



**PARKS AND RECREATION
LANDSCAPE STANDARDS**

July 2016

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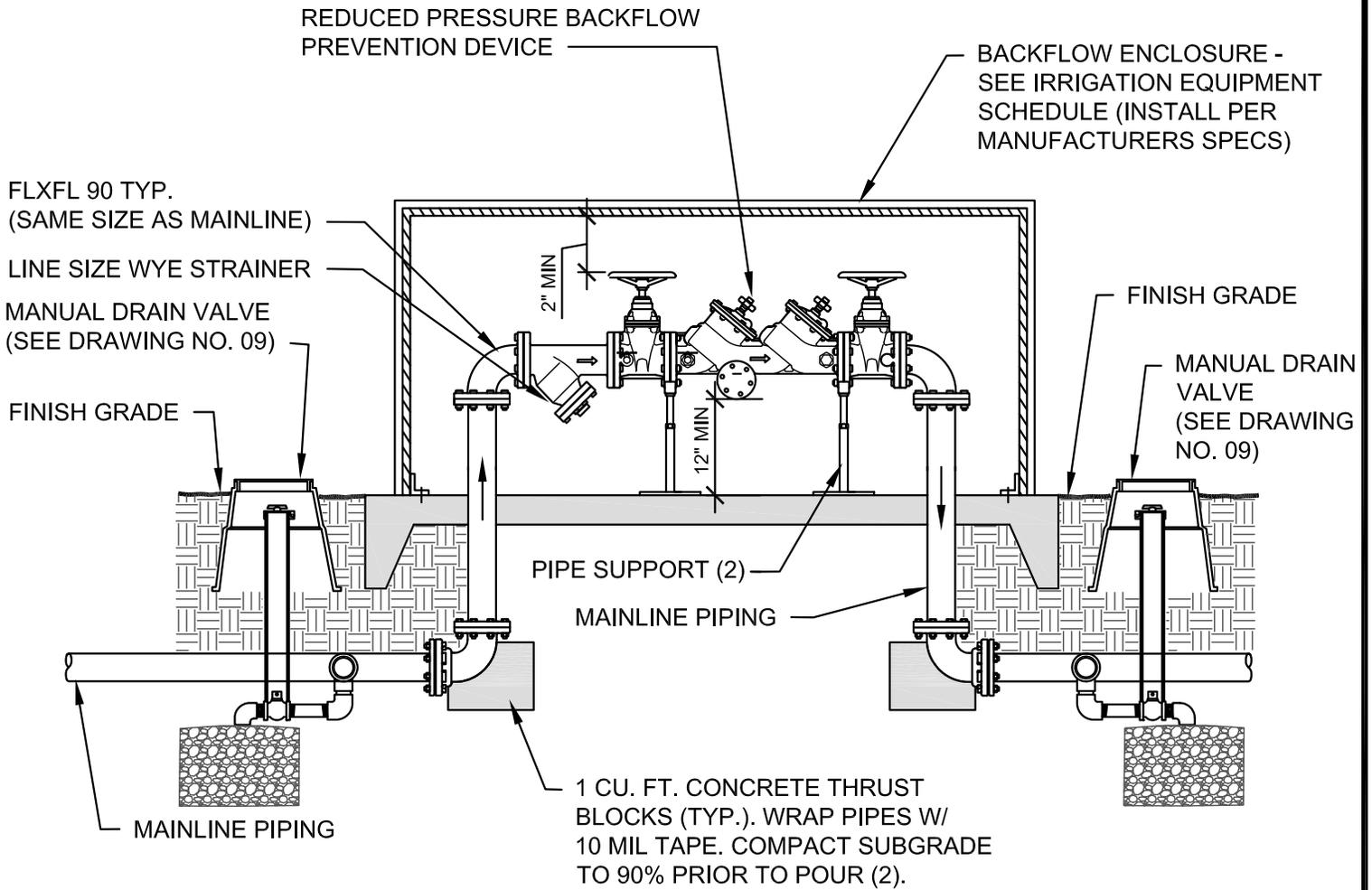
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Planting Specifications

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Guidelines for Outdoor Recreation Areas Restrooms

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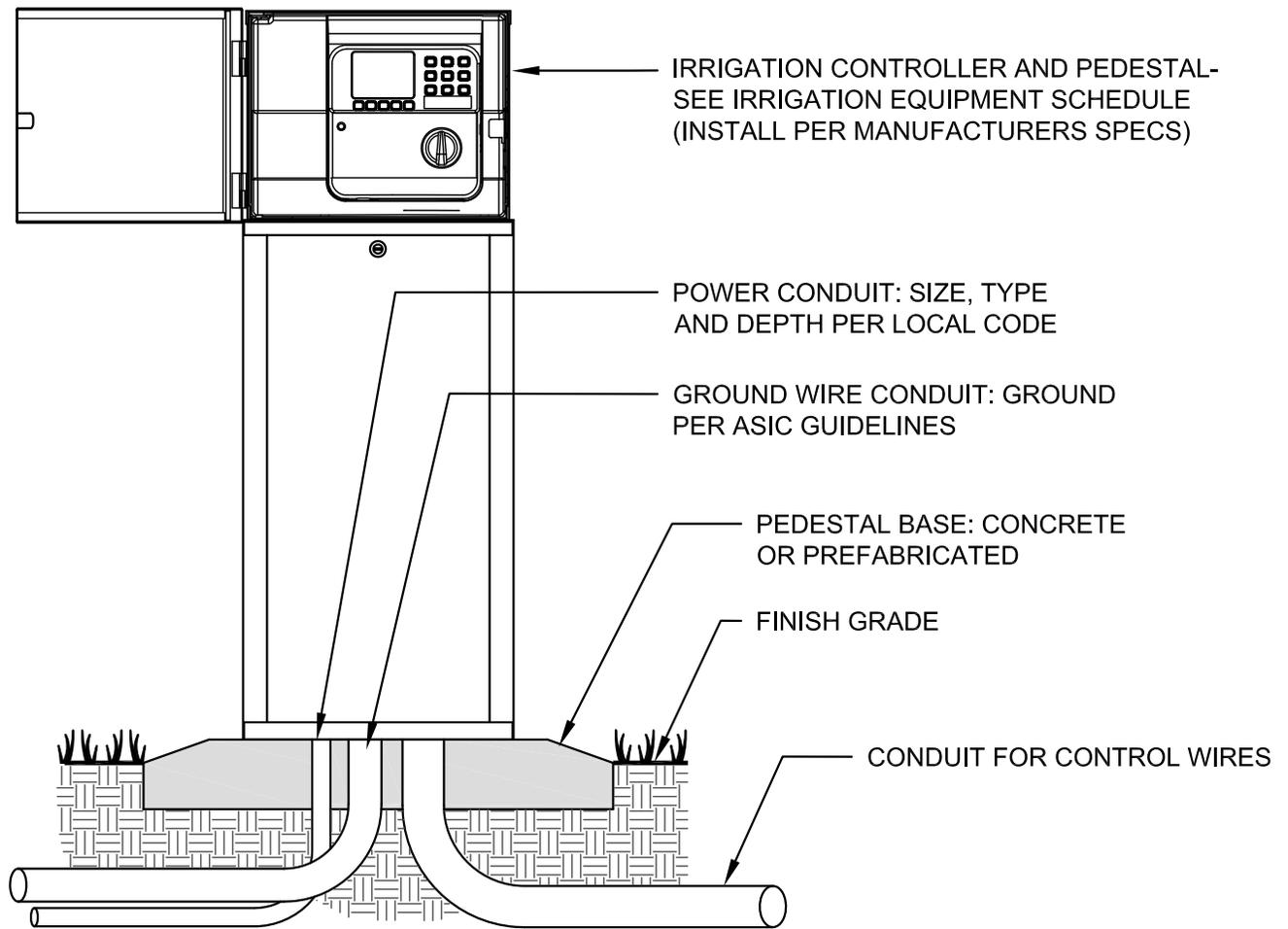
NOTES:

1. INSTALL BACKFLOW PREVENTER PER MANUFACTURERS SPECIFICATIONS.
2. ALL BURIED BOLTS SHALL BE STAINLESS STEEL.
3. ALL BACKFLOW PREVENTERS ARE TO MEET CURRENT JURISDICTIONAL CODES.
4. INSTALL BACKFLOW PREVENTER IN SHRUB BEDS WHERE POSSIBLE.
5. PROVIDE WINTERIZATION OF THE MAINLINE BACKFLOW AS REQUIRED WITH THE MANUAL DRAIN FOR COMPRESSED AIR.

BACKFLOW PREVENTER

NOT TO SCALE

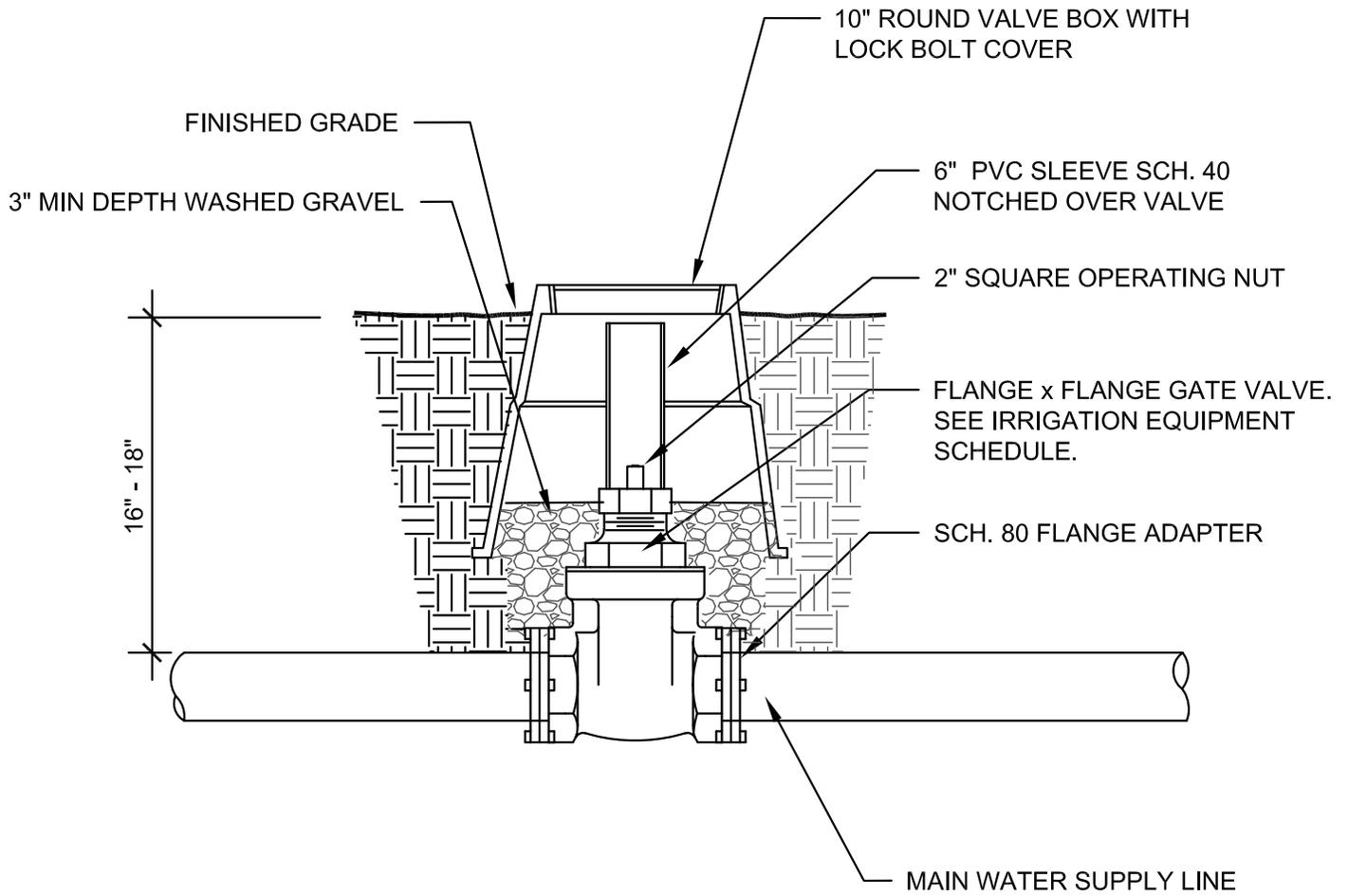
Irrigation Details Backflow Preventer	
Drawing No. 01 Rev. No. 0	
	



CONTROLLER WITH METAL PEDESTAL

IRRIGATION CONTROLLER
 NOT TO SCALE

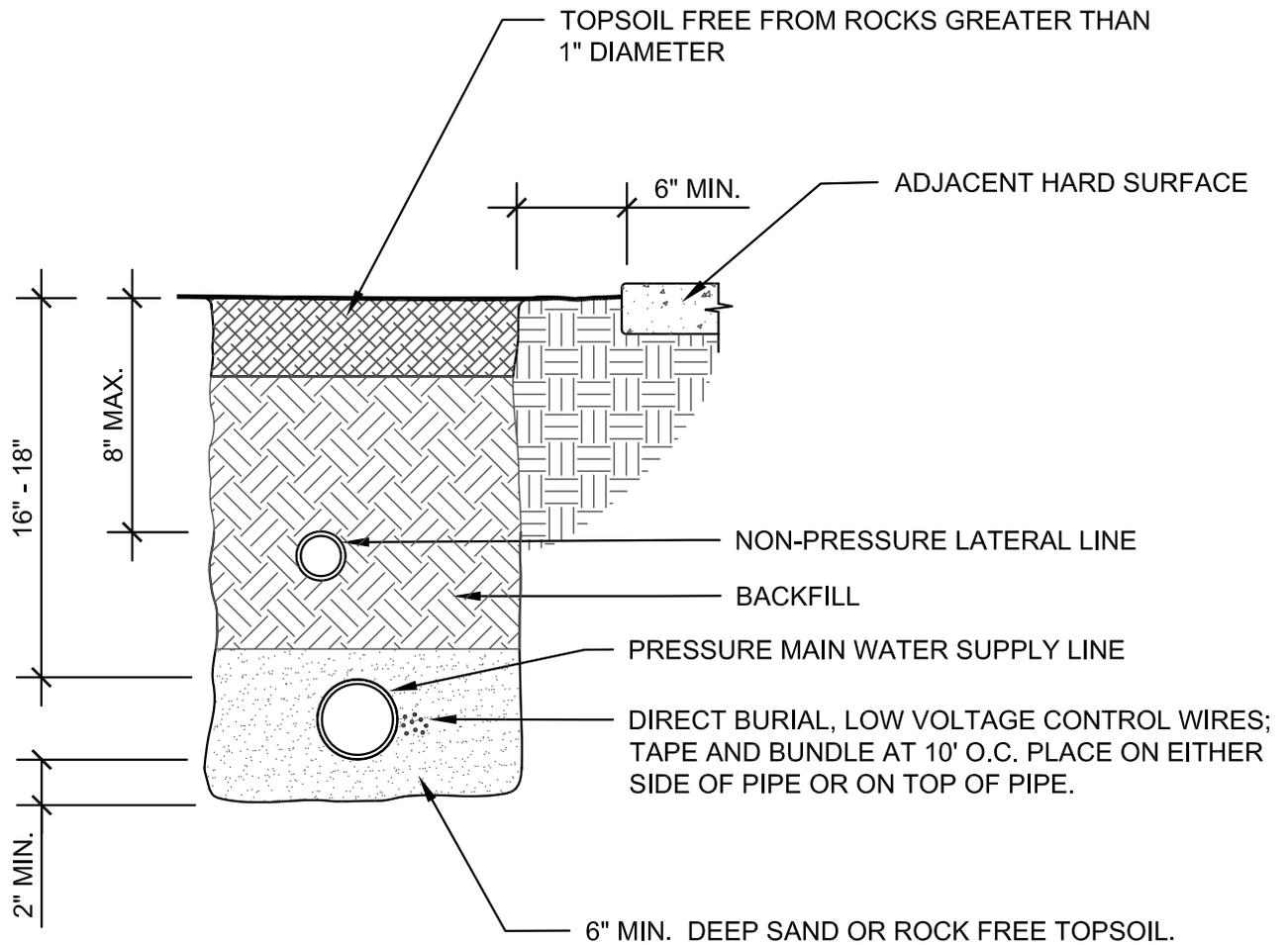
Irrigation Details Irrigation Controller	
Drawing No. 02 Rev. No. 0	
	



ISOLATION GATE VALVE

NOT TO SCALE

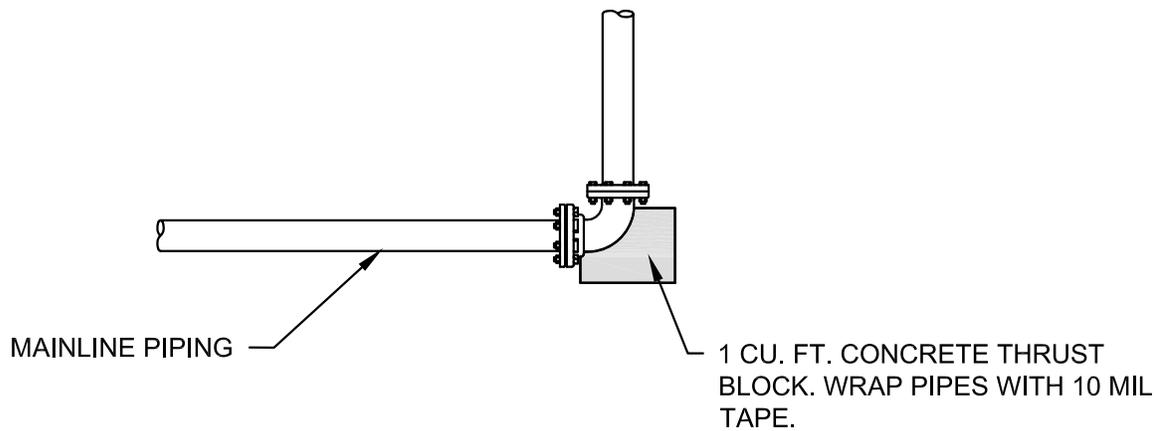
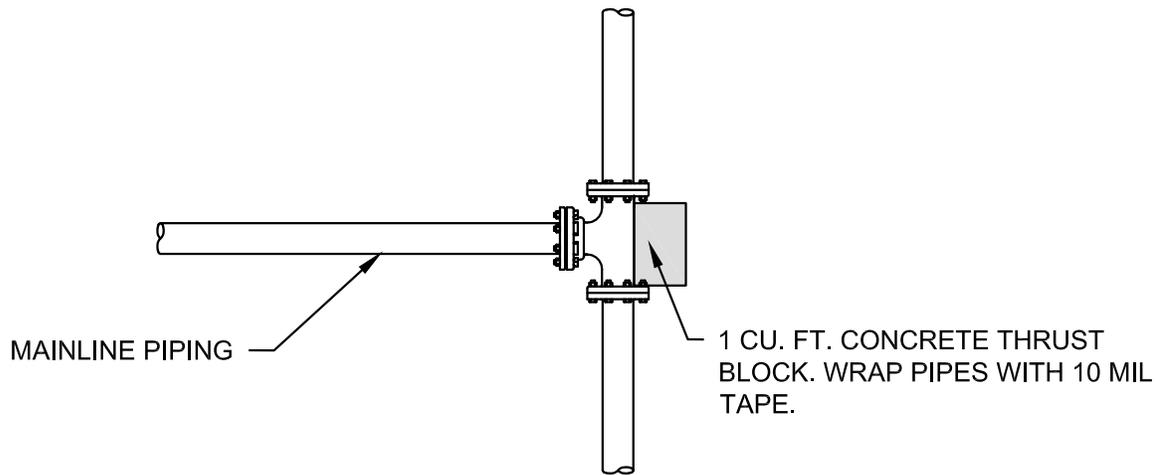
Irrigation Details Isolation Gate Valve	
Drawing No. 03 Rev. No. 0	
	



IRRIGATION PIPE TRENCH

NOT TO SCALE

Irrigation Details	
Irrigation Pipe Trench	
Drawing No. 04	
Rev. No. 0	



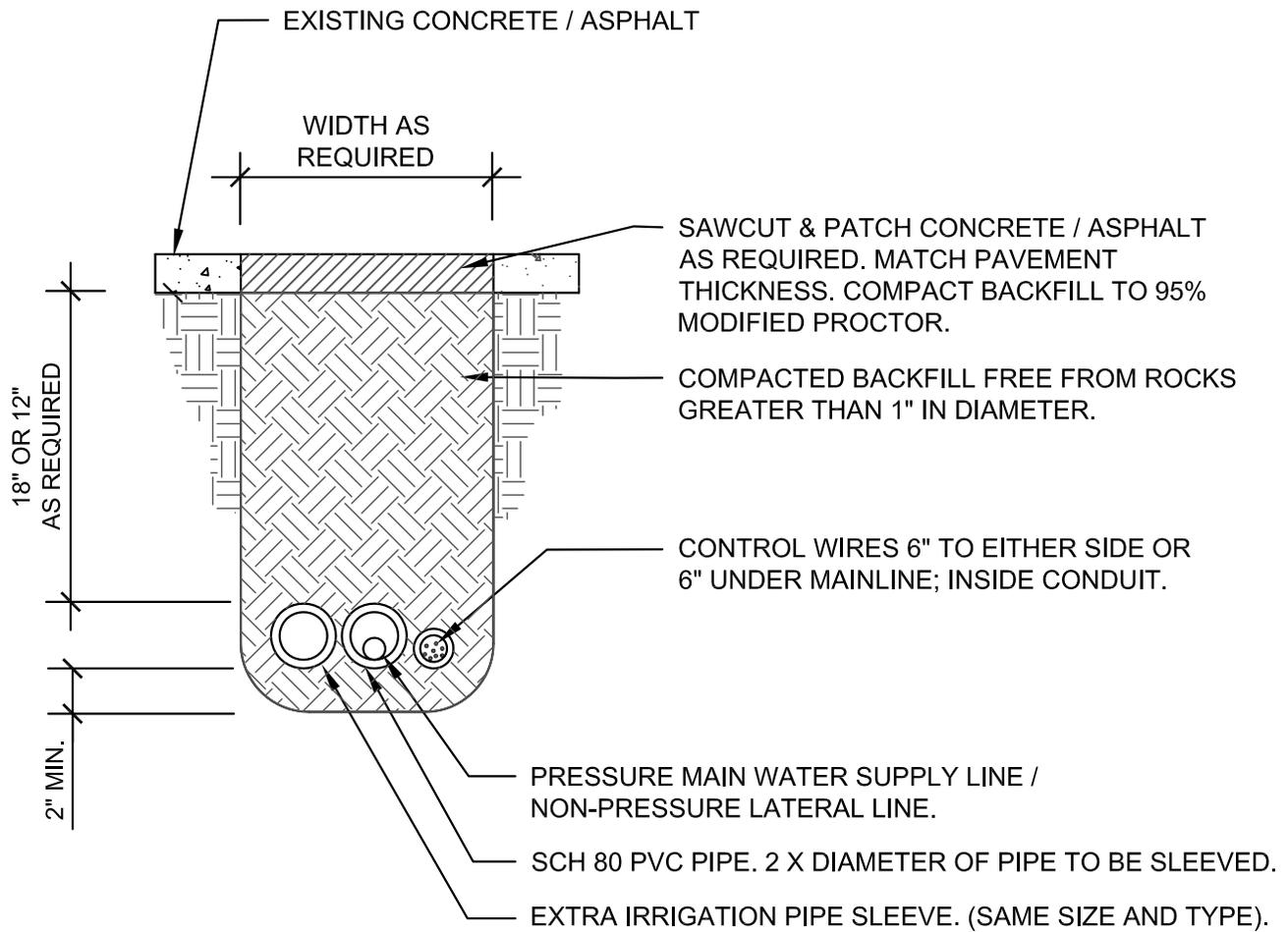
PLAN VIEW

NOTES:

1. INSTALL THRUST BLOCKS ON ALL 3" AND LARGER PRESSURIZED IRRIGATION MAIN LINE PIPE.
2. DO NOT ENCASE CONTROL WIRES IN CONCRETE.
3. CONSTRUCT THRUST BLOCKS SO THAT JOINTS AND BOLTS ARE ACCESSIBLE FOR REPAIRS.

IRRIGATION PIPE THRUST BLOCKS
NOT TO SCALE

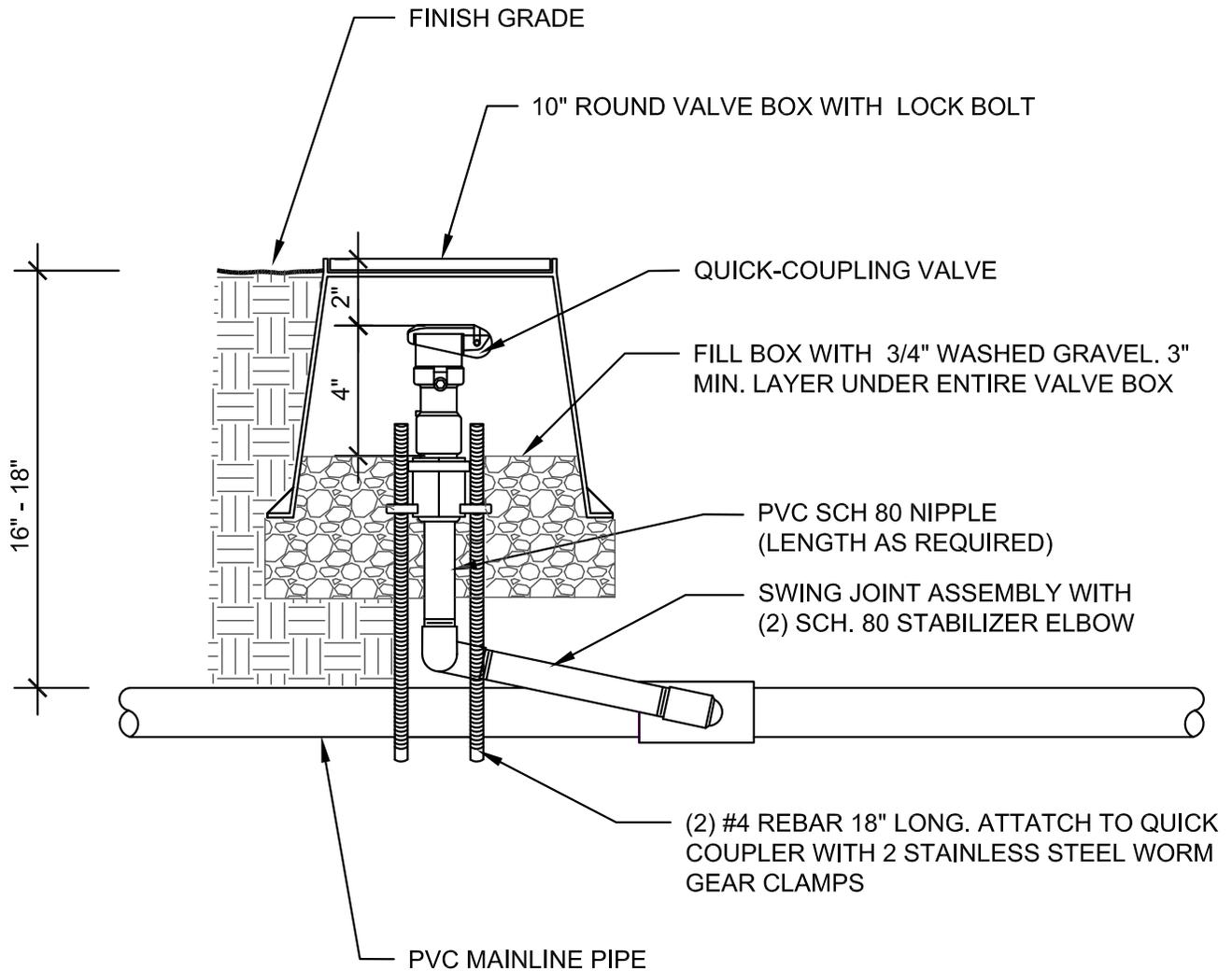
Irrigation Details Irrigation Pipe Thrust Blocks	
Drawing No. 05 Rev. No. 0	
	



IRRIGATION PIPE SLEEVE

NOT TO SCALE

Irrigation Details Irrigation Pipe Sleeve	
Drawing No. 06 Rev. No. 0	
	



NOTES:

- 1) INSTALL ONE QUICK COUPLER AT EACH VALVE MANIFOLD CLUSTER GREATER THAN 100 FEET APART.
- 2) INSTALL ONE QUICK COUPLER IMMEDIATELY DOWN LINE OF THE BACKFLOW PREVENTION DEVICE FOR WINTERIZATION PURPOSES.

QUICK COUPLER
NOT TO SCALE

Irrigation Details Quick Coupler
Drawing No. 07 Rev. No. 0


REMOTE CONTROL VALVE. (SEE IRRIGATION EQUIPMENT SCHEDULE)

VALVE BOX (SEE NOTES).
INSTALL AT GRADE

ID TAG

CONTROL WIRES

PVC SCH. 80 UNION

SCH. 80 NIPPLE ON EITHER
SIDE OF UNION

18" MIN.

PVC SCH. 80 ELBOW

WRAP BOTTOM OF VALVE
BOX WITH FILTER FABRIC

PVC SCH. 80 NIPPLE
LENGTH AS REQUIRED

LATERAL LINE

PVC SCH. 80 ELL
SAME SIZE AS VALVE

SCH. 80 ELBOW WITH SCH. 80 NIPPLE
INTO SXT BUSHING TO LATERAL

PVC SCH. 80 NIPPLE
LENGTH AS REQUIRED

3" MIN DEPTH CLEAN WASHED GRAVEL

PVC MAINLINE PIPE

PVC SCH. 80 ELBOW

PVC SCH. 80 TEE SXSXS WITH SCH. 80 SXT
BUSHING OR DOUBLE STRAP SADDLE

NOTES:

- 1) USE A STANDARD VALVE BOX FOR EACH REMOTE CONTROL VALVE SIZE $1\frac{1}{2}$ " TO 2".
- 2) USE A JUMBO VALVE BOX FOR EACH REMOTE CONTROL VALVE SIZE LARGER THAN 2".
- 3) FOR 1" AND SMALLER REMOTE CONTROL VALVES, INSTALL A MAXIMUM OF TWO VALVES PER STANDARD VALVE BOX OR A MAXIMUM OF THREE VALVES PER JUMBO VALVE BOX.

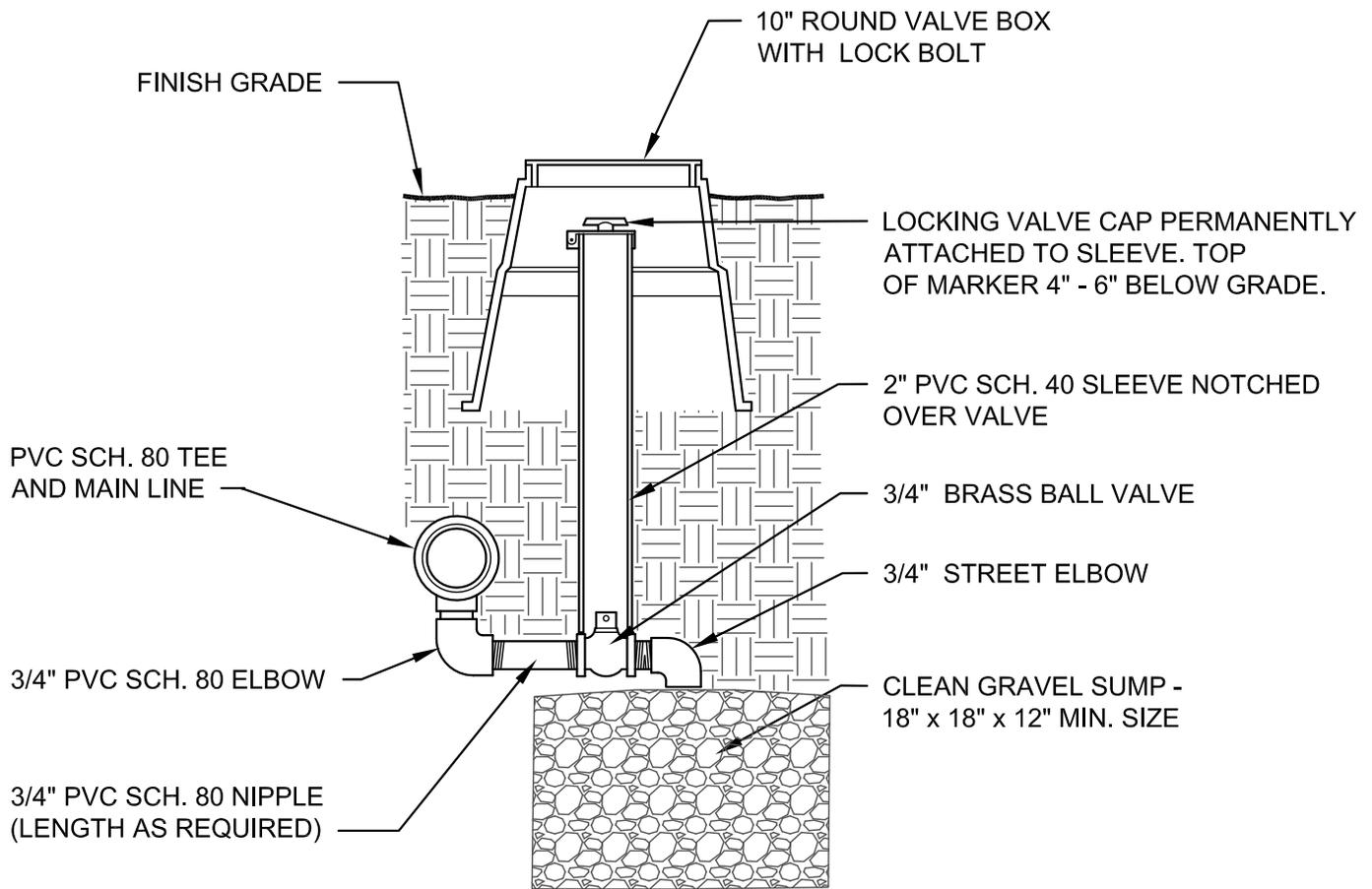
REMOTE CONTROL VALVE

NOT TO SCALE

Irrigation Details
Remote Control Valve

Drawing No. 08
Rev. No. 0


BLUFFDALE



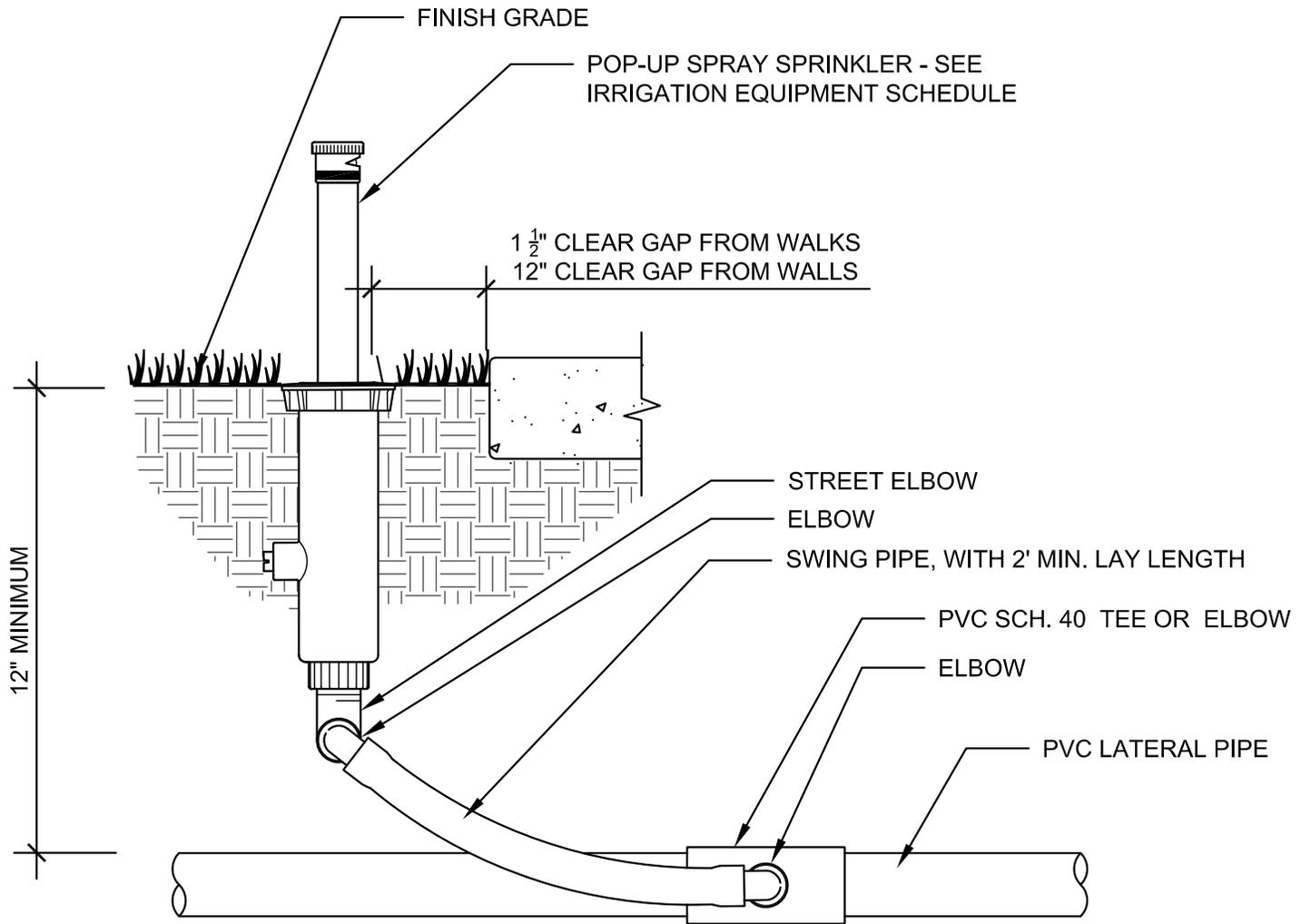
NOTES:

1. ALL PVC NIPPLES TO BE SCH. 80.
2. PROVIDE VALVE KEY TO OWNER.

MANUAL DRAIN VALVE

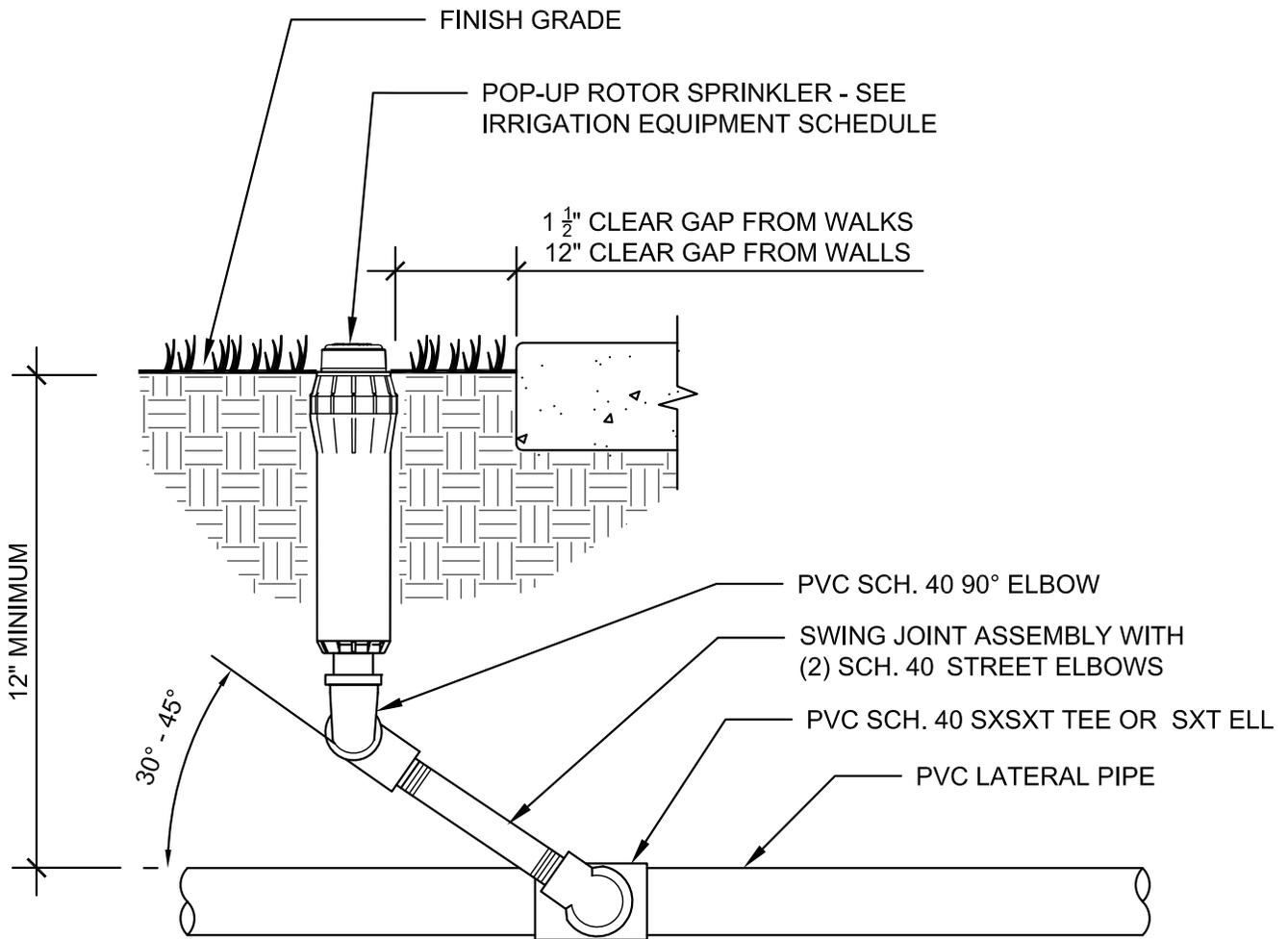
NOT TO SCALE

Irrigation Details Manual Drain Valve	
Drawing No. 09 Rev. No. 0	
	



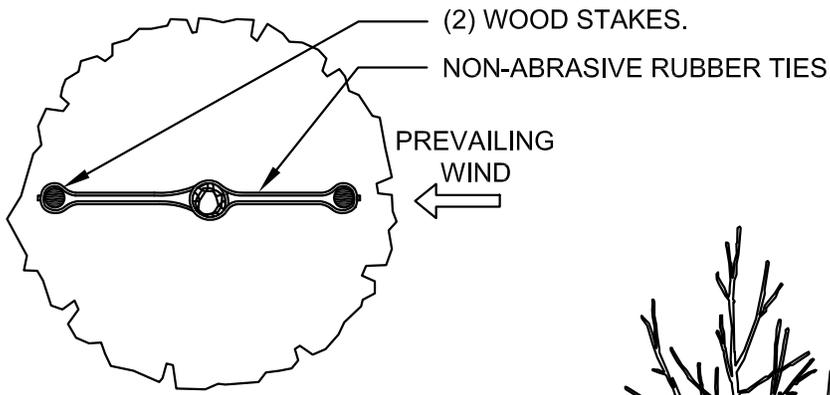
POP-UP SPRAY SPRINKLER
NOT TO SCALE

Irrigation Details Pop up Spray Sprinkler	
Drawing No. 10 Rev. No. 0	
	



POP-UP GEAR DRIVE ROTOR
NOT TO SCALE

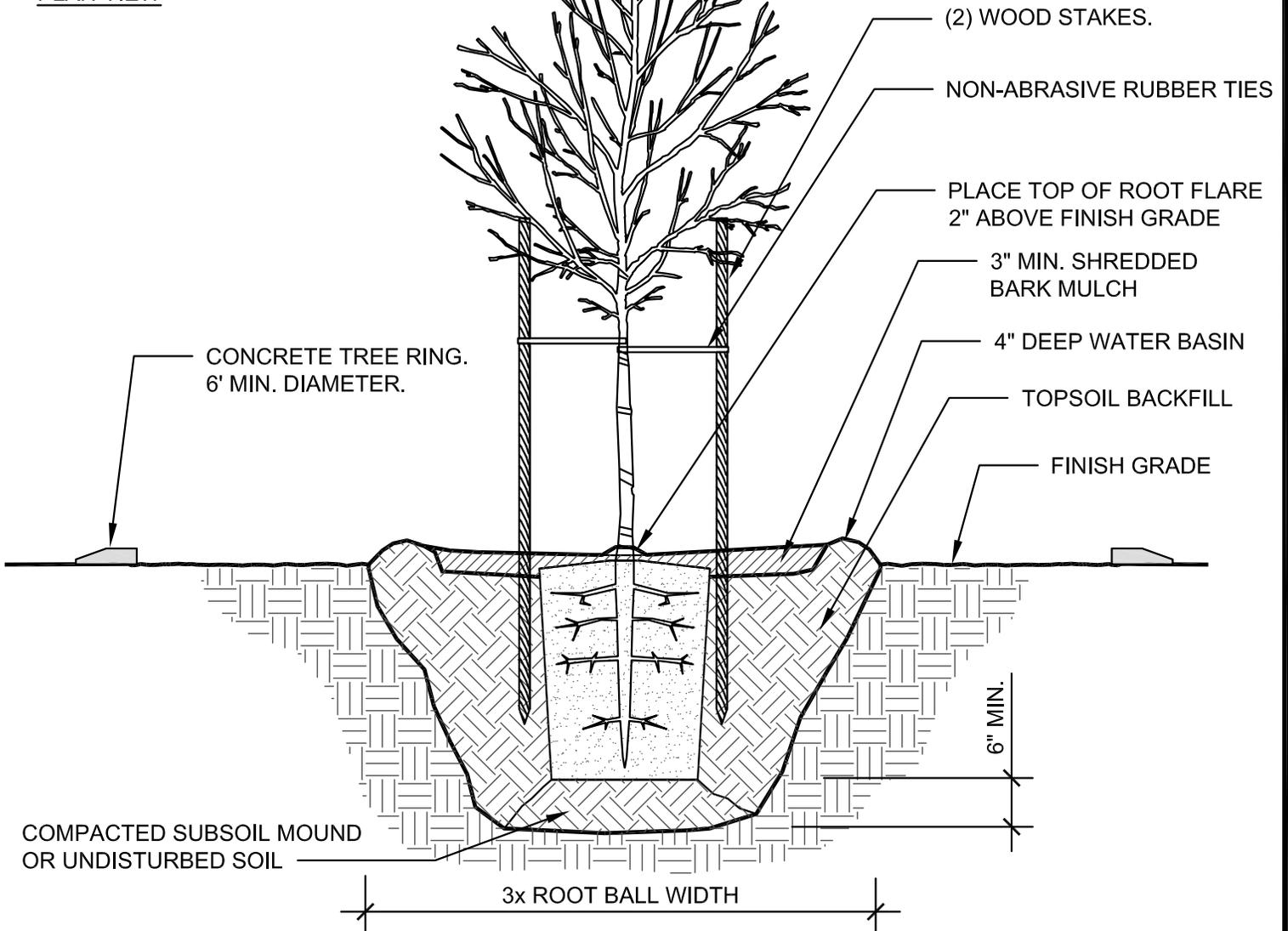
Irrigation Details Pop-up Rotor Sprinkler	
Drawing No. 11 Rev. No. 0	
	



PLAN VIEW

NOTES:

1. ALL TREES MUST BE INSTALLED AND MAINTAINED AT TRUE VERTICAL.
2. BLUFFDALE CITY MAY NOT REQUIRE TREE STAKING UNDER CERTAIN CIRCUMSTANCES.

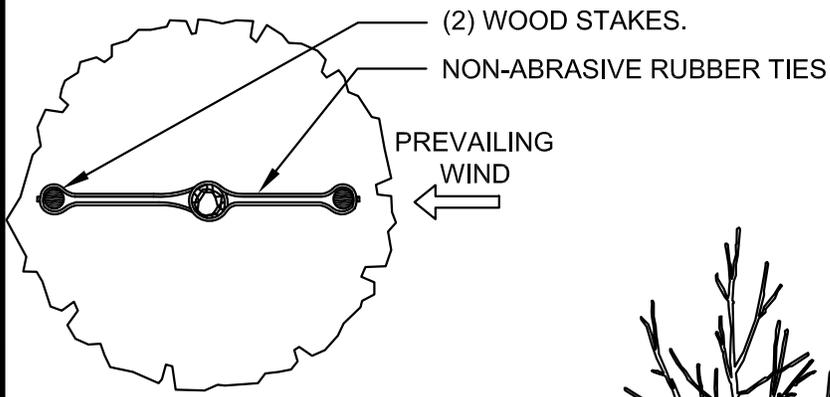


TREE PLANTING
NOT TO SCALE

Planting Details
Tree Planting

Drawing No. 01
Rev. No. 0

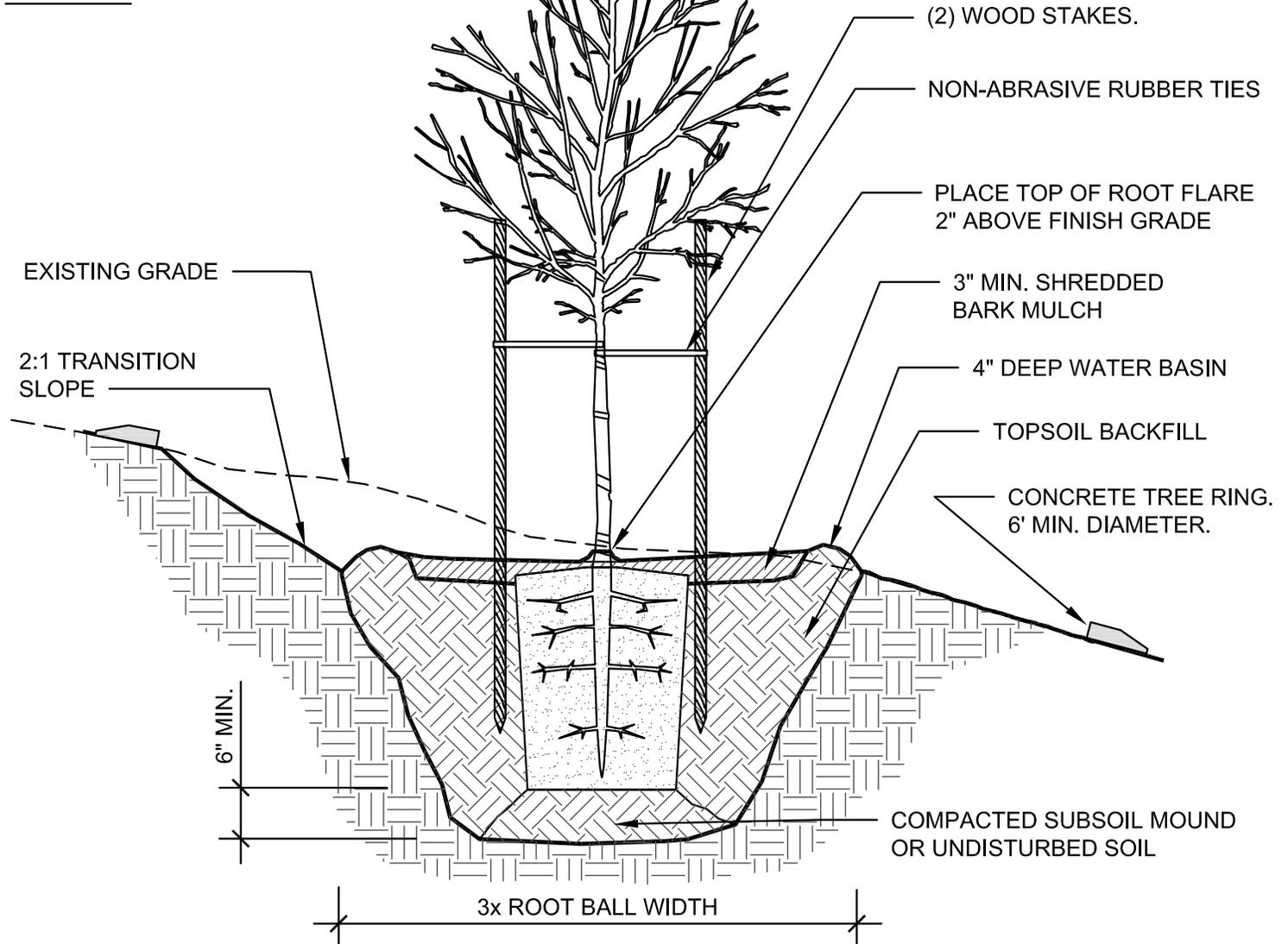




PLAN VIEW

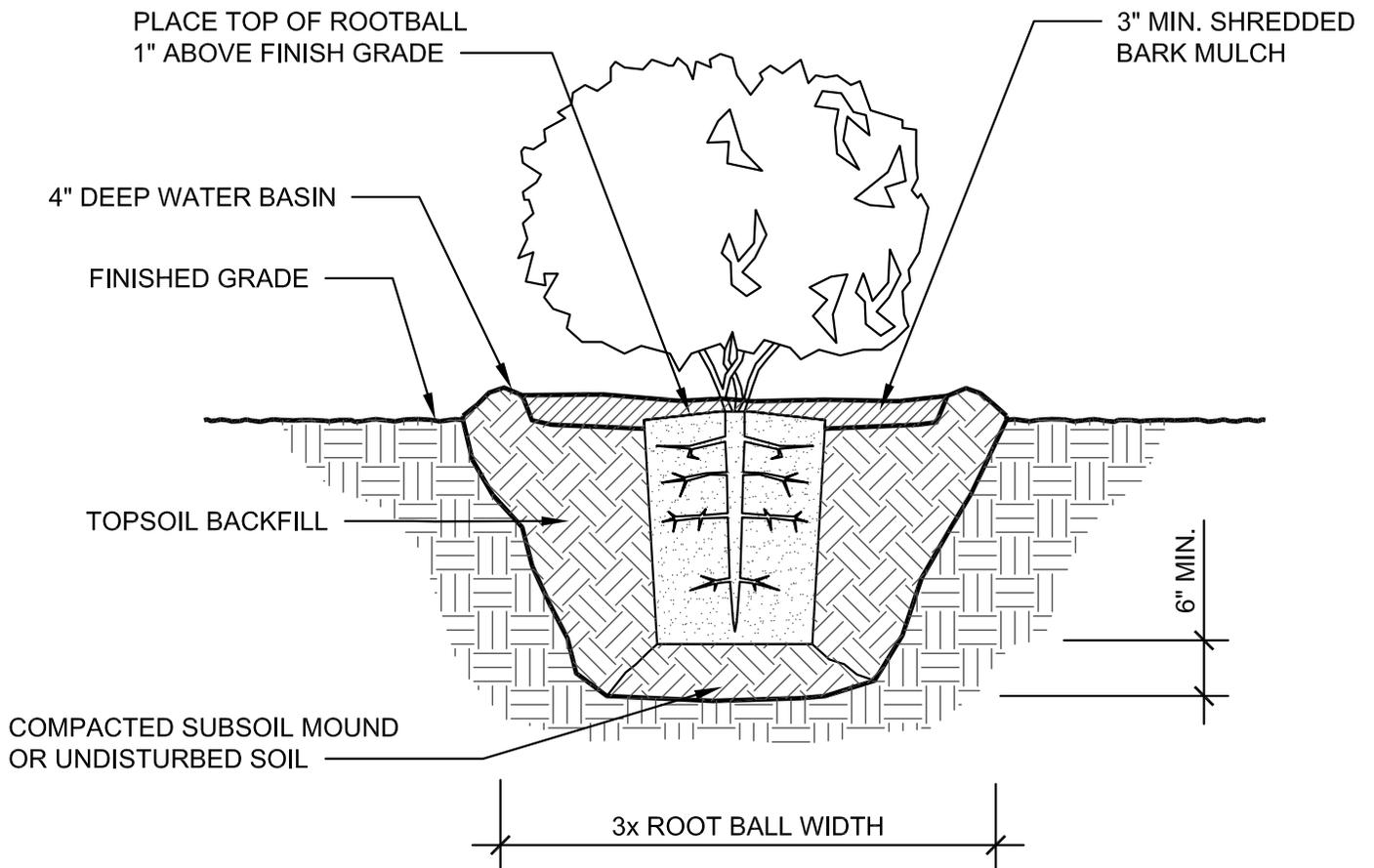
NOTES:

1. ALL TREES MUST BE INSTALLED AND MAINTAINED AT TRUE VERTICAL.
2. BLUFFDALE CITY MAY NOT REQUIRE TREE STAKING UNDER CERTAIN CIRCUMSTANCES.



TREE PLANTING ON SLOPE
NOT TO SCALE

Planting Details Tree Planting on Slope	
Drawing No. 02 Rev. No. 0	
	



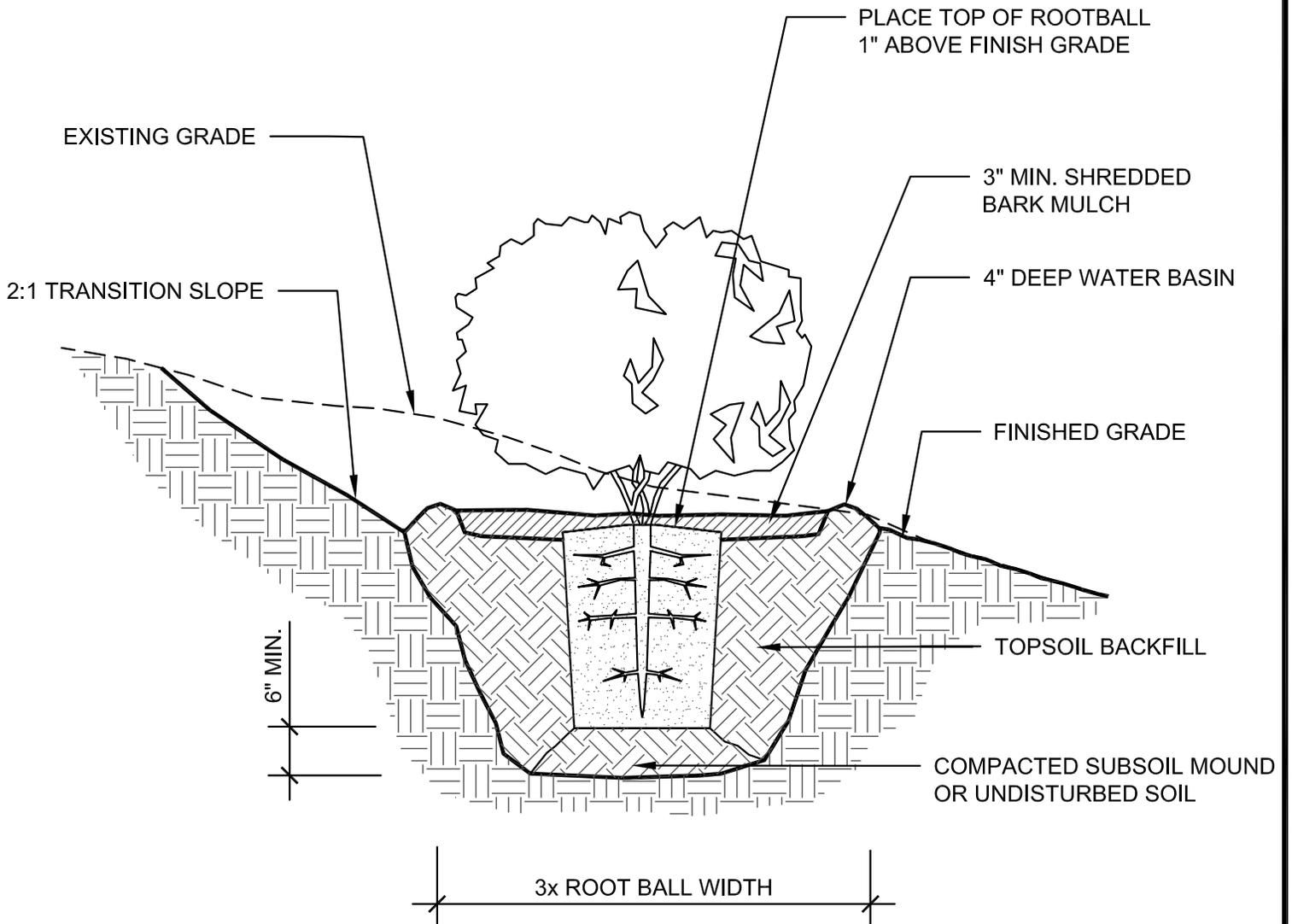
SHRUB PLANTING

NOT TO SCALE

Planting Details
Shrub Planting

Drawing No. 03
Rev. No. 0

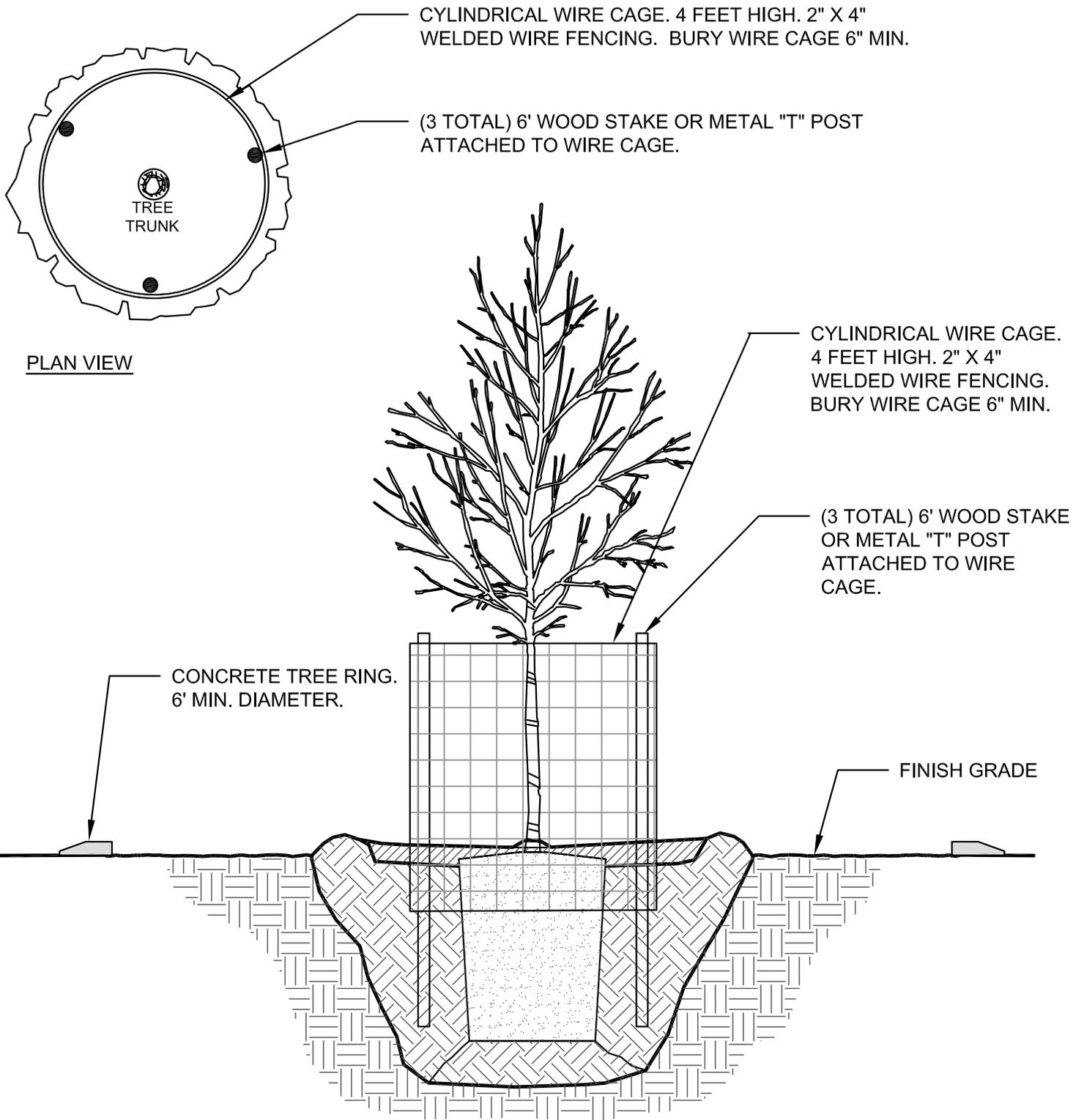




SHRUB PLANTING ON SLOPE

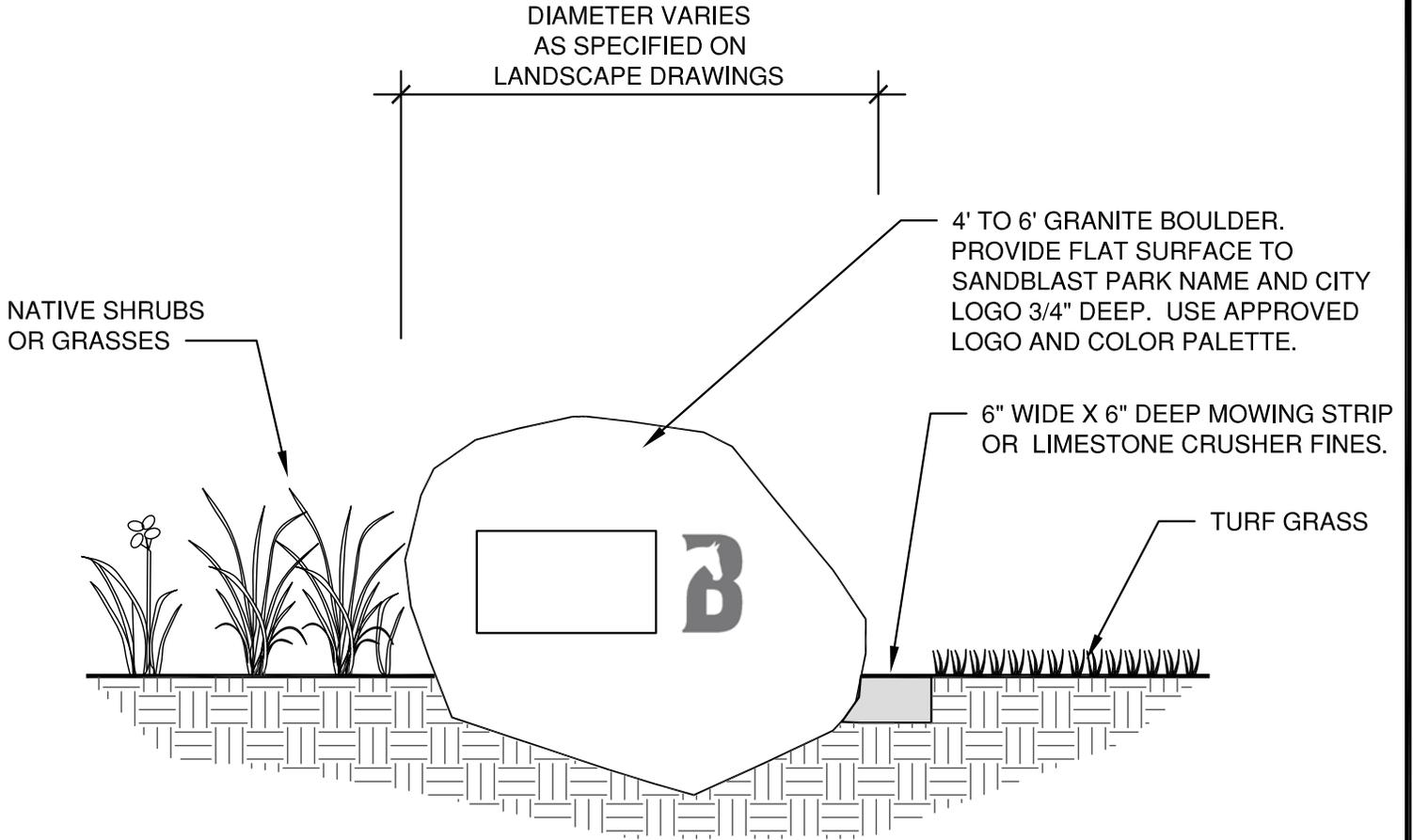
NOT TO SCALE

Planting Details	
Shrub Planting on Slope	
Drawing No. 04	
Rev. No. 0	



TREE PROTECTION (POPULUS SPECIES ONLY OR AS REQ'D BY CITY)
 NOT TO SCALE

Planting Details Tree Protection
Drawing No. 05 Rev. No. 0

NATURAL AREA INSTALLATION

FORMAL / MAINTAINED INSTALLATION

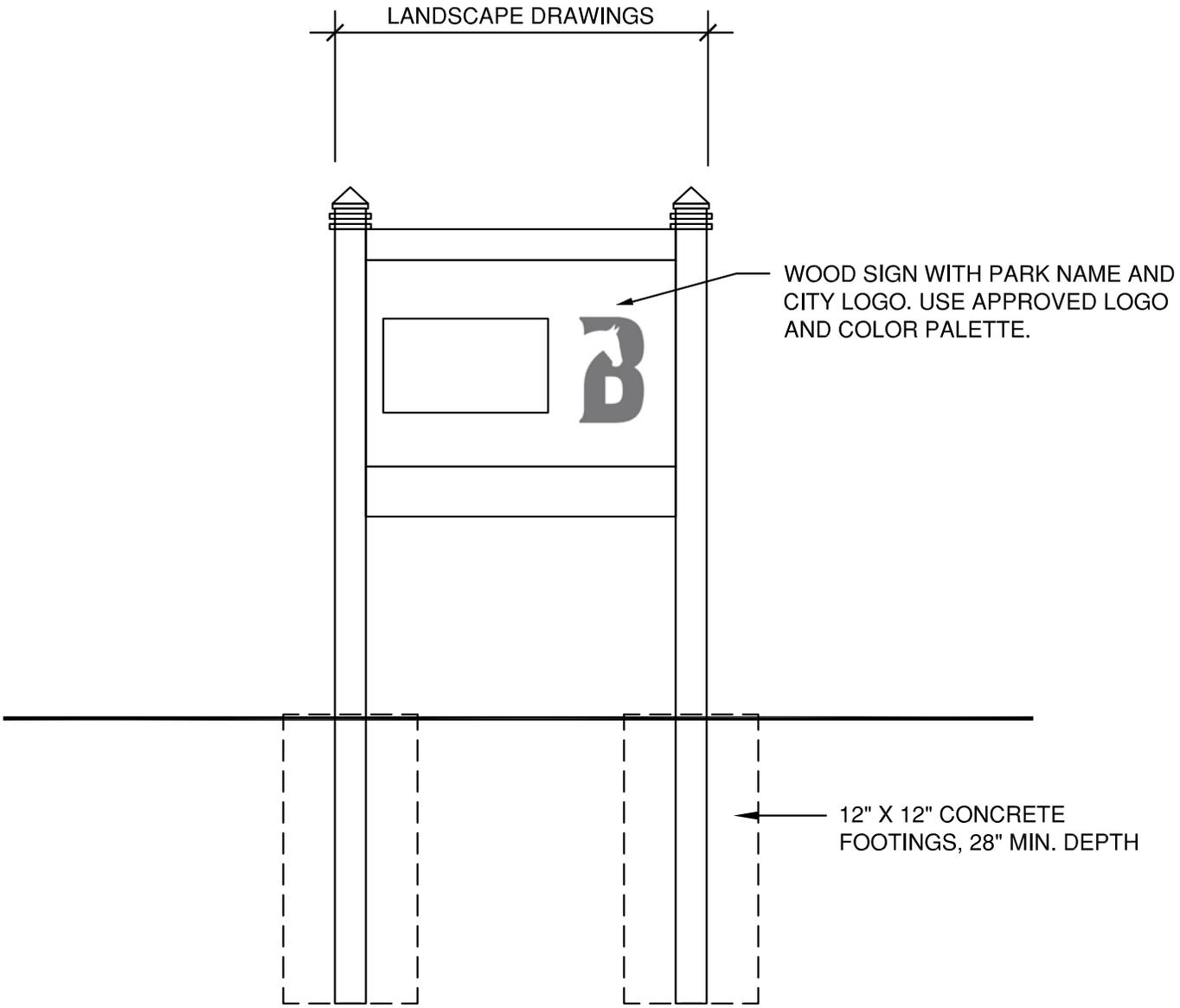
NOTES:

1. ENSURE BOULDERS ARE COMPLETELY SETTLED AND STABLE. BURY TO A MINIMUM 1/3 TOTAL HEIGHT.
2. CONSULT WITH BLUFFDALE CITY FOR SIGN STANDARD.

PARK SIGNAGE - GRANITE BOULDER
NOT TO SCALE

Park Amenities Details Park Signage - Granite	
Drawing No. 01 Rev. No. 0	 BLUFFDALE <small>ILLINOIS</small>

WIDTH VARIES
AS SPECIFIED ON
LANDSCAPE DRAWINGS

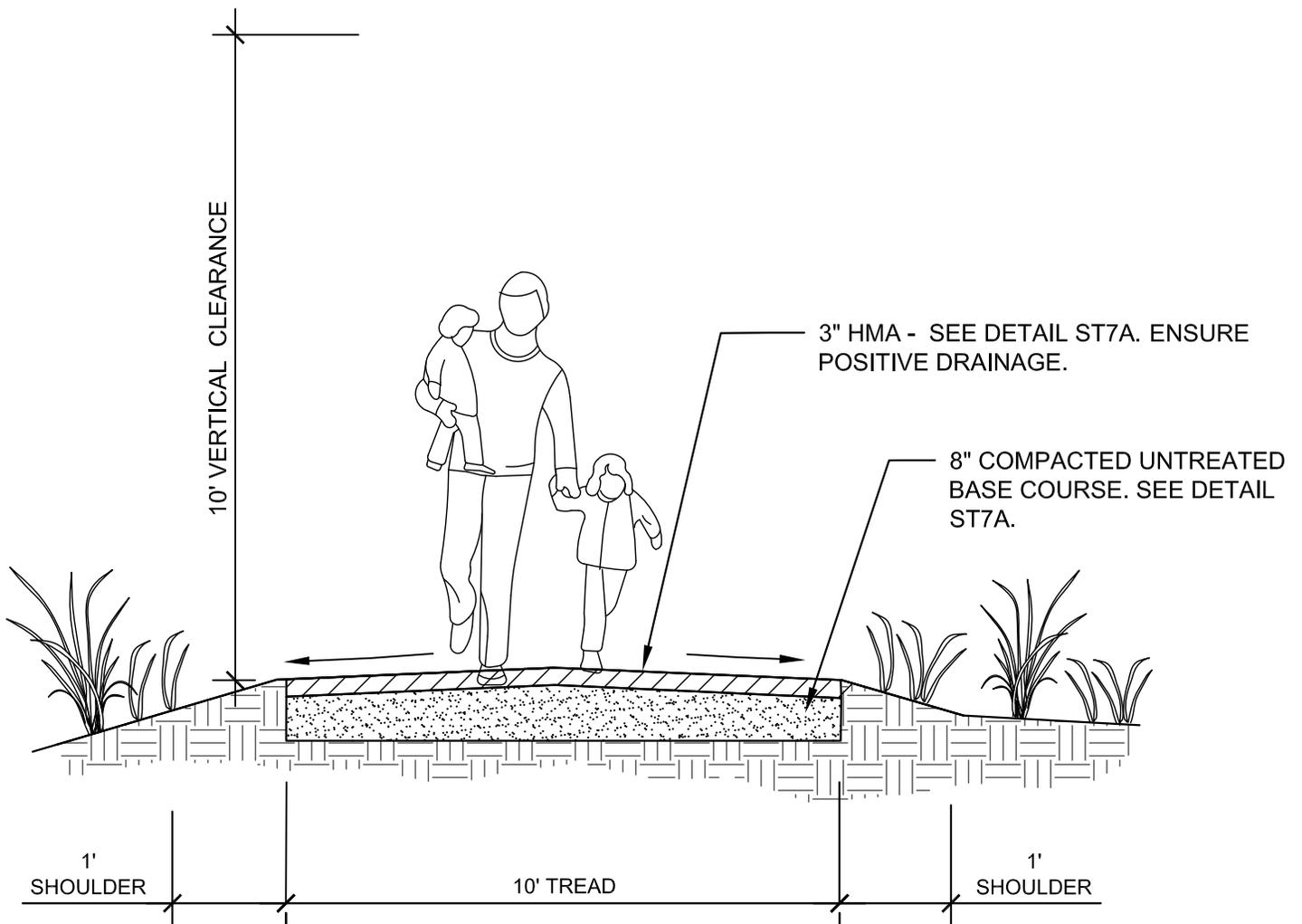


NOTE:
1. CONSULT WITH BLUFFDALE CITY FOR SIGN STANDARD.

PARK SIGNAGE - WOOD

NOT TO SCALE

Park Amenities Details Park Signage - Wood
Drawing No. 02 Rev. No. 0

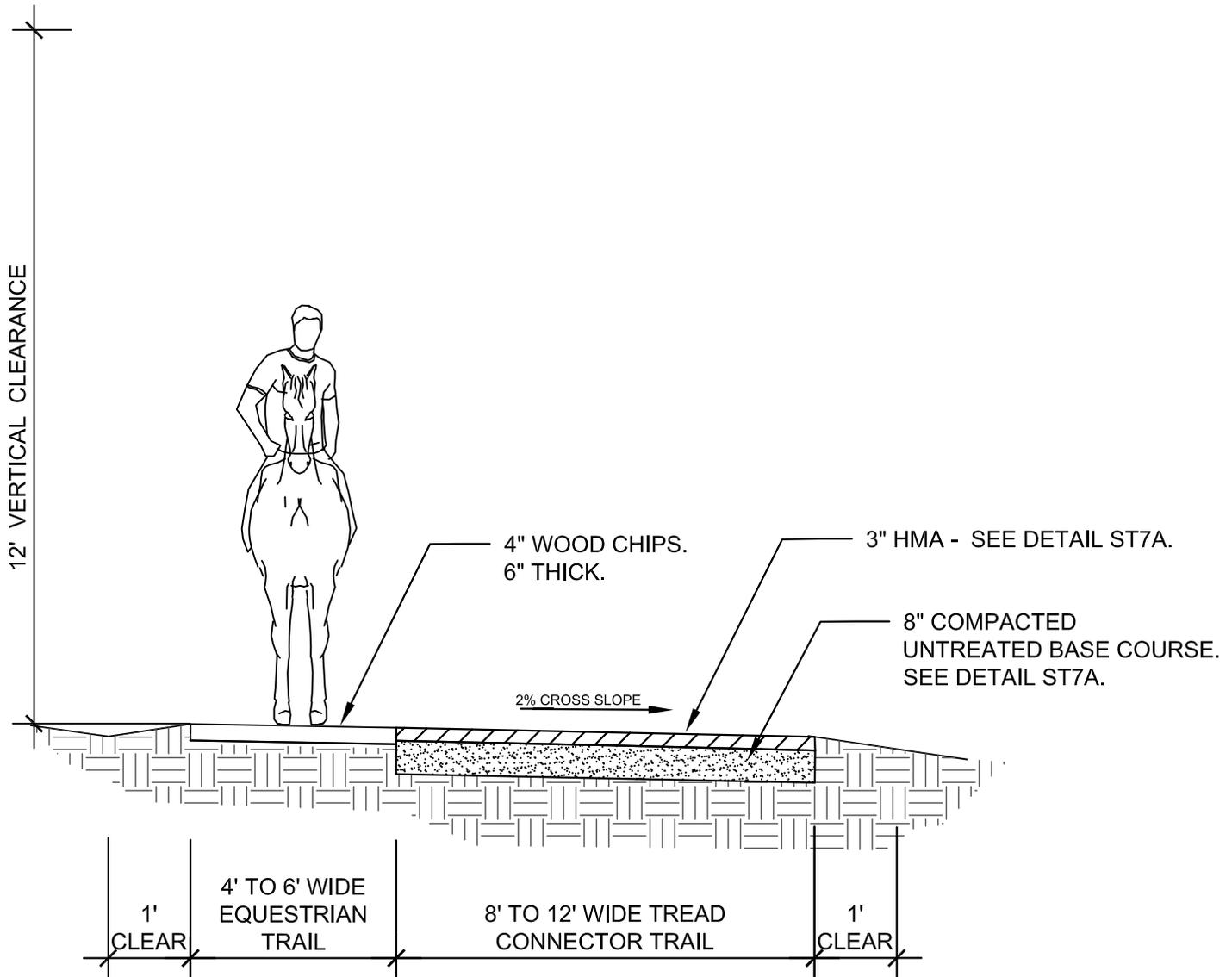
NOTES:

THE CONTRACTOR SHALL FURNISH AND DELIVER LIMESTONE CRUSHER FINES COMPOSED OF LIMESTONE ROCK CRUSHED INTO IRREGULAR AND ANGULAR PARTICLES. NO ROUNDED MATERIAL IS ACCEPTABLE. THE LIMESTONE CRUSHER FINES SHALL MEET THE FOLLOWING GRADATION SPECIFICATION:

SIEVE SIZE	PERCENT PASSING
3/8-INCH (9.52MM)	100%
NO. 4 (4.76 MM)	75 TO 92%
NO. 8 (2.38 MM)	50 TO 72%
NO. 16 (21.19 MM)	38 TO 55%
NO. 40 (0.42 MM)	20 TO 40%
NO. 100 (0.149 MM)	10 TO 22%
NO. 200 (0.074 MM)	8 TO 15%

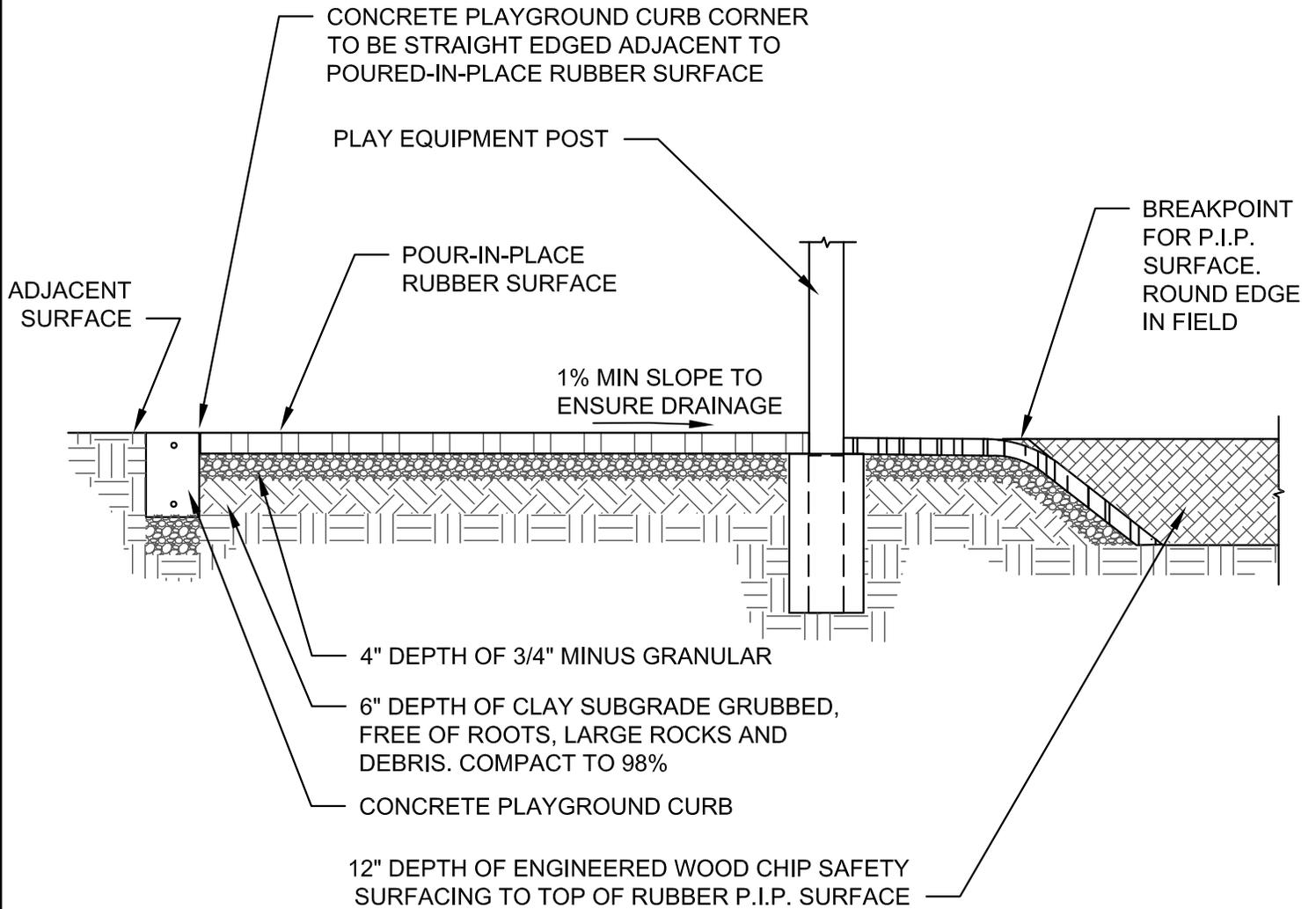
TRAIL - LOCAL
NOT TO SCALE

Park Amenities Details Trail - Local	
Drawing No. 03 Rev. No. 0	



TRAIL - EQUESTRIAN
NOT TO SCALE

Park Amenities Details	
Trail - Equestrian	
Drawing No. 04	
Rev. No. 0	



NOTE:

1. PLAYGROUND SAFETY SURFACE THAT ARE COMBINATIONS OF WOOD MULCH SURFACE AND CURB ADJACENT TO Poured-IN-PLACE RUBBER SURFACE IS TO BE SQUARE AND FLUSH.

PLAYGROUND SAFETY SURFACING

NOT TO SCALE

Park Amenities Details Playground Safety Surfacing	
Drawing No. 05 Rev. No. 0	

SECTION 32 84 00 - PLANTING IRRIGATION

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Furnish all labor and materials to construct a complete working and tested sprinkler irrigation system as per all drawings and specifications, providing head to head coverage on all planting areas on the site.
- B. Furnish and install all materials to provide a working automatic sprinkler irrigation system. This includes the installation of electric valves, valve control devices, conduit, junction boxes, and all necessary wiring.
- C. Perform all work in accordance with the drawings and specifications, as well as City water and electrical standards.
- D. Operate and maintain until acceptance all constructed improvements, and guarantee the new system until all plants planted on this project have become established and have been accepted by the City.

1.2 ELECTRICAL POWER SERVICE

- A. Make all arrangements with the local power company including, but not limited to, paying fees, making power connections, providing poles, weatherhead and meter, etc., as specified on the plans.
- B. Bury all electrical lines or conduit, entering onto the site at a minimum of 24 inches or as required by applicable codes, whichever is greater.

1.3 SYSTEM PRESSURE

- A. Provide a system that delivers the manufacturer's recommended minimum operating pressure or greater to every head while maintaining sufficient pressure to overcome the losses due to friction in the piping, fittings, and all other equipment.

PART 2 - PRODUCTS

2.1 PIPE

- A. Provide that all pressure main line pipe and fittings smaller than 1-1/2 inch are Schedule 40 PVC and all pressure main line pipe and fittings 1-1/2 inch or larger are Schedule 80 PVC.
- B. Use Schedule 40 PVC for all lateral line pipe and fittings smaller than 1-1/2 inch and use Schedule 80 PVC for all fittings 1-1/2 inch or larger.
- C. No bends other than very gradual in pipe shall be permitted. Use elbow fittings of 90 and

45 degrees as the situations demand.

- D. Handling and Installation of Pipe: Deliver all materials, pipes and fittings at the job site in a sound, undamaged condition. Remove any pipe found to be damaged or defective in workmanship or materials.
- E. Every care shall be taken during installation to prevent dirt and debris (especially rocks) from getting into the pipes.

2.2 FITTINGS

- A. Use P-70 primer and 7-11 cement on all solvent weld joints.
- B. Use Teflon tape on all threaded fittings of two different types of material.
- C. Place all tees coming out of main lines or valves and other fixtures so that no weight or pressure may be exerted through the fixture on the top or bottom of the main line. Tees shall be Schedule 80 SXSXS with SXT Schedule 80 bushing of appropriate size to the valves.
- D. Place all tees coming out of the lateral lines for heads and other fixtures so that no direct weight or pressure may be exerted through the head to the top or bottom of the lateral line. Tees on lateral lines shall also be SXSXT to the head swing joints.

2.3 PIPE SLEEVES

- A. Provide pipe sleeves when crossing a new pavement (concrete or asphalt). Use at least 2 inch (I.D.) larger than the pipes or wires being sleeved or encased. Sleeve wires separately. Use only Schedule 80 PVC or C900 pipe or as approved by the City for all pipe sleeves.

2.4 THRUST BLOCKS

- A. Provide thrust blocks on all main lines 3 inches and larger wherever the main pipe line:
 - 1. Changes any direction at tees, angles, and crosses vertical and horizontal.
 - 2. Changes size at reducers.
 - 3. Stops at a dead-end.
 - 4. Valves at which thrust develops when closed.
- B. The size and type of thrust block depends on pressure, pipe size, kind of soil, and type of fitting. For a 3 inch line at 50 PSI or less use at least one cubic foot of class AA (AE) Type II concrete for each thrust block.
- C. Place thrust blocks against undisturbed original earth in the direction of thrust.

2.5 GATE VALVES

- A. Furnish and install gate valves that conform to APWA specification C 509.
- B. Unless otherwise shown or specified, provide flanged valves for all main line sized 2 inch and larger. Provide threaded end valves for all main line sized 1-1/2 inch and smaller. Use valves with non-rising stem and 2 inch square operating nuts. No handles or wheels are allowed unless valves are installed inside a structure. Install unions on each side of all valves except flanged valves. Use valves with a resilient wedge urethane rubber seat.

2.6 CONTROL VALVES

- A. No valve shall be installed more than 12 inches below finished grade. Use Schedule 80 PVC pipe on all control valve manifolds.

2.7 SECONDARY WATER FILTERS

- A. Install Amiad filter with 1000 micron (or tandem 500 and 1000 micron) and tamper proof cage on all systems using a secondary water source, or as approved by the City.

2.8 CONTROL VALVE BOXES

- A. Use one jumbo valve box for each valve 2 inches and larger. Use one standard valve box for each valve smaller than 2 inches. Do not rest any parts of the valve box directly upon the valve or any fixture associated with it. Center each valve box on the valve it covers. Place 3 inches of clean drain gravel in the bottom underneath the valve and lines to reduce the potential of mud and standing water therein. Place filter fabric at the bottom of each valve box.
- B. Connect wires to the valve inside a 3M-DBY connector. Seal each connector completely sealed and water proof with a minimum 24 inch wire loop.
- C. Run extra wire and loop at all valve boxes that are at a main line terminus.

2.9 CONTROLLER SYSTEM

- A. Provide and install only WeatherTRAK Series controllers or approved equal. Install according to the City and the manufacturer's standards and specifications.
- B. Install all controllers inside a stainless steel enclosure.
- C. Provide conduit, wiring, materials, and all labor to make the controller operational and in compliance with local electrical codes.
- D. Provide and install a master valve on each system.
- E. Provide and install a flow sensor on each system.

2.10 HEADS

- A. Install all heads above grade so as to minimize washing of the topsoil and seed during the landscaping establishment period. Install all heads which border paving or flat work of any kind at the finished grade of the adjacent paving or flat work. Raise or lower all heads to final planting grade prior to final acceptance of the project.
- B. Flush thoroughly all pipes, lines, and risers with water before installation of any heads. Remove all debris and rocks found at that time from the area.

PART 3 - EXECUTION

3.1 EXCAVATION AND TRENCHING

- A. Excavate trenches that are as deep and as wide as required to safely perform the work, such as making mainline connections or forming vaults.
- B. Excavate trenches that are as deep and wide as required to provide working space for placing 2 inches of rock free sand or topsoil bedding underneath all new mainline pipe and fittings where the soil is rocky or gravelly. Place a minimum of 18 inches cover over the top of all pipe and fittings on main lines (lines which maintain a constant water pressure).

3.2 BACKFILL

- A. Do not backfill any trenches until the system has been inspected for proper trench depths, installation of equipment, control wire, and location of heads by the Owner's Representative or the City Inspector.
- B. Do not backfill any trenches until the Owner's Representative or the City Inspector verifies the redlined "as built" drawings showing that changes and corresponding dimensions have been recorded where changes have been made.
- C. Pressurize the system to test for leaks and general operation of the equipment and system. Correct all defects and deficiencies.
- D. Layer and backfill trenches at 6 inch lifts.
- E. Use special care to assure complete compaction under the haunches of the pipe. Compacted and backfill under the haunches of the pipe to the original density.
- F. Do not use backfill with rocks larger than 1 inch in diameter or any other debris. Backfill all trenches and then saturate trenches with water sufficiently to insure no settling of the surface after lawn is planted or sod is placed.

3.3 AS BUILT DRAWINGS OR PLANS

- A. Keep an accurate record of exact dimensioned locations, grades, elevations, color of hot and spare wires - splice boxes and the size of all underground piping, valves, and drains. Show distances from columns, buildings, curbs, and similar permanent features on the

site. Provide coordinates in state plane for each of the following items: point of connection, isolation valve, control valves, and any other pertinent component of the irrigation system.

3.4 OPERATIONAL TEST AND MAJOR INSPECTIONS

- A. Call the City Inspector for an operational test and major inspection of the sprinkler irrigation system. Give a minimum three day advance notice to the City Inspector so that proper scheduling can be done for those who are to attend.

3.5 GUARANTEE AND MAINTENANCE

- A. Warrant all the completed and accepted items for a full year after the acceptance date by the City. Repair or replace any items that are defective or do not perform according to standards.

END OF SECTION 32 84 00

SECTION 32 92 00 - TURF GRASS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:

1. Turf Grass Hydroseeding (only when approved as substitute for Turf Grass Sodding by Bluffdale City).
2. Turf Grass Sodding.

1.2 SUBMITTALS

Provide the following submittals:

- A. Certification of Turf Grass Seed: Copy of purchase order stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
- B. Certification of Turf Grass Sod: Certification that turf sod is nursery grown. Certification indicating the date and time sod was cut at the nursery. Include identification of source and name and telephone number of supplier.

1.3 DELIVERY, STORAGE, AND HANDLING

Use caution when delivering, storing, and handling seed and sod. The following minimum requirements apply:

- A. Seed: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer.
- B. Sod: Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.

1.4 PROJECT CONDITIONS

- A. Place turf grass seed and turf grass sod only after irrigation system is installed and operational.
- B. Weather Limitations: Proceed with hydroseeding or sodding only when existing and forecasted weather conditions permit hydroseeding or sodding to be performed when beneficial and optimum results may be obtained.

PART 2 - PRODUCTS

2.1 USE SEED (ONLY WHEN APPROVED AS SUBSTITUTE FOR TURF GRASS SODDING BY THE CITY).

The following requirements apply:

- A. Grass Seed: Fresh, clean, dry, new-crop Kentucky bluegrass (*Poa pratensis*); a minimum of three cultivars.

2.2 SOD

- A. Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted. Species shall be Kentucky Blue Grass sod comprised of a minimum of three varieties and free of weeds

PART 3 - EXECUTION

3.1 TURF AREA PREPARATION

- A. Complete all final grading, trench settling, topsoil placement, surface preparation, and irrigation work before hydroseeding or sodding begins.
- B. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- C. Before planting, obtain Owner's Representative acceptance of finish grading; restore hydroseeding or sodding areas if eroded or otherwise disturbed after finish grading.
- D. Place topsoil at 4 inch minimum thickness.
- E. Planting soil and topsoil shall have a PH of 6.0 to 8.0 and organic matter of 1 to 2 percent.
- F. Sports fields to receive turf shall be graded for proper drainage. Where possible crown grade sports fields with a 1 percent to 1.5 percent slope uniformly from the center of the field to the sidelines, without pockets.

3.2 HYDROSEEDING SEED (ONLY WHEN APPROVED AS SUBSTITUTE FOR TURF GRASS SODDING BY BLUFFDALE CITY)

- A. Hydroseeding: Mix specified seed, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application. Spray-apply slurry uniformly to all areas to be seeded in a one-step process.
- B. Lightly water and program the irrigation system to maintain a moist seedbed.

3.3 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 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.

3.4 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 re-mulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
 - 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
 - 2. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- 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. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet

3.5 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Owner's Representative:
 - 1. Satisfactory Seeded Turf Grass: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities.

2. Satisfactory Sodded Turf Grass: 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.

3.6 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after hydroseed or sod are established.

END OF SECTION 32 92 00

SECTION 32 93 00 - PLANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes:

1. Plants.
2. Planting soils.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.

B. Samples for Verification: For each of the following:

1. Trees and Shrubs: Three samples of each variety and size delivered to the site for review. Maintain approved samples on-site as a standard for comparison.
2. Organic Mulch: 1-pint volume of organic mulch required; in sealed plastic bag labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.

C. Qualification Data: For qualified landscape Installer, include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful establishment of plants.

1. Installer's Field Supervision: Have an experienced full-time supervisor on Project site when work is in progress.

B. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.

1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper

measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.

- C. Plant Material Observation: Owner's Representative may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Owner's Representative retains right to observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.
 - 1. Notify Owner's Representative of sources of planting materials a minimum of seven days in advance of delivery to site.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.
- 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.
 - 1. Do not remove container-grown stock from containers before time of planting.
 - 2. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly-wet condition.

1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.

- B. Planting Restrictions: Plant during the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 - 1. Fall Planting (Optimal): September 15- December 1.
 - 2. Spring Planting: Not later than May 31.
 - 3. Alternate Planting: As approved by the City.
- C. Season Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.
- D. Coordination with Seeded Areas: Plant trees, shrubs, and other plants after finish grades are established and before planting seeded areas unless otherwise indicated.
 - 1. When planting trees, shrubs, and other plants after planting seeded areas, protect seed areas and promptly repair damage caused by planting operations.

1.6 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, or incidents that are beyond Contractor's control.
 - b. Structural failures including plantings falling or blowing over.
 - 2. Warranty Periods from Date of Substantial Completion:
 - a. Trees, Shrubs: 12 months.
 - 3. Include the following remedial actions as a minimum:
 - a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
 - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
 - c. A limit of one replacement of each plant will be required except for losses or replacements due to failure to comply with requirements.

- d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant Schedule or Plant Legend shown 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.
 1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots will be rejected.
 2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
- B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Owner's Representative, with a proportionate increase in size of roots or balls. Tree size shall be a minimum of 2 inch caliper.
- C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- D. Labeling: Label at least one plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant as shown on Drawings.

2.2 PLANTING SOILS

- A. Planting Soil: Use existing, in-place surface soil or approved imported topsoil. Verify suitability of existing surface soil to produce viable planting soil. Remove stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
- B. Place topsoil at 4 inch minimum thickness.
- C. Planting soil and topsoil shall have a PH of 6.0 to 8.0 and organic matter of 1 to 2 percent.

2.3 MULCHES

- A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:
 - 1. Type: Ground or shredded bark.
 - 2. Size Range: 3 inches maximum, 1/2 inch minimum.
 - 3. Color: Natural.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive plants for compliance with requirements and conditions affecting installation and performance.
 - 1. 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 soil within a planting area.
 - 2. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Owner's Representative and replace with new planting soil.
- D. A City Representative shall inspect and approve all tree planting pits before the backfill material is placed around the root ball.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities and existing plants from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Lay out plants at locations directed by Owner's Representative. Stake locations of individual trees and shrubs and outline areas for multiple plantings.

3.3 PLANTING AREA ESTABLISHMENT

- A. Loosen subgrade of planting areas to a minimum depth of 6 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- B. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
- C. Before planting, obtain Owner's Representative's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are not acceptable. 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.
 - 1. Excavate approximately three times as wide as ball diameter for container-grown stock.
 - 2. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
 - 3. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
 - 4. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
 - 5. Maintain required angles of repose of adjacent materials as shown on the Drawings. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
 - 6. Maintain supervision of excavations during working hours.
 - 7. Keep excavations covered or otherwise protected when unattended by Installer's personnel.
- B. Subsoil and topsoil removed from excavations may be used as planting soil.
- C. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

3.5 TREE, AND SHRUB PLANTING

- A. Before 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. Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.
- C. Set container-grown stock plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
 - 1. 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.
 - 2. Continue backfilling process. Water again after placing and tamping final layer of soil.

3.6 TREE AND SHRUB 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 Owner's Representative.
- C. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Owner's Representative, 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.

3.7 PLANTING AREA MULCHING

- A. Mulch backfilled surfaces of planting areas and other areas indicated.
 - 1. Trees and Shrubs: Apply organic mulch ring of 3-inch minimum thickness, with 24-inch radius around trunks or stems. Do not place mulch within 3 inches of trunks or stems.

3.8 CLEANUP AND PROTECTION

- A. During planting, keep adjacent paving and construction clean and work area in an orderly condition.
- B. 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.

- C. After installation and before Substantial Completion remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

3.9 DISPOSAL

- A. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 32 93 00

OUTDOOR RECREATION AREAS RESTROOMS

This Section Includes:

1. Restroom Building Guidelines
2. Outdoor Toilet Facilities Availability Guidelines.

PART 1 - RESTROOM BUILDING GUIDELINES

1.1 PREFABRICATED VAULT TOILET BUILDINGS

- A. Prefabricated vault toilet buildings shall be made of concrete or masonry. Buildings and walks shall comply with accessibility standards in place at the time they are constructed. Walks shall be sloped to drain away from the building at a slope of not more than 2 percent including construction tolerances. The building shall be oriented for unobstructed solar heat gain to the vent pipe(s) that is (are) located on the outside of the building. For the building's odor free technology to be effective there should be a positive upward draw through the vents, which is dependent on their solar heat gain. Therefore, it is important to orient the building with the vent(s) on the south side. If the building is lit, solar panels can be used, and they shall be properly oriented for maximum solar gain. Vault toilet buildings can feature obscure windows of vandal-resistant materials, such as polycarbonate resins. The access to the building and the interior of the building shall be fully accessible, shall be on an accessible route, and served by nearby accessible parking, including remote locations.

1.2 BUILDING FACILITIES

- A. Toilet facilities for both men and women shall include one accessible water closet, lavatory, soap dispenser, and towel dispenser. There may be a unisex room, with separate entry, provided for special needs use or for family groups. This room shall include an ample-sized counter suitable for changing diapers. All fixtures in the unisex room shall be accessible. As an option, the toilet in the unisex room may be installed as a composting or vault toilet, which would provide toilet facilities in cold months when water to the building is turned off. The building shall include a covered entry with an outdoor drinking fountain and a hose bib for maintenance use. A pipe chase shall be located in the middle of the building and shall be accessible from the rear of the building. As an option, a utility sink may be located in the chase. Inside the building, along the inside walls, a trench floor drain shall provide necessary drainage without impeding accessibility. Interior areas shall be well lit and ventilated by clerestory windows and louvers. Interior walls shall have vandal-resistant finishes. Windows shall be made of high-impact-resistant polycarbonate resin. All new buildings shall be designed with sustainability in mind. Toilets shall be low-volume flush, and lighting shall use energy-efficient fixtures and bulbs. The building can include solar panels to provide electricity.

1. Fixtures for Men: Two lavatories (sinks, one accessible), one water closet (toilet stall and one urinal; both accessible), and accessible features (soap dispenser, towel dispenser or hand dryer, and waste receptacle).
2. Fixtures for Women: Two lavatories (sinks, one accessible), two water closets (toilet stall, one accessible), and accessible features (soap dispenser, towel dispenser or hand dryer, and waste receptacle).
3. Fixtures for Unisex: One lavatory, one water closet, soap dispenser, towel dispenser or hand dryer and waste receptacle (all fully accessible).
4. Chase Fixtures: One utility sink (optional).
5. Exterior Fixtures: One drinking fountain (accessible high-low unit) with some type of detectable warning on the approach to the "high" unit or install the fountains in an alcove that meets accessibility.

PART 2 - OUTDOOR TOILET FACILITIES AVAILABILITY GUIDELINES

2.1 LINEAR PARKS AND TRAILS

A. General: Furnish outdoor toilet facilities under the following guidelines.

1. During months of the year when the peak monthly temperature is above 50, any multi-use trails system accommodating 2,000 trail users per day shall provide toilet facilities at no greater than 3 mile intervals.
2. During the months of the year where the peak monthly temperature is below 50, any multi-use trails system accommodating 500 trail users shall provide toilet facilities at no greater than 3-mile intervals.
3. Trail and Park maps shall include restroom location symbols and time of day availability information.
4. During closure of permanent facilities, portable restrooms shall be provided.

2.2 ATHLETIC FIELDS

A. General: Furnish outdoor toilet facilities under the following guidelines.

1. Provide toilet facilities within 1/3 mile for athletic fields during team activity.
2. Provide toilet facilities for athletic fields when at least one team event per week is expected.

3. Toilet facilities should be provided at athletic fields when during a given week there are days when usage reaches 50 individuals per day.

END OF SECTION

PARK AMENITIES GUIDELINES

Park amenities such as park pavilions, picnic shelters, picnic tables, benches, drinking fountains, playground equipment, and all other site furnishings shall be approved by the City at the design stage of all park and recreation landscape projects.

END OF SECTION