and paid for on a lump sum basis. Payment shall include full compensation for removal and disposal of all resulting material including, but not limited to: dumping fees, haul off, removal of excess soil, trees, stumps, bushes, vegetation, roots, shrubs, stone, brick, fences, drainage structures, concrete, railroad ties, asphalt pavement, metal hand railing, all rubbish and debris, whether above or below ground. No additional payment will be made.

300-2 UNCLASSIFIED EXCAVATION

Is amended as follows:

300-2.9 Payment

Delete the first paragraph and replace with the following:

Payment for “**Unclassified Excavation**” shall be included in the lump sum bid price for “**Bid Schedule Item 4**” as shown in the bid proposal. Payment shall also include items of work described in Section 300-1. Payment shall also include for excavating, grading, sloping, shaping rounding tops of and ends of excavations, loading, disposing of surplus material, stockpiling and hauling of material generated from grading.

300-4 UNCLASSIFIED FILL

Is amended as follows:

300-4.10 Payment

Delete and replace with the following:

Payment for “**Unclassified Fill**” shall be included in lump sum bid price for “**Bid Schedule Item 7**” as shown in the bid proposal and shall include the full compensation for all grading, shaping, compacting, consolidating, hauling, or other related work that is required under this subsection.

302-8 SEALCOAT FOR MISCELLANEOUS AREAS

302-8.3 Measurement and Payment (Add the following)

Payment for “**Bid Schedule Item 11**” shall include purchase, delivery, protection of surrounding areas and application of the specified seal coat. All cost for labor, materials, tools, and equipment shall be included and no other payment will be made.

SECTION 303 CONCRETE AND MASONRY CONSTRUCTION

303-4 MASONRY CONSTRUCTION

303-4.2.4 Measurement and Payment (Add the following)

Payment for “**Bid Schedule Item 7**” shall include all necessary tools, equipment, materials delivery and labor required to construct the depicted retaining wall per the San Diego Regional Standard Drawings. Cost shall include backfill, irrigation capping/restoration and cutting of the existing CMU wall.

303-5 CONCRETE CURBS, WALKS, GUTTERS, CROSS GUTTERS, ALLEY INTERSECTIONS, ACCESS RAMPS, AND DRIVEWAYS

303-5.8 Backfilling and Cleanup

Add the following:

All backfill behind completed concrete items of work shall be completed after 3 days of placement and within 5 days of concrete placement.

303-5.9 Measurement and Payment

Add the following:

Payment for “**Bid Schedule Item 6, 8 and 9**” shall be measured and paid for per the individual bid item basis and shall include full compensation for furnishing all labor, materials, tools, equipment, including but not limited to: saw cutting, removal and disposal of existing materials, compaction and all related incidentals required to complete the work in place including any indicated curbs. Payment shall also include the repair or replacement of landscaping, irrigation, brick pavers or other private improvements adjacent to sections of replaced curb.

SECTION 314 TRAFFIC STRIPING, CURB AND PAVEMENT MARKINGS AND PAVEMENT MARKERS

314-4.3.7 Payment

Payment of “**Bid Schedule Item 12**” shall include the cost for removal of the existing striping and the placement of the new parking lot striping per the San Diego Regional Standard Drawings and shall include all costs for purchase and delivery, labor, materials, tools and equipment, and protection of surrounding areas and no other payment will be made. Payment will be made on a Lump Sum basis for all described work.

SECTION 800 LANDSCAPING AND IRRIGATION

800-1.2.5 Mulch The mulch for this project shall conform to Type 1 mulch per this section and placed 3-4” thick over the area indicated on plan.

Payment for “**Bid Schedule Item 10**” shall include purchase, delivery, tools, equipment, materials and labor to place and no other payment will be made.

800-1 LANDSCAPING AND IRRIGATION (Add the following)

Any modification to the landscaping and the restoration of the landscaping to fit the alignment of the new sidewalk/retaining wall shall conform to this section.

800-1.1.1 General

Delete this entire subsection and substitute the following:

All sod and shrub planting areas shall have a minimum of 6" of Class "C" topsoil or topsoil that meets the horticultural requirements for Class "A" topsoil per Section 800-1.1.2.

800-1.4.5 Sod and Stolons (turf grass).

Delete this entire subsection and substitute the following:

Sod shall be fresh, clean, vigorous living sections of Tall Fescue species. Sod shall be free of turf disease, insects or weeds and capable of healthy vigorous growth.

800-2 IRRIGATION (Add the following)

Any modification of the existing irrigation system to fit the alignment of the new sidewalk/retaining wall shall conform to this section.

SECTION 801 – INSTALLATION

801-1 GENERAL (Add the following)

Any modification of the existing irrigation system to fit the alignment of the new sidewalk/retaining wall shall conform to this section.

Prior to any clearing and grubbing operations, the contractor shall schedule a meeting with the City, during which the City will turn on the irrigation system at all work areas. The contractor shall record and mark out locations of all existing irrigation sprinklers, to determine which irrigation heads and rotors are to be relocated, replaced or adjusted, to account for the new areas of sod and sidewalk.

Sprinklers shall be replaced with Hunter I-40 Rotors or approved equal.

The final irrigation system shall be operational, with uniform and adequate coverage of the areas to be irrigated prior to planting.

After completing the irrigation system, the Contractor shall submit as-built drawings showing the location of pipe valves, tubing, wiring, controllers, and electrical services as constructed.

801-8 Payment

Payment of "**Bid Schedule Item 13 and 14**" shall include the cost for landscape restoration and modifying the existing irrigation system per the San Diego Regional Standard Drawings and this section and shall include all costs for purchase and delivery, labor, materials, tools and equipment, and protection of surrounding areas and no other payment will be made.

SECTION 900 RESTROOM ADA UPGRADES (Add the following)

900-1 GENERAL

The scope of work includes the removal and replacement of existing fixtures, removal and replacement of the concrete floor, coating of the interior walls and installation of new restroom partitions in a public park restroom.

All fixture make and model numbers have been specified on plan. All mounting heights and locations are per the details on plan.

All code references are noted on the Title Sheet.

900-2 PLASTIC TOILET COMPARTMENTS (Add the following)

900-2.1 SUMMARY

Section Includes:

Solid, high-density polyethylene (HDPE) toilet compartments configured as **toilet enclosures and urinal screens**.

Related Requirements:

None

900-2.2 COORDINATION

Coordinate requirements for blocking, reinforcing, and other supports concealed within wall.

900-2.3 ACTION SUBMITTALS

Product Data:

Solid-HDPE toilet compartments:

Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for toilet compartments.

Shop Drawings: For solid-HDPE toilet compartments.

Include plans, elevations, sections, details, and attachment details.

Show locations of cutouts for compartment-mounted toilet accessories.

Show locations of centerlines of toilet fixtures.

Show locations of floor drains.

1. Show ceiling grid, wall-mounted items, and overhead support or bracing locations.

Samples for Initial Selection: Manufacturer's standard color sheets, showing full range of available colors for each type of toilet compartment material indicated.

Include Samples of hardware and accessories involving material and color selection.

Samples for Verification: Actual sample of finished products for each type of toilet compartment indicated.

Size: 3-inch square, of same thickness indicated for Work.

Include each type of hardware and accessory.

Product Schedule: For toilet compartments, prepared by or under the supervision of supplier, detailing location and selected colors for toilet compartment material.

Sustainable Design Submittals:

Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.

Product Data: For recycled content, indicating post-consumer and pre-consumer recycled content and cost.

Product Certificates: For indigenous materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project, means of transportation, and cost for each indigenous material.

Product Certificates: For regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project, means of transportation, and cost for each regional material.

900-2.4 CLOSEOUT SUBMITTALS

Maintenance Data: For toilet compartments.

900.2-5 FIELD CONDITIONS

Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements, and coordinate before fabrication.

900-2.6 PRODUCTS

900-2.7 PERFORMANCE REQUIREMENTS

Fire Performance: Tested in accordance with, and pass the acceptance criteria of, NFPA 286.

Recycled Content of Steel Products: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.

Regulatory Requirements: Comply with applicable provisions in the **U.S. Department of Justice "2010 ADA Standards for Accessible Design"** for toilet compartments designated as accessible.

900-2.8 SOLID-PLASTIC (HDPE) TOILET COMPARTMENTS

Basis-of-Design Product: Subject to compliance with requirements, provide, an ASI Group company; Solid-Plastic (HDPE) Partitions or Approved Equal.

Toilet-Enclosure Style: Floor anchored/overhead braced.

Entrance-Screen Style: Floor anchored/overhead braced.

Urinal-Screen Style: Floor mounted post.

Door Width: 24 inches, 36 inches.

Door Height Above Floor: 14 inches.

Door Panel Height: 55 inches.

Pilaster Height: 82 inches.

Door, Panel, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch (25 mm) thick, seamless, with eased edges, and integral no-sightline privacy system including profile on strike and hinge side that overlaps adjacent pilaster with homogenous color and pattern throughout thickness of material.

Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum strip fastened to exposed bottom edges of solid-HDPE components to hinder malicious combustion.

Finish Texture: Pebble Grained.

Color and Pattern: as noted on plans.

Pilaster Shoes: Stainless steel sheet, not less than 0.031 inch nominal thickness and 3 inches high, with No. 4 satin finish. Shoe bottom enclosed and integral to compartment structure. Secure to floor with manufacturer's recommended concrete anchors.

Urinal-Screen Post: Manufacturer's standard post design of material matching the thickness and construction of pilasters with shoe.

Brackets (Fittings):

Stirrup Type: Ear or U-brackets, stainless steel.

Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.

Overhead Cross Bracing for Ceiling-Hung Units: As recommended by manufacturer and fabricated from solid polymer.

900-2.9 HARDWARE AND ACCESSORIES

Hardware and Accessories, Standard Duty: Manufacturer's standard operating hardware and accessories.

Material: Stainless steel.

Hinges: Manufacturer's standard stainless steel continuous, cam type that swings to a closed or partially open position] [stainless steel continuous, spring-loaded type, allowing emergency access by lifting door.

Latch and Keeper: Manufacturer's standard surface-mounted latch unit, designed for emergency access, and with combination rubber-faced door strike and keeper. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.

Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories.

Door Bumper: Manufacturer's standard rubber-tipped bumper at out swinging doors.

Door Pull: Manufacturer's standard unit at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible.

Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with anti-grip profile and in manufacturer's standard finish.

Anchorage and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized steel, or other rust-resistant, protective-coated steel compatible with related materials.

900-2.10 MATERIALS

Aluminum Castings: ASTM B26/B26M.

Aluminum Extrusions: ASTM B221 (ASTM B221M).

Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness.

Stainless Steel Castings: ASTM A743/A743M.

Zamac: ASTM B86, commercial zinc-alloy die castings.

900-2.11 FABRICATION

Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.

Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.

Ceiling-Hung Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for connection to structural support above finished ceiling. Provide assemblies that support pilasters from structure without transmitting load to finished ceiling. Provide sleeves (caps) at tops of pilasters to conceal anchorage.

Floor-and-Ceiling-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at tops and bottoms of pilasters. Provide shoes and sleeves (caps) at pilasters to conceal anchorage.

Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at tops and bottoms of posts. Provide shoes at posts to conceal anchorage.

Door Size and Swings: Unless otherwise indicated, provide 24-inch- wide, in swinging doors for standard toilet compartments and 36-inch- wide, out swinging doors with a minimum 32-inch- wide, clear opening for compartments designated as accessible.

900-2.12 EXAMINATION

Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.

Confirm location and adequacy of blocking and supports required for installation.

Proceed with installation only after unsatisfactory conditions have been corrected.

900-2.13 INSTALLATION OF HDPE TOILET COMPARTMENTS

General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.

Maximum Clearances:

Pilasters and Panels: 1 inch.

Panels and Walls: 1 inch.

Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than three brackets attached at midpoint and near top and bottom of panel.

Locate wall brackets, so holes for wall anchors occur in masonry or tile joints.
Align brackets at pilasters with brackets at walls.

Continuous Brackets: Secure panels to walls and to pilasters with full-height brackets.

Locate bracket fasteners, so holes for wall anchors occur in masonry or tile joints.
Align brackets at pilasters with brackets at walls.

Overhead-Braced Units: Secure pilaster shoes to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels and adjust, so tops of doors are parallel with overhead brace when doors are in closed position.

Ceiling-Hung Units: Secure pilasters to supporting structure and level, plumb, and tighten. Hang doors and adjust, so bottoms of doors are level with bottoms of pilasters when doors are in closed position.

Floor-and-Ceiling-Anchored Units: Secure pilasters to supporting construction and level, plumb, and tighten. Hang doors and adjust, so doors are level and aligned with panels, when doors are in closed position.

Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

900-2.14 ADJUSTING

Hardware Adjustment: Adjust and lubricate hardware in accordance with hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out swinging doors to return doors to fully closed position.

900-2.15 MEASUREMENT AND PAYMENT

Payment of "**Bid Schedule Item 18**" shall include the cost for Standard Drawings and this section and shall include all costs for purchase and delivery, labor, materials, tools and equipment, and protection of surrounding areas and no other payment will be made.

900-3 TOILET ACCESSORIES (Add the following)

900-3.1 SUMMARY

Section includes:

Washroom accessories as scheduled in this Section and as indicated on the Drawings.

900-3.2 RELATED REQUIREMENTS

Americans With Disabilities Act.

900-3.3 SUBMITTALS

Product Data: Submit manufacturer's data sheets for each product specified, including the following:

Installation instructions and recommendations.

Storage and handling requirements and recommendations.

Cleaning and maintenance instructions.

Replacement parts information.

Schedule: Submit a toilet accessory schedule, indicating the type and quantity to be installed in each washroom. Use room numbers as indicated on the Drawings.

900-3.4 QUALITY ASSURANCE

Manufacturer: Provide products manufactured by a company with a minimum of 10 years successful experience manufacturing similar products.

Single Source Requirements: To the greatest extent possible provide products from a single manufacturer.

Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.

Hazardous Materials: Comply with EU Directive "Restrictions of Hazardous Substances (RoHS) requirements."

900-3.5 DELIVERY, STORAGE AND HANDLING

Pack accessories individually in a manner to protect accessory and its finish.

Protect adjacent or adjoining finished surfaces and work from damage during installation of work of this section.

900-3.6 WARRANTY

Manufacturer's Warranty for Washroom Accessories: Manufacturer's standard 1-year warranty for materials and workmanship.

Manufacturer's Warranty for Electric Hand Dryers: Manufacturer's standard 5-year warranty on parts, except 3-year warranty on motor brushes from date of purchase.

900-3.7 MANUFACTURER

Make and Model Numbers as specified on plan.

900-3.8 PREPARATION

Deliver inserts and rough-in frames to jobsite at appropriate time for building-in. Provide templates and rough-in measurements as required. Verify that all required backing and blocking is provided.

Before starting work notify Architect in writing of any conflicts detrimental to installation or operation of units.

Verify with Architect exact location of accessories.

Provide templates and rough-in measurements for preparation of opening in toilet partitions.

900-3.9 INSTALLATION

Install fixtures, accessories and items in accordance with manufacturer's printed instructions.

Install true, plumb and level, securely and anchored to substrate.

900-3.10 MEASUREMENT AND PAYMENT

Payment of "**Bid Schedule Items 15, 16, 17, 21, and 22**" shall include the cost for Standard Drawings and this section and shall include all costs for purchase and delivery, labor, materials, tools and equipment, and protection of surrounding areas and no other payment will be made.

END OF SECTION

900-4 PLUMBING (Add the following)

900-4.1 SUMMARY:

The work under this section includes everything necessary for and incidental to executing and completing the plumbing work, except as hereinafter specifically excluded.

Work included shall be as indicated on the drawings, including but not limited to the following:

Sanitary Soil, Waste and Vent System.

Domestic Water System including Water Heater.

Plumbing Fixtures and Equipment.

Below grade hot water insulated piping shall be covered with "Zeston" 2000 PVC.

900-4.2 FITTINGS AND PIPING:

Soil, Waste, Vent:

Above Grade:

Cast iron "no-hub" conforming to CISPI 301 NSF listed with neoprene gasket and Type 301 stainless steel clamping device conforming to CISPI 310 with NSF listing. Or, cast iron "No-Hub" conforming to CISPI 301 NSF with neoprene gasket and type 304 stainless steel clamping device conforming to ASTM C1540, equal to Huskey HD 2000 for mid-range and Huskey SD4000 heavy for high rise.

Provide no-hub fitting restraint bracing for pipes 4" and larger per CISPI handbook. Bracing shall be used to prevent horizontal and vertical movement, equal to Holodrite # 117 series.

At space limitations and waste pipe over watertight areas, use DWV copper drainage tubing with cast brass fittings.

Below Grade:

Cast iron "no-hub" conforming to CISPI 301 NSF listed with neoprene gasket and Type 301 stainless steel clamping device conforming to CISPI 310 with NSF listing. Or, cast iron "No-Hub" conforming to CISPI 301 NSF with neoprene gasket and type 304 stainless steel clamping device conforming to ASTM C1540, equal to Huskey HD 2000 for mid-range and Huskey SD4000 heavy for high rise.

Provide no-hub fitting restraint bracing for pipes 4" and larger per CISPI handbook. Bracing shall be used to prevent horizontal and vertical movement, equal to Holodrite # 117 series.

At contractor's option, ABS type DWV may be utilized below grade. ABS is for non-pressurized systems only where temperatures do not exceed 140 degrees F and shall conform to standards ASTM D 3965, ASTM F 628 and NSF 14.

Sewer and Storm Drain Piping from 5-feet Outside Building: PVC sewer pipe JM "Greenbell" as manufactured by Manville Products or cast-iron no-hub conforming to CISPI 301 with neoprene gasket and 300 series stainless steel clamping device conforming to CISPI 310.

Domestic Water Piping:

Above Grade: Lead free Type L copper tubing hard drawn:
Lead free wrought copper solder sweat fittings and lead-free solder. b.

Below Grade: Lead free Type K copper tubing annealed, straight lengths with lead free wrought copper solder sweat fittings and lead-free solder.

900-4.3 PIPING SPECIALTIES:

Unions: In copper tubing 3" and smaller, Lead free Nibco 733-LF, or equal.

Flanges in copper tubing 4" and larger, Lead free, Nibco or equal.

Isolation Unions: Wilkins lead free DUXLC 3" and smaller.

Water hammer arresters in accordance with PDI-WH-201 standards, JR Smith 5000 Series PPP or equal. Install with access panel.

Fixture Supplies: Flexible stainless steel braided, compression fittings equal to Sanitary Dash, Speedway, or Brasscraft.

Escutcheons: 1" wide chrome or nickel-plated rust resistant.

900-4.4 VALVES:

Water:

Ball Valves: Bronze 2 Piece, full port, lead free ANSI/NSF 372 certified sizes ½" through 2" Nibco T-585-80 LF/S-585-80LF, Apollo #77CLF, Milwaukee Valve UPBA400 (FNPT)/UPBA450 (Sweat) full port, bronze lead free, or legend #T/S 901.

Stops: Lead free angle or straight valve loose key with escutcheon at wall penetration. Stop and escutcheon shall be chrome plated T&S brass, Nibco or equal.

900-4.5 CLEANOUTS:

Cleanouts shall be manufactured by Zurn, J.R. Smith, Josam or equal.

900-4.6 PLUMBING FIXTURES:

General Requirements:

All fixtures shall comply with State of California Energy Commission requirement for maximum flow. Submit manufacturer's certification of compliance.

Unless otherwise noted, all vitreous china or enameled cast-iron fixtures and toilet seats shall be white.

Furnish and install fixtures as specified on the plumbing fixture connection schedule.

P-Traps, chrome plated drawn brass with 17-gauge tubing drain to wall. Trap arms under lavatories and escutcheon at wall shall also be chrome plated.

Job Conditions:

Plumbing fixture trim and exposed supplies and waste shall be brass with polished chrome plated finish. Individual angle stops, or, if so specified, screwdriver stops, shall be provided for all supplies, and unless integral with valves or faucets, unless otherwise approved by Architect, shall be mounted under the fixture. Exposed supplies and wastes to wall shall be provided with polished chrome plated wall escutcheons.

Fixtures with hangers or supporting arms shall have hangers or arms securely mounted on a 1/4" thick x 6" wide steel wall plate, which shall extend at least one stud beyond the first and last fixture mounting points. Concealed arm assemblies shall be attached to plates by four 3/8" x 1-1/4" steel bolts and nuts, and hangers and exposed arms by 5/16" minimum full thread steel studs and jamb nuts. Plates shall be drilled and tapped at the time of fixture installation. Where light weight steel studs are used, fixture supports shall have manufactured floor mounted legs for attachment of supporting arms.

Supplies shall be with stops and flexible riser.

Traps above floor shall be tubular brass "P" traps with bronze nuts unless otherwise indicated.

900-4.7 PIPE WRAPPING:

Steel Piping in Concrete or Underground:

Wrap with approved tape products.

Wrap joints and fittings in the field with "Polyken" tape and primer.

900-4.8 SLEEVES:

General:

Where pipes pass through concrete, masonry, or stud walls, or pass-through ceilings, provide rust-proof sleeves of the size required.

Provide UL-listed fire rated sealant (specialty products, or equal) at all penetrations of fire-rated assemblies and between buildings along property line.

900-4.9 PIPE INSTALLATION:

No-Hub Cast-Iron Soil Pipe Institute Handbook (Chapter 4) and the IAPMO IS-6.

Joints in copper tubing shall be made by first thoroughly cleaning the surface of the pipe and fittings, applying a copperized flux and sweating with lead free solder for all water piping and condensate piping above grade and below grade. Verify with lead free manufacturer's the type of solder and flux that is compatible with their product.

Alternate: Grooved Joints: Install in accordance with the manufacturer's latest published installation instructions. Pipe ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to (and including) groove. Gasket shall be manufactured by the coupling manufacturer and verified as suitable for the intended service. A factory trained representative (direct employee) of the coupling manufacturer shall provide on-site training for contractor's field personnel in the use of grooving tools, application of groove, and product installation. The representative shall periodically visit the job site and review installation to ensure best practices in grooved joint installation are being followed. Contractor shall remove and replace any improperly installed products.

All pipe shall be carefully cleaned before installation. The ends of threaded steel pipe shall be reamed out full size with a long-tapered reamer so as to be partially bell-mouthed and perfectly smooth. Openings in pipes, drains, fitting apparatus, and equipment shall be kept covered or plugged to prevent foreign substance from entering.

The grade of all sanitary sewers, storm drains and waste lines shall be as indicated on drawings. Sections of pipe shall be installed so as to provide smooth and uniform invert. Water shall not be allowed in the trenches while the sewer lines are being laid. Dirt, cement, or any other superfluous material shall be carefully removed from piping as the work progresses. Constant inspection shall be made of pipe and fittings during and after all installation for possible fractures and failures caused by installation. Backfill so as not to disturb pipe or jointing.

Flush out all water mains, sanitary and condensate drains with water so as to obtain free flow. Remove all obstructions and defects discovered. Remove and replace pipe already installed and found to be defective or which has had grade or joints disturbed at no additional cost.

Run piping free of traps, sags, or bends. Grade and valve for complete drainage and control of the system.

All piping shall be installed to maintain headroom and keep passageways and openings clear. Install piping parallel and straight with adjacent walls or ceilings to present a uniform appearance. All piping, except where noted otherwise on plans, shall be concealed in walls or above ceilings. Route piping to avoid electrical rooms. Do not route waste piping above kitchen areas. Do not route plastic pipe in return air plenums unless it is plenum-rated with a flame spread index of 25 or less and a smoke developed index of 50 or less.

Bending or forcing of pipe will not be allowed. Use fittings for all offsets or changes in alignment of piping.

Proper provision shall be made for expansion and contraction by means of fittings and anchors and supports of all piping.

Bushings and long screw fittings will not be allowed.

Install water hammer arresters at all flush valves, foot valves, dish and clothes washers and quick closing valves per PDI-WH-201 standards. The completed system shall be free of water hammer noise.

Unions shall be installed after each screw-type valve, connections for all equipment, appliances, and as required for erection and maintenance. No unions shall be installed in concealed locations. Unions are not required on installations using grooved joint couplings. Install isolation unions or waterway fittings on all connections between dissimilar metals.

Provide grounding and bonding of metallic gas piping per the National Gas Code and the National Electric Code. Use mechanical or welded clamps and copper wire. Coordinate grounding with other grounding elements provided by the electrical contractor.

No holes for pipe or equipment will be allowed in any structural members without written consent of the Architect. Where pipes are to pass through or interfere with any member, or where notching, boring or cutting of the structure is necessary, the work shall be done by the General Contractor as directed. Isolate pipe from coming in direct contact with the structure.

Unless otherwise specified herein, all equipment and fixtures shall be installed in accordance with the manufacturer's printed recommendations.

Any minor changes in work, which has not been installed, shall be made by the Contractor without additional compensation, except changes which are caused by architectural revisions resulting in an increase or decrease of the size or quantity of the materials specified or indicated on the drawings. The Contractor shall submit an estimate of the cost of or credit for such changes which are not judged to be of a minor nature and shall proceed only upon the written authorization of the Architect.

All piping shall be isolated from other piping, studs, ducts, any part of the building, framing, hangers, conduit, etc., with 1" strips of hair felt or pipe isolators.

Provide and install polished chromium plate split ring escutcheons for pipes exposed in the building.

900-4.10 CLEANOUTS:

Cleanouts shall be caulked into or clamped to pipe where shown on plans. Install under counter tops where they occur or in walls to avoid exposed condition. Cleanouts shall be accessible in all cases and shall be brought to surface on "Y" branches. All cleanouts shall be provided with removable floor or wall plate as specified in Part 2.

900-4.11 SLEEVES AND OPENINGS:

Provide standard weight black steel pipe sleeves for each pipe passing through foundation, walls, partitions, roofs, and ceiling pipe sleeves shall be flushed with wall or floor.

Set pipe sleeves in place before concrete is poured.

For uninsulated pipe, provide sleeves that are two pipe sizes larger than the pipe passing through the opening, or provide a minimum of ½" clearance between inside of the opening and outside of the pipe.

For insulated pipe, provide sleeves of adequate size to accommodate the full thickness of pipe covering with clearance for packing and caulking.

Caulk the space between sleeve and pipe or pipe covering.

Finish and Escutcheons:

Smooth up rough edges around sleeves with plaster or spackling compound.

Provide escutcheons on all pipes exposed to view where passing through walls, partitions, ceilings, and similar locations.

Size the escutcheons to fit pipe and covering.

Hold escutcheons in place with set screw or set in full bed of sealant.

Where directed by Architect, paint escutcheon to match adjacent finish color.

Sleeve diameter for piping through a masonry wall above grade or through floors shall be #10-gauge galvanized sheet steel and shall extend completely through the walls or floor finishing flushed on both sides. The sleeve shall be 1" larger than the pipe with caulking to make the opening airtight.

Sleeves through the fire walls or floors shall be packed with UL Listed fireproof wicking or other suitable noncombustible material.

900-4.12 FIXTURE INSTALLATION:

All plumbing fixtures shall be bedded and caulked along joint at walls, counter tops, and other intersecting surfaces with white adhesive caulking.

Plumbing fixture trim and exposed supplies and "P" trap and arm shall be brass with polished chrome plated finish. Individual wheel handle, loose key stops, or, when so specified, screwdriver stops, shall be provided for all supplies, and unless integral with valves or faucets, or unless otherwise permitted, shall be mounted under the fixture. Exposed supplies and wastes to wall shall be provided with polished chrome plated brass wall escutcheons.

Fixtures with hangers or supporting arms shall have hangers or arms securely mounted on a ¼" thick x 6" wide steel wall plate which shall extend at least one stud beyond the first and last fixture mounting points. Concealed arm assemblies shall be attached to plates by four ⅜" x 1-¼" steel bolts and nuts, and hangers and exposed arms by 5/16" minimum full thread steel studs and jamb nuts. Plates shall be drilled and tapped at the time of fixture installation.

Wall plates shall be recessed flush with studs and shall be securely attached to each stud crossed. In steel stud construction, a 1-½" x 18" long furring channel shall be attached to each notched stud with fillet welds 1" long on 6" centers front and back. Plates shall be continuous fillet welded at both top and bottom to each furring channel. Provide backing for each plumbing fixture requiring same, at the time roughing-in is done.

Where drains are specified with clamping collars, the waterproofing membrane and flashing shall be carefully cut to fit the drain, then anchored between drain and collar with rustproof bolts. See Part 2 for flashings.

Traps above floor shall be cast brass "P" traps with bronze nuts unless otherwise indicated.

Provide branch tailpieces off air vent lines where required.

Install stainless steel mounting ring as required for all flat rim sinks and lavatories installed in counter tops.

All fixtures designated for use by the disabled shall be in compliance with current applicable codes, Title 24, and California Disabled Accessibility guide book.

Water Closets: Installed height shall be a minimum of 17" and a maximum of 19" measured to the top of the toilet seat. Flush controls shall be operable by an oscillating handle with a maximum operating force of 5 lbf. The handle shall be located so it is operable without requiring excessive body movement.

Urinals: The elongated rim on urinals shall project a minimum of 14" from the wall and the height of the rim shall be at a maximum of 17" above the floor. Hand operated controls shall be mounted no more than 44" above the floor.

Lavatories: Lavatories shall be mounted with a clearance of at least 29" from the floor to the bottom of the apron with knee clearance under the front lip extending a minimum of 30" in width with 8" minimum depth at the top. Toe clearance shall be the same width and a minimum of 17" deep from the front of the lavatory. Hot water and drain

pipes under lavatories shall be insulated. There shall be no sharp or abrasive surfaces under lavatories. Lever-operated faucet controls shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.

Fit-up connections to equipment (furnished by others) shall be provided with valves, unions, flexible connectors, and adapters to make a final connection. Piping stub outs for equipment will be extended to make the final connection. The connection shall be made with devices recommended by the equipment manufacturer. Field verify exact point of connection prior to start of work.

900-4.13 PROTECTION OF PIPING SYSTEMS:

It shall be the responsibility of the Contractor to install and maintain pipe and equipment which is reasonably clean and free from rust, dirt, scale, etc. Where necessary, the Contractor shall provide temporary airtight covers at all pipe and equipment openings.

Before turning the systems over to the Owner, all piping systems shall be thoroughly flushed of all scale and dirt. Drains shall be installed at the low points to facilitate flushing of the piping systems.

900-4.14 REQUIREMENTS FOR FINAL INSPECTION:

All requirements shall be completed prior to final inspections.

Thoroughly clean all parts of the piping, valves, and equipment. Exposed parts which are to be painted shall be thoroughly cleaned of cement, plaster, oil and grease spots. Such surfaces shall be carefully wiped and all cracks and corners scraped out.

Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots, leaving a smooth and clean surface. Trap elements shall be removed during the cleaning and flushing period, after which they shall be replaced and adjusted.

All potable water lines shall be sterilized with chlorine. The chlorine residual concentration shall indicate not less than 50 parts per million (ppm) and shall be retained for a period of not less than 24 hours. Repeat procedure if the residual concentration has decreased below 25 PPM. After test is in compliance with this specification, flush the system until the residual is not more than 0.5 PPM. All work and certification of performance must be done by qualified personnel. Submit certification to Architect.

NOTE: During construction phase, install Tee's and ball valves at locations directed and as required to facilitate sterilization and testing. Identify and indicate on the as-built plans the location of valves and ensure that they are accessible and are in a position not to cause cross-connections or artificial pressure loss in the system.

900-4.15 TESTS AND ADJUSTMENTS:

No piping work, fixtures, or equipment shall be concealed or covered until inspected by the Architect/Owner's Representative, who shall be notified when the work is ready for inspection. All work shall be completely installed, tested as required by local code, this section and the State Ordinances and State Safety Orders, and shall be leak-tight before inspection is requested. All tests shall be repeated as required by those making the inspection.

All domestic water piping shall be flushed out, tested at 150 psig and shall be left under pressure of supply main or a minimum of 50 psi, whichever is greater, for the balance of the construction period. No air testing is allowed. Tests are to be applied for a minimum period of one hour. Final pressures at the end of the test period shall be not more nor less than that caused by expansion or contraction of the test medium due to temperature changes.

Soil, waste, vent, condensate and storm drain piping within the building shall be tested with a minimum of 10-foot head at each joint for a minimum of 3 hours with no loss in head.

Plumbing fixtures shall be filled with water and checked for leaks and retarded drainage flow. Faucet aerators and shower heads shall be removed and cleaned thoroughly and flow shall be adjusted to eliminate dripping or splashing.

Final pressures at the end of the test period shall be no more nor less than that caused by expansion or contraction of the test medium due to temperature changes.

All protective coating systems shall be visually inspected for breaks in the coating system, any holidays revealed shall be promptly repaired per manufacturer's instructions for repair of damaged pipe coatings.

Cross-Connection Tests By Testing Agency: Comply with NFPA 99. Pressurize each system with nitrogen in accordance with Table 3. Check 100 percent of the outlets in each system. Include anesthesia gas evacuation in vacuum systems.

900-4.16 GUARANTEE:

All material except as otherwise noted shall be new, free from defect and of the quality and rating shown or specified.

Any defect due to missing or improper material or faulty workmanship existing or developing during the warranty period shall be corrected and the resulting damage repaired.

The warranty period shall be one year from date of acceptance of the project, except for items guaranteed by the manufacturer for a longer period.

900-4.17 MEASUREMENT AND PAYMENT

Implementation of these requirements are to be paid for in the various bid items and no additional payment will be made.

900-5 RESTROOM ROLLING GATE

Rolling gate make and model number as specified on the plans. Color – Black.

Installation shall be per manufacturers recommendations.

900-5.1 MEASUREMENT AND PAYMENT

Payment for “**Bid Schedule Item 19**” shall include purchase, delivery, protection of surrounding areas and installation per the manufacturer’s recommendations. All costs for labor, materials, tools, and equipment shall be included and no other payment will be made.

900-6 RESTROOM PCC FLOOR

Concrete type – 520-C -2500, Color – Natural

Finish – Steel Troweled

Floor Drain – As specified on plan

900-6.1 MEASUREMENT AND PAYMENT

Payment for “**Bid Schedule Item 20**” shall include purchase, delivery, protection of surrounding areas and installation as noted on plan. All costs for labor, materials, tools, and equipment shall be included and no other payment will be made.

900-7 URETHANE WALL AND FLOOR COATING

900-7.1 MEASUREMENT AND PAYMENT

Payment for “**Bid Schedule Item 23**” shall include purchase, delivery, protection of surrounding areas and installation of coating per the plans and manufacturer’s recommendations. All costs for labor, materials, tools, and equipment shall be included and no other payment will be made.