

ADDENDUM #1

Date: September 18, 2017

This Addendum applicable to work designated herein shall be understood to be and is an Addendum and as such shall be part of and included in the Contract.

To all bidders for furnishing all labor and materials necessary for:

**JEFFERSON COUNTY COURTHOUSE EXPANSION
FOR
JEFFERSON COUNTY
RIGBY, IDAHO**

Failure to acknowledge receipt of this Addendum on the bid proposal form may result in rejection of your bid.

GENERAL

1. Bids will be received and read aloud as indicated in Section 001113 Advertisement for Bids.
2. Supplementary Conditions, Paragraph 1.5.B.1.a change to new paragraph 1.5.C with subparagraphs 1 through 9. Change existing Paragraph 1.5.C to Paragraph 1.5.D.
3. A Geotechnical Investigation Report has been posted to NBW Architects website for your convenience and reference.

LANDSCAPE ITEMS

1. Include attached Landscape specifications.
2. Remove original Landscape drawings with incorrect bar scale and provide attached revised drawings

CIVIL ITEMS

1. See Civil drawings for extent of Owner provided Site Work and SWP Site Plan.

ARCHITECTURAL ITEMS

1. Provide vapor barrier over wood sheathing products as specified in Section 072600 Vapor Retarders.
2. Include attached specification for Section 066400 Plastic Paneling.
3. Specification Section 09 3000 Tiling, Paragraph 2.3.A. Replace Paragraph 2.3.A in its entirety with the following Paragraph 2.3.A:
 - A. High-Performance Tile Grout: ANSI A118.7.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ARDEX Americas.
 - b. Bonsal American, an Oldcastle company.
 - c. Bostik, Inc.
 - d. H.B. Fuller Construction Products Inc. / TEC.

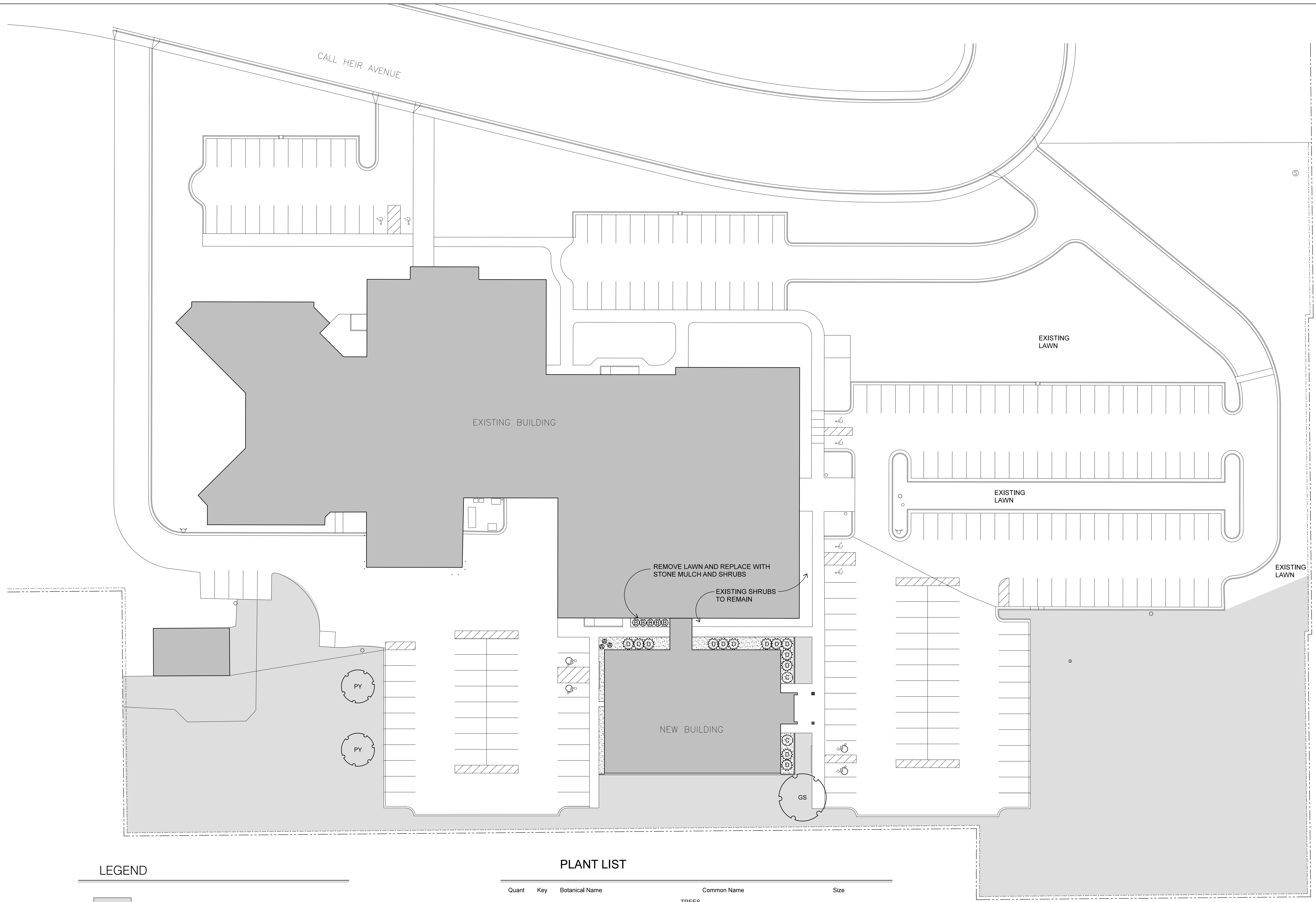
- e. LATICRETE SUPERCAP, LLC.
- f. MAPEI Corporation.

2. Polymer Type: Liquid-latex form for addition to prepackaged dry-grout mix.

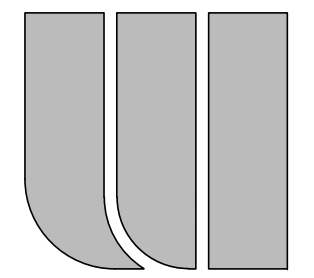
APPROVED EQUALS

1. Section 03300 .2.6 Cast in Place Concrete Vapor Retarders, Viper II 10 mil under slab vapor barrier by Insulation Solution Inc.
2. Section 099113 Exterior Painting and 099123 Interior Painting, Rodda Paint / Cloverdale Paint systems, manufactured by Rodda paint, Portland OR.
3. Section 075419 Polyvinyl-Chloride Roofing(PVC), VersaFlex 60mil roof membrane as manufactured by Versico Roofing Systems,
4. Section 07 1413 Rubberized Asphalt Waterproofing, HydroTech Monolithic Membrane 6125 as manufactured by American Hydrotech Inc. Chicago IL.

END OF ADDENDUM NO.1



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PROJECT: BUILDING EXPANSION FOR
JEFFERSON COUNTY COURTHOUSE EXPANSION
 RIGBY, IDAHO

REVISIONS

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| 09-15-17 | |
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PROJECT: **16067**
 DATE: **FEBRUARY 2017**
 DRAWN BY: **???**
 CHECKED BY: **SLH**

DRAWING NO.:

L1.1

LEGEND

- NEW SODDED LAWN
- AREA OF NEW STONE MULCH

NOTES:

1. Install weed barrier fabric and stone mulch 3" deep in all new planting areas. Stone mulch shall match size and color of existing stone mulch.
2. Install 6"x6" concrete mow strips between lawn and new shrub or stone mulch areas. Install 6"x12" concrete mow strip between lawn and new building. Mow strips shall be formed and poured in place; extruding not allowed.

PLANT LIST

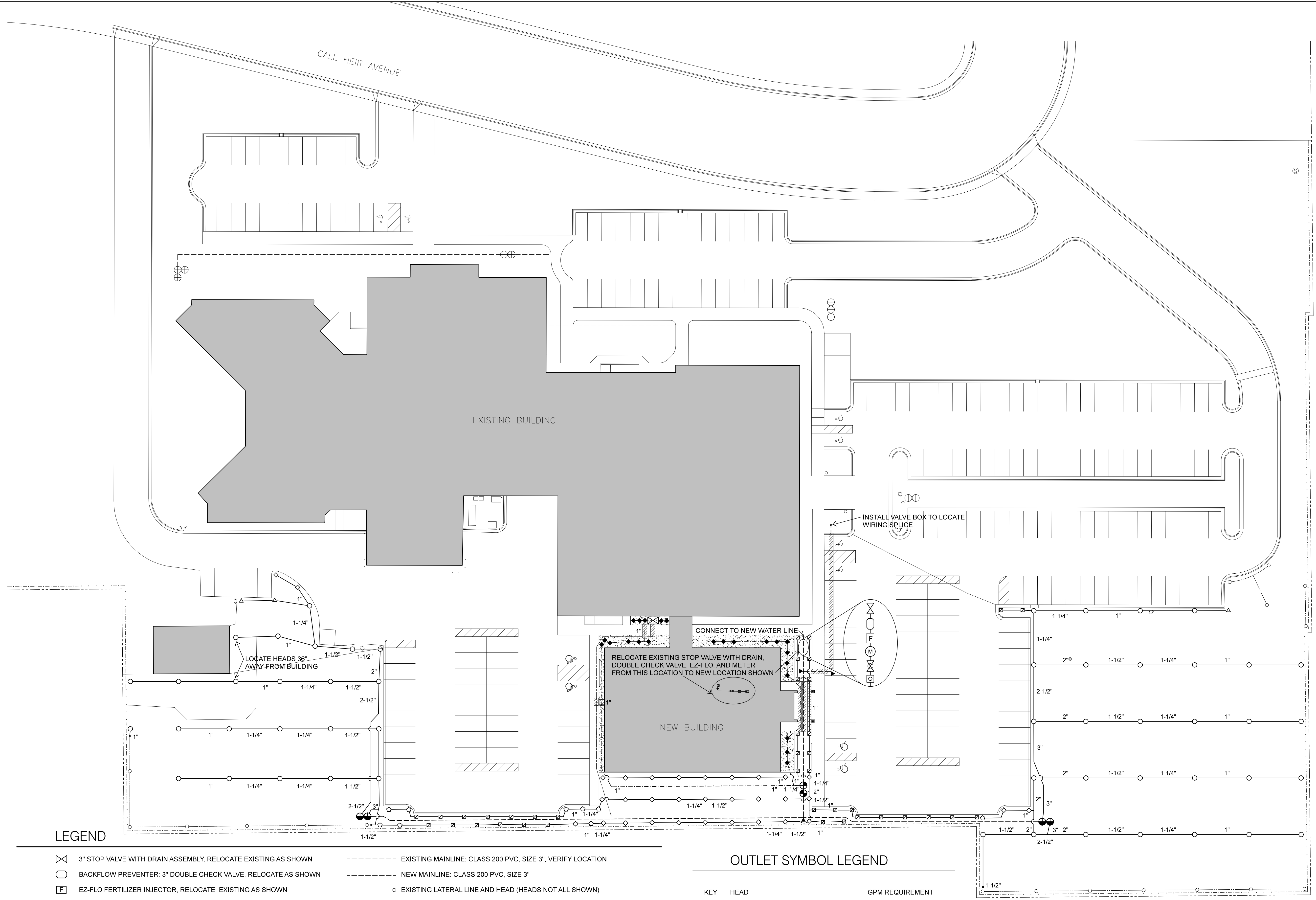
| Quant | Key | Botanical Name | Common Name | Size |
|--------|-----|-------------------------------------|-------------------------------|---------------|
| TREES | | | | |
| 1 | GS | Gleditsia triacanthos 'Skyline' | Skyline Honeylocust | 2" B&B |
| 2 | PY | Pyrus calleryana 'Chanticleer' | Chanticleer Callery Pear | 2" B&B |
| SHRUBS | | | | |
| 3 | A | Rosa flower carpet 'Pink Supreme' | Pink Supreme Groundcover Rose | 5 gal. 12-18" |
| 5 | B | Spiraea bumalda 'Anthony Waterer' | Anthony Waterer Spiraea | 5 gal. 12-18" |
| 2 | C | Spiraea betulifolia 'Tor' | Tor Birchleaf Spiraea | 5 gal. 12-18" |
| 13 | D | Taxus x-media 'Dark Green Spreader' | Dark Green Spreading Yew | 5 gal. 18-24" |

LANDSCAPE PLANTING PLAN

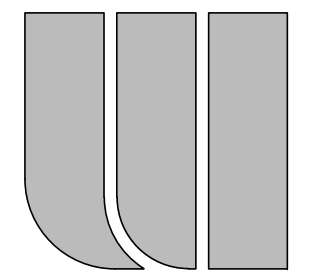
SCALE: 1" = 30'-0" - 24" x 36" sheet size



LANDSCAPE PLANTING PLAN



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JEFFERSON COUNTY COURTHOUSE EXPANSION
RIGBY, IDAHO

REVISIONS

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PROJECT: **16067**
DATE: **FEBRUARY 2017**
DRAWN BY: **???**
CHECKED BY: **SLH**

DRAWING NO.:

LEGEND

- | | |
|--|--|
| <ul style="list-style-type: none"> ⊠ 3" STOP VALVE WITH DRAIN ASSEMBLY, RELOCATE EXISTING AS SHOWN ⊞ BACKFLOW PREVENTER: 3" DOUBLE CHECK VALVE, RELOCATE AS SHOWN F EZ-FLO FERTILIZER INJECTOR, RELOCATE EXISTING AS SHOWN M 2" SPRINKLER SYSTEM METER, RELOCATE EXISTING AS SHOWN ⊠ NEW 3" BRASS BALL VALVE ISOLATION VALVE ⊠ NEW QUICK COUPLER VALVE: RAINBIRD 33-DRLC, BLOWOUT CONNECTION ⊠ CONTROLLER: HUNTER ICC TO REMAIN IN LOCATION SHOWN ⊕ EXISTING CONTROL VALE: RAINBIRD PGA SERIES ⊕ NEW CONTROL VALVE: RAINBIRD 100-PGA 1" ANGLE VALVE ⊕ NEW CONTROL VALVE: RAINBIRD 150-PGA 1-1/2" ANGLE VALVE ⊕ NEW CONTROL VALVE: RAINBIRD 200-PGA 2" ANGLE VALVE ↑ 18"X18"X18" CONCRETE THRUST BLOCK. INSTALL ON PVC MAINLINE WHERE LINE CHANGES DIRECTION EITHER VERTICALLY OR HORIZONTALLY. INSTALL DUCT TAPE ON PIPE AND FITTING TO PROTECT FROM CONCRETE. | <ul style="list-style-type: none"> --- EXISTING MAINLINE: CLASS 200 PVC, SIZE 3", VERIFY LOCATION --- NEW MAINLINE: CLASS 200 PVC, SIZE 3" --- EXISTING LATERAL LINE AND HEAD (HEADS NOT ALL SHOWN) --- NEW LATERAL LINE: PVC CLASS 200, SIZES 3" AND 2-1/2" --- NEW LATERAL LINE: PVC SCHEDULE 40, SIZE 2" --- NEW LATERAL LINE: HDPE-3408, ASTM D2239, 100 PSI, SIDR 15 POLYETHYLENE CONTROLLED INSIDE DIAMETER PIPE, SIZES BELOW 2", USE INSERT FITTINGS --- LATERAL LINE FOR DRIP ASSEMBLIES: FROM VALVE TO DISTRIBUTION TUBING, UNDER LAWN AREAS AND THROUGH SLEEVES: 3/4" OR 1" HDPE-3408, ASTM D2239, 100 PSI, SIDR 15 POLYETHYLENE CONTROLLED INSIDE DIAMETER PIPE. USE ONLY INSERT FITTINGS. 1/2" DISTRIBUTION TUBING: RAINBIRD XT-700, MAX LENGTH 60'. 1/4" DISTRIBUTION TUBING: RAINBIRD XQ, MAX LENGTH 30'. --- CONNECT NEW MAINLINE AND WIRING TO EXISTING MAINLINE AND WIRING --- CONNECT NEW LATERAL LINE TO EXISTING LATERAL LINE --- NEW SLEEVE OR SLEEVES FOR LINES AND/OR WIRING. SIZES SHOWN ARE PIPE SIZES. SLEEVE SIZE SHALL BE MIN. TWO SIZES LARGER THAN PIPE SIZE. --- ROUTE OF NEW CONTROL WIRING |
|--|--|

OUTLET SYMBOL LEGEND

| KEY | HEAD | GPM REQUIREMENT |
|-----|-----------------------------------|-----------------|
| ● | HUNTER PCB-25 ON FUNNY PIPE RISER | 0.25 GPM |
| ◆ | HUNTER PCB-50 ON FUNNY PIPE RISER | 0.5 GPM |

HEAD SYMBOL LEGEND

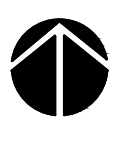
| KEY | HEAD | 90° | 180° | 270° | 360° |
|-----|---|------|------|------|------|
| ○ | HUNTER PROS-04-PRS40 WITH MP 1000 | 0.20 | 0.40 | 0.60 | 0.80 |
| ◇ | HUNTER PROS-04-PRS40 WITH MP 2000 | 0.40 | 0.74 | 1.10 | 1.56 |
| △ | HUNTER PROS-04-PRS40 WITH MP 3000 | 1.01 | 2.04 | 3.06 | 4.07 |
| ⊘ | HUNTER PROS-04-PRS40 WITH MP STRIP OR END | 0.50 | | | |
| ○ | HUNTER I-20-04 | 2.70 | 4.20 | 5.50 | 7.60 |

NOTES:

- See site, mechanical and electrical plans for information about other work.
- Use only insert fittings for polyethylene pipe.
- Install one pipe per sleeve, maximum. Install wiring in separate sleeve.
- Relocate and install existing stop valve with drain, double check valve, ez-flo, and meter, using existing boxes and in same configuration as before.

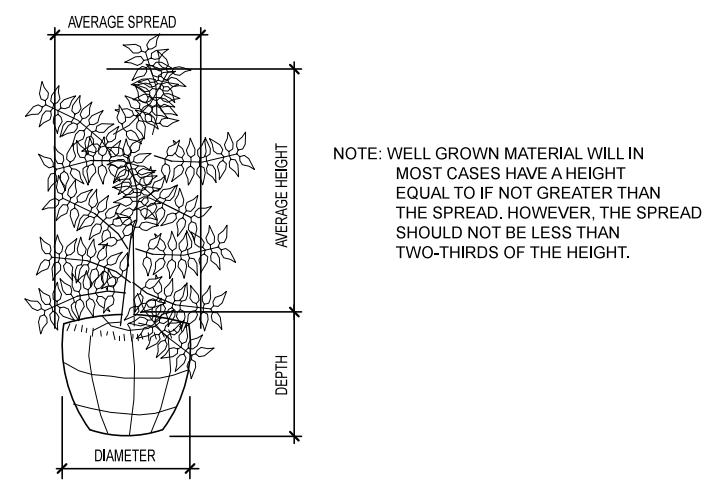
SPRINKLER IRRIGATION PLAN

SCALE: 1" = 30'-0" - 24" x 36" sheet size

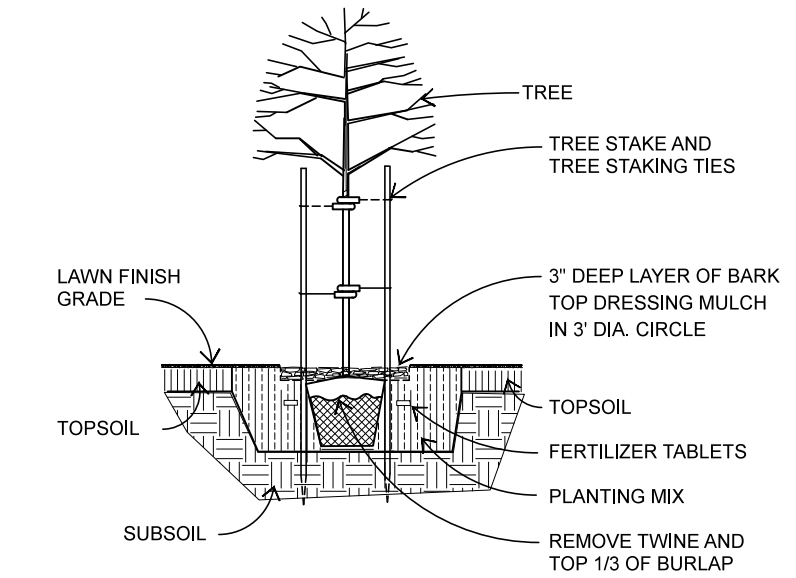


L1.2

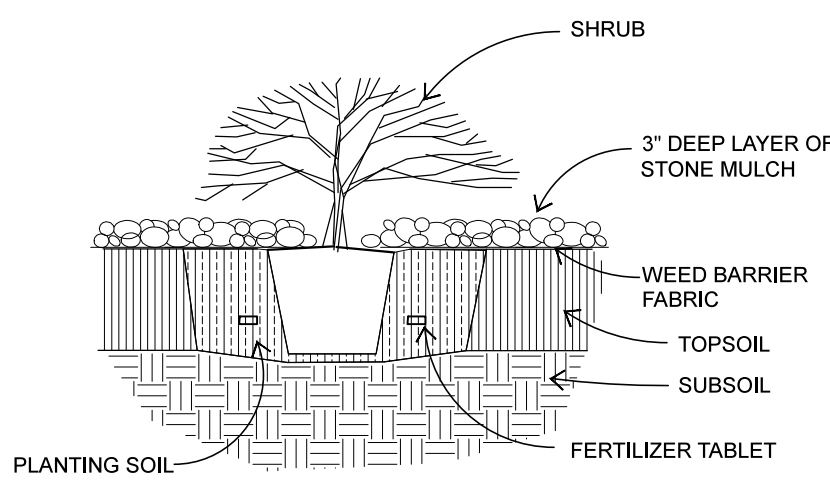
SPRINKLER IRRIGATION PLAN



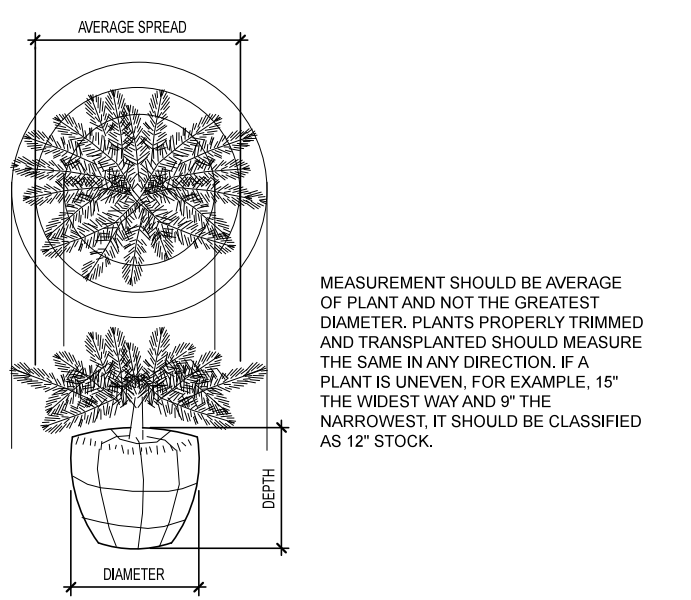
TYPICAL MEASUREMENT FOR BROAD UPRIGHT TYPE PLANTS
NOT TO SCALE



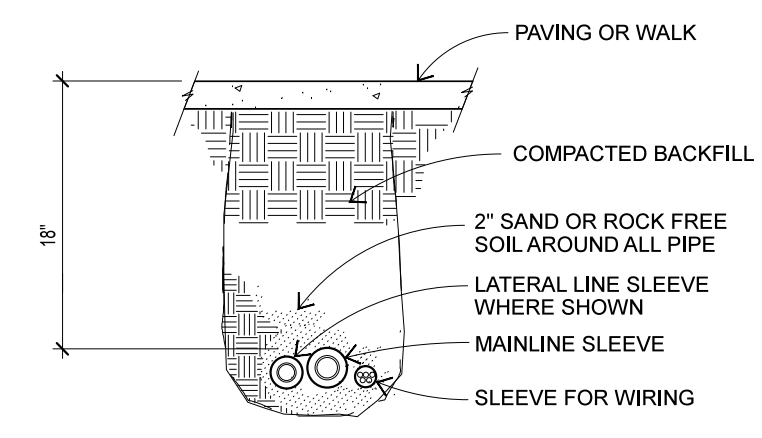
DECIDUOUS TREE PLANTING DETAIL, TYP
NOT TO SCALE



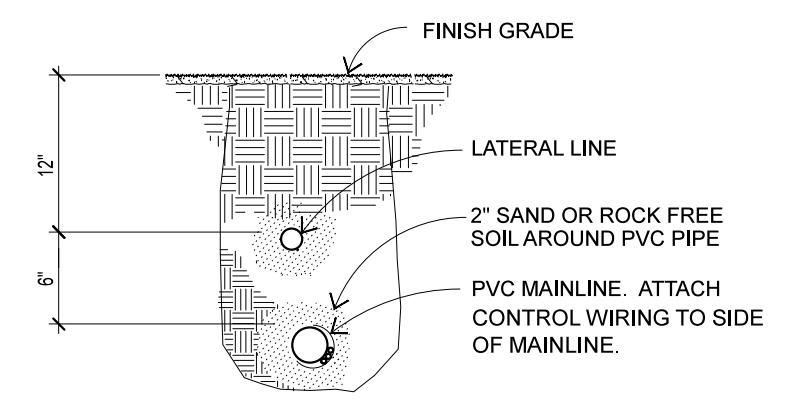
SHRUB PLANTING DETAIL, TYP
NOT TO SCALE



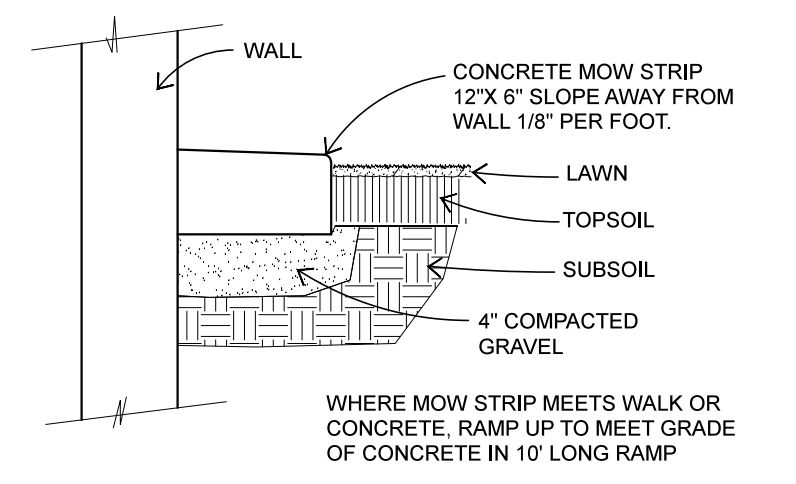
TYPICAL MEASUREMENT FOR PROSTRATE TYPE PLANTS
NOT TO SCALE



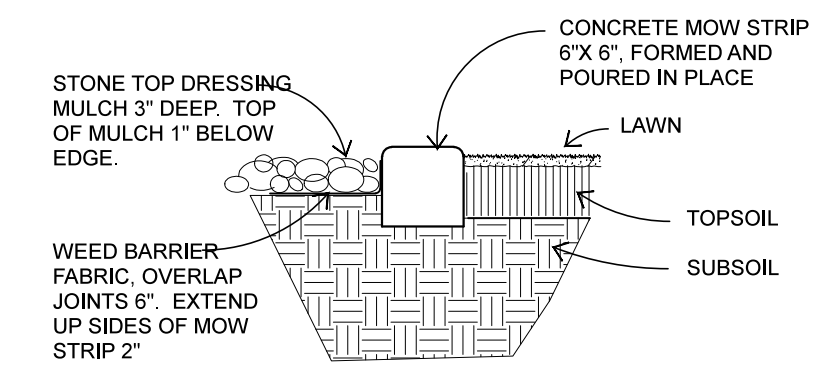
TRENCH FOR SLEEVES DETAIL, TYP
NOT TO SCALE



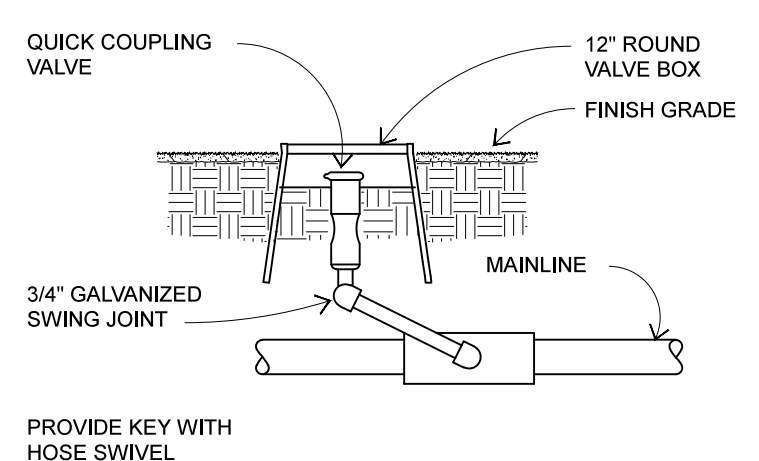
TRENCH DETAIL PVC PIPE, TYP
NOT TO SCALE



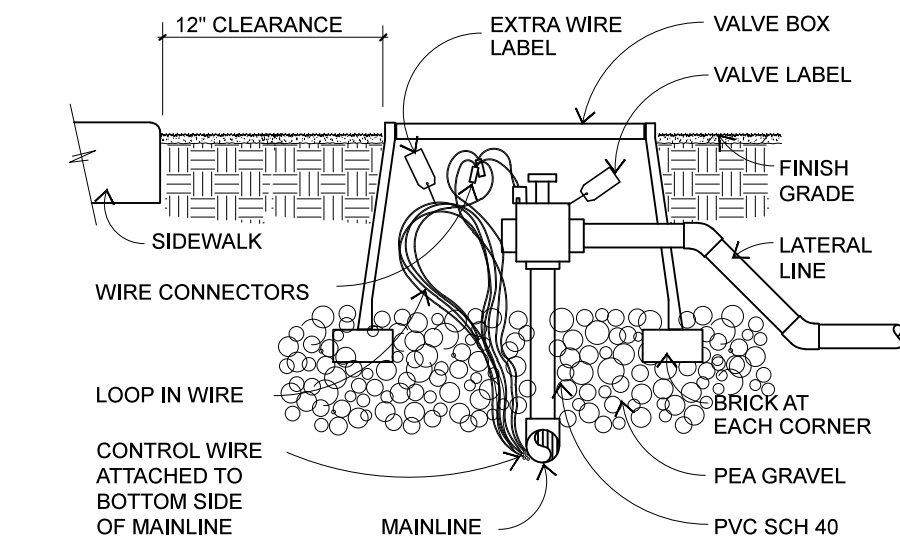
CONCRETE MOW STRIP NEXT TO WALL, TYP
NOT TO SCALE



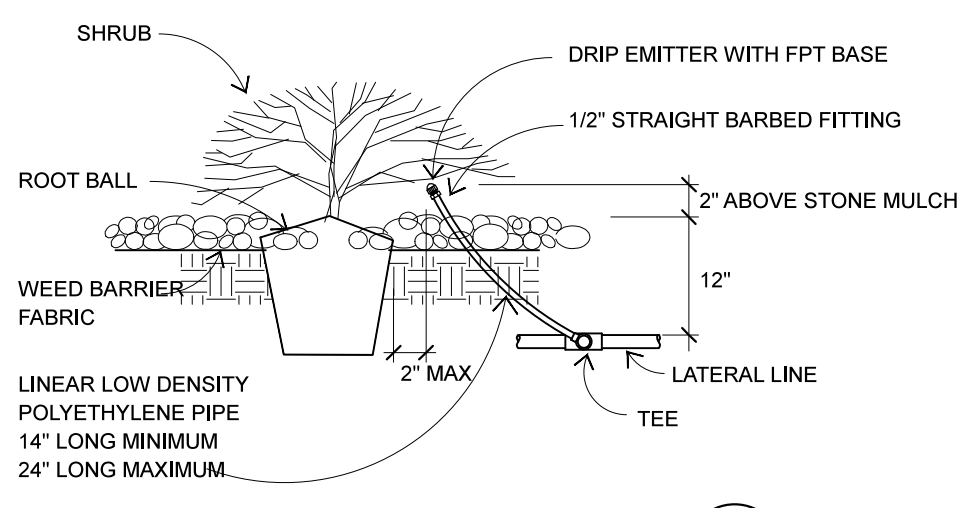
CONCRETE MOW STRIP BETWEEN LAWN AND STONE MULCH, TYP
NOT TO SCALE



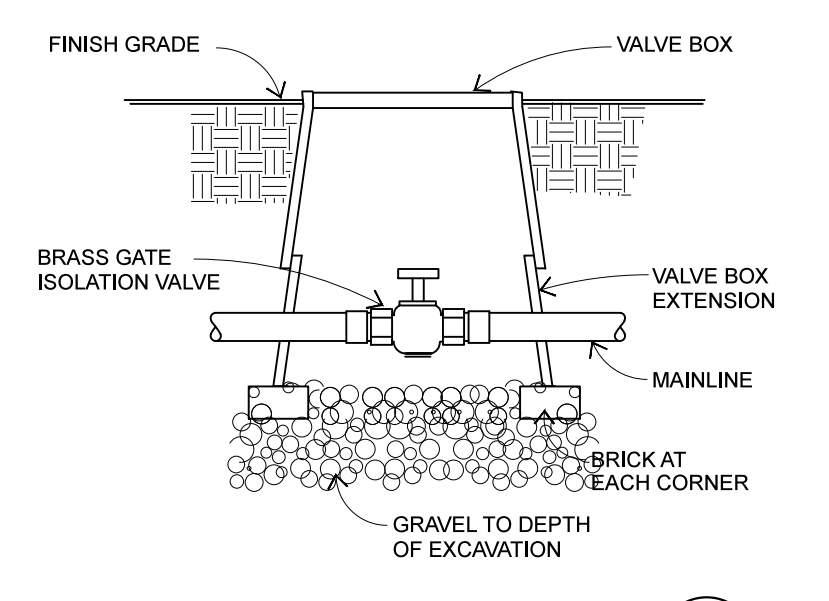
QUICK COUPLING VALVE, TYP
NOT TO SCALE



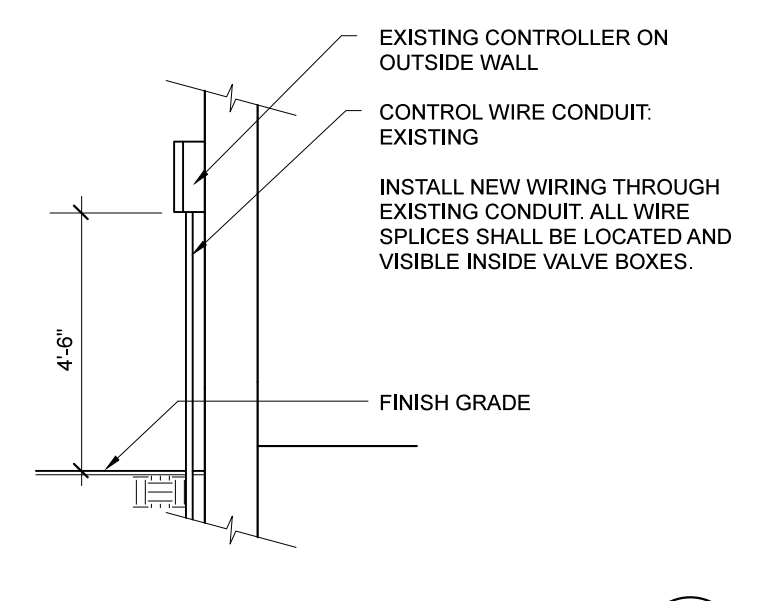
CONTROL VALVE DETAIL, TYP
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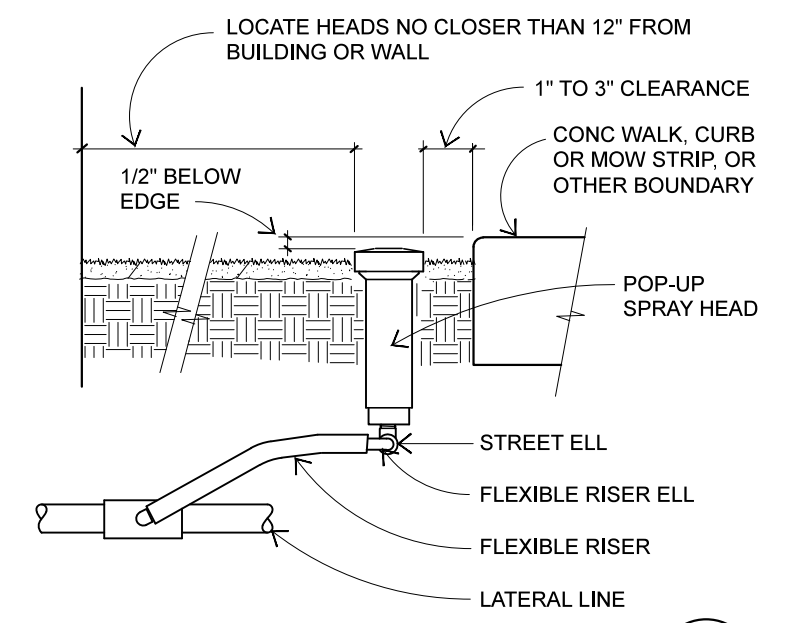
DRIP EMITTER DETAIL, TYP
NOT TO SCALE



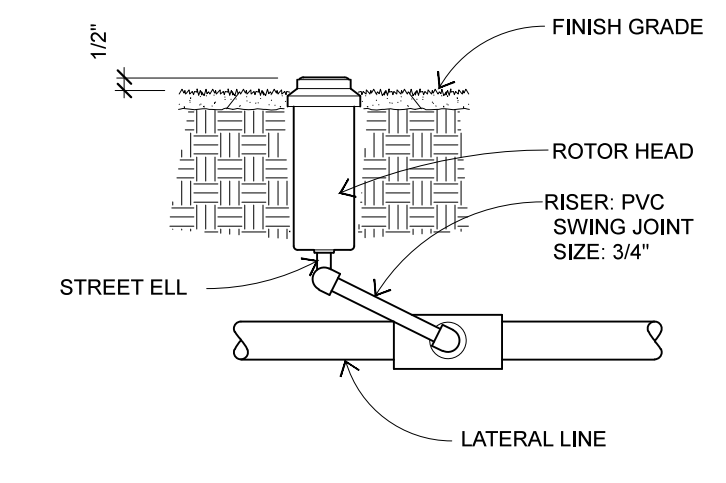
ISOLATION VALVE, TYP
NOT TO SCALE



CONTROLLER DETAIL
NOT TO SCALE



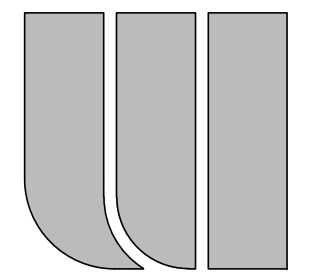
SPRAY HEAD DETAIL, TYP
NOT TO SCALE



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PROJECT: BUILDING EXPANSION FOR
JEFFERSON COUNTY COURTHOUSE EXPANSION
RIGBY, IDAHO

REVISIONS

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| 09-15-17 | |
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PROJECT: 16067
DATE: FEBRUARY 2017
DRAWN BY: ???
CHECKED BY: SLH

DRAWING NO.:

L1.3

SECTION 32 8400 - PLANTING IRRIGATION

1.GENERAL

1. SUMMARY

- A. Section Includes:
 - 1. Piping.
 - 2. Manual valves.
 - 3. Automatic control valves.
 - 4. Automatic drain valves.
 - 5. Sprinklers.
 - 6. Quick couplers.
 - 7. Controllers.
 - 8. Boxes for automatic control valves.

2. PERFORMANCE REQUIREMENTS

- A. Irrigation zone control shall be automatic operation with controller and automatic control valves.
- B. Location of Sprinklers and Specialties: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards. Maintain 100 percent irrigation coverage of areas indicated.
- C. Minimum Working Pressures: The following are minimum pressure requirements for piping, valves, and specialties unless otherwise indicated:
 - 1. Irrigation Main Piping: 200 psig.
 - 2. Circuit Piping: 150 psig.

3. ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

4. INFORMATIONAL SUBMITTALS

- A. Zoning Chart: Show each irrigation zone and its control valve.
- B. Controller Timing Schedule: Indicate timing settings for each automatic controller zone.
- C. Field quality-control reports.

5. CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

6. QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.PRODUCTS

1. PIPES, TUBES, AND FITTINGS

- A. Comply with requirements in the piping schedule for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.

- B. Galvanized-Steel Pipe: ASTM A 53/A 53M, Standard Weight, Type E, Grade B.
 - 1. Galvanized-Steel Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M or ASTM A 106/A 106M, Standard Weight, seamless-steel pipe with threaded ends.
 - 2. Galvanized, Gray-Iron Threaded Fittings: ASME B16.4, Class 125, standard pattern.
 - 3. Malleable-Iron Unions: ASME B16.39, Class 150, hexagonal-stock body with ball-and-socket, metal-to-metal, bronze seating surface, and female threaded ends.
 - 4. Cast-Iron Flanges: ASME B16.1, Class 125.

- C. Soft Copper Tube: ASTM B 88, Type L, water tube, annealed temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end.
 - 3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.

- D. Hard Copper Tube: [ASTM B 88, Type L, and ASTM B 88, Type M, water tube, drawn temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end.
 - 3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.

- E. PE Pipe with Controlled ID: ASTM F 771, PE 3408 compound; SIDR 15.
 - 1. Insert Fittings for PE Pipe: ASTM D 2609, nylon or propylene plastic with barbed ends. Include bands or other fasteners.

- F. PVC Pipe: ASTM D 1785, PVC 1120 compound, Schedule 40.
 - 1. PVC Socket Fittings: ASTM D 2466, Schedules 40 and 80.
 - 2. PVC Threaded Fittings: ASTM D 2464, Schedule 80.

2. PIPING JOINING MATERIALS

- A. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.
- B. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.
- C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- D. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

3. MANUAL VALVES

- A. Curb Valves:
 - 1. Description:
 - a. Standard: AWWA C800.
 - b. NPS 1 and Smaller Pressure Rating: 100 psig minimum.
 - c. NPS 1-1/4 to NPS 2 Pressure Rating: 80 psig minimum.
 - d. Body Material: Brass or bronze with ball or ground-key plug.
 - e. End Connections: Matching piping.
 - f. Stem: With wide-tee head.

- B. Curb-Valve Casing:
 - 1. Standard: Similar to AWWA M44 for cast-iron valve casings.
 - 2. Top Section: Telescoping, of length required for depth of burial of curb valve.
 - 3. Barrel: Approximately 3-inch diameter.
 - 4. Plug: With lettering "WATER."
 - 5. Bottom Section: With base of size to fit over valve.
 - 6. Base Support: Concrete collar.

- C. Shutoff Rods for Curb-Valve Casings: Furnish one steel, tee-handle shutoff rod(s) with one pointed end, stem of length to operate deepest buried valve, and slotted end matching curb valve for Project.
- D. Bronze Ball Valves:
 - 1. Description:
 - a. Standard: MSS SP-110.
 - b. SWP Rating: 150 psig.
- E. CWP Rating: 600 psig.
- F. Body Design: Two piece.
- G. Body Material: Bronze.
- H. Ends: Threaded or solder joint if indicated.
- I. Seats: PTFE or TFE.
- J. Stem: Bronze.
- K. Ball: Chrome-plated brass.
- L. Port: Full.

4. AUTOMATIC CONTROL VALVES

- A. Plastic, Automatic Control Valves:
 - 1. Description: Molded-plastic body, normally closed, diaphragm type with manual-flow adjustment, and operated by 24-V ac solenoid.

5. SPRINKLERS

- A. General Requirements: Designed for uniform coverage over entire spray area indicated at available water pressure.
- B. Plastic, Pop-up, Gear-Drive Rotary Sprinklers:
 - 1. Description:
 - a. As shown on drawings.
- C. Plastic, Pop-up, Impact-Drive Rotary Sprinklers:
 - 1. Description:
 - a. As shown on drawings.
- D. Plastic, Pop-up Spray Sprinklers:
 - 1. Description:
 - a. As shown on drawings.
- E. Plastic Shrub Sprinklers:
 - 1. Description:
 - a. As shown on drawings.

6. QUICK COUPLERS

- A. Description: Factory-fabricated, bronze or brass, two-piece assembly. Include coupler water-seal valve; removable upper body with spring-loaded or weighted, rubber-covered cap; hose swivel with ASME B1.20.7, 3/4-11.5NH threads for garden hose on outlet; and operating key.
 - 1. Locking-Top Option: Vandal-resistant locking feature. Include one matching key.

7. CONTROLLERS

- A. Description:
 - 1. Controller: As shown on drawings.
 - 2. Moisture Sensor: As shown on drawings.
 - 3. Wiring: UL 493, Type UF multiconductor, with solid-copper conductors; insulated cable; suitable for direct burial.
 - a. Feeder-Circuit Cables: No. 14 AWG minimum, between building and controllers.
 - b. Low-Voltage, Branch-Circuit Cables: No. 14 AWG minimum, between controllers and automatic control valves; color-coded different from feeder-circuit-cable jacket color; with jackets of different colors for multiple-cable installation in same trench.

- c. Splicing Materials: Manufacturer's packaged kit consisting of insulating, spring-type connector or crimped joint and epoxy resin moisture seal; suitable for direct burial.

8. BOXES FOR AUTOMATIC CONTROL VALVES

- A. Plastic Boxes:
 - 1. Description: Box and cover, with open bottom and openings for piping; designed for installing flush with grade.
 - a. Size: As required for valves and service.
 - b. Shape: Rectangular.
 - c. Sidewall Material: PE, ABS, or FRP.
 - d. Cover Material: PE, ABS, or FRP.
- B. Drainage Backfill: Cleaned gravel or crushed stone, graded from 3/4 inch minimum to 3 inches maximum.

3.EXECUTION

1. EARTHWORK

- A. Excavating, trenching, and backfilling are specified in Section 31 2000 "Earth Moving."
- B. Install warning tape directly above pressure piping, **12 inches** below finished grades, except 6 inches below subgrade under pavement and slabs.
- C. Provide minimum cover over top of underground piping according to the following:
 - 1. Irrigation Main Piping: Minimum depth of 18 inches below finished grade.
 - 2. Circuit Piping: 12inches below finished grade.
 - 3. Sleeves: 18 inches below finish grade.

2. PIPING INSTALLATION

- A. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings.
- B. Install piping free of sags and bends.
- C. Install groups of pipes parallel to each other, spaced to permit valve servicing.
- D. Install fittings for changes in direction and branch connections.
- E. Install underground thermoplastic piping according to ASTM D 2774.
- F. Lay piping on solid subbase, uniformly sloped without humps or depressions.
- G. Install ductile-iron piping according to AWWA C600.
- H. Install PVC piping in dry weather when temperature is above 40 deg F. Allow joints to cure at least 24 hours at temperatures above 40 deg F before testing.

3. JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

- D. Copper-Tubing Brazed Joints: Construct joints according to CDA's "Copper Tube Handbook," using copper-phosphorus brazing filler metal.
- E. Copper-Tubing Soldered Joints: Apply ASTM B 813 water-flushable flux to tube end unless otherwise indicated. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy (0.20 percent maximum lead content) complying with ASTM B 32.
- F. PE Piping Fastener Joints: Join with insert fittings and bands or fasteners according to piping manufacturer's written instructions.
- G. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
 2. PVC Pressure Piping: Join schedule number, ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
 3. PVC Nonpressure Piping: Join according to ASTM D 2855.

4. VALVE INSTALLATION

- A. Underground Curb Valves: Install in curb-valve casings with tops flush with grade.
- B. Automatic control valve: Install as shown on drawings.

5. SPRINKLER INSTALLATION

- A. Install sprinklers after hydrostatic test is completed.
- B. Install sprinklers at manufacturer's recommended heights.
- C. Locate part-circle sprinklers to maintain a minimum distance of 12 inches from walls and 2 inches from other boundaries unless otherwise indicated.

6. AUTOMATIC IRRIGATION-CONTROL SYSTEM INSTALLATION

- A. Equipment Mounting: Install interior controllers on wall.
 1. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
- B. Install control cable in same trench as irrigation piping attached to side of piping at 10 foot intervals. Provide conductors of size not smaller than recommended by controller manufacturer. Install cable in separate sleeve under paved areas.

7. IDENTIFICATION

- A. Identify system components. Comply with requirements for identification specified in Section 22 0553 "Identification for Plumbing Piping and Equipment."
- B. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplates and signs on each automatic controller.
 1. Text: In addition to identifying unit, distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.
- C. Warning Tapes: Arrange for installation of continuous, underground, detectable warning tapes over underground mainline piping during backfilling of trenches. See Section 31 2000 "Earth Moving" for warning tapes.

8. FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

C. Any irrigation product will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

9. ADJUSTING

A. Adjust settings of controllers.

B. Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.

C. Adjust sprinklers and devices, except those intended to be mounted aboveground, so they will be 1/2 inch above, finish grade.

END OF SECTION 32 8400

SECTION 32 9113 - SOIL PREPARATION

1.GENERAL

1. SUMMARY

- A. Section includes planting soils specified by composition of the mixes.
- B. Related Requirements:
 - 1. Section 31 1000 "Site Clearing" for topsoil stripping and stockpiling.
 - 2. Section 32 9700 "Vegetated Roof Assemblies" for growing media (soil).

2. DEFINITIONS

- A. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.
- B. Imported Soil: Soil that is transported to Project site for use as topsoil for planting soil
- C. Planting Soil: Imported soil that has been modified as specified with soil amendments and fertilizers to produce a soil mixture best for plant growth.
- D. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- E. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- F. USCC: U.S. Composting Council.

3. PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site.

4. ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each bulk-supplied material in sealed containers labeled with content, source, and date obtained; providing an accurate representation of composition, color, and texture.

5. INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

6. QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

2.PRODUCTS

1. IMPORTED SOIL

- A. All soil to be used as topsoil for planting soil shall be imported to the site from approved sources.

- B. Submit topsoil analysis test for imported soil.

2. INORGANIC SOIL AMENDMENTS

- A. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent elemental sulfur, with a minimum of 99 percent passing through a No. 6 sieve and a maximum of 10 percent passing through a No. 40 sieve.
- B. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

3. ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:
 - 1. Feedstock: May include animal waste.
 - 2. Reaction: pH of 5.5 to 8.
 - 3. Soluble-Salt Concentration: Less than 4 dS/m.
 - 4. Moisture Content: 20 to 40 percent by weight.
 - 5. Organic-Matter Content: 30 to 40 percent of dry weight.
 - 6. Particle Size: Minimum of 98 percent passing through a 1 inch sieve.

4. FERTILIZERS

- A. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 33 percent available phosphoric acid.
- B. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
 - 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.
- C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - 1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
 - 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.

3. EXECUTION

1. GENERAL

- A. Place planting soil and fertilizers according to requirements in other Specification Sections.
- B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

2. PLACING AND MIXING PLANTING SOIL OVER EXPOSED SUBGRADE

- A. General: Apply and mix imported soil with amendments on-site to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Subgrade Preparation: Till subgrade to a minimum depth of 4 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- C. Mixing: Spread imported soil to total depth of 4" in lawn areas and 12" in shrub planting areas, but not less than required to meet finish grades after mixing with amendments and natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.

1. Amendments: Apply sulphur and fertilizer evenly on surface, and thoroughly blend them with imported soil to produce planting soil.
 - a. Mix sulfur at the rate of 5 lbs. per 1,000 sq. ft. with dry soil before mixing fertilizer.
 - b. Mix fertilizer at the rate of 10 lbs. per 1,000 sq. ft. with dry soil no more than seven days before planting.
- D. Compaction: Compact each blended lift of planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D 698 and tested in-place.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3. APPLYING COMPOST TO SURFACE OF PLANTING SOIL

- A. Application: Apply 1 inch of compost to surface of in-place planting soil and till into the top 4" of planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Finish Grading: Grade surface to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
 1. Finish grade of planting soil in lawn areas shall be approximately one and one half inch below top of concrete edge, so that finish grade of sod is 1" below edge measured to top of sod soil after sod is in place.
 2. Finish grade of planting soil in shrub planting areas shall be 4" below concrete edge measured before placing mulch.

4. PROTECTION AND CLEANING

- A. Protection Zone: Identify protection zones according to Section 01 5639 "Temporary Tree and Plant Protection."
- B. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
 1. Storage of construction materials, debris, or excavated material.
 2. Parking vehicles or equipment.
 3. Vehicle traffic.
 4. Foot traffic.
 5. Erection of sheds or structures.
 6. Impoundment of water.
 7. Excavation or other digging unless otherwise indicated.
- C. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.
 1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

END OF SECTION 32 9113

SECTION 32 9200 - TURF AND GRASSES

1.GENERAL

1. SUMMARY

- A. Section Includes:
 - 1. Seeding.
 - 2. Sodding.

2. DEFINITIONS

- A. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- B. Planting Soil: See Section 32 9113 "Soil Preparation" and drawing designations for planting soils.

3. PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site.

4. INFORMATIONAL SUBMITTALS

- A. Certification of grass seed.
 - 1. Certification of each seed mixture for turfgrass sod.
- B. Product certificates.

5. QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 2. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
 - a. Landscape Industry Certified Lawncare Technician.
 - 3. Pesticide Applicator: State licensed, commercial.

6. DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.
- B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.

2.PRODUCTS

1. TURFGRASS SOD

- A. Turfgrass Sod: Certified, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.

- B. Turfgrass Species: Sod of grass species as follows:
 - 1. Three varieties of Kentucky Bluegrass.

2. FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
- B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - 1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.

3. PESTICIDES

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

3.EXECUTION

1. TURF AREA PREPARATION

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 32 9113 "Soil Preparation."
- B. Reduce elevation of planting soil to allow for soil thickness of sod.
 - 1. Finish grade for sodded areas is 1" below top of concrete edge measured to top of sod soil.
- C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- D. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

2. SODDING

- A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.
- B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
 - 1. Lay sod across slopes exceeding 1:3.
 - 2. Anchor sod on slopes exceeding 1:6 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.
- C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3. TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
- B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings.

4. SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
 - 1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 95 percent over any 10 sq. ft. and bare spots not exceeding 2 by 2 inches.
 - 2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

- B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

END OF SECTION 32 9200

SECTION 32 9300 - PLANTS

1.GENERAL

1. SUMMARY

- A. Section Includes:
 - 1. Plants.
 - 2. Tree-watering devices.
 - 3. Landscape edgings.

2. DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides.
- C. Planting Soil: See Section 32 9113 "Soil Preparation" for drawing designations for planting soils.
- D. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

3. PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

4. ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples of each type of mulch.

5. INFORMATIONAL SUBMITTALS

- A. Product certificates.
- B. Sample warranty.

6. CLOSEOUT SUBMITTALS

- A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of plants during a calendar year.

7. QUALITY ASSURANCE

- A. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 1. Pesticide Applicator: State licensed, commercial.
- B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

8. DELIVERY, STORAGE, AND HANDLING

- A. Transport in covered, temperature-controlled vehicles, and keep plants cool and protected from sun and wind at all times.
- B. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
- C. Handle planting stock by root ball.
- D. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

9. WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
 - b. Structural failures including plantings falling or blowing over.
 - 2. Warranty Periods: From date of Substantial Completion.
 - a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
 - b. Ground Covers, Biennials, Perennials, and Other Plants: Three months.

2.PRODUCTS

1. PLANT MATERIAL

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

2. FERTILIZERS

- A. Planting Tablets: Tightly compressed chip-type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
 - 1. Size: 21-gram tablets.
 - 2. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients.

3. MULCHES

- A. Organic Mulch: Ground or Shredded Douglas Fir Bark equal to Supreme Walk-on available from Mountain West Bark.
- B. Mineral Mulch: As shown on drawings.

4. WEED-CONTROL BARRIERS

- A. Nonwoven Geotextile Filter Fabric: Polypropylene or polyester fabric, 3 oz./sq. yd. minimum, composed of fibers formed into a stable network so that fibers retain their relative position. Fabric shall be inert to biological degradation and resist naturally encountered chemicals, alkalis, and acids.
- B. Composite Fabric: Woven, needle-punched polypropylene substrate bonded to a nonwoven polypropylene fabric, 4.8 oz./sq. yd..

5. PESTICIDES

- A. General: Pesticide registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

6. LANDSCAPE EDGINGS

- A. As shown on drawings.

3.EXECUTION

1. PLANTING AREA ESTABLISHMENT

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 32 9113 "Soil Preparation."
- B. Placing Planting Soil: Place and mix planting soil in-place over exposed subgrade.
- C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

2. EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits.
 - 1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
 - 2. Excavate approximately three times as wide as ball diameter.
 - 3. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
 - 4. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
- B. Backfill Soil: Subsoil and topsoil removed from excavations may not be used as backfill soil unless otherwise indicated.

3. TREE, SHRUB, AND VINE PLANTING

- A. Inspection: At time of planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- B. Roots: Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.
- C. Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
 - 1. Backfill: Planting soil.
 - 2. Balled and Burlapped Stock: After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.

3. Balled and Potted and Container-Grown Stock: Carefully remove root ball from container without damaging root ball or plant.
 4. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
 5. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
 - a. Quantity: One per 1 gal. plant, three per 5 gal. plant and five per tree.
 6. Continue backfilling process. Water again after placing and tamping final layer of soil.
- D. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

4. TREE, SHRUB, AND VINE PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape.
- B. Prune, thin, and shape trees, shrubs, and vines as directed by Architect.
- C. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.
- D. Do not apply pruning paint to wounds.

5. GROUND COVER AND PLANT PLANTING

- A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated on Drawings in even rows with triangular spacing.
- B. Use planting soil for backfill.
- C. Dig holes large enough to allow spreading of roots.
- D. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- E. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- F. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

6. PLANTING AREA MULCHING

- A. Install weed-control barriers before mulching according to manufacturer's written instructions. Completely cover area to be mulched, overlapping edges a minimum of 6 inches and secure seams with galvanized pins.
- B. Mulch backfilled surfaces of planting areas and other areas indicated.
 1. Trees in Turf Areas: Apply organic mulch ring of 3 inch average thickness, with 36 inch diameter radius around trunks or stems. Do not place mulch within 3 inches of trunks or stems.
 2. Mineral mulch in Shrub Planting Areas: Apply 3 inch average thickness of organic mulch over whole surface of planting area, and finish one inch below adjacent concrete edge. Do not place mulch within 3 inches of trunks or stems.

7. PLANT MAINTENANCE

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.

- B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
- D. Apply pesticides and other chemical products and biological control agents according to authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- E. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

8. MAINTENANCE SERVICE

- A. Maintenance Service: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:
 - 1. Maintenance Period for Trees and Shrubs: One month from date of Substantial Completion.
 - 2. Maintenance Period for Ground Cover and Other Plants: One month from date of Substantial Completion.

END OF SECTION 32 9300

SECTION 06 6400 - PLASTIC PANELING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes glass-fiber reinforced plastic (FRP) wall paneling and trim accessories.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.

1.3 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 450 or less.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Kemlite Company Inc.
 - 2. Marlite.
 - 3. Nudo Products, Inc.

2.2 PLASTIC SHEET PANELING

- A. General: Gelcoat-finished, glass-fiber reinforced plastic panels complying with ASTM D 5319.
- B. Nominal Thickness: Not less than 0.09 inch.
- C. Surface Finish: Molded pebble texture.
- D. Color: As selected by Architect from manufacturer's full range.

2.3 ACCESSORIES

- A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, and caps as needed to conceal edges.
 - 1. Color: Match panels.
- B. Adhesive: As recommended by plastic paneling manufacturer.
- C. Sealant: Single-component, mildew-resistant, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Division 07 Section "Joint Sealants."

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that could impair bond of adhesive, including oil, grease, dirt, and dust.

- B. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.
- C. Lay out paneling before installing. Locate panel joints to provide equal panels at ends of walls not less than half the width of full panels.

3.2 INSTALLATION

- A. Install plastic paneling according to manufacturer's written instructions.
- B. Install panels in a full spread of adhesive.
- C. Install trim accessories with adhesive. Do not fasten through panels.
- D. Fill grooves in trim accessories with sealant before installing panels and bed inside corner trim in a bead of sealant.
- E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.
- F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION 06 6400