Student Achievement • Safe Schools • Positive School Climate

CHINO VALLEY
UNIFIED SCHOOL DISTRICT

Chino Valley Unified School District

Scope of Work
For
Dickson ES Playground Equipment and Marshall ES Fitness Equipment Installation

Contractors Class A with a C61/D34 License Required
Engineer's Estimate: $325,000.00
Contractor Duration: 200 Calendar Days

The successful contractor shall supply all labor, materials, services, insurance, and equipment necessary to complete the work. **The Contractor shall thoroughly investigate the premises for a complete understanding of the scope of work required for this bid.**

Dickson ES

East Primary Playground

- Install temporary fencing around work area.
- Coordinate playground delivery. Contractor to receive playground, verify order is complete, and store playground in their own storage container.
- Remove and Dispose of existing playground surfacing to a depth of approx. 18" from existing elevation.
- Remove and dispose of existing playground, removing all footings.
- Remove and dispose of damaged curb, and cracked concrete slab as shown on drawings.
- Form and Pour new playground curb ledge per detail.
- Install 18" of Class II Base. Moisture condition and compact to a 95%.
- Install owner supplied Miracle Playground. Playground to be install by a Miracle Approved Installer.

East Primary Playground Cont.

- Install Poured in Place surfacing with Aliphatic binder over 18" of compacted Class II base. PIP TO BE 50% Color and 50% Black. Thickness of PIP will be determined based on obtaining impact results of less than 200 Gmax and 1,000 HIC, but not less than 4" thick.
- Pour new 5'wide sidewalk along the west curb line as drawn on plan, providing an ADA path of travel. Install concrete per detail.
- Concrete to be 3,000PSI, 1" rock, .50 WC Ratio, 4" slump.
- Adjust irrigation heads and laterals as needed.

West playground

- Install temporary fencing around work area.
- Remove and Dispose of existing playground surfacing to a depth of approx. 18" from existing elevation.
- Remove and dispose of existing playground, removing all footings.
- Remove and dispose of concrete curbing and cinder block pony wall.
- Import new sandy loam soil to fill area. Regrade to match surrounding elevations.
- Install/modify irrigation system to irrigate area using district standard materials. Contractor to verify head to head coverage.
- Hydroseed area with Sports Field Mix.
- Provide 90day maintenance to new turf area.

Kindergarten Playground

- Install temporary fencing around work area.
- Coordinate playground delivery. Contractor to receive playground, verify order is complete, and store playground in their own storage container.
- Remove and Dispose of existing playground surfacing to approx. 18" from existing elevation.
- Remove and dispose of existing playground, removing all footings.
- Form and Pour new playground curb ledge per detail.
- Install 18" of Class II Base. Moisture condition and compact to a 95%.
- Install owner supplied Miracle Playground. Playground to be install by a Miracle Approved Installer.
- Install Poured in Place surfacing with Aliphatic binder over 18" of compacted Class II base. PIP TO BE 50% Color and 50% Black. Thickness of PIP will be determined based on obtaining impact results of less than 200 Gmax and 1,000 HIC, but not less than 4" thick.
- Concrete to be 3,000PSI, 1" rock, .50 WC Ratio, 4" slump.

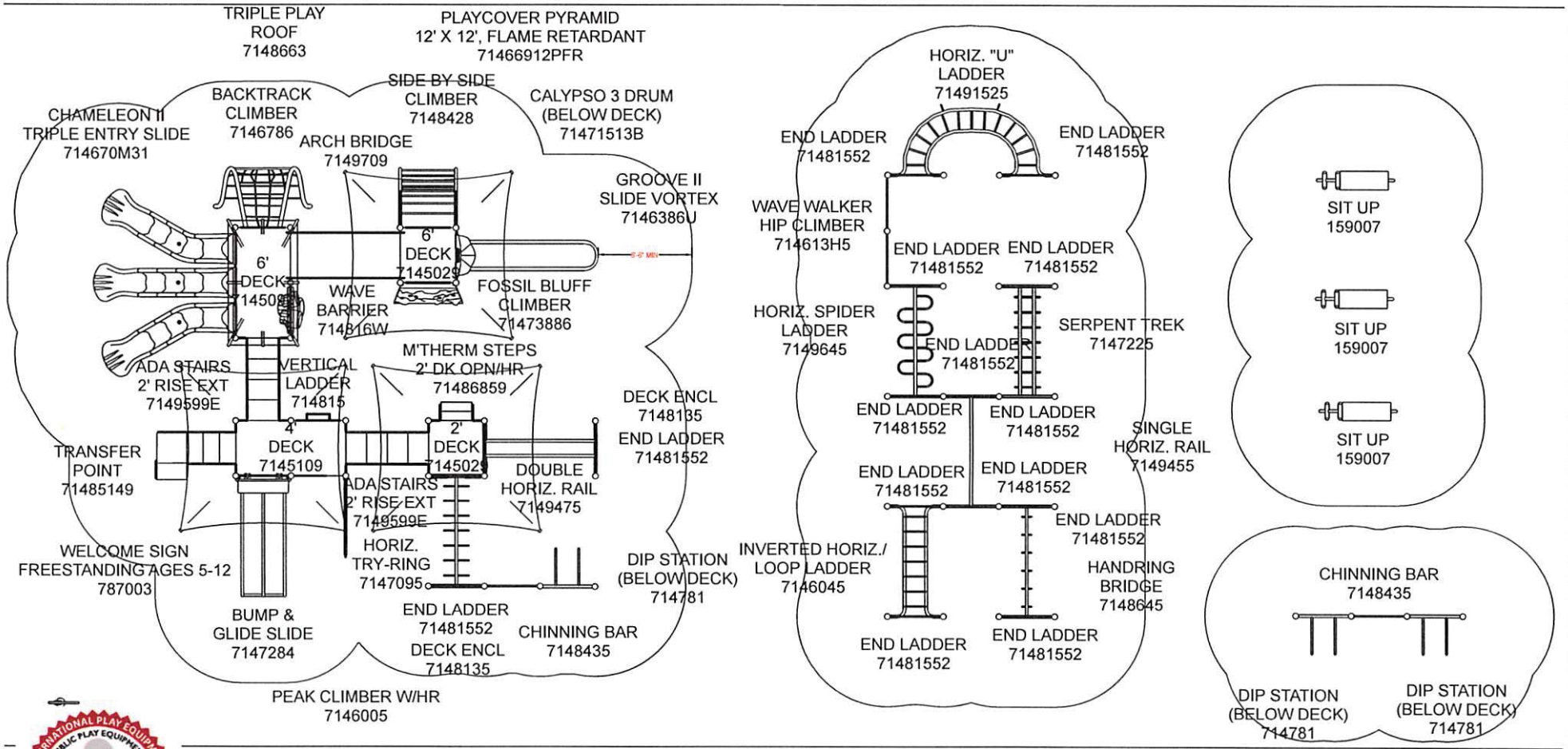
Marshall ES

Fitness Box

- Install temporary fencing around work area.
- Contractor to receive playground, verify order is complete.
- Remove and Dispose of existing playground surfacing to approx. 18" from existing elevation.
- Remove and dispose of existing playground, removing all footings.
- Form and Pour new playground curb ledge per detail.
- Install 18" of Class II Base. Moisture condition and compact to a 95%.
- Install owner supplied Miracle Playground. Playground to be install by a Miracle Approved Installer.
- Install Poured in Place surfacing with Aliphatic binder over 18" of compacted Class II base. PIP TO BE 50% Color and 50% Black. Thickness of PIP will be determined based on obtaining impact results of less than 200 Gmax and 1,000 HIC, but not less than 4" thick.
- Concrete to be 3,000PSI, 1" rock, .50 WC Ratio, 4" slump.
- Form and pour new mow curb 12" x 6" concrete mow curb with 1 piece of #4 rebar continuous along side of basketball courts. Contractor to verify all field measurements.

Dickson ES - Primary Area
Chino, CA

FOR KIDS AGES 5-12 YEARS



PLAYCOVER PYRAMID 12' X 12', FLAME RETARDANT 71466912PFR

PLAYCOVER PYRAMID 12' X 12', FLAME RETARDANT 71466912PFR

IPEMA CERTIFIED TO ASTM F1487

To verify product certification, visit www.ipema.org

Miracle

MIRACLE PLAYGROUND SALES, INC.

9106 Pulsar Ct, Suite C
Corona,CA

PHONE NO: (800) 264-7225
FAX NO: (877) 215-3869

GROUND SPACE: 102'-0" x 44'-0"

PROTECTIVE AREA: 111'-6" x 52'-0"

DRAWN BY: Robert Fryhoff

DATE: 11/13/2018

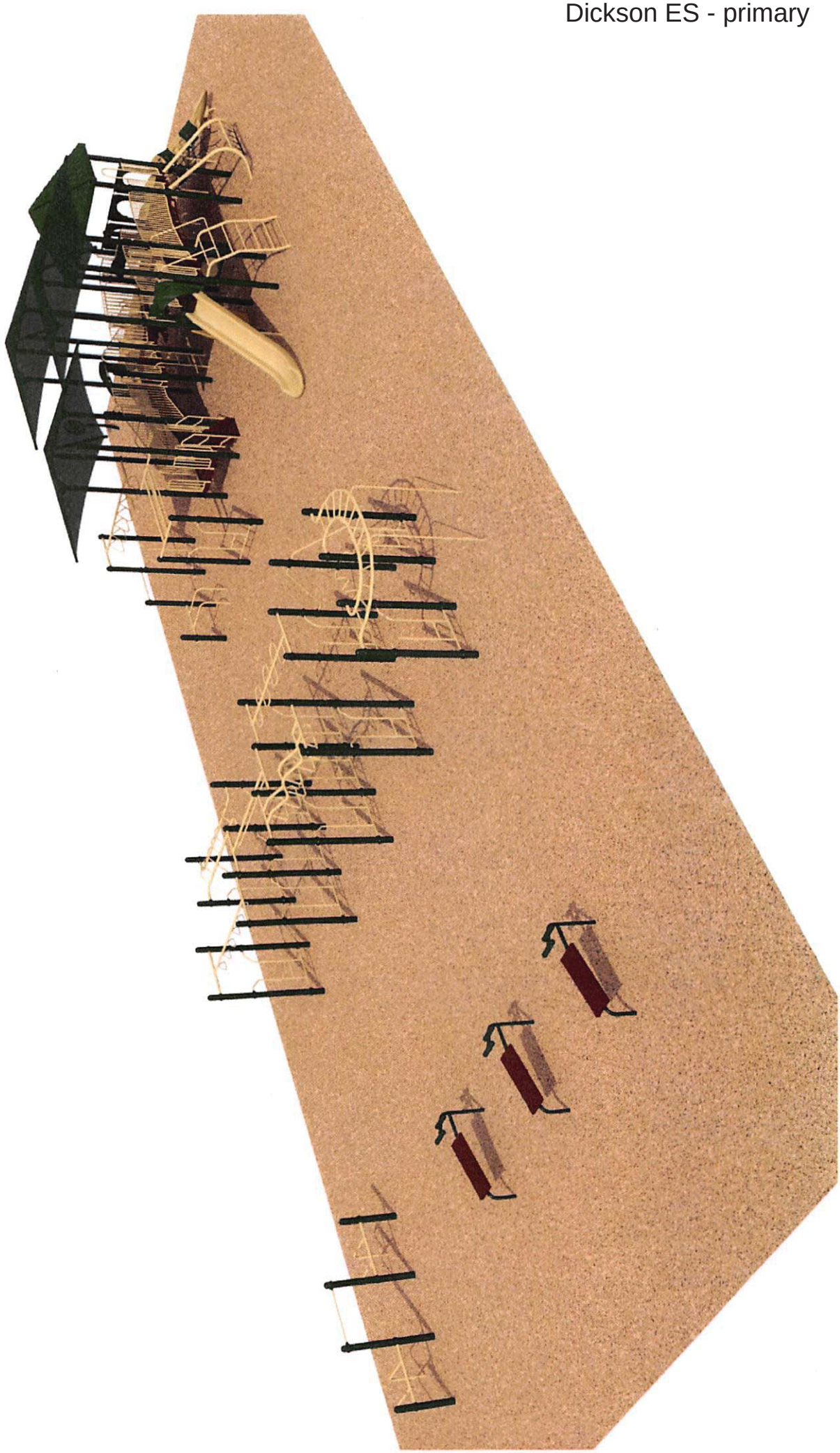
R0036_43417509016

✓ COMPLIES TO ASTM/CPSC

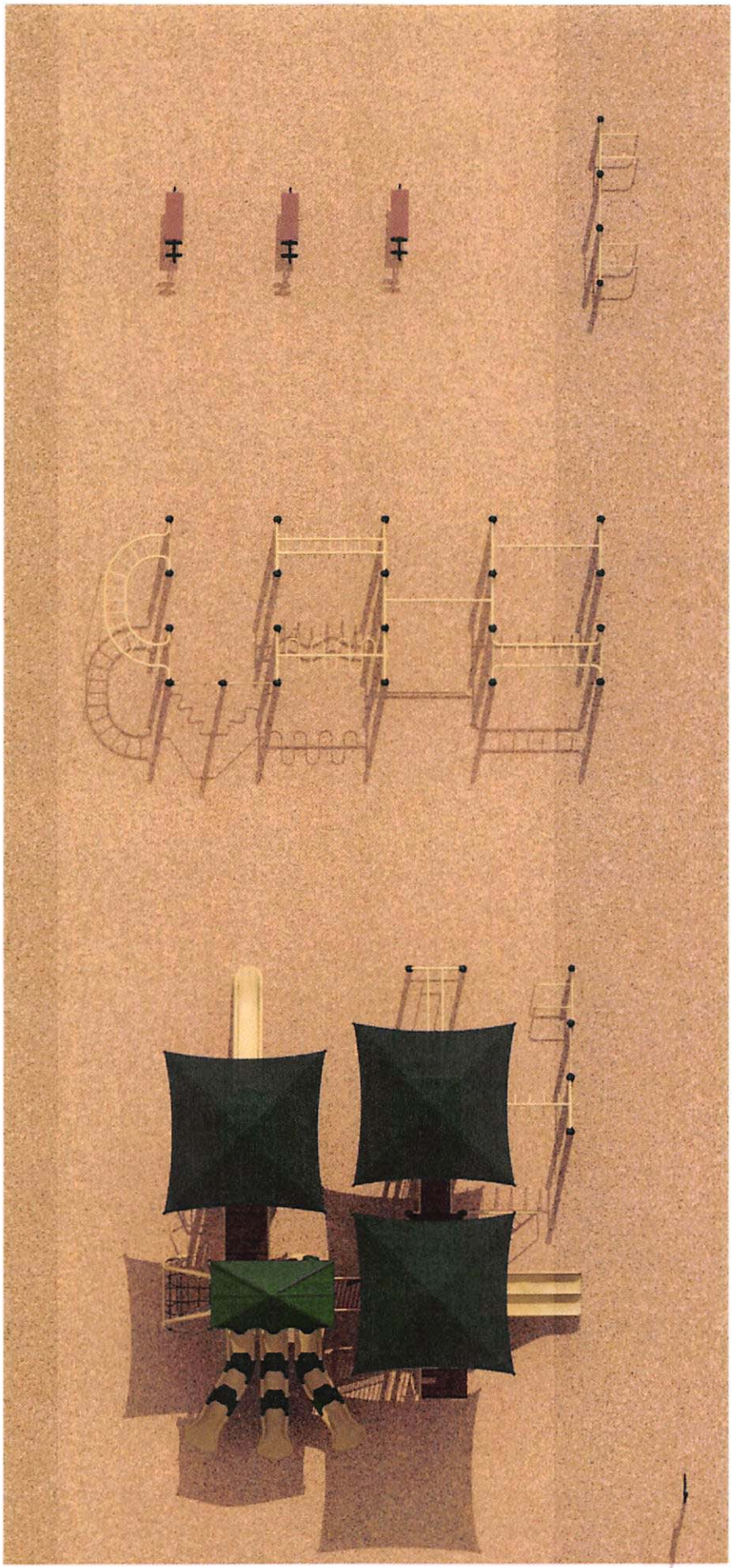
To promote safe and proper equipment use by children. Miracle recommends the installation of either a Miracle safety sign or other appropriate safety signage near each playsystem's main entry point(s) to inform parents and supervisors of the age appropriateness of the playsystem and general rules for safe play.

THE PLAY COMPONENTS IDENTIFIED IN THIS PLAN ARE IPEMA CERTIFIED. THE USE AND LAYOUT OF THESE COMPONENTS CONFORM TO THE REQUIREMENTS OF ASTM F1487.

AN ENERGY ABSORBING PROTECTIVE SURFACE IS REQUIRED UNDER & AROUND ALL PLAY SYSTEMS

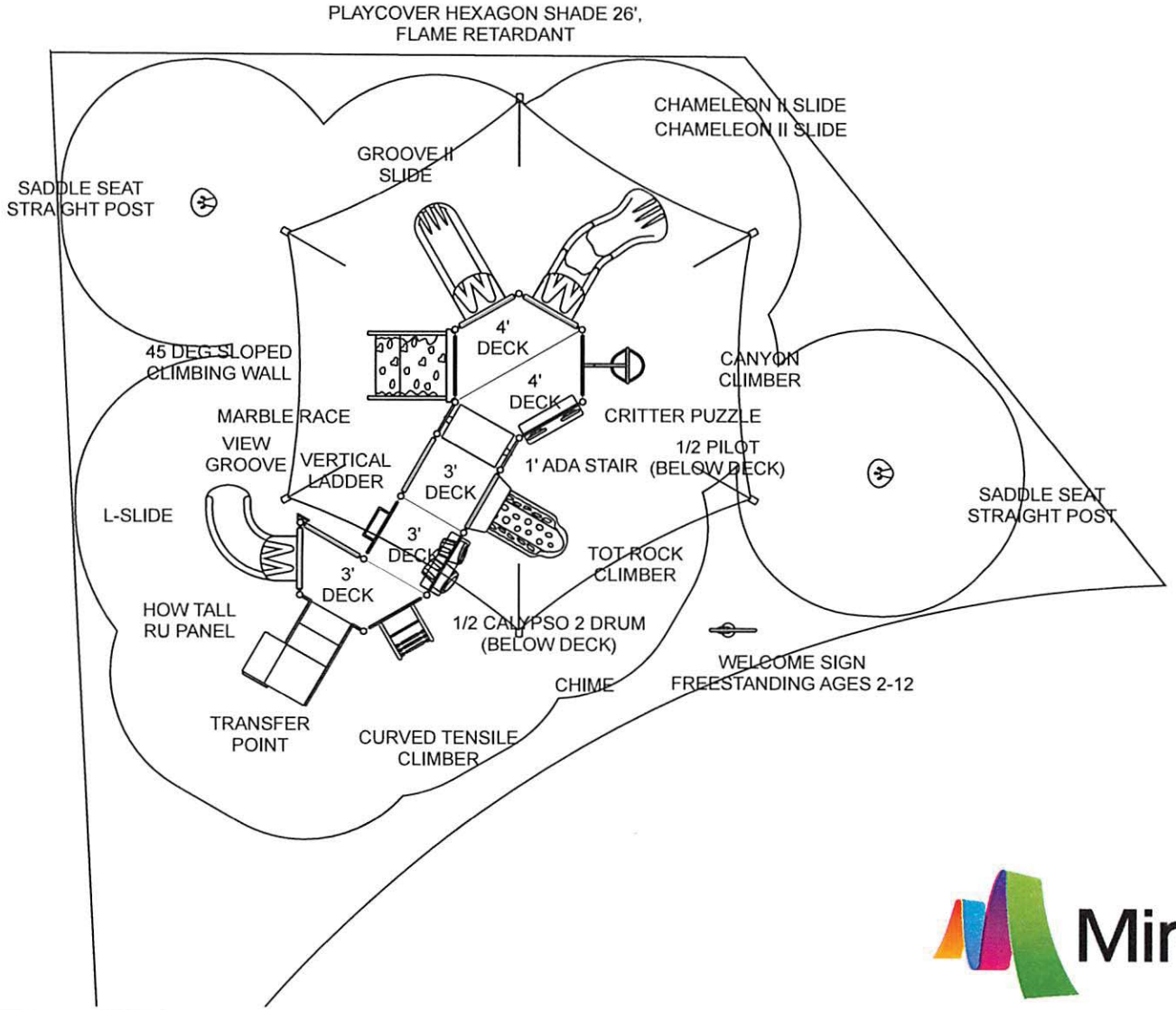


Dickson ES - primary



Dickson ES - Kinder Area
Chino, CA

FOR KIDS AGES 2-12 YEARS



Miracle

MIRACLE PLAYGROUND SALES, INC.
9106 Pulsar Ct, Suite C
Corona,CA
PHONE NO: (800) 264-7225
FAX NO: (877) 215-3869

R0036_43411638091

GROUND SPACE: 33'-6" x 30'-0"

PROTECTIVE AREA: 46'-0" x 38'-0"

DRAWN BY: Robert Fryhoff

DATE: 11/13/2018

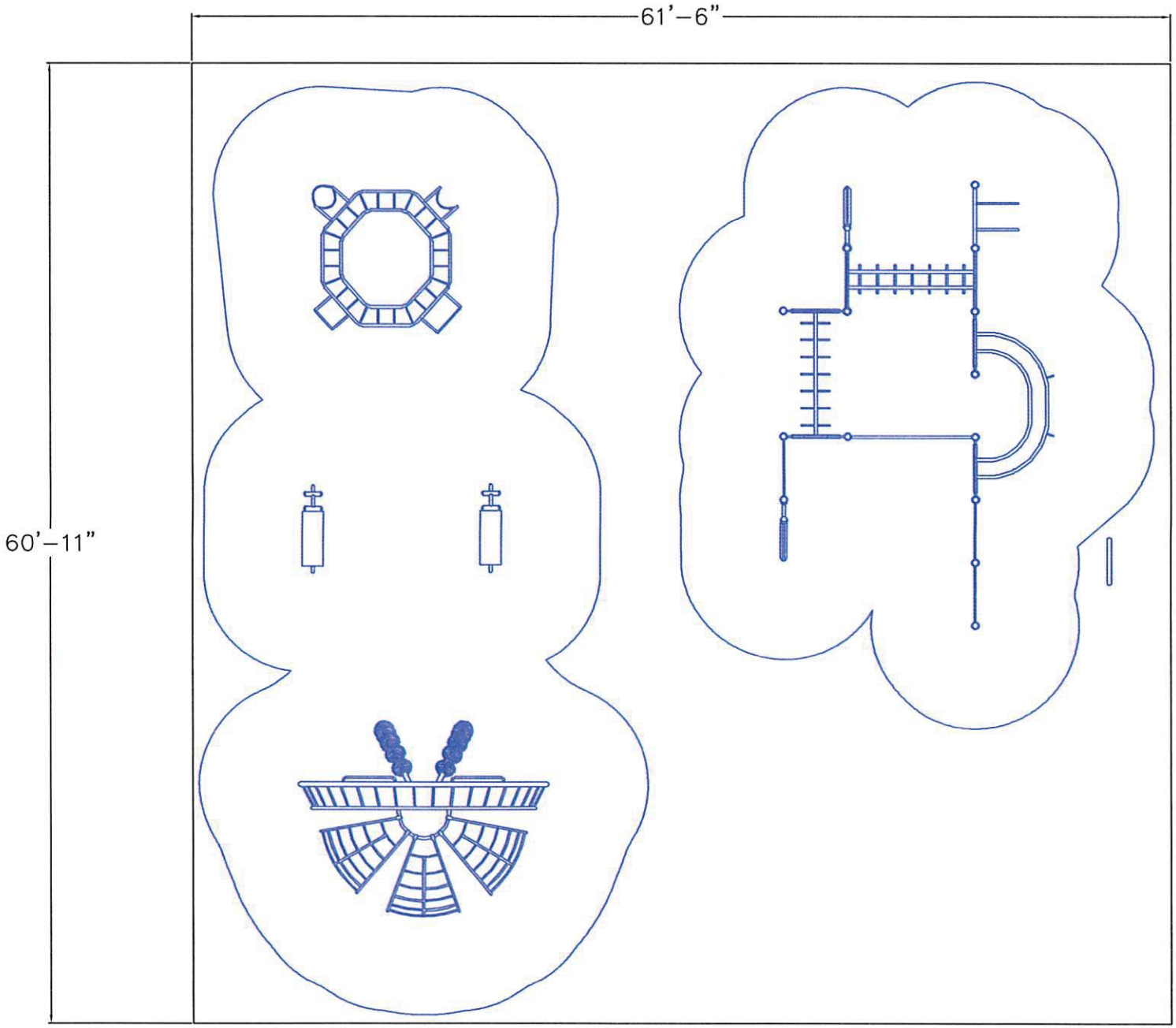
To promote safe and proper equipment use by children. Miracle recommends the installation of either a Miracle safety sign or other appropriate safety signage near each playsystem's main entry point(s) to inform parents and supervisors of the age appropriateness of the playsystem and general rules for safe play.

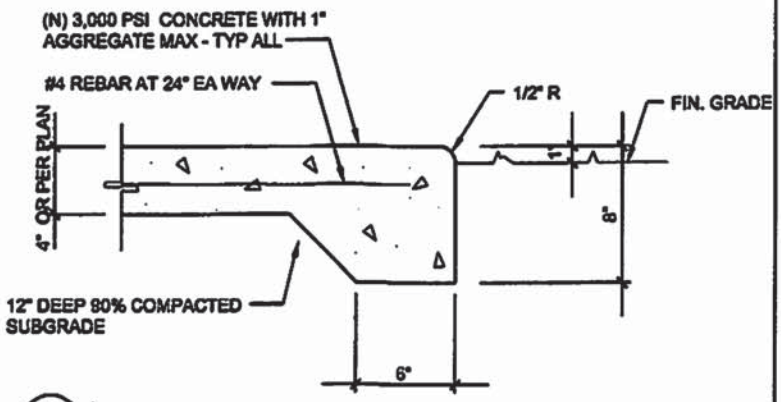
AN ENERGY ABSORBING PROTECTIVE SURFACE IS REQUIRED UNDER & AROUND ALL PLAY SYSTEMS

Dickson ES - kinder

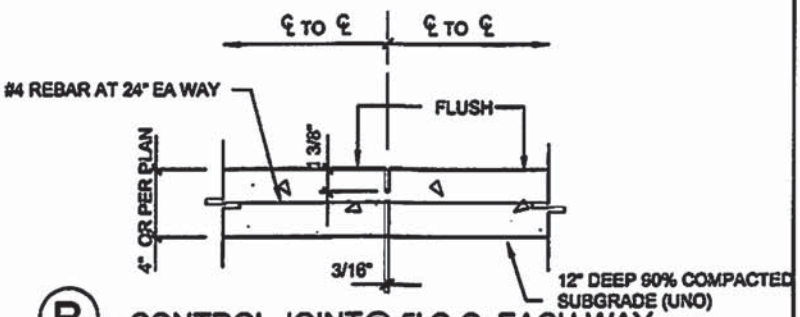
Dickson ES - kinder

Marshall Fitness Area

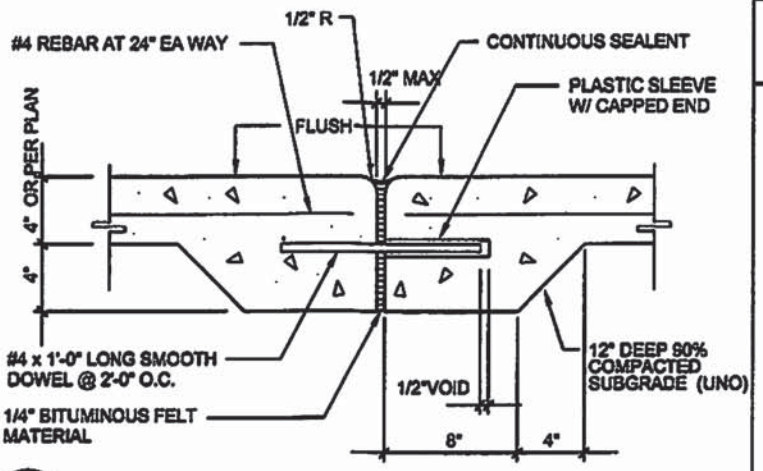




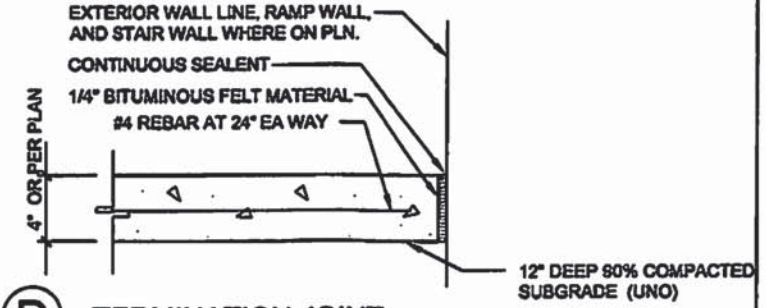
Ⓐ PAVING EDGE



Ⓑ CONTROL JOINT@ 5' O.C. EACH WAY



Ⓒ EXPANSION JOINT @ 20' O.C. EACH WAY



Ⓓ TERMINATION JOINT

FILE/CSI NUMBER:	REVISION DATE:		JOB NUMBER:		FILE/CSI NUMB
21					TUI
22	CONCRETE PAVING DETAILS		1 1/2"=1'-0"	18	PEDI

SECTION 32 84 00
IRRIGATION SYSTEM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:
The work of this Section shall conform to the "GREENBOOK Standard Specifications for Public Works Construction," latest edition, Section 212, except as modified herein.

1.02 SCOPE OF WORK:
Work of this Section includes the furnishing, adjusting, installing and testing of mains, laterals, risers and fittings, quick couplers, gate valves, excavation and backfill, and all other work in accordance with the plans and specifications for a complete operating system. All work shall be in accordance with applicable City and County codes, and these plans/specifications.

1.03 RELATED WORK DESCRIBED ELSEWHERE:
A. Planting: Section 32 93 00

1.04 STANDARDS:
Materials and workmanship shall conform to the requirements of all applicable regulations and codes, except that requirements specified herein shall govern where they are greater. Refer and comply with the provisions of the following codes, specifications and standards, except as otherwise shown or specified:

A. National Electrical Code.

B. Electrical Safety Orders of the State of California, Division of Industrial Safety.

1.05 QUALITY ASSURANCE:

A. Conform to the requirements of the reference information listed below except where more stringent requirements are shown or specified in the most current set of construction documents: –

1. American Society for Testing Material (ASTM), for test methods specifically referenced in this section.
2. Underwriter's Laboratories (UL), for UL wires and cables.
3. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
4. Comply with requirements of local Water Purveyor for preventing backflow and back siphonage.
5. Comply with ASTM F 645, "Guide for Selection, Design, and Installation of Thermoplastic Water Pressure Piping Systems."
6. Comply with NFPA 70, "National Electrical Code," for electrical connections between wiring and electrically operated devices.
7. Furnish plastic pipe and fittings permanently marked with size, class, and type of pipe, working pressure at 73.4 degrees F, and National Sanitation Foundation (NSF) rating.

B. The Contractor shall maintain, continuously, a competent superintendent or foreman, who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the materials manufacturer's recommended methods of installation, and who shall direct all work performed under this Section. The superintendent shall be authorized to represent the Contractor.

C. Prior to commencement of work, contractor shall verify drawing dimensions with actual field conditions, and exact location of irrigation water meter - point of connection provided by others. Verify existing pressure at point of connection, coordinate location and installation of new main line. Immediately report to the Landscape Architect and/or Owner all conditions, which prevent proper execution of this work.

D. All assemblies specified herein shall be installed in accordance with the respective details. In the absence of detail Drawings or specifications pertaining to the specific items required to complete the work, the Contractor shall perform such work in accordance with the best standard practice and to the satisfaction of the Landscape Architect.

E. Irrigation Contractor is responsible for replacing or repairing any acts of theft or vandalism during construction and the maintenance period.

F. The Contractor shall obtain and pay for all permits and inspections required by outside agencies.

G. Code Requirements shall be those of State and Municipal Codes and Regulations locally governing this work, providing that any requirements of the Drawings and Specifications, not conflicting therewith but exceeding the Code Requirements shall govern, unless written permission to the contrary is granted by the Architect.

H. Due to the scale of Drawings, it is not possible to indicate all offsets, fittings, sleeves, etc., which may be required. Carefully investigate the structural and finished conditions affecting all of this work and plan this work accordingly, furnishing such fittings, etc., as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting and architectural features.

I. Work noted as "NIC." (Not In Contract) is not part of this section.

J. Permission to shut off any irrigation lines must be obtained from the Owner. Disruption of existing systems and services shall be kept to a minimum. Water shall not be turned off for a period longer than 48 hours which supplies plant material to remain and be protected in place, or contractor shall hand water material at contractor's expense.

1.06 SUBMITTALS:

A. Product Data: Within five (5) days after award of the Contract, and before any materials of this Section have been delivered to the job site, submit to the Landscape Architect:

(1) A complete materials list of all items proposed to be furnished and installed under this Section-6 including but not limited to supplier, and cut sheets, colored copies spiral bound unless otherwise noted. PDF's emailed to all parties shall be accepted with prior approval by construction management/design team.

(2) The manufacturer's recommended methods of installation which, when recommended for approval by the Landscape Architect, shall become the basis for review and accepting or rejecting actual installation methods used on the work when not otherwise specified or detailed.

B. Materials and Samples: The Contractor shall, prior to the installation of any irrigation work, submit for recommended approval by the Landscape Architect, a list of materials and equipment he proposes to use. The material and equipment list shall include, but not be limited to, polyvinyl chloride pipe, control valves, irrigation heads, quick coupler valves, backflow preventers, and controllers.

(1) Should the Contractor propose to use materials or equipment other than those listed on the plans, he shall submit samples of the make and type proposed. Samples shall be submitted a sufficient time in advance of the start of construction to allow a period of not less than seven (7) days for testing and recommended approval. Substitution of any product, material, or equipment without prior, written, recommended approval will not be permitted.

C. Manufacturer's warranties: Shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

D. Baseball / Softball Surface:
1. Shop drawing indicating race marker layout, temporary lane marking options and detail.
2. Complete list of infield mix materials.
3. Certification, signed by licensed civil engineer that field layout complies with specification, approved submittals and referenced standards.

1.07 PRODUCT HANDLING:

A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all other trades.

B. Delivery: Polyvinyl chloride pipe shall be delivered to the work site in unbroken bundles or rolls packaged in such a manner as to provide adequate protection for the pipe ends, threaded or plain.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the recommended approval of the Landscape Architect and at no additional cost to the Owner.

1.08 EQUIPMENT TO BE FURNISHED:

A. Supply as a part of this contract the following:

(1) Two sets of wrenches for disassembling and adjusting of each type of head installed.

(2) One operating key shall be furnished for each five (or less) gate valves installed.

(3) Two quick coupler keys with matching swivels with globe valves.

(4) Two individually bound "Operating and Maintenance Manuals" detailing operation and maintenance requirements for irrigation systems. Include descriptions of all installed materials and systems in sufficient detail to permit maintenance personnel to understand, operate and maintain the equipment.

Provide the following in each manual:

a. Index sheet, stating Irrigation Contractor's name, address, telephone number and name of person to contact.

b. Duration of guarantee period, including all manufacturer's guarantees or warranties.

c. Equipment list providing the following for each item:

Manufacturer's name.
Make and model number.
Name and address of local manufacturer's representative
Spare parts list in detail.
Detailed operating and maintenance instructions for major equipment.

B. The above-mentioned items shall be turned over to the Owner at the conclusion of the project, prior to final payment.

C. In addition to the above-mentioned maintenance manuals, provide the Owner's maintenance personnel with instructions for major equipment and show evidence in writing to the Landscape Architect at the conclusion of the project that this service has been provided.

D. Project Record Drawings: Provide separate and complete Project Record Drawings prepared in accordance with the provisions of Sub-section 3.14, following.

1.09 GUARANTEE:

The irrigation system shall be guaranteed for a period of one (1) year following formal issuance of substantial completion by Owner and Landscape Architect, in accordance with Sub-section 3.20, following.

PART 2 - MATERIALS

2.01 GENERAL:
All materials shall conform to Section 212 of the "Standard Specifications,"

2.02 PIPE:
Manufacture from virgin polyvinyl chloride compound in accord with ASTM 1785, 2241, 2672 or 3139.; hydrostatic design stress rating not less than 2,000 psi.

A. Pressure Supply Lines (Mainline):
   1. Pressure Supply Line (Mainline) shall be determined as follows:
      1" thru 1 ½" shall be Schedule 40, solvent weld ASTM D1785 & D2665
      2" to 3" shall be SDR13.5 (Class 315) solvent weld ASTM D22441
      4" and larger shall be bell and gasketed pipe SDR21 (class 200) by JM Eagle model Ring-Tite Joint or approved equal. All fittings shall be leemco self-restrained joint fittings.
   2. All 2"-3" pressure supply lines shall have thrust blocks. All ends, corners, etc. on mainline which is 2"-3" pipe which would receive thrust from the mainline shall have a thrust block.

B. Non-pressure Lateral Lines:
   1. Non-Pressure Lateral Lines: (downstream of electric remote-control valve) PVC Schedule 40, conforming to ASTM D1785-83.
   2. Fittings: Standard weight, Schedule 40, injection molded PVC, complying with ASTM D1784 and D2466, cell classification 12454-B.
      a. Threads- Injection molded type (where required).
      b. Tees and Ells-side gated.
      c. Threaded Nipples: ASTM D2464, Schedule 80 with molded threads.
      d. Joint Cement and Primer: Type as recommended by manufacturer of pipe and fittings.

C. All pipe shall be continuously marked with: Manufacturers name, nominal size, PVC type, pressure rating, SDR, NSF seal, and date of extrusion.

D. Seamless copper water tube, ACT B88, Type "L", drawn temper per Irrigation Booster installation, Type "K" for all other applications.

E. Brass screwed pipe shall be red brass conforming to Federal Specification #WW-P-351.

F. All pressure supply lines under vehicular paving to be installed with a PVC Schedule 40 sleeve, the sleeve shall be a minimum of twice the irrigation line diameter and shall extend a minimum of twelve inches (12") beyond such pavement. All other Irrigation Lines Sleeve or Low Voltage Control Wire Sleeves shall be PVC Schedule 40 polyvinyl chloride.

G. Pipe manufactured more than two years before installation not permitted. All pipe shall have been protected for sun exposure during storage and installation.

H. Pipe which shows any sign that it has not been protected from exposure to sun at any time shall is not permitted.

2.03 FITTINGS:

A. Pressure Supply Line:

1. Fittings for Mainline pipe 1"-3" shall be Schedule 80 PVC Solvent Weld ASTM D 2464.
2. Fittings for Mainline Pipe size 4" and larger shall be ductile iron, slanted, deep bell, gasket style made in accordance with ASTM A-536, Grade 65-45-12 & AWWA C153. self-restrained fittings as manufactured shall be as manufactured by Leemco, Inc.

C. Reducer tees will be used in cases of pipe size reduction. Bushing will only be allowed in cases of reduction where such a reducer tee is not manufactured.

D. Rigid PVC Nipples: ASTM D1785, Schedule 80, Type 1, molded threads.

E. Schedule 40 PVC street ells.

F. Brass: Red brass conforming to Federal Specification #WW-P-351. Schedule 40 threaded nipple stock, tees, ells, and unions.

G. Copper - Wrought solder-joints.

H. Cast Copper Flange Fittings conforming to ASTM B584/ANSI B16.18, max pressure rating: 300psi, Temp range-100 degree to 250 degrees.

I. Ductile Iron Flanged Fittings: ASTM A536-ANSI/AWWA C 110/A21.10, UL and FM requirements, pressure rating 250 psi rating for 1"-48" sizes and 150psi rating for 54" – 64"

2.04 FITTING CONNECTION:

A. Solvent Cement: ASTM D2564 for PVC Pipe and fittings.

B. Use heavy body cement for Sch 80 fittings. Follow ASTM procedures for all pipe welding and installation. Use Teflon Tape at all fittings.

C. PVC Primer and Glue: Use in all cases as recommended by pipe and fittings manufacturer, including both pressure supply lines and non-pressure Lateral lines.

1. IPS Weld -On P - 70 primer

2. IPS Weld -On 2711 (gray) cement

D. PVC to metal joints shall be made with PVC Schedule 80 threaded fittings into galvanize with female adapter to PVC pipe. The PVC fitting shall be hand tightened, plus one turn with strap wrench. Joint compound shall be IPS weld on Teflon pipe joint compound or equal.

E. Metal-to-Metal joints: graphite and oil lubricant or Teflon paste on male threads only.

2.05 SLEEVES AND CONDUIT: For use under paving and hardscape as sleeves for irrigation pipe and conduit for control wire shall be PVC;
1 ½" and Smaller shall be Sch. 40
2" thru 4" shall be Class 315
6" and larger shall be Class 200

A. Only standard lengths of pipe shall be used. Couple and weld only when length required is longer than a standard manufactured length.

B. See details for specifications of installation and as outlined by pipe manufacturer.

2.06 GALVANIZED PIPE AND FITTINGS:

A. All galvanized steel pipe shall be Schedule 40, threaded, coupled and hot-dip galvanized, and shall comply with ASTM A120 and A53.

B. All fittings for galvanized steel pipe shall be 150 psi rated galvanized malleable iron, banded pattern.

C. Pipe sizes indicated on the Drawings are nominal inside diameter unless otherwise noted.

2.07 COPPER PIPE AND FITTINGS:

A. Pipe: Type K, hard tempered.

B. Fittings: Wrought copper, solder joint type.

C. Joints shall be soldered with silver solder, 45% silver, 15% copper, 16% zinc, 24% cadmium, solidus at 1125 Degrees F. and liquidus at 1145 Degrees F.

2.08 BRASS PIPE AND FITTINGS:

A. Brass pipe shall be 85% red brass, American National Standard Institute (ANSI), Schedule 40 screwed pipe.

B. Fitting shall be medium brass, screwed 125-pound class.

2.09 ISOLATION VALVES/ SHUT-OFF VALVES (GATE VALVES & BALL VALVES):

A. Isolation Gate Valve for use on mainline pipe 2" and 2-1/2" in size: Bronze, screw-in-bonnet, non-rising stem, cross handle, solid wedge, threaded connection valve as manufactured by NIBCO model T-113-K, or equal.

B. Isolation Gate Valve for use on mainline pipe 3" and larger: Iron bolted bonnet with 2" square operating nut, non-rising stem, resilient wedge type, soft seat, flanged end epoxy coated, bronze trimmed iron body as manufactured by NIBCO model F-619-RW-SON flanged, or equal.

2.10 CONTROL WIRE:

A. All control wire shall be of the Underwriter's Laboratory type UF (underground feeder), single conductor, solid copper, plastic insulated, 600 volts rated, for direct burial applications. Maximum conductor operating temperature, 60 degrees C. for both wet and dry locations. Wire composition is as follows:

1) Conductor - the conductors shall be solid annealed uncoated copper meeting the applicable requirements of the latest revisions of ASTM B-3.

(2) Insulation - the insulation shall be colored plastic which meets the test requirements of I.P.C.E.A. (The Insulated Power Cable Engineer's Association) Pub. No. S-61-402, dated July 1961, Section 3.7 for 60 degrees C. polyvinyl chloride insulation. The insulation shall be flame retardant, resistant to fungus, resistant to corrosive fumes, suitable for wet locations and furnish some degree of inherent protections against mechanical abuse. Insulation thickness shall be 47 mils for AWG #14, #12 & #10, and 62 mils for AWG #8.

(3) Color Coding - The conductor insulation shall be color coded as follows:
a. All common ground wire shall be white.

b. All pilot (valve control) wire shall be black.

(4) Wire Connectors
a. 3m DBY/R Direct Burial Splice Kit, shall splice and effectively moisture seal two or more conductors. The electrical connector shall be a Scotchlok Y. The device shall be installed per manufacturer's instructions and all applicable codes. The device shall be UL Listed as a Wire Connector System for Use With Underground Conductors.

(5) Wire Connections for direct burial shall be "one stop" waterproof wire connectors.

2.11 WIRE SPLICES:

A. Conductors shall be installed with no underground splices, unless absolutely necessary and unavoidable. Any and all underground splices that are required to be made, must be approved by the Architect, and shall be placed in a suitable type valve box for easy access.

B. Wire splices on the two conductor cable communication wires shall be made with 3M DBY splice kit or approved equal.

C. Wire splices on the multi-conductor cable communication wires shall be made with Preformed Super Serviseal with Polybee sealant (product #8006039).

2.12 AUTOMATIC CONTROL VALVES (ELECTRIC):

A. All automatic control valves (electric) shall be globe or angle pattern, electrically controlled, hydraulically operated, single seat, normally closed.

B. The valves shall be actuated by a normally closed solenoid valve operator using 24 volts, 60 cycle alternating current. The wires in the coil of the solenoid shall be embedded in an epoxy resin. The entire solenoid shall be enclosed in a water tight housing. Valves shall automatically close in event of electrical power failure.

C. All automatic control valves shall have a flow control device for manually adjusting the amount of flow of water through the valve. The flow control device shall be adjusted so that the pressure at the nozzle of the sprinkler head farthest from the automatic control valve shall be that as specified in the irrigation legend per plan. The pressure at the sprinkler head shall be measured by means of a pitot pressure gauge while the sprinkler head is operating.

D. Automatic control valves shall be as specified on the plans. Reference irrigation plan, detail and legend for size and appropriate model number.

E. Tags: Christy's Standard Irrigation ID Tags.

2.13 VALVE BOXES

A. Standard Remote-Control Valve Boxes. The valve box shall be durable plastic: The cover shall be branded with letters "RCV" and include valve number designation stenciled two inches (2") high on the outside of the cover with lid cover.
   1. Rainbird Series Model VB-STD: Black Body and Green Lid- Standard rectangular with bolt-down cover.

B. Quick coupling valve boxes shall be round durable plastic: The cover shall be branded with the letters "QCV," two inches (2") high.
   1. Rainbird Series Model VB-10RND - 10" round with bolt-down cover.

C. Drip Valves:
   1. Rainbird Series Model(s) VB-JMB-H –Black Body and Green Lid with locking hex bolt with Model VB-JMB-B: Black Body only. Use body in conjunction with Model VB-JMB-H. The cover shall be branded with the letters "DV," two inches (2") high and include valve number designation.

D. Flush Valves valve boxes shall be round durable plastic:
   1. Rainbird Series Model VB-7RND. The cover shall be branded with the

letters "FV," two inches (2") high.

E. Gate valve and ball valve boxes shall be durable plastic: The cover shall be identified with the letters "GV" or "BV", two inches (2") high stenciled on the outside of the cover.
   1. Railbird Series - Model VB-10RND 10" round with bolt-down cover.
   2. Traffic Boxes shall be concrete with traffic box/cast iron lid: Carson/ Brooks 4-TT 10 1/4" diameter marked Irrigation. Brooks 3 ½ (T) PB 10" x 17" pull box w/ full bolt down traffic cover marked "Irrigation". Locate in hardscape only.

2.14 SPRAY AND ROTOR HEADS:

A. Pop-up Spray Type: Full or part circle pop-up spray type sprinkler body, stem, nozzle and screen constructed of heavy-duty plastic. The sprinkler shall have a soft wiper seal for cleaning debris from pop-up stem as it retracts into case to prevent sprinkler from sticking up. The sprinkler shall have a matched precipitation rate plastic nozzle with an adjusting screw capable of regulating the radius and flow. The sprinkler shall have a strong stainless steel retract spring for positive pop down. Pop-up height shall be as indicated on plans. The sprinkler head shall have a screen under the nozzle to protect it from clogging and for easy removal for cleaning and flushing system. The sprinkler head shall have a bottom inlet and may have a side inlet for ease of installation. Use only the bottom inlet for sprinkler heads equipped with anti-drain devices. As Manufactured by Rain Bird 1800-SAM-PRS series

B. Pop-up Rotary Type: Rotary sprinkler of the gear driven type. Nozzles shall be available for true matched precipitation rates:

   1. The sprinkler shall be available in adjustable arc configuration. The adjustable arc sprinkler shall be adjustable from 40 degrees to 360 degrees in 1-degree increments. Adjustments shall be made from the top of the riser assembly in either the up or down position.
   2. The pop-up sprinkler shall be of height as indicated on plans. Nozzle shall be integrally molded multiple orifice type that can be changed with tools included. Radius shall be adjustable by means of an exchangeable nozzle or a movable diffuser pin. Nozzle turret shall be molded with a service indentation to accept a tool for raising nozzle piston for service.
   3. The sprinkler shall have a 3/4 or 1-inch NPT inlet and shall be accessible by a threaded cap for easy service.
   4. The body of the sprinkler shall be constructed of non-corrosive heavy-duty ABS. The sprinkler shall be equipped with a filter screen for debris stoppage. The sprinkler shall also be available in shrub model with the same nozzle package. The sprinkler shall carry a 2-year unconditional warranty.
   5. All sprinkler heads with similar functions shall be of common manufacture and, with the exception of shrubbery heads, shall be marked with the

manufacturer's name and identification in a position where they may be identified without being removed from the system.

C. Swing Joint Assemblies:
   1. Swing joint assemblies for pop-up spray type heads consisting of 1/2" inlets shall use two heavy-duty Marlex street ells, as manufactured by Spears – Model M412-XXX or equal, with a single schedule 40 PVC threaded ell and one schedule 80 nipples, lengths as listed in detail.
   2. Swing joint assembly's pop-up rotary type sprinklers consisting of 3/4" and greater sprinkler inlets shall be pre-assembled, double O-ring, schedule 80 PVC. Swing joint as listed by KBI – Model TSA or equal.

2.15 BUBBLERS/ DRIP ASSEMBLIES:

A. Low Volume Emitters -. Salco Pro-Spec Emitter or approved equal.
   1. Internal Check Valve feature, model (PST-CV) include positive internal spring to hold back 9.25' of elevated water.
   2. ½" FIPT (PST) or ¼" barbed base (PS)
   3. PC Flow: .05, 1, 2, or 4 gph.
   4. Pressure range: 5-65 psi
   5. Zone Filtration: 100 – 150 mesh

B. IH Series Riser:
   1. Pre-assembled with two ½" MIPT UVR male adapters
   2. Maximum Flow: 7 gpm
   3. Maximum Pressure: 60 psi.

C. Refer to Irrigation Legend for model numbers and irrigation detail sheet.

2.16 PULL BOX:

A. All pull boxes shall be Carson (concrete), or equal, for connection of conduit and route of communication and sensor cable. The pull box will have a cast iron lockable traffic lid.

PART 3 - EXECUTION

3.01 GENERAL:

All work shall conform to Section 308 of the "GREEN BOOK Standard Specifications FOR Public Works Construction" and except as modified herein. No work of this Section other than sleeving under pavement shall commence prior to the completion and acceptance of all grading work specified in Section 02910, Landscape Grading.

A. Prior to all work of this Section, carefully inspect existing site conditions and equipment. Verify available pressure at point of connection and location of water meter provided by the Water Department.

B. Verify that irrigation system may be installed in strict accordance with all pertinent codes and regulations, the original design, the reference standards and the manufacturer's recommendations.

C. In the event of discrepancy, immediately notify the Landscape Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

D. Trenches and other excavations for irrigation pipe and appurtenances shall be excavated true to alignment and grade and shall be of ample size for the proper performance of installation work, review, testing and backfill.

E. Protect all existing utilities and repair any damage to existing utilities with matching new materials, at no increase in contract price.

F. Generally, piping under concrete shall be installed by jacking, boring or hydraulic driving. Where any cutting or breaking of pavement, track sections and/or concrete work is necessary, it shall be removed and replaced by the Contractor. Permission to cut or break pavement, track sections and/or concrete shall be obtained from the Owner. No hydraulic driving will be permitted under asphalt concrete paving or track sections.

3.02 COMMISSIONING COORDINATION:

A. Provide technical services of the equipment manufacturer and the contractor to operate and adjust equipment specified under this section during the commissioning phase activities, which include startup and functional performance testing, and documentation elements.

3.03 UTILITY SERVICES:

A. Contractor shall provide for connections existing electrical services at locations indicated on the drawing.

B. Contractor shall connect new mainline to water services at locations indicated on the civil engineer's drawings.

3.04 LAYOUT:

A. All piping or equipment show diagrammatically on drawing outside of planting areas shall be installed inside planting areas whenever possible.

B. Layout each sprinkler head and make any minor adjustments required due to differences between actual site conditions and the Drawings. Minor adjustments shall be maintained within the original design intent. Protect in place all existing trees and shrubs.

C. Layout each system using staking method as approved by Owner's Representative. Maintain and protect approved staking layout.

3.05 TRENCHING AND BACKFILL:

A. Trenching:

(1) Minimum trench width shall be six inches (6").

(2) Minimum trench depth below bottom of pipe shall be two inches (2").

(3) Minimum cover shall be based on finished grades, unless otherwise noted on Drawings.

a. Non-Pressure Lateral Line cover shall be no more than twelve inches (12") and not less than eight inches (8").

b. Pressure Supply line (Mainline) minimum cover shall be eighteen inches (18") for lines two and one-half inches (2-1/2") and less; twenty-four inches (24") for lines two and one-half inches (2-1/2") and larger.

c. Pipe and Wire Sleeves minimum cover shall be twenty-four inches (24").

B. Backfill:

(1) All plastic pipe shall be bedded and encased with approved backfill material free of rocks and clods as indicated in the following table and/or shown on the plans.

Thickness Under Pipe Minimum	Thickness Above Pipe Minimum	Thickness at Side of Pipe Minimum
Two inches (2")	Four inches (4")	Two inches (2")

(2) Provide not less than four inches (4") clearance between each line and not less than six inches (6") clearance between line of other trades, unless otherwise noted.

(3) Do not install parallel lines directly over any other line.

(4) The balance of backfill material shall be approved soil. Unsuitable material, including clods and rocks over three fourths inch (3/4") in size, shall be removed from the premises and disposed of legally at no cost to the Owner.

(5) Backfill material shall be sufficiently compacted under and on each side of the pipe to provide support free of voids. Pipe joints shall remain exposed until the completion of pressure and leakage test, unless authorized by the Architect. The top six inches (6") of backfill shall be free of rocks over one inch (1"), subsoil, rubbish and debris.

(6) The remainder of the backfill material shall contain no lumps or rocks larger than two and three fourths inches (2-3/4"), nor contain rubbish and debris.

(7) Backfill shall be tamped or puddled to the dry density of adjacent soil. Backfill within areas of structurally compacted soils shall be returned to the original relative density as before trenching.

3.06 INSTALLATION OF PIPE:

A. Unless otherwise specified, the construction of lateral lines and main lines shall include excavation and backfill, the furnishing, installing and testing of pipe, tube and fittings, the furnishing and installing of anchors, thrust blocks and location wire, the improvements, line flushing and testing, and all other work in accordance with the plans and specifications.

B. Polyvinyl chloride pipe shall be installed in such a manner so as to provide for expansion and contraction as recommended by the manufacturer.

C. All polyvinyl chloride pipe shall lay free in the trench with no induced strain. Where there is evidence of induced pipe strain, the Contractor shall be required to make pipe cuts and install angle fittings as necessary to eliminate the strain.

D. When a connection is plastic to metal, a female adapter shall be used. The metal nipple shall be hand-tightened, plus one turn with a strap wrench. Joint compound shall be IPS weld-on Teflon pipe joint compound or equal. (Plastic to galvanize coupling to galvanize nipple. Do not connect galvanize into plastic).

E. The Contractor will be required to remove and replace any fitting, which induces a torque strain to the pipe.

F. Polyvinyl chloride pipe shall be cut with a PVC pipe cutter, hand saw or hack saw with the assistance of a square and sawing vise or in a manner so as to ensure square ends. Burrs at cut ends shall be removed prior to installation so that a smooth unobstructed flow will be obtained.

G. All plastic-to-plastic joints shall be solvent-weld joints. Only the solvent recommended by the pipe manufacturer shall be used.

H. The solvent-weld joints shall be made in the following manner:

1. Thoroughly clean the mating pipe and fitting with a clean dry cloth.

2. Try the parts for fit. The parts should "dry-mate" between one-third (1/3) and two-thirds (2/3) the depth of the socket. If adequate insertion is not obtained, or bottoming occurs, try another part until a satisfactory "dry-fit" is obtained.

3. Apply a uniform coat of solvent to the outside of the pipe with a non-synthetic bristle brush.

4. Apply a uniform coat of solvent-weld to the fitting socket.

5. Reapply a light coat of solvent-weld to the pipe and quickly insert it into the fitting.

6. Give the pipe or fitting a quarter turn to ensure even distribution of the solvents and make sure that the pipe is inserted to the full depth of the fitting socket.

7. Hold in position for at least fifteen (15) seconds.

8. Wipe off excess solvent that appears at the outer shoulder of the fitting.

NOTE: *For PVC Type I, 1120-1220, pipe mating surface shall first be cleaned with the application of Methyl Isobutyl Ketone (MIBK) solvent. This cleaning shall be accomplished by applying MIBK solvent to the full mating surface area and wiping off with a clean cloth, repeating the process, if necessary, until no trace of shine remains (neither streaks nor spots). The use of commercial PVC solvent-cement thinners as a substitute of MIBK is not allowed.*

I. Pressure supply steel pipe and fittings: Assemble using red lead and boiled linseed oil paste or an approved equivalent. Brass and Galvanized threaded fittings shall be assembled with both Teflon tape and oil base compound to male threads only.

J. Provide concrete thrust blocks at each change of direction and at all terminal points of all rubber gasket piping. Block in accord with pipe manufacturer's instructions.

J. Provide thrust blocks at all changes of directions and reductions shall be mechanically retrained. Additional thrust blocks shall also be restrained as per manufacturer's recommendations. Gate valves shall be treated as a dead end and shall be mechanically restrained for serviceability.

3.07 INSTALLATION OF PIPE UNDER EXISTING PAVING:

A. Piping under existing pavements may be installed by jacking, boring or by hydraulic driving, except as otherwise specified or directed.

B. All pipes under pavement surface to be installed a minimum of 24 inches below A.C. paving with 6 inch bedding and a 6 inch cover of sand backfill.

C. Secure Owner's permission prior to cutting or breaking existing pavements.

D. Make completely clean cuts using power saws at approved locations only.

E. Replace and restore all surfaces to original condition, including grade, landscaping and paving
   1. Restoration work shall match the original work in every respect, including type, strength, texture and finish.
   2. Consult with Owner for approved methods of patching and/or replacing any damaged paving sections as a result form boring saw cutting or removal.

3.08 INSTALLATION OF PIPE UNDER NEW PAVED AREAS:

A. Coordinate installation of piping and wires under paved areas with other trades.

B. All pipes under pavement surface to be installed a minimum of 24 inches below A.C. paving with a 6-inch bedding and a 6-inch cover of sand backfill.

C. If the only piping installed is over 20 feet long, pressure testing is required for that section at the time of installation. Upon completion of piping installation, the entire system must be tested.

D. If wire under paved areas cannot be continuous, all splices shall be enclosed in an approved pull box.

3.09 INSTALLATION OF CONTROL WIRE:

A. Unless otherwise specified, the installation of control wire shall include excavation and backfill, the furnishing, installing and testing of the wires, the removal and/or restoration of existing improvements and all other work in accordance with the plans and specifications.

B. Unless otherwise specified all neutral (common ground) wire shall be AWG #12 and all pilot (valve control) wire shall be AWG #14.

C. At least one spare wire shall be installed from the controller clock to the most distant valve. When wire runs go in different directions from the controller clock, a separate spare wire shall be installed from the controller clock to the most distant valve in each different wire run direction.

D. Tape and bundle all control wires at ten feet (10') o.c. maximum; place wiring with eighteen inch (18") minimum cover. When wiring is placed in common trenches with piping, set wiring two inches (2") from any piping. Place control wire along side of pipe. Do not place over the pipe.

F. All wire splicing shall take place in the valve boxes and/or pull boxes. All splices shall be made with a mechanical connector encased in a self-curing epoxy resin that provides a permanent watertight connection. No underground splices will be allowed.

G. All direct burial control wires shall be identified as to their respective valve number and controller clock letter in all pull boxes and at all wire termination. Spare wires and "future valve" wires, if any, shall also be identified. Labels and tags shall be used for identification which are not affected by moisture or temperatures between minus 30 degrees F. and plus 200 degrees F. The labels and tags shall be resistant to abrasion, dirt, grease, and chemicals used in lawn fertilizers and conditioners. The labels and tags shall be firmly attached to the wire in every case. The Contractor shall submit samples of the labels or tags to be used, to the Architect for recommended approval, prior to the installation of the control wire. Examples of nomenclature of tags or labels are as follows:

Neutral (common ground) wire	="Neutral" Clock "A"
Pilot (valve control) wire	="A.V. #1." Clock "A"

Spare Wire ="Spare" Clock "A"

H. The final operating sequence of the remote-control valves, within each individual controller clock, shall be as called out on drawings.

I. Testing:
(1) All direct burial control wire installed shall be tested in the following manner.

a. Before any backfill material is placed over the control wires in the trench, the wires shall be tested with a meter for insulation resistance. Minimum insulation resistance to ground shall be fifty (50) megohms. Any conductor not meeting this requirement shall be replaced.

b. After backfill encasement, the wires shall again be tested with a meter. The minimum acceptable insulation resistance to ground on this test shall be one (1) megohm. Any conductor not meeting this requirement shall be replaced.

3.10 INSTALLATION OF VALVES:

A. General: Unless otherwise specified, the installation of the valves shall include excavation and backfill, the furnishing, installing and testing of fittings and valves, the furnishing and installing of valve boxes and appurtenances, accessories, the removal and/or restoration of existing improvements and all other work in accordance with the plans and specifications.
(1) Fill area under valve box with a minimum of three (3) cubic feet of pea gravel before box is installed.

B. Shut-off Valves: Shut-off valves installed underground shall be housed in a suitable valve box. The gate valve hand wheel shall be removed from the stem of all valves installed underground. The wheel shall be replaced with an operating nut.

C. Quick Coupling Valves: Unless otherwise indicated, locate valves within twelve inches (12") of hardscape. Install in designated valve box.

D. Automatic Control Valves: Automatic control valves shall be set upright and housed in designated valve box, with a hinged, lockable, top. The Contractor shall place Christy's Standard Valve Identification tags on each valve corresponding to its appropriate valve station number.

3.11 INSTALLATION OF SPRINKLER HEADS:

A. Unless otherwise specified, the installation of sprinkler heads shall include excavation and backfill, the furnishing, installing and testing of risers, fittings and heads, the furnishing and installing of cone shaped screens at base of each head, the removal and/or restoration of existing improvements and all other work shall be in accordance with the plans and specifications.

B. Flushing: All water lines shall be thoroughly out before heads are installed.

C. Location and arc of heads shall be adjusted, if required to eliminate any dry spots, over water or spillage on adjacent areas.

D. Install Netafim drip tubing below the service at an depth of four (4) inches unless otherwise noted. Refer to Irrigation Detail Sheet for detail.

3.12 THRUST BLOCKS:

A. Thrust blocks shall be concrete 2000 psi at 28 days. They shall be placed so that sides subject to thrust or load are against undisturbed earth, and valves and fittings are serviceable after concrete has set.

3.13 INSTALLATION OF WARNING TAPE:

A. Warning tapes shall be installed directly on top of the pipe longitudinally and shall be centered. The warning tape shall be installed continuous for the entire length of the pipe and shall be fastened to each pipe length by plastic tape banded around the pipe with fasteners no more than 5 feet apart. Taping attached to the sections of pipe before laying in the trench shall have flaps sufficient for continuous coverage. All risers between the mainline and control valves shall be installed with warning tape.

3.14 RECORD DRAWINGS:

A. The Contractor shall provide and keep up to date on a daily basis, a complete record set of bond copies in black and white which shall be corrected daily and show every change from the original Drawings and specifications and the exact locations, sizes and kinds of equipment in red ink. Prints for this purpose may be obtained from the Owner. This set of Drawings shall be kept on the site and shall be used only as a record set. Architect shall review drawings prior to any planting.

B. In order to complete the record Drawings in a neat, legible manner, the contractor shall indicate the necessary changes on Mylar tracings procured from the Owner/Landscape Architect.

C. The contractor shall dimension from two (2) permanent points of reference, building corners, sidewalks, etc., the location of the following items:

1. Water meters.
2. Pump stations.
3. Connection to existing water lines.
4. Routing of pressure supply lines at every 100 feet along routing.
5. Backflow prevention devices.
6. Pressure regulators.
7. Flow sensors.
8. Master valves.
9. Fertilizer injectors.
10. Isolation gate valves.
11. Isolation ball valves.

12. Quick coupling devices.
13. Air release valves.
14. Electric control valves.
15. Check valves.
16. Field satellite units/controllers.
17. Grounding rods.
18. Control wire routing (if routed separately from pressure supply line).
19. Communication cable routing (if routed separately from pressure supply line).
20. Communication cable and control wire splices that are outside of control unit or field satellite unit.
21. Other equipment as directed by District.

D. Prior to scheduling a walk through for Substantial Completion, provide a record set of field drawings as described above to the District for review. After review, the District will return the set to the field foreman requesting further information or will notify that the record set of field drawings are complete. After approval from the District, a walk through for Substantial Completion may be scheduled.

D. Prior to scheduling the final walk through, the final set of irrigation record drawings shall be professionally drafted.

D. Contractor is responsible for delivering the final set of record drawings to the District prior to initiating the maintenance period.

3.15 CONTROLLER CHARTS:

A. Do not prepare charts until record Drawings have been approved by the Owner's representative.

B. Provide in controller chart for each automatic controller installed.

(1) Chart may be a reproduction of the record drawing if the scale permits fitting the controller door. If photo reduction prints are required, keep reduction to maximum size possible to retain full legibility.

(2) Chart shall be black-line print of the actual system, showing the area covered by that controller.

C. Identify the area of coverage of each remote-control valve, using a distinctly different pastel color, drawn over the entire area of coverage.

D. Following approval of charts by Owner's representative, they shall be hermetically sealed between two layers of 20-mil thick plastic sheet.

E. Charts must be completed and approved prior to final review of irrigation system.

3.16 TESTS:

A. Pressure Tests:

(1) All pressure lines shall be tested under hydrostatic pressure of 150 pounds per square inch, and all non-pressure lines shall be tested under

the existing static pressure and both be proved watertight. Contractor shall provide all equipment for hydrostatic tests at no cost to the Owner.

(2) Pressure shall be sustained in the lines for not less than two (2) hours. If leaks develop, the joints shall be replaced and the test repeated until the entire system is proved watertight.

(3) Tests shall be observed and recommended for approval by the Landscape Architect/and or owners field superintendent prior to backfill.

B. Coverage Test:

(1) When the irrigation cooling system is completed, the Contractor, in the presence of the Landscape Architect, shall perform test coverage of water afforded the field areas, complete and adequate. The Contractor shall furnish all materials and perform all work required to correct any inadequacies of coverage disclosed arising from his work.

(2) Contractor shall inform the Owner's representative of any deviation from the plan required due to wind, planting, soil or site conditions that bear on proper coverage; and upon approval, perform changes to provide for proper coverage at no additional cost to Owner.

3.17 REVIEWS:

A. Normal Progress Reviews: Normal progress reviews shall be requested from the Architect at least forty-eight (48) hours in advance of any anticipated review. A review will be made by the Landscape Architect on each of the steps listed below. The Contractor will not be permitted to initiate the succeeding steps of work until he has received written approval to proceed by the inspector.

(1) Immediately prior to the commencement of the work of the Section.

(2) Pressure supply line installation, trenching and testing.

(3) System layout.

(4) After placement of all heads, valves and controllers for coverage test.

(5) Final review and receipt of "Record Drawings" and "Controller Charts."

(6) Final acceptance of project by Owner.

B. In no event shall the Contractor cover up or otherwise remove from view any work under this contract without prior approval. The Contractor, at his expense, shall open any work covered prior to review to view.

C. Unprepared Review Requests: In the event the Contractor requests review of work and said work is incomplete, the Contractor shall be responsible for review cost.

D. Completion: The work will be accepted, in writing, when the whole shall have been completed satisfactorily to the Owner. In judging the work, no allowance for deviation from the original plans and specifications will be made unless already approved by the Owner, in writing, at the proper times.

(1) Leave the entire installation in complete operating order, free from any and all defects in material, workmanship or finish, regardless of any discrepancies and/or omissions in plans or specifications.

(2) Remove from the site all debris and rubbish resulting from the work, and leave the installation in clean condition.

3.18 GUARANTEE:

A. The installed irrigation system shall be guaranteed by the Contractor as to material and workmanship, including settling of backfilled areas below grade for a period of one (1) year following the date of final acceptance of the work.

B. The Contractor, as part of the work under his contract, shall make all adjustments without extra cost to the Owner, including the complete restoration of all damaged planting, paving, or other improvements of any kind.

C. Should any operational difficulties in connection with the sprinkler system develop within the specified guarantee period which in the opinion of the Owner may be due to inferior material and/or workmanship, said difficulties shall be immediately corrected by the Contractor to the satisfaction of the Owner at no additional cost to the Owner, including any and all other damage caused by such defects.

D. The Owner reserves the right to make temporary repairs during the guarantee period as necessary to keep systems in operating condition without voiding the Contractor's guarantee, nor relieving the Contractor of his responsibilities.

3.20 TURN OVER ITEMS:

A. Turn over items shall include quick coupler keys, and as built prints.

B. Refer to equipment to be furnished under spec section 1.08 for list of additional items.

3.21 MAINTENANCE:

A. Maintenance of irrigation system prior to job completion, and during the Landscape Maintenance period, shall be the responsibility of the Contractor including, but not limited to, the following:

(1) Cleaning of plugged irrigation heads.

(2) Irrigation heads adjustments.

(3) Volume of water being applied. (Coordinate with landscape maintenance).

(4) Programming of the controller. (Coordinate with landscape maintenance).

(5) Repairing leaking valves, etc.

(6) Any other problem areas, which occur after installation, attributed to the irrigation system.

(7) Repair or replace equipment due to acts of vandalism, theft or pest damage.

(8) Lower all turf heads to final grades prior to final acceptance by Owner.

B. The contractor' responsibility for the irrigation of plant materials and the maintenance and repair of the irrigation system begins on the contract start date. The methods that are required to irrigate the grounds include automatic irrigation systems and hand or portable irrigation components. The contractor shall plan and adjust irrigation schedules for automatic, hand or portable irrigation system.

C. Sprinkler Heads: Irrigation includes watering of lawns, shrubs, trees, palms, ground cover and plants. Care shall be exercised by regulating the time and equipment to prevent wasting of water. Watering shall be done in a manner that will avoid erosion, run-off, or ponding due to excessive quantities or rate of application. Sprinkler heads shall be adjusted to prevent water spray on buildings and sidewalks. It shall be the contractor's responsibility to apply enough water to assure and maintain the health and vigor of all lawn, shrubs, trees, and planted areas.

D. Water Restrictions: The contractor shall be in compliance with Federal, State and local water agencies and authorities' directives. The District reserves the right to reduce or eliminate watering during water shortages. The contractor shall be held liable for fines imposed by Federal, State and/or local water agencies.

E. The contractor is responsible for required irrigation by any means during the periods of system breakdown.

F. Frequency of Services: Irrigation Maintenance shall be weekly. Automatic watering systems in the immediate area of pedestrian traffic shall be set to operate during the hours of 10:00 PM to 4:30 AM.

END OF SECTION 32 84 00