

PLANTING SPECIFICATIONS

GENERAL

- A. QUALIFICATIONS OF LANDSCAPE CONTRACTOR
 1. ALL LANDSCAPE WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE FIRM SPECIALIZING IN LANDSCAPE PLANTING.
 2. A LIST OF SUCCESSFULLY COMPLETED PROJECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.
 3. THE LANDSCAPE CONTRACTOR SHALL HOLD A VALID NURSERY AND FLORAL CERTIFICATE ISSUED BY THE TEXAS DEPARTMENT OF AGRICULTURE, AS WELL AS OPERATE UNDER A COMMERCIAL PESTICIDE APPLICATOR LICENSE ISSUED BY EITHER THE TEXAS DEPARTMENT OF AGRICULTURE OR THE TEXAS STRUCTURAL PEST CONTROL BOARD.
- C. SCOPE OF WORK
 1. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES AND ANY OTHER ITEMS THAT ARE NECESSARY FOR THE EXECUTION, INSTALLATION AND COMPLETION OF ALL WORK, SPECIFIED HEREIN AND / OR SHOWN ON THE LANDSCAPE PLANS, NOTES, AND DETAILS.
 2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY, TRANSPORTATION AND INSTALLATION OF MATERIALS.
 3. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, SEWER, ELECTRICAL, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK.

PRODUCTS

- A. ALL MANUFACTURED PRODUCTS SHALL BE NEW.
- B. CONTAINER AND BALLED-AND-BURLAPPED PLANTS
 1. FURNISH NURSERY-GROWN PLANTS COMPLYING WITH ANSI Z60-12014. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. ALL PLANTS WITHIN A SPECIES SHALL HAVE SIMILAR SIZE, AND SHALL BE OF A FORM TYPICAL FOR THE SPECIES. ALL TREES SHALL BE OBTAINED FROM SOURCES WITHIN 200 MILES OF THE PROJECT SITE AND WITH SIMILAR CLIMATIC CONDITIONS.
 2. ROOT SYSTEMS SHALL BE HEALTHY, DENSELY BRANCHED ROOT SYSTEMS, NON-POT-BOUND, FREE FROM ENCRUING AND/OR GIRDLING ROOTS, AND FREE FROM ANY OTHER ROOT DEFECTS (SUCH AS J-SHAPED ROOTS). TREES MAY BE PLANTED FROM CONTAINERS OR BALLED-AND-BURLAPPED (B&B), UNLESS SPECIFIED ON THE PLANTING LEGEND. BARE-ROOT TREES ARE NOT ACCEPTABLE.
 3. ANY PLANT DEEMED UNACCEPTABLE BY THE LANDSCAPE ARCHITECT OR OWNER SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE REPLACED WITH AN ACCEPTABLE PLANT OF LIKE TYPE AND SIZE AT THE CONTRACTOR'S OWN EXPENSE. ANY PLANTS APPEARING TO BE UNHEALTHY, EVEN IF DETERMINED TO STILL BE ALIVE, SHALL NOT BE ACCEPTED. THE LANDSCAPE ARCHITECT AND OWNER SHALL BE THE SOLE JUDGES AS TO THE ACCEPTABILITY OF PLANT MATERIAL.
 4. ALL TREES SHALL BE STAKED IN FORM, UNLESS OTHERWISE SPECIFIED. TREES WITH CENTRAL LEADERS WILL NOT BE ACCEPTED IF LEADER IS DAMAGED OR REMOVED. PRUNE ALL DAMAGED TWIGS AFTER PLANTING.
 5. CALIPER MEASUREMENTS FOR STANDARD (SINGLE TRUNK) TREES SHALL BE AS FOLLOWS: SIX INCHES ABOVE THE ROOT FLARE FOR TREES UP TO AND INCLUDING FOUR INCHES IN CALIPER, AND TWELVE INCHES ABOVE THE ROOT FLARE FOR TREES EXCEEDING FOUR INCHES IN CALIPER.
 6. MULTI-TRUNK TREES SHALL BE MEASURED BY THEIR OVERALL HEIGHT, MEASURED FROM THE TOP OF THE ROOT BALL, WHERE CALIPER MEASUREMENTS ARE USED, THE CALIPER SHALL BE CALCULATED AS ONE-HALF OF THE SUM OF THE CALIPER OF THE THREE LARGEST TRUNKS.
 7. ANY TREE OR SHRUB SHOWN TO HAVE EXCESS SOIL PLACED ON TOP OF THE ROOT BALL, SO THAT THE ROOT FLARE HAS BEEN COMPLETELY COVERED, SHALL BE REJECTED.
- C. SOD: PROVIDE WELL-ROOTED SOD OF THE VARIETY NOTED ON THE PLANS. SOD SHALL BE CUT FROM HEALTHY, MATURE TURF WITH SOIL THICKNESS 1" TO 1 1/2". EACH PALL SET OF SOD SHALL BE ACCOMPANIED BY A CERTIFICATE FROM SUPPLIER STATING THE COMPOSITION OF THE SOD.
- D. TOPSOIL: SANDY TO CLAY LOAM TOPSOIL, FREE OF STONES LARGER THAN 1/2 INCH, FOREIGN MATTER, PLANTS, ROOTS, AND SEEDS.
- E. COMPOST: WELL-COMPOSTED, STABLE, AND WEED-FREE ORGANIC MATTER, PH RANGE OF 5.5 TO 8; MOISTURE CONTENT 35 TO 55 PERCENT BY WEIGHT; 100 PERCENT PASSING THROUGH 3/4-INCH SIEVE; SOLUBLE SALT CONTENT OF 5 TO 10 DECIGRAMS/L; NOT EXCEEDING 0.5 PERCENT INERT CONTAMINANTS AND FREE OF SUBSTANCES TOXIC TO PLANTINGS. NO MANURE OR ANIMAL PRODUCTS SHALL BE USED.
- F. FERTILIZER: GRANULAR FERTILIZER CONTAINING NITROGEN, PHOSPHORUS, POTASSIUM, AND OTHER NUTRIENTS IN PROPORTIONS, AMOUNTS, AND RELEASE RATES RECOMMENDED IN A SOIL REPORT FROM A QUALIFIED SOIL-TESTING AGENCY (SEE BELOW).
- G. MULCH: SIZE AND TYPE AS INDICATED ON PLANS, FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS.
- H. TREE STAKING AND GUYING
 1. STAKES: 6" LONG GREEN METAL T-POSTS.
 2. GUY AND TIE WIRE: ASTM A 641 CLASS 1 GALVANIZED-STEEL WIRE, 2-STRAND, TWISTED, 0.106 INCH DIAMETER.
 3. STRAP CHAFING GUARD: REINFORCED NYLON OR CANVAS AT LEAST 1-1/2 INCH WIDE, WITH GROMMETS TO PROTECT TREE TRUNKS FROM DAMAGE.
- L. STEEL EDGING: PROFESSIONAL STEEL EDGING, 1/4 GAUGE THICK X 4 INCHES WIDE, FACTORY PAINTED DARK GREEN. ACCEPTABLE MANUFACTURERS INCLUDE COL-MET OR APPROVED EQUAL.
- M. PRE-EMERGENT HERBICIDES: ANY GRANULAR, NON-STAINING PRE-EMERGENT HERBICIDE THAT IS LABELED FOR THE SPECIFIC ORNAMENTALS OR TURF ON WHICH IT WILL BE UTILIZED. PRE-EMERGENT HERBICIDES SHALL BE APPLIED PER THE MANUFACTURER'S LABELED RATES.

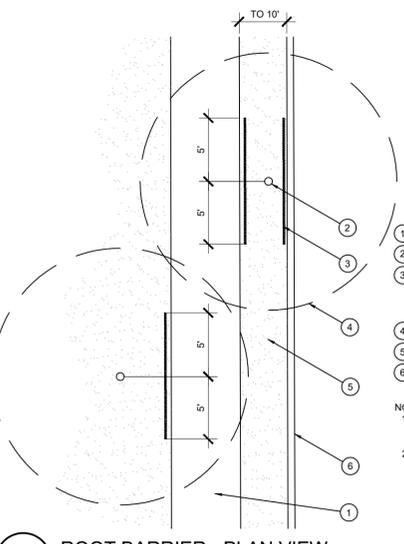
METHODS

- A. SOIL PREPARATION
 1. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +0.1' OF FINISH GRADE. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD ANY DISCREPANCIES EXIST.
 2. SOIL TESTING:
 - a. AFTER FINISH GRADES HAVE BEEN ESTABLISHED, CONTRACTOR SHALL HAVE SOIL SAMPLES FROM THE PROJECT'S LANDSCAPE AREAS TESTED BY AN ESTABLISHED SOIL TESTING LABORATORY. EACH SAMPLE SUBMITTED TO THE LAB SHALL CONTAIN NO LESS THAN ONE QUART OF SOIL, TAKEN FROM BETWEEN THE SOIL SURFACE AND 6" DEPTH. IF NO SAMPLE LOCATIONS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL TAKE A MINIMUM OF THREE SAMPLES FROM VARIOUS REPRESENTATIVE LOCATIONS FOR TESTING.
 - b. THE CONTRACTOR SHALL HAVE THE SOIL TESTING LABORATORY PROVIDE RESULTS FOR THE FOLLOWING: SOIL TEXTURAL CLASS, GENERAL SOIL FERTILITY, pH, ORGANIC MATTER CONTENT, SALT (CEC), LIME, SODIUM ADSORPTION RATIO (SAR) AND BORON CONTENT.
 - c. THE CONTRACTOR SHALL ALSO SUBMIT THE PROJECT'S PLANT LIST TO THE LABORATORY ALONG WITH THE SOIL SAMPLES.
 - d. THE SOIL REPORT PRODUCED BY THE LABORATORY SHALL CONTAIN RECOMMENDATIONS FOR THE FOLLOWING (AS APPROPRIATE): SEPARATE SOIL PREPARATION AND BACKFILL MIX RECOMMENDATIONS FOR GENERAL ORNAMENTALS, TURF, AND NATIVE PLANTS, AS WELL AS PRE-PLANT FERTILIZER APPLICATIONS AND RECOMMENDATIONS FOR ANY OTHER SOIL RELATED ISSUES. THE REPORT SHALL ALSO PROVIDE A FERTILIZER PROGRAM FOR THE ESTABLISHMENT PERIOD AND FOR LONG-TERM MAINTENANCE.
 3. THE CONTRACTOR SHALL INSTALL SOIL AMENDMENTS AND FERTILIZERS PER THE SOILS REPORT RECOMMENDATIONS. ANY CHANGE IN COST DUE TO THE SOIL REPORT RECOMMENDATIONS, EITHER INCREASE OR DECREASE, SHALL BE SUBMITTED TO THE OWNER WITH THE REPORT.
 4. FOR BIDDING PURPOSES ONLY, THE SOIL PREPARATION SHALL CONSIST OF THE FOLLOWING:
 - a. TURF: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 6" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
 - i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
 - ii. PREPLANT TURF FERTILIZER (10-20-10 OR SIMILAR, SLOW RELEASE, ORGANIC) - 15 LBS PER 1,000 S.F.
 - iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
 - b. TREES, SHRUBS, AND PERENNIALS: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 6" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
 - i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
 - ii. 12-12-12 FERTILIZER (OR SIMILAR, ORGANIC, SLOW RELEASE) - 10 LBS. PER CU. YD.
 - iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
 - iv. IRON SULPHATE - 2 LBS. PER CU. YD.
- B. WARRANTY PERIOD, PLANT GUARANTEE AND REPLACEMENTS
 1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL TREES, SHRUBS, PERENNIALS, SOD, SEEDS/HYDROMULCHED AREAS, AND IRRIGATION SYSTEMS FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE (90 DAYS FOR ANNUAL PLANTS). THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER, ANY PLANTS WHICH DIE IN THAT TIME, OR REPAIR ANY PORTIONS OF THE IRRIGATION SYSTEM WHICH OPERATE IMPROPERLY.
 2. AFTER THE INITIAL MAINTENANCE PERIOD AND DURING THE GUARANTEE PERIOD, THE LANDSCAPE CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR REPLACEMENT OF PLANTS WHEN PLANT DEATH CANNOT BE ATTRIBUTED DIRECTLY TO OVERWATERING OR OTHER DAMAGE BY HUMAN ACTIONS.
- M. PROVIDE A MINIMUM OF (2) COPIES OF RECORD DRAWINGS TO THE OWNER UPON COMPLETION OF WORK. A RECORD DRAWING IS A RECORD OF ALL CHANGES THAT OCCURRED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.

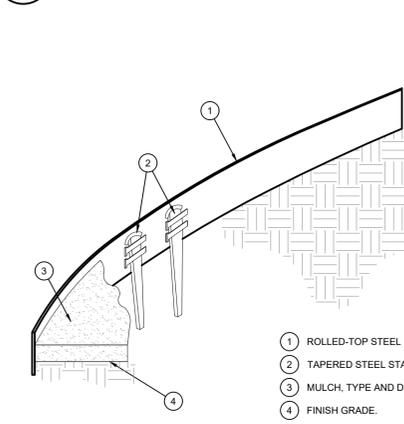
- B. SUBMITTALS
 1. THE CONTRACTOR SHALL PROVIDE SUBMITTALS AND SAMPLES, IF REQUIRED, TO THE LANDSCAPE ARCHITECT, AND RECEIVE APPROVAL IN WRITING FOR SUCH SUBMITTALS BEFORE WORK COMMENCES.
 2. SUBMITTALS SHALL INCLUDE PHOTOS OF PLANTS WITH A RULER OR MEASURING STICK FOR SCALE, PHOTOS OR SAMPLES OF ANY REQUIRED MULCHES, AND SOIL TEST RESULTS AND PREPARATION RECOMMENDATIONS FROM THE TESTING LAB (INCLUDING COMPOST AND FERTILIZER RATES AND TYPES, AND OTHER AMENDMENTS FOR TREES/SHRUB, TURF, AND SEED AREAS AS MAY BE APPROPRIATE).
 3. SUBMITTALS SHALL ALSO INCLUDE MANUFACTURER CUT SHEETS FOR PLANTING ACCESSORIES SUCH AS TREE STAKES AND TIES, EDGING, AND LANDSCAPE FABRICS (IF ANY).
 4. WHERE MULTIPLE ITEMS ARE SHOWN ON A PAGE, THE CONTRACTOR SHALL CLEARLY INDICATE THE ITEM BEING CONSIDERED.
- C. GENERAL PLANTING
 1. REMOVE ALL NURSERY TAGS AND STAKES FROM PLANTS.
 2. EXCEPT IN AREAS TO BE PLANTED WITH ORNAMENTAL GRASSES, APPLY PRE-EMERGENT HERBICIDES AT THE MANUFACTURER'S RECOMMENDED RATE.
 3. TRENCHING NEAR EXISTING TREES
 - a. CONTRACTOR SHALL NOT DISTURB ROOTS 1-1/2" AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK WITH A RADIUS EQUAL TO 1' FOR EVERY 1" OF TRUNK DIAMETER-AT-BREAST-HEIGHT (4.5' ABOVE THE AVERAGE GRADE AT THE TRUNK).
 - b. ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCHING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
 - c. ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1-1/2" AND LARGER IN DIAMETER. WHERE TREE ROOTS 1-1/2" AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL UNDER SUCH ROOTS. WRAP EXPOSED ROOTS WITH SEVERAL LAYERS OF BURLAP AND KEEP MOIST. CLOSE ALL TRENCHES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
 - d. ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PAINTS.

- D. TREE PLANTING
 1. TREE PLANTING HOLES SHALL BE EXCAVATED TO MINIMUM WIDTH OF TWO TIMES THE WIDTH OF THE ROOTBALL, AND TO A DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL LESS TWO TO FOUR INCHES.
 2. SCARIFY THE SIDES AND BOTTOM OF THE PLANTING HOLE PRIOR TO THE PLACEMENT OF THE TREE. REMOVE ANY CLAYING OR UNDESIRABLE MATERIALS CAUSED DURING THE EXCAVATION OF THE HOLE.
 3. FOR CONTAINER AND BOX TREES, TO REMOVE ANY POTENTIALLY GIRDLING ROOTS AND OTHER ROOT DEFECTS, THE CONTRACTOR SHALL SHAVE A 1" LAYER OFF OF THE SIDES AND BOTTOM OF THE ROOTBALL OF ALL TREES JUST BEFORE PLACING INTO THE PLANTING PIT. DO NOT "FEASE" ROOTS OUT FROM THE ROOTBALL. INSTALL THE TREE ON UNDISTURBED SUBGRADE SO THAT THE TOP OF THE ROOTBALL IS TWO TO FOUR INCHES ABOVE THE SURROUNDING GRADE.
 4. BACKFILL THE TREE HOLE UTILIZING THE EXISTING TOPSOIL FROM ON-SITE. ROCKS LARGER THAN 1" DIA. AND ALL OTHER DEBRIS SHALL BE REMOVED FROM THE BACKFILL. SHOULD ADDITIONAL SOIL BE REQUIRED TO ACCOMPLISH THIS TASK, USE STORED TOPSOIL FROM ON-SITE OR IMPORT ADDITIONAL TOPSOIL FROM OFF-SITE AT NO ADDITIONAL COST TO THE OWNER. IMPORTED TOPSOIL SHALL BE OF SIMILAR TEXTURAL CLASS AND COMPOSITION IN THE ON-SITE SOIL.
 5. TREES SHALL NOT BE STAKED UNLESS (SUCH AS HEAVY WINDS OR SLOPES) REQUIRE STAKES TO KEEP TREES UPRIGHT. SHOULD STAKING BE REQUIRED, THE TOTAL NUMBER OF TREE STAKES (BEYOND THE MINIMUMS LISTED BELOW) WILL BE LEFT TO THE LANDSCAPE CONTRACTOR'S DISCRETION. SHOULD ANY TREES BE LEFT OR LAIN, THE LANDSCAPE CONTRACTOR SHALL REPAIR THE TREE, OR REPLACE IT SHOULD IT BECOME DAMAGED. TREE STAKING SHALL ADHERE TO THE FOLLOWING GUIDELINES:
 - a. 1"-2" TREES: TWO STAKES PER TREE
 - b. 2-1/2" - 4" TREES: THREE STAKES PER TREE
 - c. TREES OVER 4" CALIPER: THREE STAKES PER TREE
 - d. MULTI-TRUNK TREES: THREE STAKES PER TREE MINIMUM. QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
 7. UPON COMPLETION OF PLANTING, CONSTRUCT AN EARTH WATERING BASIN AROUND THE TREE. COVER THE INTERIOR OF THE BASKET WITH MULCH (TYPE AND DEPTH PER PLANS).
- D. SHRUB, PERENNIAL, AND GROUND-COVER PLANTING
 1. DIG THE PLANTING HOLES TWICE AS WIDE AND 2" LESS DEEP THAN EACH PLANT'S ROOTBALL. INSTALL THE PLANT IN THE HOLE. BACKFILL THE PLANT WITH SOIL AMENDED PER SOIL TEST RECOMMENDATIONS.
 2. WHEN PLANTING IS COMPLETE, INSTALL MULCH (TYPE AND DEPTH PER PLANS) OVER ALL PLANTING BEDS, COVERING THE ENTIRE PLANTING AREA.
- E. SODDING
 1. SOD VARIETY TO BE AS SPECIFIED ON THE LANDSCAPE PLAN.
 2. LAY SOD WITHIN 24 HOURS FROM THE TIME OF STRIPPING. DO NOT LAY IF THE GROUND IS FROZEN.
 3. LAY THE SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD STRIPS - DO NOT OVERLAP. STAGGER STRIPS TO OFFSET JOINTS IN ADJACENT COURSES.
 4. ROLL THE SOD TO ENSURE GOOD CONTACT OF THE SODS ROOT SYSTEM WITH THE SOIL UNDERNEATH.
 5. WATER THE SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING TO OBTAIN AT LEAST SIX INCHES OF PENETRATION INTO THE SOIL BELOW THE SOD.
- H. MULCH
 1. INSTALL MULCH TOPDRESSING, TYPE AND DEPTH PER MULCH NOTE, IN ALL PLANTING AREAS AND TREE RINGS. DO NOT INSTALL MULCH WITHIN 6" OF TREE ROOT FLARE EXCEPT AS MAY BE NOTED ON THESE PLANS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PROTRUDE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
- I. CLEAN UP
 1. DURING LANDSCAPE PREPARATION AND PLANTING, KEEP ALL PAVEMENT CLEAN AND ALL WORK AREAS IN A NEAT, ORDERLY CONDITION.
 2. DISPOSED LEGALLY OF ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
- J. INSPECTION AND ACCEPTANCE
 1. UPON COMPLETION OF THE WORK, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF DEBRIS AND TRASH, AND SUITABLE FOR USE AS INTENDED. THE LANDSCAPE CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
 2. WHEN THE INSPECTED PLANTING WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE LANDSCAPE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
 3. THE LANDSCAPE MAINTENANCE PERIOD WILL NOT COMMENCE UNTIL THE LANDSCAPE WORK HAS BEEN TAKEN INSPECTION AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.
- K. LANDSCAPE MAINTENANCE
 1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTling OF PLANTS THAT HAVE SETTLED, MOWING AND AERATION OF LAWNS, WEEDING, TREATING FOR INSECTS, AND SECURE REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
 2. SHOULD SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL, HEALTHY STAND OF PLANTS AT NO ADDITIONAL COST TO THE OWNER.
 3. TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
 - a. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DOLANCY). ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
 - b. ALL HARDSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.
 - c. SODDED AREAS MUST BE ACTIVELY GROWING AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. HYDROMULCHED AREAS SHALL SHOW ACTIVE, HEALTHY GROWTH. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESEDED OR RESEEDED (AS APPROPRIATE) PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.

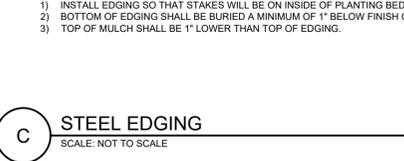
OPEN LANDSCAPE



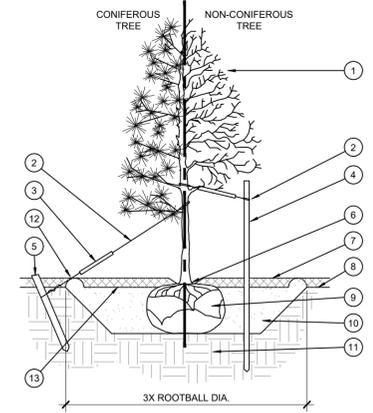
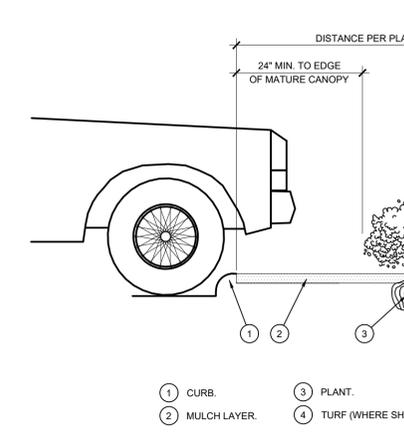
ROOT BARRIER - PLAN VIEW



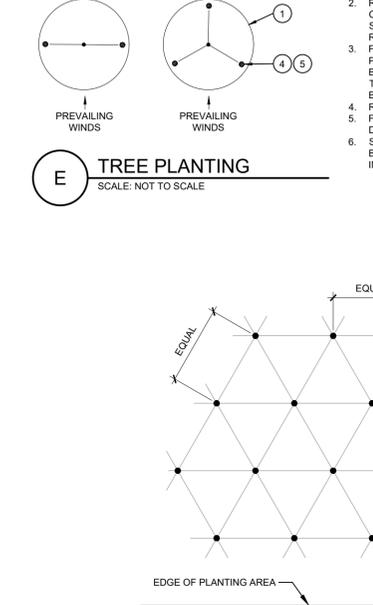
STEEL EDGING



PLANTING AT PARKING AREA



TREE PLANTING



PLANT SPACING

NOTE: ALL PLANTS SHALL BE PLANTED AT EQUAL TRIANGULAR SPACING (EXCEPT WHERE SHOWN ON PLANS AS INFORMAL GROUPINGS). REFER TO PLANT LEGEND FOR SPACING DISTANCE BETWEEN PLANTS.

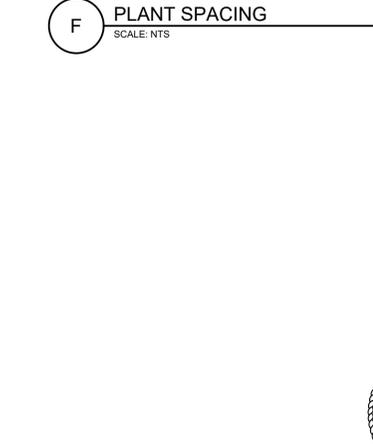
STEP 1: DETERMINE TOTAL PLANTS FOR THE AREA WITH THE FOLLOWING FORMULA:
TOTAL AREA / AREA DIVIDER = TOTAL PLANTS

PLANT SPACING	AREA DIVIDER	PLANT SPACING	AREA DIVIDER
6"	0.22	18"	1.95
8"	0.39	24"	3.46
10"	0.60	30"	4.41
12"	0.87	36"	7.79
15"	1.35		

EXAMPLE: PLANTS AT 18" O.C. IN 100 SF PLANTING AREA, 40 LF PERIMETER
STEP 1: 100 SF / 1.95 = 51 PLANTS
STEP 2: 51 PLANTS - (40 LF / 1.95 = 21 PLANTS) = 30 PLANTS TOTAL

STEP 2: SUBTRACT THE ROW (S) OF PLANTS THAT WOULD OCCUR AT THE EDGE OF THE PLANTED AREA WITH THE FOLLOWING FORMULA: TOTAL PERIMETER LENGTH / PLANT SPACING = TOTAL PLANT SUBTRACTION

SHRUB AND PERENNIAL PLANTING



1. TREE CANOPY.
2. CINCH-TIES (24" BOX/2" CAL. TREES AND SMALLER) OR 12 GAUGE GALVANIZED WIRE WITH NYLON TREE STRAPS AT TREE AND STAKE (36" BOX/2.5" CAL. TREES AND LARGER). SECURE TIES OR STRAPS TO TRUNK JUST ABOVE LOWEST MAJOR BRANCHES.
3. 24" X 3/4" P.V.C. MARKERS OVER WIRES.
4. GREEN STEEL T-POSTS. EXTEND POSTS 12" MIN. INTO UNDISTURBED SOIL.
5. PRESSURE-TREATED WOOD DEADMAN, TWO PER TREE (MIN.). BURY OUTSIDE OF PLANTING PIT AND 18" MIN. INTO UNDISTURBED SOIL.
6. TRUNK FLARE.
7. MULCH, TYPE AND DEPTH PER PLANS. DO NOT PLACE MULCH WITHIN 6" OF TRUNK.
8. FINISH GRADE.
9. ROOT BALL.
10. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
11. UNDISTURBED NATIVE SOIL.
12. 4" HIGH EARTHEN WATERING BASIN.
13. FINISH GRADE.

- NOTES:
1. SCARIFY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
 2. REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE SUCH THAT THE ROOTBALL RESTS ON UNDISTURBED SOIL, AND THE ROOT FLARE IS 2"-4" ABOVE FINISH GRADE.
 3. FOR B&B TREES, CUT OFF BOTTOM 1/3 OF WIRE BASKET BEFORE PLACING TREE IN HOLE. CUT OFF AND REMOVE REMAINDER OF BASKET AFTER TREE IS SET IN HOLE. REMOVE ALL NYLON TIES, TWINE, ROPE, AND OTHER PACKING MATERIAL. REMOVE AS MUCH BURLAP FROM AROUND ROOTBALL AS IS PRACTICAL.
 4. REMOVE ALL NURSERY STAKES AFTER PLANTING.
 5. FOR TREES 36" BOX/2.5" CAL. AND LARGER, USE THREE STAKES OR DEADMAN (AS APPROPRIATE), SPACED EVENLY AROUND TREE.
 6. STAKING SHALL BE TIGHT ENOUGH TO PREVENT TRUNK FROM BENDING, BUT LOOSE ENOUGH TO ALLOW SOME TRUNK MOVEMENT IN WIND.

Winkelmann & Associates, Inc.

CONSULTING CIVIL ENGINEERS ■ SURVEYORS

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Texas Engineers Registration No. 89,948-01
Professional Seal: 02/16/2026

REVISION: COMPUTER February 13, 2026

DATE: 02/16/2026

No. 1.

LANDSCAPE SPECIFICATIONS & DETAILS

COPPELL HOTELS

COPPELL, TEXAS

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LANDSCAPE ARCHITECTURE
LAND PLANNING IRRIGATION DESIGN

LP-3

TREE PROTECTION SPECIFICATIONS

MATERIALS

- FABRIC: 4 FOOT HIGH ORANGE PLASTIC FENCING AS SHOWN ON THE PLANS AND SHALL BE WOVEN WITH 2 INCH MESH OPENINGS SUCH THAT IN A VERTICAL DIMENSION OF 23 INCHES ALONG THE DIAGONALS OF THE OPENINGS THERE SHALL BE AT LEAST 7 MESHES.
- POSTS: POSTS SHALL BE A MINIMUM OF 72 INCHES LONG AND STEEL "T" SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER LINEAR FOOT.
- TIE WIRE: WIRE FOR ATTACHING THE FABRIC TO THE T-POSTS SHALL BE NOT LESS THAN NO. 12 GAUGE GALVANIZED WIRE.
- USED MATERIALS: PREVIOUSLY-USED MATERIALS, MEETING THE ABOVE REQUIREMENTS AND WHEN APPROVED BY THE OWNER, MAY BE USED.

CONSTRUCTION METHODS

- ALL TREES AND SHRUBS SHOWN TO REMAIN WITHIN THE PROXIMITY OF THE CONSTRUCTION SITE SHALL BE PROTECTED PRIOR TO BEGINNING ANY DEVELOPMENT ACTIVITY.
- EMPLOY THE SERVICES OF AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST AND OBTAIN ALL REQUIRED PERMITS TO PRUNE THE EXISTING TREES FOR CLEANING, RAISING AND THINNING, AS MAY BE REQUIRED.
- PROTECTIVE FENCING SHALL BE ERECTED OUTSIDE THE CRITICAL ROOT ZONE (CRZ, EQUAL TO 1' FROM THE TRUNK FOR EVERY 1" OF DBH) AT LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE LANDSCAPE CONSULTANT AND/OR CITY ARBORIST, AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS. FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. TREES IN CLOSE PROXIMITY SHALL BE FENCED TOGETHER, RATHER THAN INDIVIDUALLY.
- PROTECTIVE FENCE LOCATIONS IN CLOSE PROXIMITY TO STREET INTERSECTIONS OR DRIVES SHALL ADHERE TO THE APPLICABLE JURISDICTION'S SIGHT DISTANCE CRITERIA.
- THE PROTECTIVE FENCING SHALL BE ERECTED BEFORE SITE WORK COMMENCES AND SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE.
- THE INSTALLATION POSTS SHALL BE PLACED EVERY 6 FEET ON CENTER AND EMBEDDED TO 18 INCHES DEEP. MESH FABRIC SHALL BE ATTACHED TO THE INSTALLATION POSTS BY THE USE OF SUFFICIENT WIRE TIES TO SECURELY FASTEN THE FABRIC TO THE T-POSTS TO HOLD THE FABRIC IN A STABLE AND UPRIGHT POSITION.
- WITHIN THE CRZ:
 - DO NOT CLEAR, FILL OR GRADE IN THE CRZ OF ANY TREE.
 - DO NOT STORE, STOCKPILE OR DUMP ANY JOB MATERIAL, SOIL OR RUBBISH UNDER THE SPREAD OF THE TREE BRANCHES.
 - DO NOT PARK OR STORE ANY EQUIPMENT OR SUPPLIES UNDER THE TREE CANOPY.
 - DO NOT SET UP ANY CONSTRUCTION OPERATIONS UNDER THE TREE CANOPY (SUCH AS PIPE CUTTING AND THREADING, MORTAR MIXING, PAINTING OR LUMBER CUTTING).
 - DO NOT NAIL OR ATTACH TEMPORARY SIGNS METERS, SWITCHES, WIRES, BRACING OR ANY OTHER ITEM TO THE TREES.
 - DO NOT PERMIT RUNOFF FROM WASTE MATERIALS INCLUDING SOLVENTS, CONCRETE WASHOUTS, ASPHALT TACK COATS (MC-30 OIL), ETC. TO ENTER THE CRZ. BARRIERS ARE TO BE PROVIDED TO PREVENT SUCH RUNOFF SUBSTANCES FROM ENTERING THE CRZ WHENEVER POSSIBLE, INCLUDING IN AN AREA WHERE RAIN OR SURFACE WATER COULD CARRY SUCH MATERIALS TO THE ROOT SYSTEM OF THE TREE.

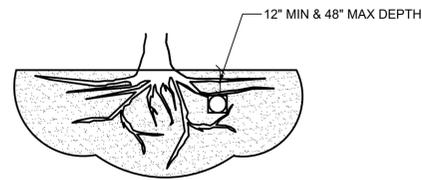
- ROUTE UNDERGROUND UTILITIES TO AVOID THE CRZ. IF DIGGING IS UNAVOIDABLE, BORE UNDER THE ROOTS, OR HAND DIG TO AVOID SEVERING THEM.
- WHERE EXCAVATION IN THE VICINITY OF TREES MUST OCCUR, SUCH AS FOR IRRIGATION INSTALLATION, PROCEED WITH CAUTION, AND USING HAND TOOLS ONLY.
- THE CONTRACTOR SHALL NOT CUT ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATION OCCURS NEAR EXISTING TREES. ALL ROOTS LARGER THAN ONE INCH IN DIAMETER ARE TO BE CUT CLEANLY. FOR OAKS ONLY, ALL WOUNDS SHALL BE PAINTED WITH WOUND SEALER WITHIN 30 MINUTES
- REMOVE ALL TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS BY HAND.
- TREES DAMAGED OR KILLED DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED AT THE CONTRACTOR'S EXPENSE AND TO THE PROJECT OWNER'S AND LOCAL JURISDICTION'S SATISFACTION.
- ANY TREE REMOVAL SHALL BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO ITS REMOVAL, AND THE CONTRACTOR SHALL HAVE ALL REQUIRED PERMITS FOR SUCH ACTIVITIES.
- COVER EXPOSED ROOTS AT THE END OF EACH DAY WITH SOIL, MULCH OR WET BURLAP.
- IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DURING CONSTRUCTION AND WHERE HEAVY TRAFFIC IS ANTICIPATED, COVER THE SOIL WITH EIGHT INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. THIS EIGHT INCH DEPTH OF MULCH SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- WATER ALL TREES IMPACTED BY CONSTRUCTION ACTIVITIES, DEEPLY ONCE A WEEK DURING PERIODS OF HOT DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
- WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREE PROTECTION FENCING WHEN ALL THREATS TO THE EXISTING TREES FROM CONSTRUCTION-RELATED ACTIVITIES HAVE BEEN REMOVED.

TREE PROTECTION GENERAL NOTES

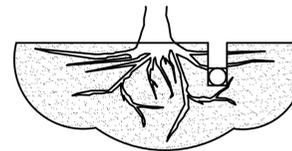
- PRIOR TO THE LAND CLEARING STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL CLEARLY MARK ALL PROTECTED TREES FOR WHICH A TREE REMOVAL PERMIT HAS NOT BEEN ISSUED AND SHALL ERECT BARRIERS FOR THE PROTECTION OF THE TREES ACCORDING TO THE FOLLOWING:
 - AROUND AN AREA AT OR GREATER THAN A SIX-FOOT RADIUS OF ALL SPECIES OF MANGROVES AND PROTECTED CABBAGE PALMS;
 - AROUND AN AREA AT OR GREATER THAN THE FULL DRIPLINE OF ALL PROTECTED NATIVE PINES;
 - AROUND AN AREA AT OR GREATER THAN TWO-THIRDS OF THE DRIPLINE OF ALL OTHER PROTECTED SPECIES.
- NO PERSON SHALL ATTACH ANY SIGN, NOTICE OR OTHER OBJECT TO ANY PROTECTED TREE OR FASTEN ANY WIRES, CABLES, NAILS OR SCREWS TO ANY PROTECTED TREE IN ANY MANNER THAT COULD PROVE HARMFUL TO THE PROTECTED TREE, EXCEPT AS NECESSARY IN CONJUNCTION WITH ACTIVITIES IN THE PUBLIC INTEREST.
- DURING THE CONSTRUCTION STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT THE CLEANING OF EQUIPMENT OR MATERIAL WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OR ON THE NEARBY GROUND OF ANY TREE OR GROUP OF TREES WHICH IS TO BE PRESERVED. WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OF ANY TREE OR ON NEARBY GROUND, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT STORAGE OF BUILDING MATERIAL AND/OR EQUIPMENT, OR DISPOSAL OF WASTE MATERIAL SUCH AS PAINTS, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF THE TREE.
- NO PERSON SHALL PERMIT ANY UNNECESSARY FIRE OR BURNING WITHIN 30 FEET OF THE DRIPLINE OF A PROTECTED TREE.
- ANY LANDSCAPING ACTIVITIES WITHIN THE BARRIER AREA SHALL BE ACCOMPLISHED WITH HAND LABOR.
- PRIOR TO ISSUING A CERTIFICATE OF OCCUPANCY OR COMPLIANCE FOR ANY DEVELOPMENT, BUILDING OR STRUCTURE, ALL TREES DESIGNATED TO BE PRESERVED THAT WERE DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR WITH TREES OF EQUIVALENT DIAMETER AT BRESTA HEIGHT TREE CALIPER AND OF THE SAME SPECIES AS SPECIFIED BY THE COUNTY ADMINISTRATOR, BEFORE OCCUPANCY OR USE, UNLESS APPROVAL FOR THEIR REMOVAL HAS BEEN GRANTED UNDER PERMIT.
- THE COUNTY ADMINISTRATOR MAY CONDUCT PERIODIC INSPECTIONS OF THE SITE DURING LAND CLEARANCE AND CONSTRUCTION.
- IF, IN THE OPINION OF THE COUNTY ADMINISTRATOR, DEVELOPMENT ACTIVITIES WILL SO SEVERELY STRESS SLASH PINES OR ANY OTHER PROTECTED TREE SUCH THAT THEY ARE MADE SUSCEPTIBLE TO INSECT ATTACK, PREVENTATIVE SPRAYING OF THESE TREES BY THE CONTRACTOR MAY BE REQUIRED.

TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS THROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.



TUNNEL TO MINIMIZE ROOT DAMAGE (TOP) AS OPPOSED TO SURFACE-DUG TRENCHES IN ROOT PROTECTION ZONE WHEN THE 5' MINIMUM DISTANCE FROM TRUNK CAN NOT BE ACHIEVED.

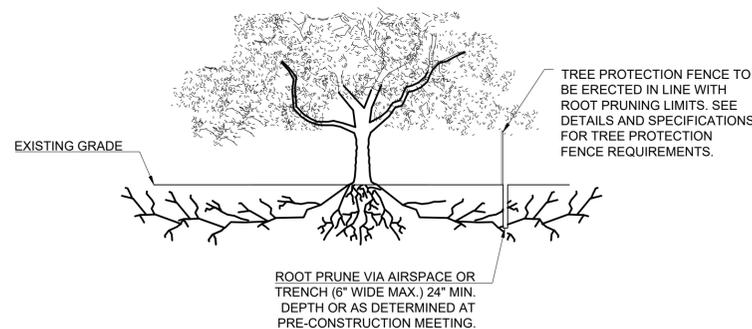


OPEN TRENCHING MAY BE USED IF EXPOSED TREE ROOTS DO NOT EXCEED 3" OR ROOTS CAN BE BENT BACK.

C BORING THROUGH ROOT PROTECTION ZONE
SCALE: NOT TO SCALE

NOTES

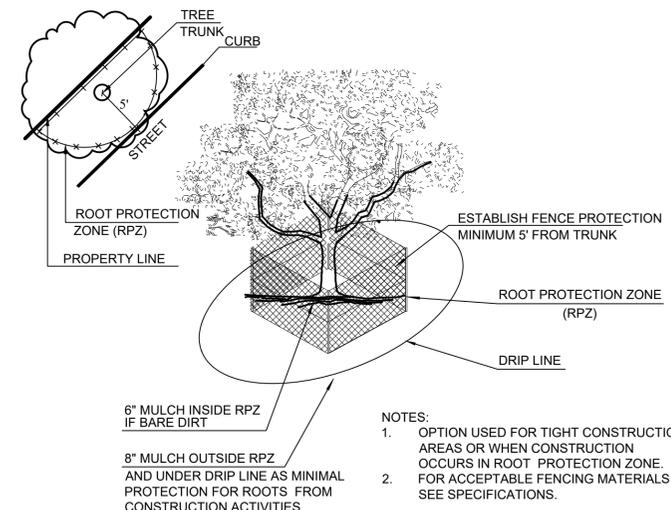
- RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRE-CONSTRUCTION MEETING.
- BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRE-CONSTRUCTION MEETING AND FLAGGED PRIOR TO ROOT PRUNING.
- EXACT LOCATION OF ROOT PRUNING SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FORESTRY INSPECTOR.
- TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FORESTRY INSPECTOR.
- ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT. ROOT PRUNING METHODS AND MEANS MUST BE IN ACCORDANCE WITH ANSI STANDARD A3000.
- ALL PRUNING MUST BE EXECUTED AT LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FORESTRY INSPECTOR.
- SUPPLEMENTAL WATERING MAY BE REQUIRED FOR ROOT PRUNED TREES THROUGHOUT THE GROWING SEASON DURING CONSTRUCTION AND SUBSEQUENT WARRANTY AND MAINTENANCE PERIOD.



D ROOT PRUNING DETAIL
SCALE: NOT TO SCALE

ROOT PRUNE VIA AIRSPACE OR TRENCH (6" WIDE MAX.) 24" MIN. DEPTH OR AS DETERMINED AT PRE-CONSTRUCTION MEETING.

A TREE PROTECTION FENCE
SCALE: NOT TO SCALE



B TREE PROTECTION FENCE - TIGHT CONSTRUCTION
SCALE: NOT TO SCALE

NOTES:

- OPTION USED FOR TIGHT CONSTRUCTION AREAS OR WHEN CONSTRUCTION OCCURS IN ROOT PROTECTION ZONE.
- FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.



TREE PROTECTION NOTES & DETAILS
COPELL HOTELS
COPELL, TEXAS

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