

PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	QTY
TREES				
	GA	Ginkgo biloba 'Autumn Gold' / Autumn Gold Maidenhair Tree	B&B, 2" Cal.	6
	GS	Gleditsia triacanthos inermis 'Shademaster' / Shademaster Honey Locust	B&B, 2" Cal.	8
	NSW	Nyssa sylvatica 'Wildfire' / Black Gum	B&B, 2" Cal.	5
	QMB	Quercus muehlenbergii / Chinkapin Oak	B&B, 2" Cal.	7
	TB	Tilia americana 'Boulevard' / Boulevard American Linden	B&B, 2" Cal.	6
EVERGREEN				
	JH	Juniperus virginiana 'Hillspire' / Hillspire Juniper	B&B, 4" Ht. Min.	5
	PP	Picea pungens 'Fat Albert' / Colorado Spruce	B&B, 4" Ht. Min.	4
SHRUBS				
	AM	Aronia melanocarpa 'Morton' TM / Iroquois Beauty Black Chokeberry	2 gal.	3
	CAK	Calamagrostis x acutiflora 'Karl Foerster' / Feather Reed Grass	2 gal.	16
	IV	Itea virginica 'Henry's Garnet' / Henry's Garnet Sweetspire	2 gal.	3
	JC	Juniperus chinensis 'Gold Lace' / Gold Lace Juniper	5 Gal.	10
	MS2	Miscanthus sinensis 'Morning Light' / Eulalia Grass	3 Gal.	8
	RG	Rhus aromatica 'Gro-Low' / Gro-Low Fragrant Sumac	2 gal.	15
GROUND COVERS				
	PH2	Panicum virgatum 'Heavy Metal' / Heavy Metal Switch Grass	SEED	7,145 sf
	TT	Turfgrass Seed Tall Fescue Seed / Fescue Seed	SEED	14,089 sf

GENERAL NOTES

1. Refer to Sheet C6.5 for Irrigation Coverage Plan.
2. Refer to Sheet C6.6 for Landscape Specifications.
3. Refer to Sheet C6.7 for Seed and Landscape Notes and landscape details.

LANDSCAPE CALCULATIONS

Zoning: B-1

Street Trees

Required: 1 tree / 35' street frontage, planted midway between curb and sidewalk in the ROW or within 15' of the property line if necessary due to insufficient space in the ROW
Provided:

Indian Mound Pkwy (250') = 7 trees
W Main St (334') = 9 trees*

*Due to existing guardrail, vegetation in a drainage area, steep slopes and limited space for street trees, only 6 street trees are proposed along Main St.

Paved Areas

Recommended: 1 tree + 60 points of additional landscaping / 1,500 sf paved area; plants should be installed within the landscape islands or within 15' of the paved area
Provided: 23,973 sf paved area = 16 trees + 959 points [36 shrubs + existing stream buffer to remain = 960 pts]

Building Foundations

Recommended: 160 points of landscaping / 100' of exterior building wall visible from the ROW; plants should be installed within 20' of the building foundation
Provided:

Indian Mound Pkwy (128') = 205 points [11 shrubs (20 pts each) = 220 pts]
W Main St (91') = 146 points [8 shrubs (20 pts each) = 160 pts]

Landscape Bufferyards

Required: In yards adjacent to a residential use or district; where off-street parking areas for five or more vehicles are within 15' of a lot line, or where lots in a new residential subdivision back onto a proposed major street
Provided: Not applicable

General Yard Areas

Recommended: In other parts of the site, 200 additional points of landscaping / 5,000 sf total site area
Provided: 60,509 sf** = 2,420 points [3 large deciduous trees (150 pts each) + 9 evergreen trees (40 pts each) + existing stream buffer = 2,420 pts]

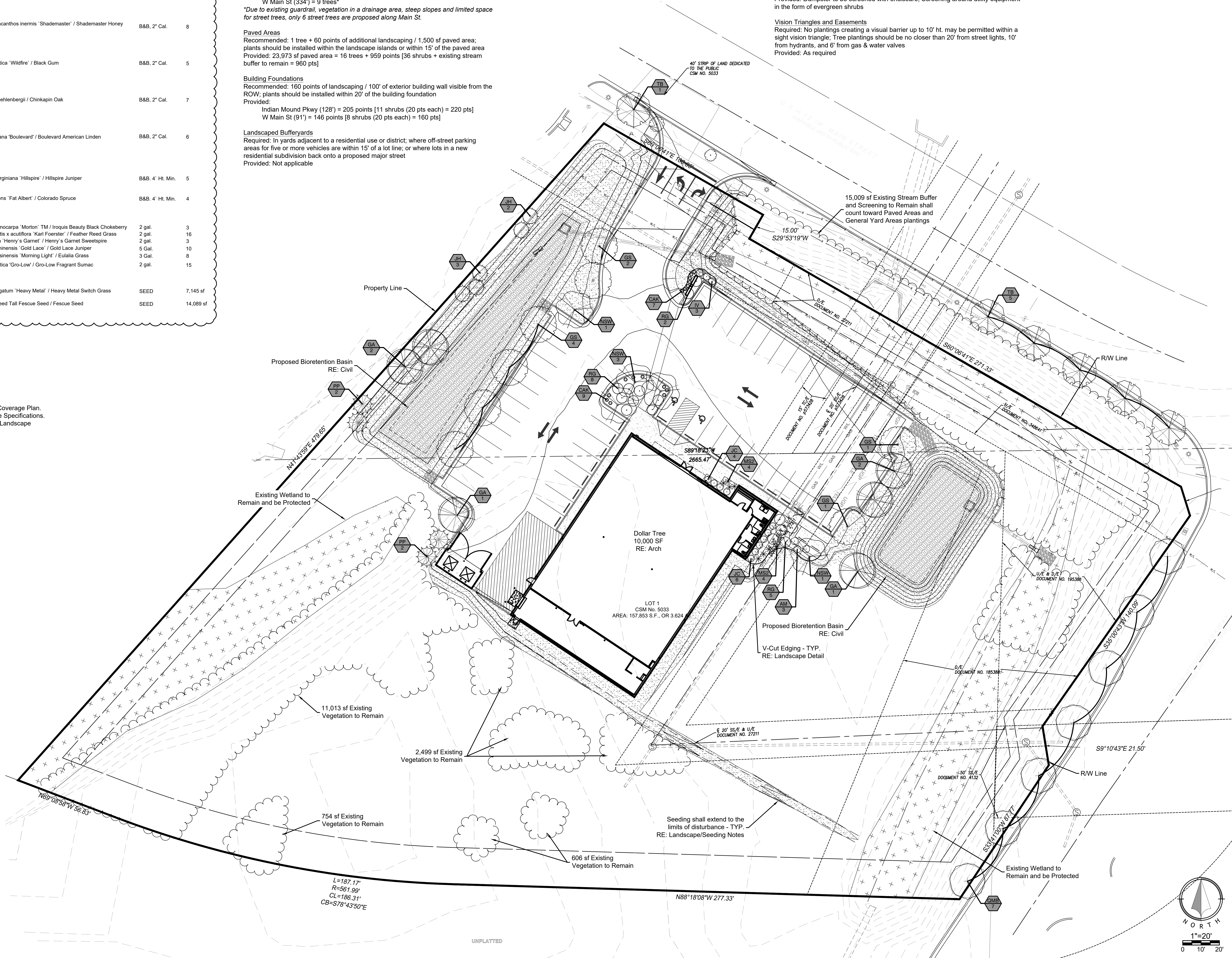
**Open space area excludes the existing wetland areas that will remain undisturbed.

Screening

Recommended: Dumpsters, outdoor storage areas, loading docks, vending machines, and large or unsightly mechanical, utility, or telecommunication units should be enclosed by a fence, wall, and/or landscaping designed to provide a total visual screen from the ROW and adjacent properties. Future trimming of plantings that limits their capacity to provide total visual screening is not permitted. Bases of freestanding signs must be landscaped
Provided: Dumpster to be screened with enclosure; Screening around utility equipment in the form of evergreen shrubs

Vision Triangles and Easements

Required: No plantings creating a visual barrier up to 10' ht. may be permitted within a sight vision triangle; Tree plantings should be no closer than 20' from street lights, 10' from hydrants, and 6' from gas & water valves
Provided: As required




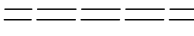
IRRIGATION NOTES

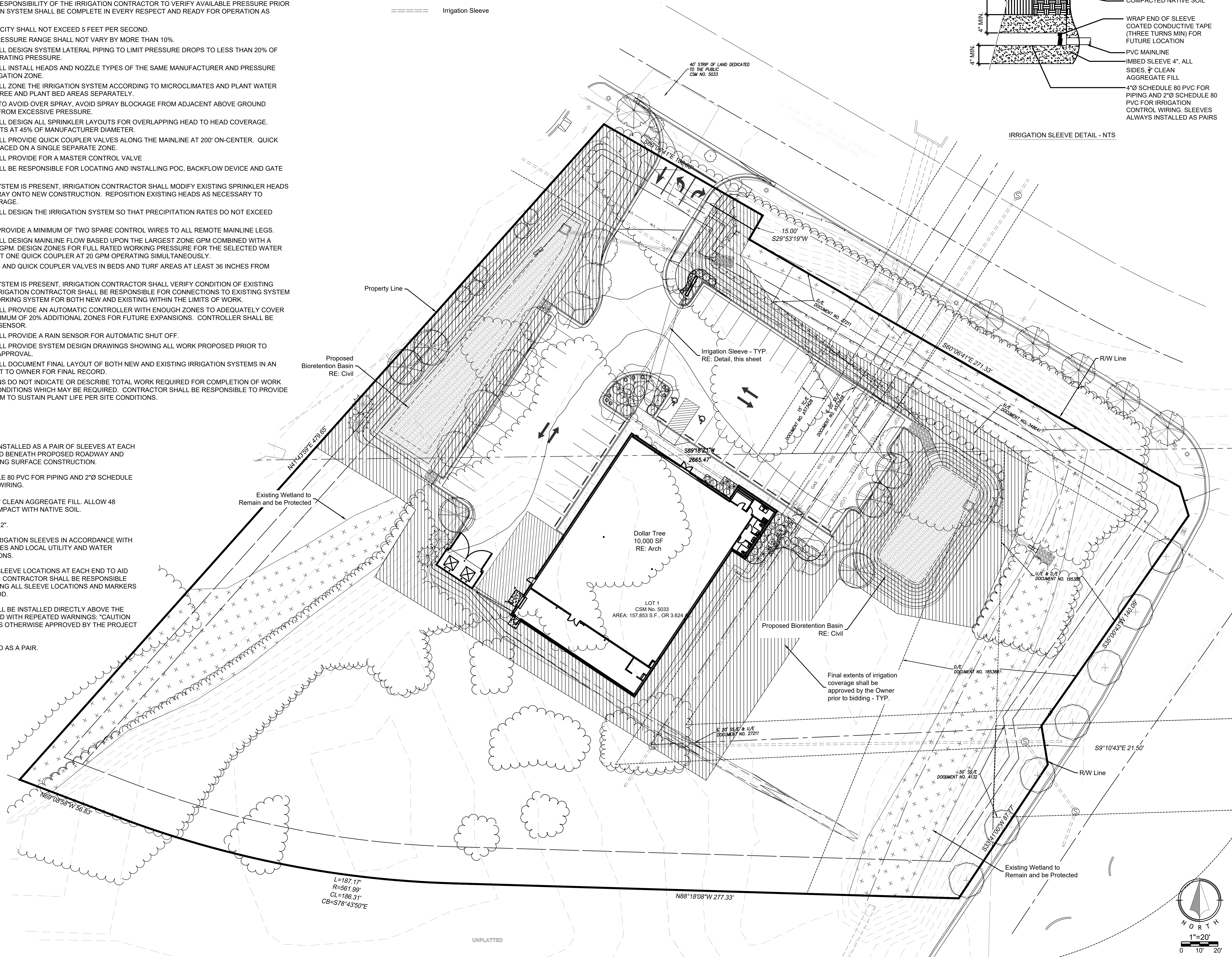
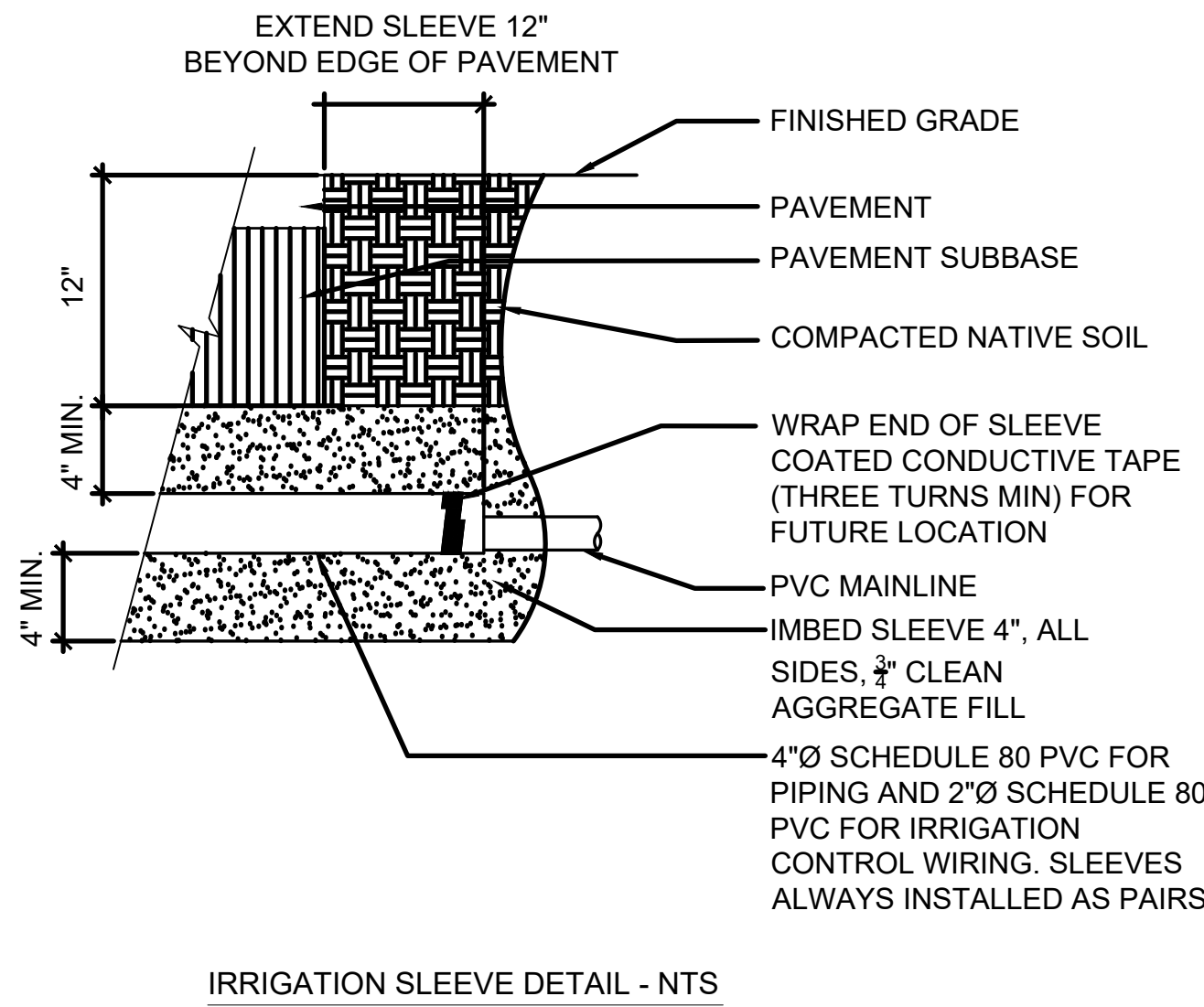
- IRRIGATION SHALL BE PROVIDED THROUGHOUT THE LIMITS SHOWN.
- IRRIGATION CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION OF ALL UTILITIES AND MAKING NECESSARY ADJUSTMENTS TO THE IRRIGATION SYSTEM TO ACCOMMODATE THE INFRASTRUCTURE.
- IRRIGATION CONTRACTOR SHALL COORDINATE SLEEVE INSTALLATION TO OCCUR PRIOR TO CONSTRUCTION OF PAVEMENT, WALL OR OTHER SURFACE IMPROVEMENTS.
- IRRIGATION CONTRACTOR SHALL DESIGN AND PROVIDE A WORKING IRRIGATION SYSTEM BASED ON THE AVAILABLE PRESSURE. IT SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO VERIFY AVAILABLE PRESSURE PRIOR TO SYSTEM DESIGN. IRRIGATION SYSTEM SHALL BE COMPLETE IN EVERY RESPECT AND READY FOR OPERATION AS SATISFACTORY TO CONTRACT.
- IRRIGATION PIPING FLOW VELOCITY SHALL NOT EXCEED 5 FEET PER SECOND.
- IRRIGATION SYSTEM STATIC PRESSURE RANGE SHALL NOT VARY BY MORE THAN 10%.
- IRRIGATION CONTRACTOR SHALL DESIGN SYSTEM LATERAL PIPING TO LIMIT PRESSURE DROPS TO LESS THAN 20% OF THE AVERAGE SPRINKLER OPERATING PRESSURE.
- IRRIGATION CONTRACTOR SHALL INSTALL HEADS AND NOZZLE TYPES OF THE SAME MANUFACTURER AND PRESSURE RATING WITHIN THE SAME IRRIGATION ZONE.
- IRRIGATION CONTRACTOR SHALL ZONE THE IRRIGATION SYSTEM ACCORDING TO MICROCLIMATES AND PLANT WATER REQUIREMENTS. ZONE TURF, TREE AND PLANT BED AREAS SEPARATELY.
- DESIGN IRRIGATION SYSTEMS TO AVOID OVER SPRAY, AVOID SPRAY BLOCKAGE FROM ADJACENT ABOVE GROUND UTILITIES AND AVOID MISTING FROM EXCESSIVE PRESSURE.
- IRRIGATION CONTRACTOR SHALL DESIGN ALL SPRINKLER LAYOUTS FOR OVERLAPPING HEAD TO HEAD COVERAGE. DESIGN ALL SPRINKLER LAYOUTS AT 45% OF MANUFACTURER DIAMETER.
- IRRIGATION CONTRACTOR SHALL PROVIDE QUICK COUPLER VALVES ALONG THE MAINLINE AT 200' ON-CENTER. QUICK COUPLER VALVES SHALL BE PLACED ON A SINGLE SEPARATE ZONE.
- IRRIGATION CONTRACTOR SHALL PROVIDE FOR A MASTER CONTROL VALVE
- IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND INSTALLING POC, BACKFLOW DEVICE AND GATE VALVES.
- WHEN EXISTING IRRIGATION SYSTEM IS PRESENT, IRRIGATION CONTRACTOR SHALL MODIFY EXISTING SPRINKLER HEADS & NOZZELS TO AVOID OVERSPRAY ONTO NEW CONSTRUCTION. REPOSITION EXISTING HEADS AS NECESSARY TO ACHIEVE HEAD TO HEAD COVERAGE.
- IRRIGATION CONTRACTOR SHALL DESIGN THE IRRIGATION SYSTEM SO THAT PRECIPITATION RATES DO NOT EXCEED INFILTRATION RATES.
- IRRIGATION CONTRACTOR TO PROVIDE A MINIMUM OF TWO SPARE CONTROL WIRES TO ALL REMOTE MAINLINE LEGS.
- IRRIGATION CONTRACTOR SHALL DESIGN MAINLINE FLOW BASED UPON THE LARGEST ZONE GPM COMBINED WITH A SINGLE QUICK COUPLER AT 20 GPM. DESIGN ZONES FOR FULL RATED WORKING PRESSURE FOR THE SELECTED WATER DELIVERY MEDIA WITH AT LEAST ONE QUICK COUPLER AT 20 GPM OPERATING SIMULTANEOUSLY.
- LOCATE VALVE BOXES, VALVES AND QUICK COUPLER VALVES IN BEDS AND TURF AREAS AT LEAST 36 INCHES FROM HARDSCAPE EDGES.
- WHEN EXISTING IRRIGATION SYSTEM IS PRESENT, IRRIGATION CONTRACTOR SHALL VERIFY CONDITION OF EXISTING SYSTEM PRIOR TO BIDDING. IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTIONS TO EXISTING SYSTEM AND SHALL PROVIDE FOR A WORKING SYSTEM FOR BOTH NEW AND EXISTING WITHIN THE LIMITS OF WORK.
- IRRIGATION CONTRACTOR SHALL PROVIDE AN AUTOMATIC CONTROLLER WITH ENOUGH ZONES TO ADEQUATELY COVER ALL PROPOSED ZONES & A MINIMUM OF 20% ADDITIONAL ZONES FOR FUTURE EXPANSIONS. CONTROLLER SHALL BE CAPABLE OF UTILIZING A RAIN SENSOR.
- IRRIGATION CONTRACTOR SHALL PROVIDE A RAIN SENSOR FOR AUTOMATIC SHUT OFF.
- IRRIGATION CONTRACTOR SHALL PROVIDE SYSTEM DESIGN DRAWINGS SHOWING ALL WORK PROPOSED PRIOR TO CONSTRUCTION, FOR OWNER APPROVAL.
- IRRIGATION CONTRACTOR SHALL DOCUMENT FINAL LAYOUT OF BOTH NEW AND EXISTING IRRIGATION SYSTEMS IN AN AS-BUILT DRAWING AND SUBMIT TO OWNER FOR FINAL RECORD.
- DRAWINGS AND SPECIFICATIONS DO NOT INDICATE OR DESCRIBE TOTAL WORK REQUIRED FOR COMPLETION OF WORK AND MAY NOT COVER SOME CONDITIONS WHICH MAY BE REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A WORKING IRRIGATION SYSTEM TO SUSTAIN PLANT LIFE PER SITE CONDITIONS.

SLEEVE NOTES

- IRRIGATION SLEEVES SHALL BE INSTALLED AS A PAIR OF SLEEVES AT EACH LOCATION AND SHALL BE INSTALLED BENEATH PROPOSED ROADWAY AND PARKING AREAS PRIOR TO BEGINNING SURFACE CONSTRUCTION.
- PIPE SLEEVE TO BE 4"Ø SCHEDULE 80 PVC FOR PIPING AND 2"Ø SCHEDULE 80 PVC FOR IRRIGATION CONTROL WIRING.
- IMBED PIPE 4", ALL SIDES, WITH 3" CLEAN AGGREGATE FILL. ALLOW 48 HOURS TO SETTLE; BACKFILL & COMPACT WITH NATIVE SOIL.
- MINIMUM TRENCH WIDTH TO BE 12".
- CONTRACTOR SHALL INSTALL IRRIGATION SLEEVES IN ACCORDANCE WITH APPLICABLE STATE PLUMBING CODES AND LOCAL UTILITY AND WATER MANAGEMENT DISTRICT REGULATIONS.
- CONTRACTOR SHALL MARK ALL SLEEVE LOCATIONS AT EACH END TO AID FUTURE IRRIGATION INSTALLATION. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND MAINTAINING ALL SLEEVE LOCATIONS AND MARKERS DURING THE CONSTRUCTION PERIOD.
- COATED CONDUCTIVE TAPE SHALL BE INSTALLED DIRECTLY ABOVE THE SLEEVE AND SHALL BE PRE-PRINTED WITH REPEATED WARNINGS: "CAUTION WATER LINE BURIED BELOW", OR AS OTHERWISE APPROVED BY THE PROJECT ENGINEER.
- SLEEVES ARE ALWAYS INSTALLED AS A PAIR.

LEGEND

-  Spray Irrigation Area
-  Irrigation Sleeve



NO.	DATE	REVISION
4	10/26/23	Client Comments
3	10/17/23	Sidewalk Revision
2	10/11/23	Driveway Revision
1	10/02/23	City Comments
0	8/18/23	Initial Summary
DRAWN BY	ATB	CHECKED BY PNC

SECTION 329200 - LAWNS
PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following areas of Work:

1. Fine grading and preparing lawn areas.
2. Furnishing and applying topsoil.
3. Furnishing and applying limited soil amendments.
4. Sodding new lawn areas.
5. Reconditioning existing lawn areas.
6. Replanting unsatisfactory or damaged lawns.
7. Maintenance.

B. Related Work Specified Elsewhere:

1. Trees and Shrubs: SECTION 329300

1.2 REFERENCES

A. Applicable Standards:

1. American Society for Testing and Materials (ASTM) - Equivalent AASHTO standards may be substituted as approved.

1.3 SUBMITTALS

- A. Certification of each seed mixture for sod, identifying the sod source, including name and telephone number of supplier. Seed for sod must be sod quality and is to be gold tag standards with 0% other crop seed and 0% weed seed.
- B. Certification of each seed type for Native Grass mixture identifying the seed source, including name and telephone number of supplier.
- C. Landscape Architect has final approval of sod grower, no exceptions.

D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and address of architects and owners, and other information specified.

E. Material test reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated.

1. Agronomic and biological analysis of existing surface soil.
2. Agronomic and biological analysis of all imported topsoil.

F. Maintenance instructions recommending procedures to be performed by Owner for maintenance of landscaping during an entire year. Submit before expiration of required maintenance periods.

1.4 QUALITY ASSURANCE

A. Qualifications: A qualified subcontractor shall employ or provide a qualified installation manager who meets any or all of the required qualifications;

1. Bachelor of Science Degree in Horticulture, Botany, Soil Physics, Agronomy, General Agriculture, Agricultural or Biological Engineering, or a related field.
2. An individual with field experience as approved by the Landscape Architect or Registered Engineer.

B. Installer Qualifications: Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful turf establishment.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site during times that turf planting is in progress.

C. Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to Landscape Architect's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

D. Topsoil Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter by Loss on ignition, inorganic matter (proportion of silt, clay, and sand), deleterious material including biological contamination, pH, mineral and plant-nutrient content of topsoil, and cationic exchange capacity.

1. Report suitability of topsoil for grass growth from horticulturist. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce satisfactory topsoil.

1.5 DELIVERY, STORAGE AND HANDLING

A. Sod: Harvest, deliver, store, and handle sod according to the requirements of the Turfgrass Producers International (TPI) "Specifications for Turfgrass Sod Materials and Transplanting/Installing."

B. Seed & Native Seed: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.

1.6 COORDINATION AND SCHEDULING

A. Planting Season: Install sod during normal planting seasons for type of lawn work required. Correlate planting with specified maintenance periods to provide required maintenance from date of Substantial Completion.

B. Native Seed Planting Season: Spring Planting Season: April 1st - June 1st; Dormant Planting Season: December 15th - March 31st. Planting at any other time will require the use of a cover crop to be approved by Owner or Landscape Architect.

C. Weather Limitations: Proceed with work only when existing and forecast weather conditions are suitable for work.

1.7 MAINTENANCE

A. Lawns/turf areas: Begin maintenance of turfgrass immediately after each area is planted and continue until acceptable establishment, but for no less than the following periods:

1. Sodded Lawns: 90 days from the date of Substantial Completion.
2. Seeded Lawns: 90 days from the date of Substantial Completion.
3. Native Grass Areas: 12 months from the date of Substantial Completion.

B. Maintain and establish lawns by watering, fertilizing, weeding, mowing, trimming, replanting and other operations per this Specification.

C. Watering- Subcontractor shall be responsible of watering the sod as required by this Specification. Subcontractor may use irrigation system to accomplish watering. Subcontractor shall be responsible for coordinating with irrigation contractor for scheduling of irrigation system to provide required water needs.

D. Post-fertilization: Apply fertilizer to lawn after first mowing and when grass is dry.

PART 2 - PRODUCTS

2.1 TOPSOIL

A. Standard Topsoil: ASTM 5268, pH range 5.5 to 7. Free of stones 1 inch or larger in any dimension, and other extraneous materials harmful to plant growth.

B. Compost Soil Blend: As located in plan, areas denoted as Compost Soil Blend shall be provided as 50% Standard Topsoil or Native Topsoil and 50% Compost for a depth of 12". pH range shall be 5.5 to 7.

1. Topsoil Source: Reuse surface soil stockpiled on the site where available. Verify suitability of surface soil to produce topsoil meeting requirements and amend when necessary. Supplement with imported topsoil when quantities are insufficient. Imported topsoil shall meet the requirements of this specification for composition. Clean all topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.

2. Compost Soil Blend shall have a minimum infiltration rate between 0.25" to 0.5" per hour.

2.2 LIMITED SOIL AMENDMENTS

A. Herbicides: EPA registered and approved, of type recommended by manufacturer and approved by the Landscape Architect.

B. Compost: Well-composted, stable and weed-free organic matter, pH range of 5.5-8; moisture content 35-55 percent by weight; 100 percent passing through 3/4-inch sieve; soluble salt content less than 4 deciems/cm; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.

C. Water: Potable.

2.3 GRASS SEED:

A. Provide fresh, clean, new crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America and as required below.

B. Be labeled according to the U.S. Department of Agriculture Federal Seed Act and shall be furnished in containers with tags showing seed mixture, purity, germination, weed content, name of seller, and date on which seed was tested.

C. Seed Mix: 10% Bluegrass & 90% Turf-Type Tall Fescue, composed of an equal mix of three or four compatible species of bluegrass and one or two species of fescue. The mixture shall not include any varieties of the slower growing "Dwarf" fescue types.

1. Fescue Varieties, or approved equal
Apache, Arid, Austin, Bonanza, Carefree, Cheifan, Cimmaron, Cochise, Falcon, Guardian, Houndg, Jaguar II, Maverick II, Mustang, Olympic, Phoenix, Rebel II, Rebel 3D, Safari, Shenandoah, Thoroughbred, Titan, Tribute, Vegas
2. Bluegrass Varieties, or approved equal
Asset, Kenblue, Midnight, Nassau, Ruby II, Troy

3. Moldy seed or seed that has been damaged in storage shall not be used.

4. Landscape Architect shall have final approval of all seed blends and mixtures.

D. Cover Crop: As approved by Landscape Architect, Contractor shall submit mix for approval.

2.4 NATIVE GRASSES

D. Fresh, clean, dry, pure-live seed complying with Kansas Department of Agriculture laws for purity, germination, and noxious weed tolerances:

1. Seed Components: Provide seed of grass and forb species and varieties, proportions by weight, and minimum percentages of purity, germination, and maximum percentage of weed seed as indicated on Schedules at the end of this Section. Seed lots, unlabeled, shall be provided to horticulturist in original unopened containers for agro-histological determination and re-testing. The Master label shall be produced by the horticulturist, and shall be sealed according to the appropriate laws and regulations

2. All seed must be tested by a registered seed technologist per AOSA methods and meet all requirements established by the Missouri Department of Agriculture. The contractor will provide documentation with the seed shipment for the following information;

- a. State of Origin
- b. Year of Harvest
- c. Genus species Identification
- d. Seed Lot #
- e. Packaged Quantity
- f. Identification of Seed Supplier
- g. Supplier Certification Number
- h. State of Supplier Registration
- i. Percent PLS Per Seed Lot
- j. Percent Germination
- k. Percent Hard Seed
- l. Percent Foreign Matter
- m. Percent Weed Seed
- n. Identification of Noxious Weed Seed
- o. Date of Seed Testing
- p. Identification of Seed Testing Company

3. Landscape Architect has final approval, no exceptions.

4. Seed Source: Shall be submitted to Landscape Architect for approval.

B. Native Seed Mix (Or Approved Equal): 2 lbs / 1,000 SF

1. Lower Basin Native Seed: Detention Basin Seed Mix by Prairie Moon Nursery (ph. 886-417-8156). Low Native Mix by CritiSite (ph. 816-331-9738) or Approved Equal.
2. Upper Basin Native Seed: Tallgrass Exposed Clay Subsoil Seed Mix by Prairie Moon Nursery (ph. 886-417-8156), Painted Prairie Seed Mix by CritiSite (ph. 816-331-9738) or Approved Equal.

C. Native Seed Cover Crop

1. The use of a Cover Crop to help with the establishment of Native Grasses shall be approved by the Landscape Architect prior to use. Contractor shall submit Cover Crop seed mixes prior to installation.

2.5 FERTILIZER (Turfgrass only, do not fertilize Native Seed areas)

A. Commercial fertilizer of neutral character, with some elements derived from organic sources, containing not less than 4 lbs. of actual nitrogen per 1,000 square feet of lawn area. Provide nitrogen in form that will be available to the lawn under the following products or approved equal. During the maintenance period the following fertilizers shall be used or approved equal:

1. Starter Fertilizer: Dyna Green Starter 12-20-06 with Fertil Blend. Total nitrogen: 7.83% ammoniacal, 4.17% urea; Phosphate: Ammonium phosphate 20%; Potash MOP: 6%; Iron: 1%; SGN 200

2. Spring Fertilizer Dyna Green Long Lasting 22-0-8 with 50% UMAXX, 1.757% Viper & Fertil Blend. Total nitrogen: 22% urea with slowly available nitrogen from 50% UMAXX; Potash MOP: 8%; Iron: 1%; SGN 200. Apply March to June.

3. Fall Fertilizer: Dyna Green Winterizer 18-0-9 with 1.434% Surge & Fertil Blend. Total nitrogen: 18% urea; Potash MOP: 8%; Iron: 1%; SGN 200. Apply September to October.

B. Deliver to site in labeled bags or containers.

2.6 MYCORRHIZAL INOCULANT

A. The Subcontractor shall utilize an organic, mycorrhizal inoculant for soil prep. The material shall be granular and applied per manufacturer's recommendation. M-Roots w/ Mycorrhiza or approved equal. For exact finish, insert names of coating manufacturers and products.

2.7 STRAW MAT

A. Provide a biodegradable single net, two sided organic straw mat with functional longevity of 10-12 months by Greenfix America, Product WS072 Double Net Straw or Approved Equal.

B. Utilize Straw Mat within all seed areas on slopes greater than 4:1.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive lawns for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

B. Provide 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.

3.3 SOIL PREPARATION

A. Dispose of any growth, rocks, or other obstructions which might interfere with tilling, seeding, sodding, or later maintenance operations. Remove stones over 38 mm (1 1/2 inches) in any dimension and sticks, roots, rubbish, and other extraneous matter.

B. Thoroughly loosen and pulverize topsoil to a depth of at least 100 mm (4 inches) for all standard turfgrass areas. Areas denoted as "Compost Soil Blend", shall be loosened and amended to a depth of 12 inches

C. Grade lawn areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges and fill depressions to meet finish grades. Limit fine grading to areas which can be planted within immediate future.

D. Moisture prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry off before planting of lawns. Do not create a muddy soil condition.

E. Restore prepared areas to specified condition if eroded or otherwise disturbed after fine grading and prior to planting.

F. Spread top soil mixture to depth required to meet thickness, grades, and elevations indicated after light rolling and natural settlement.

G. Allow for sod thickness in areas to be sodded.

H. Preparation of Unchanged Grades: Where lawns are to be planted in areas that have not been altered or disturbed by excavation, grading, or stripping operations, prepare soil for lawn planting as follows:

1. Remove and dispose of existing grass, vegetation, and turf. Do not turn over into soil being prepared for lawns.

2. Till surface soil to a depth of at least 6 inches. Apply required soil amendments and initial fertilizers and mix thoroughly into top 4 inches of soil. Trim high areas and fill in depressions. Till soil to a homogenous mixture of fine texture.

3. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
4. Remove waste material, including grass, vegetation, and turf, and legally dispose of it off the Owner's property.

3.4 SEEDING NEW LAWNS (Turf-Type Seed):

A. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage.

B. Sow seed with a Brillion type seeding machine or where applicable and restricted by steep slopes or other areas not accessible to the seeding machine, broadcast or drop seed methods may be used. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in 2 directions at right angles to each other, and 3 directions in high maintenance areas, as directed by the Engineer.

C. Sow not less than rate of 8 pounds per 1,000 square feet.

D. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

E. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.

F. Protect seeded slopes exceeding 1:4 against erosion with erosion-control blankets installed and stapled according to manufacturer's recommendations.

G. Protect seeded areas with slopes less than 1:4 against erosion by spreading mulch as specified after completion of seeding operations. Spread uniformly to form a continuous blanket over seeded areas. Spread by hand, blower, or other suitable equipment.

H. Protect seeded areas against hot, dry weather or drying winds by applying peat mulch within 24 hours after completion of seeding operations. Soak and scatter uniformly to a depth of 3/16 inch thick and roll to a smooth surface.

I. Seasonal Limitations:

1. Perform seeding only during the following seasons:
 - a. Fall Seeding: August 15th to October 1st.
 - b. Spring Seeding: March 15th to May 15th
 - c. Recommend seeding when temperatures ranging from 50 degrees Fahrenheit to 70 degrees Fahrenheit for a minimum 6 week period.

J. Methods of Application:

1. Dry Seeding: Spreader or seeding machine.
2. Hydros seeding: Mix seed, fertilizer and pulverized mulch with water and constantly agitate. Do not add seed to water more than 4 hours before application:
 - a. On slopes of 2 horizontal to 1 vertical or flatter, apply seed separately from fertilizer. Cover seed with soil to an average depth of 13 mm (1/2 inch) by raking or other approved methods.
 - b. On slopes steeper than 2 horizontal to 1 vertical, seed and fertilizer may be applied in a single operation. Incorporation into the soil will not be required.

3.5 RECONDITIONING LAWNS:

A. Recondition lawn areas damaged by construction operations, including storage of materials or equipment and movement of vehicles. Also recondition lawn areas where settlement or washouts occur or where minor regrading is required. Recondition other existing lawn areas where indicated.

B. Provide fertilizer, sod, and soil amendments as specified for new lawns and as required to provide satisfactorily reconditioned lawn. Provide new planting soil as required to fill low spots and meet new finish grades.

C. Cultivate bare and compacted areas thoroughly to provide a good, deep planting bed.

D. Remove diseased or unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from Subcontractor's operations including oil drippings, stone, gravel, and other construction materials. Replace with new topsoil.

E. Where substantial lawn remains (but is thin), mow, rake, aerate if compacted, fill low spots, remove bumps and cultivate soil, fertilize, and seed. Remove weeds before seeding or, if extensive, apply selective chemical weed killers as required. Apply a seed-bed mulch, if required, to maintain moist condition.

F. Water newly planted areas and keep moist until new grass is established.

3.6 SEEDING COVER CROP & NATIVE GRASSES:

A. Sow seeds using seed drill (T-rax-type) that accurately meters the seed types and mixes all seeds uniformly during seeding. It should have, at the minimum, two seed boxes to separate fine seeds from large/fluffy seeds. This seed drill should also be equipped with disc furrow openers and a no-till trash plow assembly, which will compact the soil directly over the drill rows. The maximum row spacing for drill seeding should be 8 inches. Fine seeds shall be dropped onto the ground from the fine seed box, while large/fluffy seed shall be placed to obtain final planting depth of 1/4-1/2". The path of the drill seeding shall be done at a right angle to that of the drainage patterns.

1. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.

B. Protect all native grass areas on slopes 4:1 and greater using straw mat erosion control blanket installed and stapled according to manufacturer's recommendations

C. Protect all native grass areas within detention basin by using straw mat erosion control blanket, installed and stapled according to manufacturer's recommendations.

D. Remove diseased or unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from Subcontractor's operations including oil drippings, stone, gravel, and other construction materials. Replace with new topsoil.

E. Where substantial lawn remains (but is thin), mow, rake, aerate if compacted, fill low spots, remove bumps and cultivate soil, fertilize, and seed. Remove weeds before seeding or, if extensive, apply selective chemical weed killers as required. Apply a seed-bed mulch, if required, to maintain moist condition.

F. Water newly planted areas and keep moist until new grass is established.

3.7 PROTECTION:

A. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period until lawn is established.

3.8 MAINTENANCE (SEED & SOD):

A. Mow grass to a height of 3 inches as soon as there is enough top growth to cut with mower. Remove no more than 30% of grass leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted.

B. Remove weeds by pulling or chemical treatment.

C. Perform maintenance throughout the maintenance period.

D. Sodded Areas:

1. Thoroughly water daily for a period of 15 days after placing and to a minimum of 1-inch per week thereafter.
2. Maintain sod in good live condition. Replace any sod not in good growing condition with fresh live sod.
3. Water thoroughly whenever sod evidences excessive drying.

E. Seeded Areas:

1. Thoroughly water seeded areas daily to keep seeds moist until germination. After seeds have germinated, continue watering daily until the first mowing. Watering shall be in amounts enough to wet seeds and surrounding soil, but not cause erosion or disposition of seeds.

required. Recondition other existing lawn areas where indicated.

B. Provide fertilizer, sod, and soil amendments as specified for new lawns and as required to provide satisfactorily reconditioned lawn. Provide new planting soil as required to fill low spots and meet new finish grades.

C. Cultivate bare and compacted areas thoroughly to provide a good, deep planting bed.

D. Remove diseased or unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from Subcontractor's operations including oil drippings, stone, gravel, and other construction materials. Replace with new topsoil.

E. Where substantial lawn remains (but is thin), mow, rake, aerate if compacted, fill low spots, remove bumps and cultivate soil, fertilize, and seed at a rate of 0.5 lbs per 1,000 SF. Remove weeds before seeding or, if extensive, apply selective chemical weed killers as required. Apply a seed-bed mulch, if required, to maintain moist condition.

F. Water newly planted areas and keep moist until new grass is established.

3.9 PROTECTION:

A. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period until lawn is established.

B. Mow grass to height of 0.5 to 1.5 inches as soon as there is enough top growth to cut with mower. Remove no more than 30% of grass leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted.

C. Remove weeds by pulling or chemical treatment. Preemergent herbicide shall not be applied to establishing stands.

D. Perform maintenance throughout the 90 day maintenance period.

E. Seeded Areas:

1. Thoroughly water seeded areas daily to keep seeds moist until germination. After seeds have germinated, continue watering daily until the first mowing. Watering shall be in amounts enough to wet seeds and surrounding soil, but not cause erosion or disposition of seeds.

2. Repair any portion of the seeded surface which becomes gullied or otherwise damaged. Reseed as required.

E. Apply second fertilizer application after first mowing and when grass is dry. Use fertilizer which will provide not less than 1 lbs of actual nitrogen per 1,000 square feet of lawn area.

3.10 ACCEPTANCE OF LAWNS:

A. When lawn Work is Substantially Complete, including maintenance, Landscape Architect and Owner will, upon request, make an inspection to determine acceptability:

1. Lawn Work may be inspected for acceptance in parts agreeable to Owner, provided Work offered for inspection is complete, including maintenance.

2. An Acceptable stand of grass shall be considered when there is a minimum of 95% ground coverage with no bare spots greater than 12" Square.

B. Replant rejected work and continue specified maintenance until re-inspected by Landscape Architect and Owner and found to be acceptable.

3.11 CLEANUP:

A. Promptly remove soil and debris created by lawn Work from paved areas. Clean wheels of vehicles prior to leaving Site to avoid tracking soil onto surfacing of roads, walks, or other paved areas.

END OF SECTION 329200

3.5 RECONDITIONING LAWNS:

A. Recondition lawn areas damaged by construction operations, including storage of materials or equipment and movement of vehicles. Also recondition lawn areas where settlement or washouts occur or where minor regrading is

SECTION 329200 - LAWNS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following areas of Work:

1. Fine grading and preparing lawn areas.
2. Furnishing and applying topsoil.
3. Furnishing and applying limited soil amendments.
4. Sodding new lawn areas.
5. Reconditioning existing lawn areas.
6. Replanting unsatisfactory or damaged lawns.
7. Maintenance.

B. Related Work Specified Elsewhere:

1. Trees and Shrubs: SECTION 329300

1.2 REFERENCES

A. Applicable Standards:

1. American Society for Testing and Materials (ASTM) - Equivalent AASHTO standards may be substituted as approved.

1.3 SUBMITTALS

- A. Certification of each seed mixture for sod, identifying the sod source, including name and telephone number of supplier. Seed for sod must be sod quality and is to be gold tag standards with 0% other crop seed and 0% weed seed.
- B. Certification of each seed type for Native Grass mixture identifying the seed source, including name and telephone number of supplier.

C. Engineer has final approval of seed grower, no exceptions.

D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and address of architects and owners, and other information specified.

E. Material test reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated.

1. Agronomic and biological analysis of existing surface soil.
2. Agronomic and biological analysis of all imported topsoil.

F. Maintenance instructions recommending procedures to be performed by Owner for maintenance of landscaping during an entire year. Submit before expiration of required maintenance periods.

1.4 QUALITY ASSURANCE

A. Qualifications: A qualified subcontractor shall employ or provide a qualified installation manager who meets any or all of the required qualifications;

1. Bachelor of Science Degree in Horticulture, Botany, Soil Physics, Agronomy, General Agriculture, Agricultural or Biological Engineering, or a related field.
2. An individual with field experience as approved by the Landscape Architect or Registered Engineer.

B. Installer Qualifications: Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful turf establishment.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site during times that turf planting is in progress.

C. Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to Landscape Architect's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

D. Topsoil Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter by Loss on ignition, inorganic matter (proportion of silt, clay, and sand), deleterious material including biological contamination, pH, mineral and plant-nutrient content of topsoil, and cationic exchange capacity.

1. Report suitability of topsoil for grass growth from horticultur

LANDSCAPE NOTES

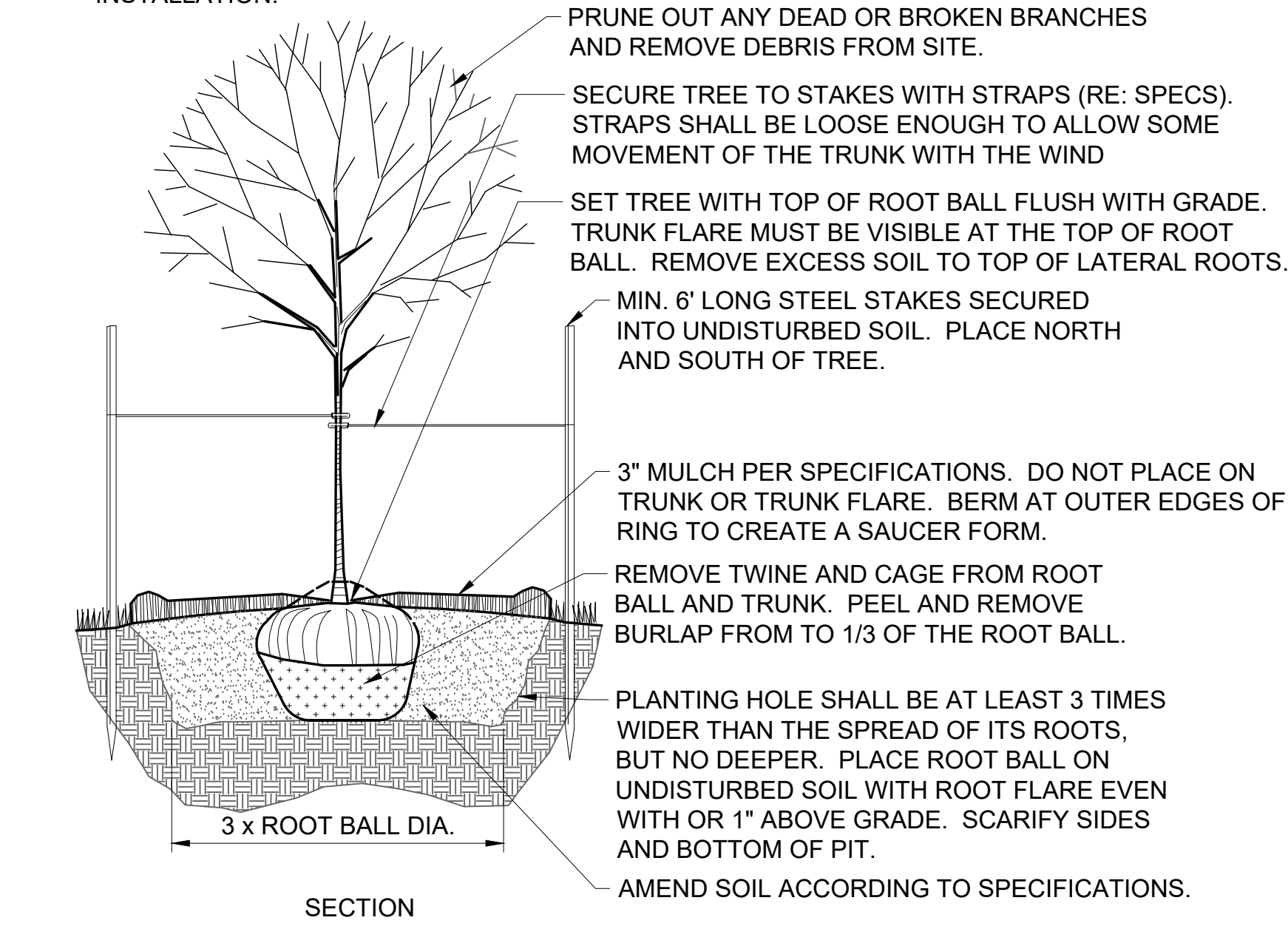
- LOCATE UTILITIES PRIOR TO COMMENCING LANDSCAPE OPERATIONS. ALL TREES SHALL BE FIELD POSITIONED AS TO AVOID CONFLICTS WITH EXISTING AND PROPOSED UTILITIES. NOTIFY LANDSCAPE ARCHITECT OF ANY CONFLICTS OR OBSTRUCTIONS.
- CONTRACTOR SHALL STAKE ALL PLANTING AREAS IN THE FIELD PRIOR TO PLANTING FOR APPROVAL OF THE OWNER OR THEIR REPRESENTATIVE.
- QUANTITIES SHOWN ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL PLANT QUANTITIES PRIOR TO BIDDING AND SHALL BE RESPONSIBLE FOR ALL QUANTITIES FOR THEIR BID. ANY DISCREPANCIES WITH THE PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. THE PLAN QUANTITIES SHALL SUPERCEDE SCHEDULED QUANTITIES.
- ALL PLANT MATERIAL SHALL BE SPECIMEN QUALITY AND SHALL COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 THE 'AMERICAN STANDARD FOR NURSERY STOCK'.
- ALL PLANTING BEDS & NATIVE GRASS STANDS SHALL BE EDGED AS SHOWN IN PLAN.
- PREPARE PLANTING BEDS AND INCORPORATE AMENDMENTS ACCORDING TO PLANS.
- SHREDDED HARDWOOD MULCH, PER SPECIFICATIONS SHALL BE USED AS A THREE INCH (3") TOP DRESSING IN ALL PLANTING BEDS AND AROUND ALL TREES. SINGLE TREES AND SHRUBS SHALL BE MULCHED TO THE OUTSIDE EDGE OF THE SAUCER OR LANDSCAPE ISLAND.
- ALL TREES SHALL BE STAKED PER DETAIL.
- ALL PLANT MATERIAL SHALL BE INSTALLED TO ALLOW A ONE FOOT (1') CLEARANCE BETWEEN PLANT AND ADJACENT PAVEMENT.
- THE LANDSCAPE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE SITE IS FREE OF DEBRIS CAUSED BY ON-GOING CONSTRUCTION OPERATIONS. REMOVAL OF DEBRIS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. LANDSCAPE WORK SHALL NOT BEGIN UNTIL THE LANDSCAPE ARCHITECT AND OWNER HAVE GIVEN WRITTEN APPROVAL FOR SUCH. THERE SHALL BE NO DELAYS DUE TO LACK OF COORDINATION FOR THIS ACTIVITY.
- THE LANDSCAPE ARCHITECT AND OWNER SHALL APPROVE GRADES AND CONDITION OF SITE PRIOR TO SODDING/SEEDING OPERATIONS.
- ALL AREAS DISTURBED DURING CONSTRUCTION AND NOT DESIGNATED FOR OTHER PLANTINGS OR HARDSCAPE SHALL BE SEEDED WITH TURF TYPE FESCUE.
- CONTRACTOR SHALL PROVIDE AN AUTOMATIC IRRIGATION SYSTEM FOR ALL SEEDED AREAS PER THE OWNER'S DIRECTION. CONTRACTOR SHALL SUBMIT SHOP DRAWING OF PROPOSED IRRIGATION SYSTEM AND COVERAGE AREAS FOR OWNER APPROVAL PRIOR TO INSTALLATION. IRRIGATION SYSTEM SHALL PROVIDE FOR THE CONTROLLER, WEATHER SENSOR, AND REQUIRED BACKFLOW DEVICES PER STATE AND LOCAL CODES.

SEEDING NOTES

- SEEDING SHALL OCCUR AS REQUIRED BY THE SPECIFICATIONS. SEEDING AT OTHER TIMES WILL REQUIRE A COVER CROP APPROVED BY THE ENGINEER AND CITY CODE. DORMANT SEEDING SHALL BE APPROVED BY THE ENGINEER.
- GRADED AREAS SHALL PROVIDE A SMOOTH UNIFORM SLOPE, FREE FROM RILLS AND GULLEYS.
- THE TOP FOUR INCHES OF SOIL SHALL BE FERTILE SOIL SUITABLE FOR SEED GROWTH.
- PRIOR TO APPLICATION OF SEED, CONTRACTOR SHALL LOOSEN ALL SOILS TO A DEPTH OF ONE INCH. THE AREA SHALL BE RAKED FREE OF ALL ROCKS AND DEBRIS ACCORDING TO THE SPECIFICATION.
- ALL AREAS TO BE SEEDED LOCATED ON SLOPES STEEPER THAN 4:1 (H:V) SHALL USE SPECIFIED TURF REINFORCEMENT MAT. ALL TRM SHOWN ON THE PLANS SHALL BE CONSIDERED CONCEPTUAL, CONTRACTOR TO VERIFY AND INSTALL ON ALL SLOPES EXCEEDING 4:1 AFTER FINAL GRADING IS ESTABLISHED.
- ALL SEEDED ARES SHALL BE DRAGGED OR RAKED BEFORE BEING COVERED WITH THE SPECIFIED TRM. MAT SHALL BE PLACED PRIOR TO EXPOSURE TO ADVERSE WEATHER.
- THE CONTRACTOR MUST PROVIDE THE OWNER'S REPRESENTATIVE DOCUMENTATION FROM THE SUPPLIER THAT EACH LOT OF SEED MEETS OR EXCEEDS THE SPECIFIED STANDARD.
- ALL SEED MUST BE TESTED BY A REGISTERED SEED TECHNOLOGIST PER AOSA METHODS AND MEET ALL REQUIREMENTS ESTABLISHED BY THE STATE DEPARTMENT OF AGRICULTURE.
- AFTER COMPLETION OF WORK, CONTRACTOR SHALL WATER SEEDED AREAS DAILY. SATURATING THE MAT AND UNDERLYING SEED BED. CONTRACTOR SHALL CONTINUE WATERING UNTIL PLANT ESTABLISHMENT HAS OCCURRED OR BY NOTIFICATION FROM LANDSCAPE ARCHITECT. NOT WATERING DUE TO RAIN EVENT SHALL BE DOCUMENTED AND APPROVED BY THE GENERAL CONTRACTOR. WATERING LOGS SHALL BE SUPPLIED TO THE OWNER OR ENGINEER.
- CONTRACTOR SHALL PROVIDE AN AUTOMATIC IRRIGATION SYSTEM FOR ALL SEEDED AREAS PER THE OWNER'S DIRECTION. CONTRACTOR SHALL SUBMIT SHOP DRAWING OF PROPOSED IRRIGATION SYSTEM & COVERAGE AREAS FOR OWNER APPROVAL PRIOR TO INSTALLATION. IRRIGATION SYSTEM SHALL PROVIDE FOR THE CONTROLLER, WEATHER SENSOR, AND REQUIRED BACKFLOW DEVICES PER STATE AND LOCAL CODES.

NOTES:

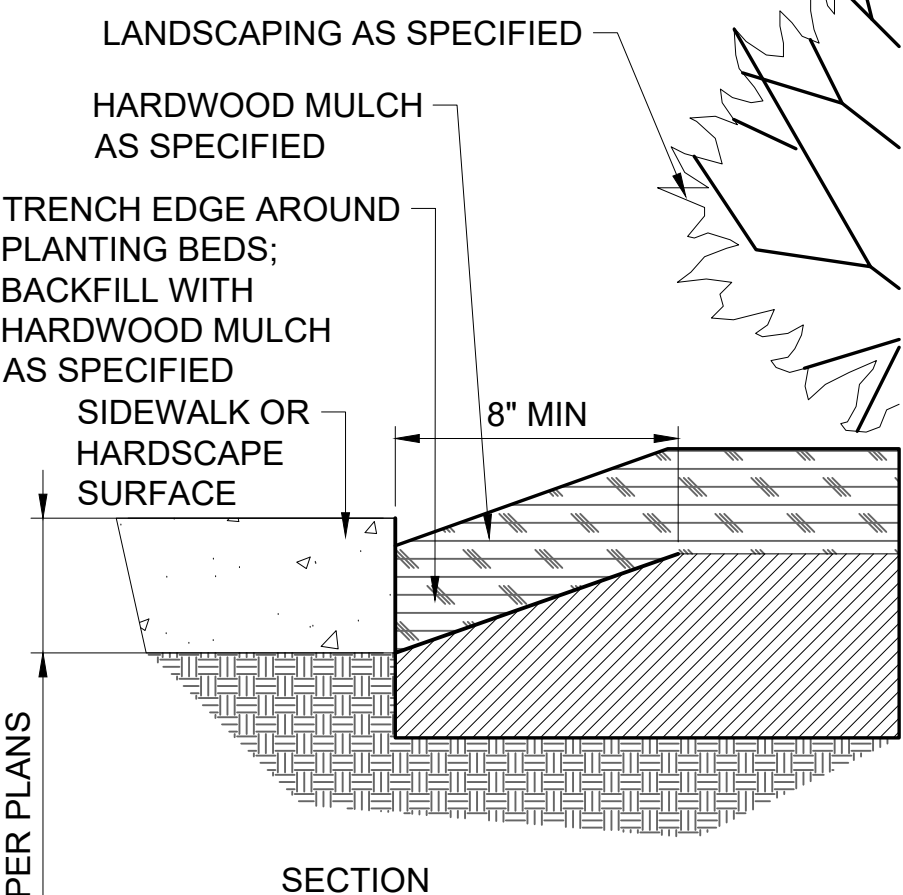
- TREES THAT DO NOT MEET THE SIZE REQUIREMENT WILL BE REJECTED
- TREES SHALL BE INSPECTED BY OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.



DECIDUOUS TREE PLANTING DETAIL - NTS

NOTES:

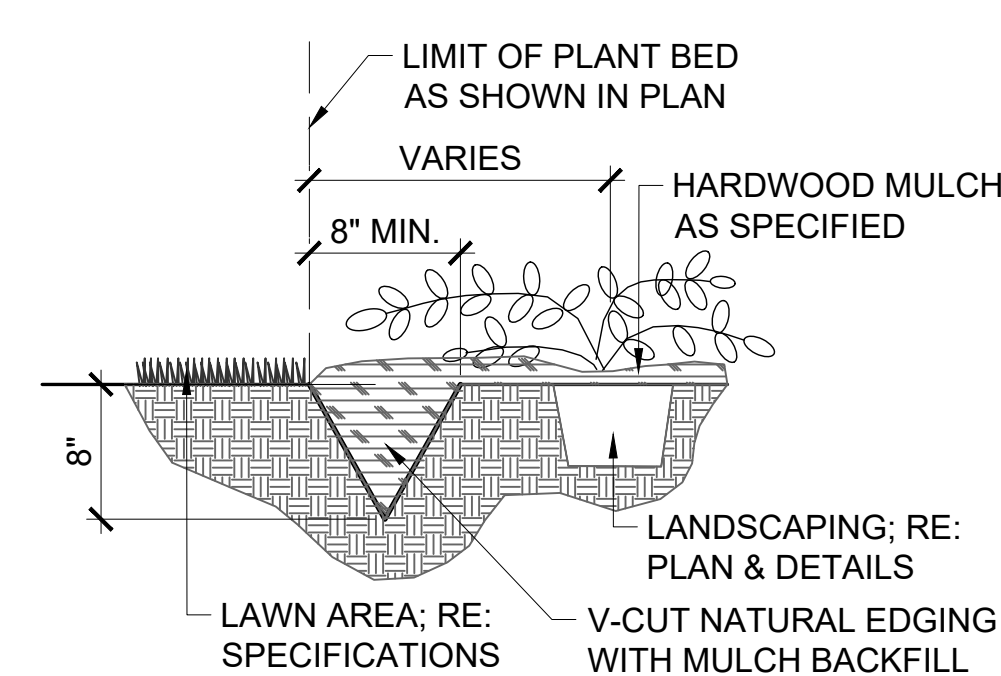
- TRENCH ALL EDGES ADJACENT TO SIDEWALK OR OTHER HARDSCAPE SURFACES FOR MULCH CONTAINMENT.



MULCH CONTAINMENT DETAIL - NTS

NOTES:

- CONTRACTOR SHALL LOCATE AND MARK ALL PLANTBED LOCATIONS PRIOR TO EXCAVATING FOR FINAL APPROVAL BY OWNER OR LANDSCAPE ARCHITECT.

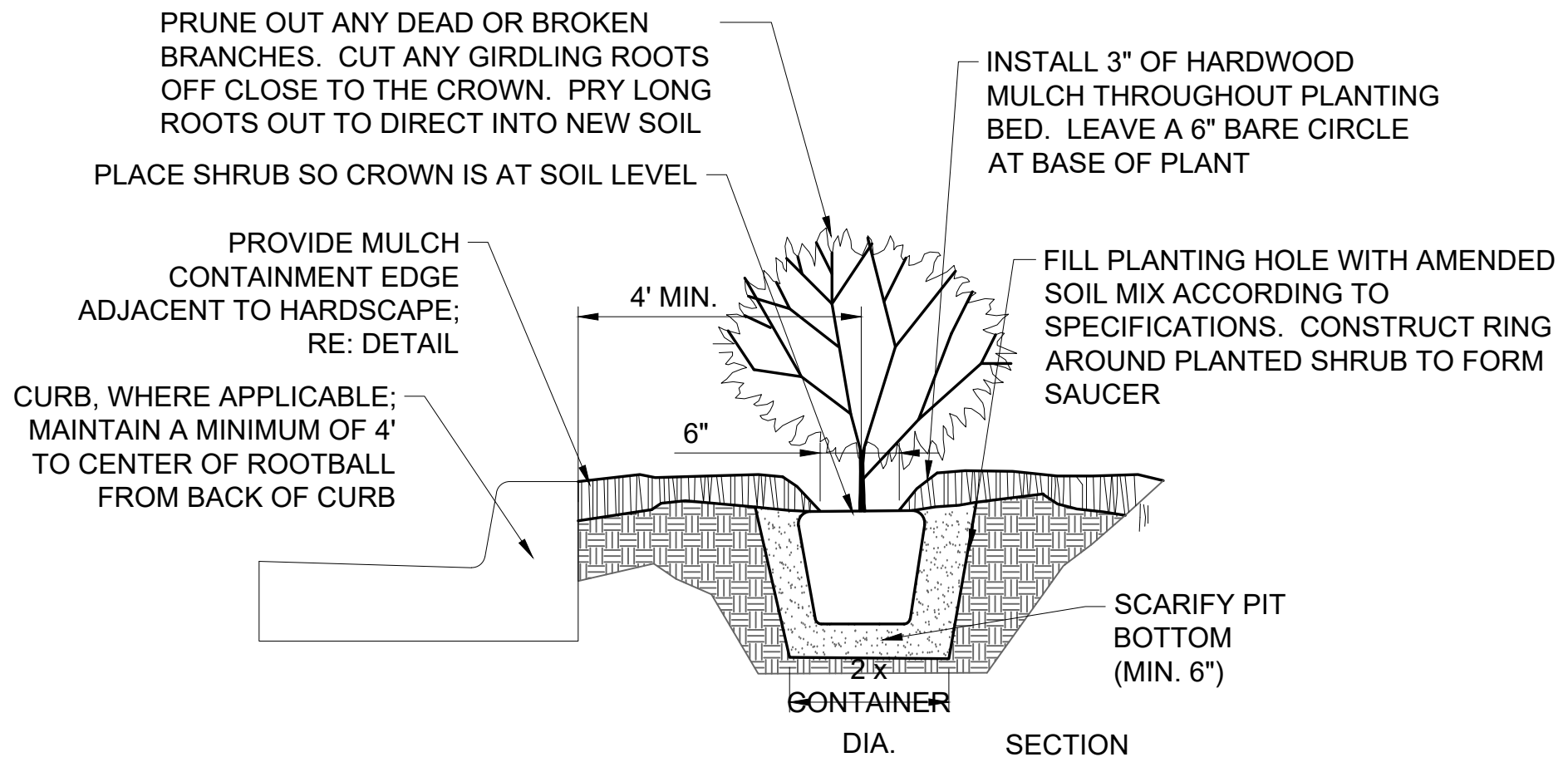


V-CUT NATURAL EDGE DETAIL - NTS



UTILITY BOXES SHALL BE CLUSTERED AS MUCH AS POSSIBLE

TYPICAL UTILITY BOX SCREENING DETAILS - NTS



- NOTES:
- REFER TO SPECIFICATIONS FOR TOPSOIL BACKFILL MIX.
 - CONTRACTOR TO WATER THOROUGHLY AFTER PLANTING.
 - INSTALLATION TO BE IN ACCORDANCE WITH PLANTING SPECIFICATIONS.
 - WHERE ADJACENT TO CURB, MAINTAIN THE MINIMUM OFFSET SHOWN. FOR SHRUBS LARGER THAN 4' MATURE DIAMETER, PROVIDE A GREATER OFFSET EQUAL TO 1/2 OF THE MATURE DIAMETER MINIMUM.

SHRUB PLANTING DETAIL - NTS

NEW SHEET ADDED

4	10/26/23	Client Comments
3	10/17/23	Sidewalk Revision
2	10/11/23	Driveway Revision
1	10/02/23	City Comments
	8/18/23	Initial Summary
NO.	DATE	REVISION
	DRAWN BY	CHECKED BY
	AFB	PNC

Renaissance
Infrastructure
Consulting



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