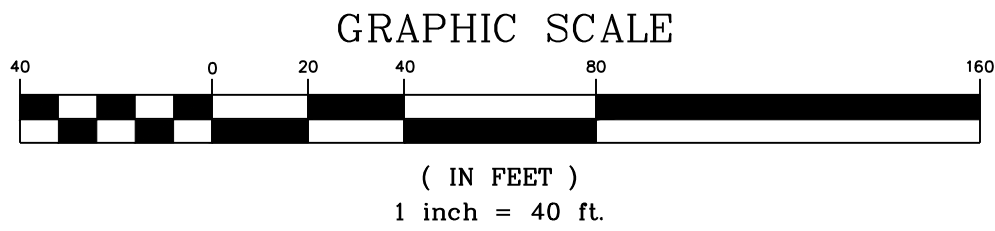
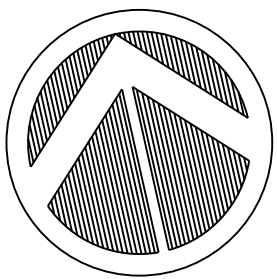


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LEGEND

- EXISTING TREE TO REMAIN WITH CRITICAL ROOT ZONE (CRZ) & STRUCTURAL ROOT ZONE (SRZ), AND APPROX. CANOPY EXTENTS
- EXISTING DC HERITAGE TREE
- EXISTING DC SPECIAL TREE
- EXISTING TREE TO BE REMOVED BY ARBORIST (SEE SPECIFICATIONS)
- TREE TO BE TRANSPLANTED WITH TRANSPLANT ROOTBALL (SOLID LINE).
- TRANSPLANT EXCAVATION AREA
- PROPOSED TREE TRANSPLANT PATH
- PROPOSED TREE PROTECTION FENCE (SEE DETAIL & SPECIFICATIONS)
- PROPOSED ROOT PRUNING (SEE DETAIL & SPECIFICATIONS)

KEYNOTES

- HERITAGE TREE TO BE TRANSPLANTED.
- EX. 4 FT CHAIN LINK FENCE TO BE DEMOLISHED. FENCE ALONG PROPERTY LINE TO REMAIN EXCEPT AS NOTED ON SHEET LR-3.

NOTE

AERIAL IMAGE FROM FEBRUARY 21, 2020 OBTAINED FROM NEARMAP.

HERITAGE TREE TRANSPLANT PLAN Existing Conditions - Aerial

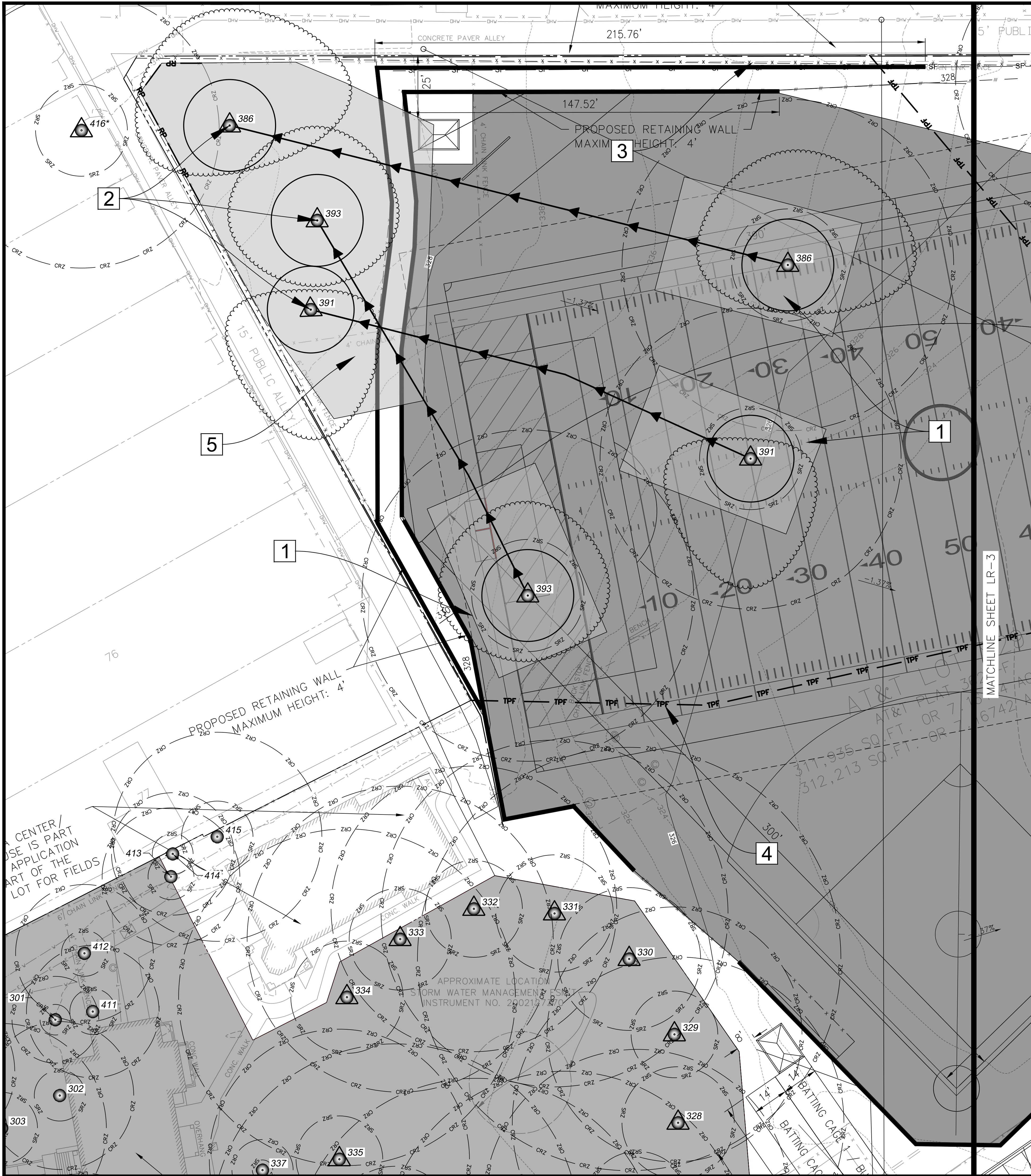
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REVISIONS			
No.	Date	Description	App. By
1	01/17/22	PER DDD COMMENTS / REVISED LOCATIONS	CK
DATE: 10/25/2021			SCALE: 1" = 40' CL: 2'

Horizontal Datum: MD NAD 83		
Vertical Datum: NAVD 88		
Boundary and Topo Source: Vika Capitol		
Design	Draft	Approved
CK	CK	CC
Sheet # LR-2		
WSSI Project Number: 31089.01		



Horizontal Datum: MD NAD 83		
Vertical Datum: NAVD 88		
Boundary and Topo Source: Vika Capitol ----		
Design	Draft	Approved
CK	CK	CC
<p style="text-align: center;">Sheet #</p> <p style="text-align: center; font-size: 2em;">LR-3</p>		
WSSI Project Number: 31089.01		

TRANSPLANT PROCEDURES AND SPECIFICATIONS

GENERAL

THREE ENTITIES ARE TYPICALLY INVOLVED IN SUCCESSFUL LARGE TREE TRANSPLANT OPERATIONS: THE PROJECT/OWNER'S CONSULTING ARBORIST OR URBAN FORESTER; THE TRANSPLANT CONTRACTOR; AND THE RETAINED ARBORIST SUPPLYING REGULAR MAINTENANCE FOR THE TREES. THIS WORK IS HIGHLY SPECIALIZED AND REQUIRES CONSIDERABLE EXPERIENCE IN TRANSPLANTING AND MAINTAINING LARGE TREES. MINIMUM CERTIFICATION IS INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) CERTIFIED ARBORIST.

ALL WORK SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER AND OWNER'S CONSULTING ARBORIST.

REFERENCES FOR THIS WORK SHALL INCLUDE THE FOLLOWING:

ROOT PRUNING, RELOCATION AND REPLANTING SHALL OCCUR ONLY DURING THE PLANTING SEASON (OCTOBER 15 TO MAY 1)

SUBMIT MATERIALS LIST/LABELS FOR ALL ANTICIPATED MATERIALS (LIQUIDS, POWDERS, GRANULES, AND HARDWARE) FOR USE ON THE TREES OR SOILS.

THE LARGE TREE TRANSPLANT OPERATION IS BROKEN INTO FOUR PARTS AS FOLLOWS:

- ROOT BALL CONDITIONING - THIS OPERATION IDEALLY IS TO BE SCHEDULED ONE YEAR IN ADVANCE OF THE TREE MOVING. SOIL SHALL BE NON-FROZEN OR OVER-SATURATED FOR THIS OPERATION. THE FOLLOWING TREATMENTS ARE TYPICALLY INCLUDED:
 - HYDRATE ROOT BALL WITHIN 20' (TWENTY FEET) OF THE TRUNKS FOR 2 WEEKS PRIOR TO THIS OPERATION
 - COORDINATE LOCATION OF EXISTING UNDERGROUND UTILITIES AND RESOLVE CONFLICTS. UTILITIES CAN BE LEFT IN PLACE FOR THIS OPERATION.
 - LAYOUT AND PAINT THE PROPOSED ROOT BALL PERIMETER USING THE MINIMUM NURSERY STANDARD RATIO OF 10" ROOT BALL DIAMETER FOR EACH INCH OF TRUNK CALIPER MEASURED ONE FOOT ABOVE GRADE. HAND EXCAVATE AND PRUNE ROOTS, ADJUSTING FOR SPECIES AND ROOTS ENCOUNTERED.
 - ANY PRUNED ROOTS 2-INCHES DIAMETER OR LARGER SHOULD BE PLACED ALONGSIDE THE TRENCH FOR REVIEW AND THE LOCATION ON THE ROOTBALL MARKED WITH A FLAG OR STAKE. ARBORIST TO NOTE THE SIZE, LOCATION, AND DEPTH OF THE SIGNIFICANT ROOTS
 - BACKFILL TRENCH AND INCLUDE BIOSTIMULENT MIX. HAND GRADE, WATER AND TAMP TO MATCH LAWN LANDSCAPE. MULCH BARE SOIL RING.
 - SET UP TEMPORARY RIGOROUS IRRIGATION AND TIMERS AS SOON AS PRACTICAL AND IN ALL CASES BEFORE BUDBREAK. ADJUST FREQUENCY AND DURATION FOR SEASON AND SITE CONDITIONS.
 - PROVIDE LABELS OF RECOMMENDED ROOT STIMULANT FOR APPROVAL BY PROJECT ARBORIST AND INJECT ROOT BALL TO PROMOTE GROWTH INSIDE THE ROOT BALL.
 - CERTIFIED ARBORIST TO INSPECT HEALTH OF TREES WEEKLY DURING LEAF ON AND MONTHLY DURING DORMANCY.
 - SEND EMAIL REPORT MONTHLY TO INCLUDE OWNER INCLUDE PHOTO(S) REPRESENTATIVE OF TREE HEALTH.
- MAINTAIN TRANSPLANTS FOR A MINIMUM OF ONE GROWING SEASON PRIOR TO TRANSPLANT OPERATION TO INCLUDE THE FOLLOWING:
 - INSECT & DISEASE INSPECTIONS AND TREATMENT DURING APPROPRIATE SEASONS
 - MONITOR AND ADJUST SUPPLEMENTAL WATERING DURING THE SEASONS AND WEATHER
 - MONITOR TREES AND PROVIDE MONTHLY REPORTS TO OWNER ON HEALTH AND CONDITION WITH PHOTOS
- TRANSPLANTING OPERATION
 - LOCATE EXISTING UNDERGROUND UTILITIES IN THE AREA OF PROPOSED TRANSPLANT EXCAVATION AREAS.
 - REFER TO PLAN DRAWING FOR LIMITS OF EXCAVATION, DIRECTION OF TREE MOVING, AND LIMITS OF EQUIPMENT ACCESS, STOCKPILE, AND STORAGE.
 - MEET WITH CONTRACTOR TO REVIEW LOCATION AND SET UP OF PERIMETER FENCING FOR THE TRANSPLANT OPERATION TO INCLUDE SITE MAINTENANCE OPERATIONS AND PEDESTRIANS. VERIFY AND REMOVE TREES, PLANTS, AND SITE OBSTACLES FOR THE TRANSPORT OPERATION.
 - RE-DIG ROOT BALL ALLOWING FOR NEW OUTER ROOT GROWTH.
 - WRAP BALL IN BIODEGRADABLE BURLAP. WRAP BALL WITH STEEL FENCING AND CRIMP TO TIGHTEN.
 - WRAP BALL WITH PLASTIC SHEATHING DURING DRY MONTHS TO AVOID DESICCATION OR HOLD SOIL TOGETHER.
 - EXCAVATE THE BORE PIT IN THE DIRECTION OF TRANSPORT.
 - HYDRAULICALLY JACK STRUCTURAL PIPE UNDER ROOT BALL. MINIMUM PIPE DIAMETER IS 6 IN. DIAMETER WITH WALL THICKNESS OF 0.337-INCH. INSERT PIPE ON LESS THAN 10 IN. CENTERS TO ALLOW A MAXIMUM GAP OF 3 IN. BETWEEN PIPES.
 - COMPLETE THE INSTALLATION OF THE STRUCTURAL FRAME TO THE TRANSPLANTS USING THE ENGINEERED STEEL PIPE AND CUSTOM I-BEAM CLAMPS.
 - INSERT THE FIRST DEFLATED LIFT BAG UNDER THE EDGE OF THE STEEL FRAME AND SLOWLY INFLATE. THEN INSERT AND INFLATE THE REMAINING BAGS. LIFT AND TRANSPORT TREES ACROSS THE SITE USING ARBOR-LIFT ROLLING AIR- SUSPENSION TECHNOLOGY.

NO CRANES OR TRACTOR TRAILERS ARE NEEDED WITH THIS METHOD. REVIEW LOCATIONS OF EXISTING WET UTILITIES WITH CM TO PROTECT FROM HEAVY EQUIPMENT COMPACTION OR EXCAVATION.

- PREPARE PLANTING PIT BY EXCAVATING TO THE DEPTH AS DETERMINED BY THE ROOT BALL PLUS STRUCTURAL FRAME TO EQUAL THE FINAL GRADE PLANNED. INSPECT THE SOILS AS THE PIT IS BEING DUG FOR OBJECTS OR CONDITIONS THAT MAY EFFECT DRAINAGE AND SURVIVAL SUCH AS CONCRETE, ROCK, WET CONDITIONS, CLAY LAYERS, AND UNDERGROUND UTILITIES. NOTIFY THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGEMENT AND OWNER'S ARBORIST UPON DISCOVERY OF THESE OR OTHER OBSTACLES. DETERMINE THE BEST COURSE TO PROCEED AND DOCUMENT FINDINGS AND DECISIONS MADE. POOR DRAINAGE MAY NECESSITATE THE ADDITION OF DRAINAGE STONE AND SUBSURFACE DRAINS AROUND THE ROOT BALL TO PREVENT PERSISTENT SATURATION AND ANAEROBIC CONDITIONS. DETERMINE IF THE DRAIN SHOULD DAYLIGHT, BLEED OFF INTO AN EXISTING STORM DRAIN NEARBY, OR CONSTRUCT DRAIN SUMPS.
- SHOULD FINAL GRADE BE IN FILL, COORDINATE WITH THE CM AND LANDSCAPE ARCHITECT TO STAKE FINAL GRADE ON SITE FOR EACH TRANSPLANT AND SET TREES APPROPRIATELY. SOME TREES MAY BE SET ON EXISTING GRADE AND BACKFILLED AROUND FOR A TEMPORARY MOUND PRIOR TO SITE WORK GRADING. CM TO COORDINATE WITH PROJECT ARBORIST FOR MATCHING FINAL GRADE DURING SITE WORK.
- ONCE IN THE PLANTING PIT LOCATIONS, DEFLATE THE ARBOR LIFT SYSTEM AND SET TREES ON REQUIRED GRADE AND BACKFILL WITH A MIX OF SITE TOPSOIL. AMEND AS NEEDED UPON REVIEW WITH PROJECT ARBORIST.
- INSTALL GUYING SUPPORT SYSTEM TO STEEL FRAME FOR SELECTED TREES.
- ONCE THE GROUND SURFACE OUTSIDE THE ROOT BALL IS CLEARED OF SPOILS AND EQUIPMENT, SCARIFY THE GRADE OUTSIDE THE ROOT BALL EXCAVATION TO A DEPTH OF 18 IN. THEN TRANSITION TO 12 IN. THEN 6 IN. TO A DISTANCE OUTSIDE EQUAL TO THE ROOT BALL WIDTH. (E.G., IF THE ROOT BALL IS 24 FT. WIDE THEN SCARIFY A TOTAL OF 24FT. OUTSIDE THE ROOT BALL.) CLEAN CONTAMINATED SOILS SUCH AS CONCRETE OR MASONRY RESIDUE AND AMEND WITH TOPSOIL AS NEEDED.
- BEGIN RIGOROUS WATERING IMMEDIATELY UPON BACKFILLING. ENSURE AIR POCKETS ARE ELIMINATED DURING BACKFILL WITH TAMP BAR AND WATER HOSE.
- ESTIMATED GALLONS ARE 5 TO 10 PER TREE CALIPER PER WATERING. ADJUST FREQUENCY AND DURATION DUE TO SEASON AND WEATHER. SET TIMER FOR DRIP SYSTEM DEPENDING UPON TIME OF YEAR AND WEATHER ANTICIPATED. DURATION OF SUPPLEMENTAL WATERING SHALL BE 3- 5 YEARS.
- INSTALL 3 IN. THICK LAYER OF AGED WHOLE TREE MULCH OUT TO 1-2 FT. BEYOND THE ROOT BALL EDGE. DO NOT ALLOW MULCH TO CONTACT TRUNK.
- INSTALL PROTECTIVE FENCE AT DESIGNATED LOCATIONS.
- A DISTRICT DEPARTMENT OF TRANSPORTATION (DDOT) ARBORIST SHALL BE GRANTED REASONABLE ACCESS TO THE PRIVATE PROPERTY WHERE THE HERITAGE TREE IS PLANTED FOR A PERIOD OF THIRTY-SIX (36) MONTHS FOLLOWING RELOCATION AND REPLANTING.

4. MAINTENANCE AND MONITORING

- CONTINUE RIGOROUS WATERING AND WEEKLY MONITORING DURING 6- MONTH GROWING SEASON. INSPECT FOR SETTLING AROUND THE ROOT BALL. BACKFILL DEPRESSIONS WITH TOPSOIL OR SHARP, MEDIUM COARSE SAND AND WASH IN AND HAND TAMP.
- ADJUST TO REDUCED WATERING, MAINTENANCE, AND MONITORING DURING DORMANT SEASON.
- EXTEND THE AREA OF IRRIGATION OUTSIDE THE ROOT BALL EACH GROWING SEASON BY 3 FT.
- COORDINATE WITH CONTRACTOR FOR DEMOLITION AND CONSTRUCTION ACCESS, STAGING, AND STOCKPILE FOR PROTECTION OF TREES.
- WEEKLY INSPECTIONS BY A CERTIFIED ARBORIST DURING THE GROWING SEASON THEN MONTHLY DURING THE DORMANCY. INSPECTIONS TO CONTINUE FOR THIRTY-SIX (36) MONTHS FOLLOWING INITIAL ROOT PRUNING.
- DDOT ARBORIST TO BE PROVIDED WITH MONTHLY REPORTS DURING FIRST TWO YEARS FOLLOWING INITIAL ROOT PRUNING.
- MONITORING OF HARMFUL INSECTS AND DISEASE SHALL ALSO BE DONE WITH NECESSARY TREATMENTS.
- ITEMS OF CONCERN WILL BE NOTED IN A MONTHLY EMAIL REPORT TO INCLUDE THE OWNER. INCLUDE PHOTOS OF ISSUES OR CONCERNS.
- MEET WITH RETAINED ARBORIST ONCE A YEAR TO ASSESS HEALTH AND CONDITION.
- DURING LEAF-ON SEASON ADEQUATE MOISTURE IS A KEY TO SURVIVAL. LAPSES OF WATERING OF ONE WEEK OR MORE IN HIGH HEAT WITH LOW RAINFALL CAN CAUSE DECLINE AND HEALTH THAT MAY BE IRREVERSIBLE.

ROOT BALL CONDITIONING



- ALL WORK IS HAND TOOLS BY EXPERIENCED TRADESMEN WITH DECADES OF EXPERIENCE WITH MATURE TREE TRANSPLANTING.
- LAYOUT OF ROOT BALL PER NURSERY STANDARDS; ROOT PRUNING AND SHAPING BY HAND.
- EXISTING WALKS, BUS PADS, OR UTILITIES- SUCH AS SITE LIGHTING AND SPRINKLERS ARE NOT CUT DURING THIS OPERATION.
- TRENCH IS BACKFILLED FOR ± 1 YEAR TO ALLOW FOR CONDITIONING.
- ROBUST WATERING BEGINS SAME DAY. TREE IS NOW UPON LIFE SUPPORT.
- ROOTS ARE INOCULATED WITH AMENDMENTS AND MONITORED BY ARBORISTS UNTIL TRANSPLANTING.

ROOT BALL ENCAPSULATION



- READY FOR TRANSPLANTING. DEPTH OF ROOT BALL IS TYPICALLY 3 TO 3.5 FT. DEEP TO CAPTURE STRUCTURAL ROOTS THAT HELP HOLD THE BALL TOGETHER.
- BURLAP AND WIRE FENCING IS INSTALLED AND TIGHTENED.
- THIS IS TYPICALLY A ONE DAY OPERATION FOR THREE OR FOUR SKILLED WORKERS.
- UNDERGROUND UTILITIES AND PAVEMENT WILL NEED TO BE CUT AND DEMOLISHED AT THIS TIME.

STRUCTURAL FRAME FABRICATION - 1



- INSERTION OF ENGINEERED HIGH STRENGTH STEEL PIPE WITH PNEUMATIC RAM.
- THIS FORMS A STRUCTURAL FRAME.
- ACCESS RAMP IS NEEDED IN THE DIRECTION OF TRAVEL.
- CUSTOM STEEL BEAMS WILL BE CLAMPED TO TOP AND BOTTOM OF PIPE ENDS TO HOLD IT TOGETHER.
- TYPICALLY, THIS STRUCTURAL FRAME IS THE SECOND DAY OF WORK PER TREE.

STRUCTURAL FRAME FABRICATION- 2



- (ABOVE) PIPES ARE CUT EVEN TO PREPARE FOR END CLAMPS TO HOLD PIPE IN PLACE.
- (ABOVE) STRUCTURAL FRAME IN PLACE READY FOR TRANSPORT.
- PLASTIC SHEATHING IS USED TO PREVENT DESICCATION.
- MULTIPLE TREES ARE PREPARED AND KEPT MOIST.

“ARBOR-LIFT” ROLLING TRANSPORT



USING THE "ARBOR- LIFT" METHOD:

- DEFLATED LATEX RUBBER PNEUMATIC TUBES WITH ONE-INCH-THICK WALLS ARE SLID UNDER THE EDGE OF THE STRUCTURAL FRAME.
- TUBES ARE INFLATED ONE BY ONE AS THE TREE IS SLOWLY RAISED.
- NO CRANES OR HEAVY TRAILERS ARE NEEDED.
- TRAK HOE(S) ARE USED TO CAREFULLY ROLL ACROSS THE SITE.

PLANTING THE TREE



- FINAL ROOT BALL ELEVATION IS CALCULATED TO DETERMINE PLANTING DEPTH AND LEVEL.
- SOME SITES ALLOW EXCAVATION WITH A RAMP TO ROLL THE TREE TO GRADE THEN BACKFILL.
- OTHER SITES ALLOW THE TREE TO BE SET ON EXISTING GRADE THEN BACKFILL IS MOUNDED UP AROUND THE TREE.
- LATER SITE GRADING WILL MATCH GRADE. IRRIGATION IS SET UP THE SAME DAY AND TREE PROTECTION INSTALLED FOR DURATION OF CONSTRUCTION.

HERITAGE TREE TRANSPLANT PLAN
Transplant Procedures and Specifications

Episcopal Center for Children

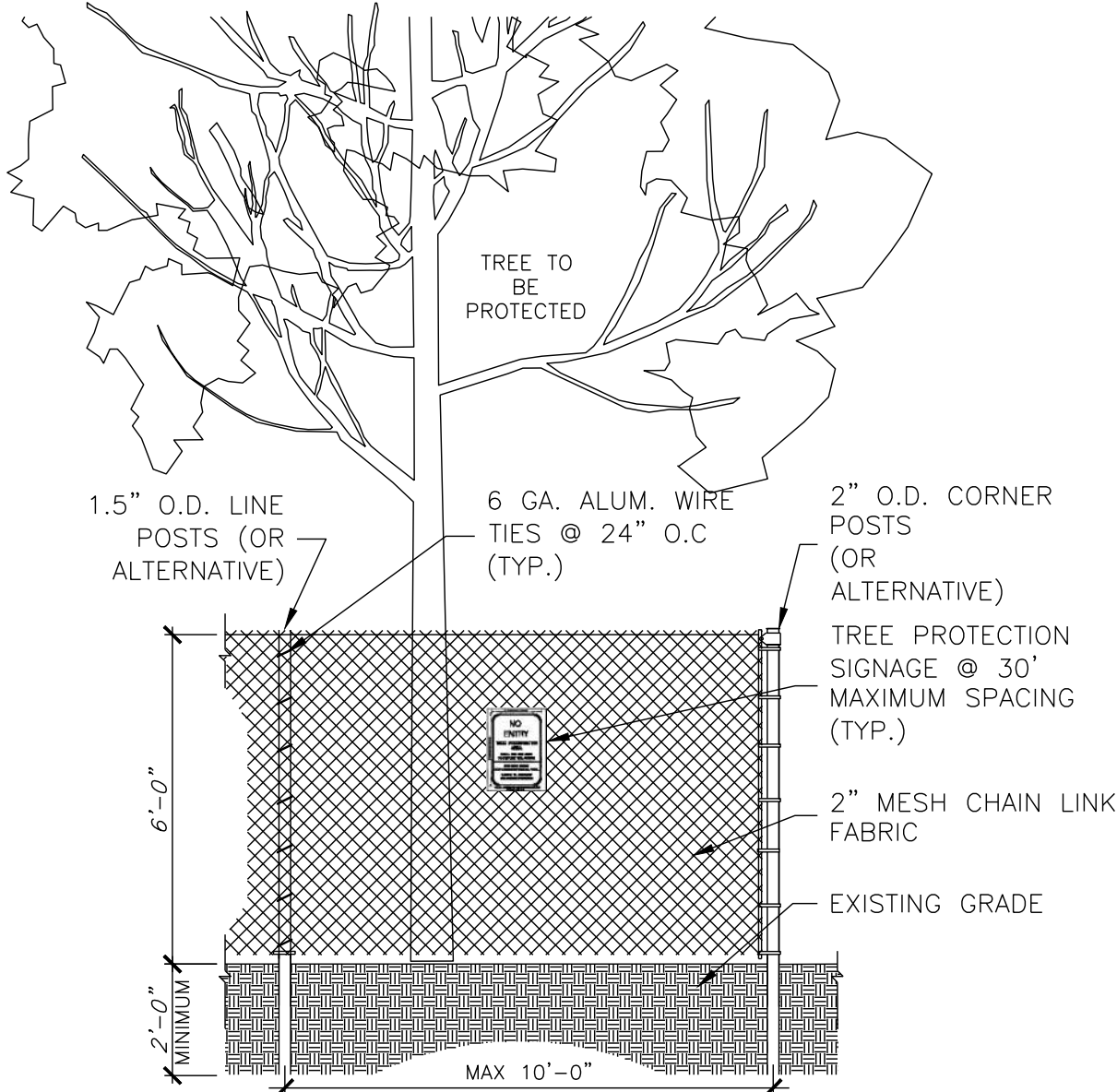
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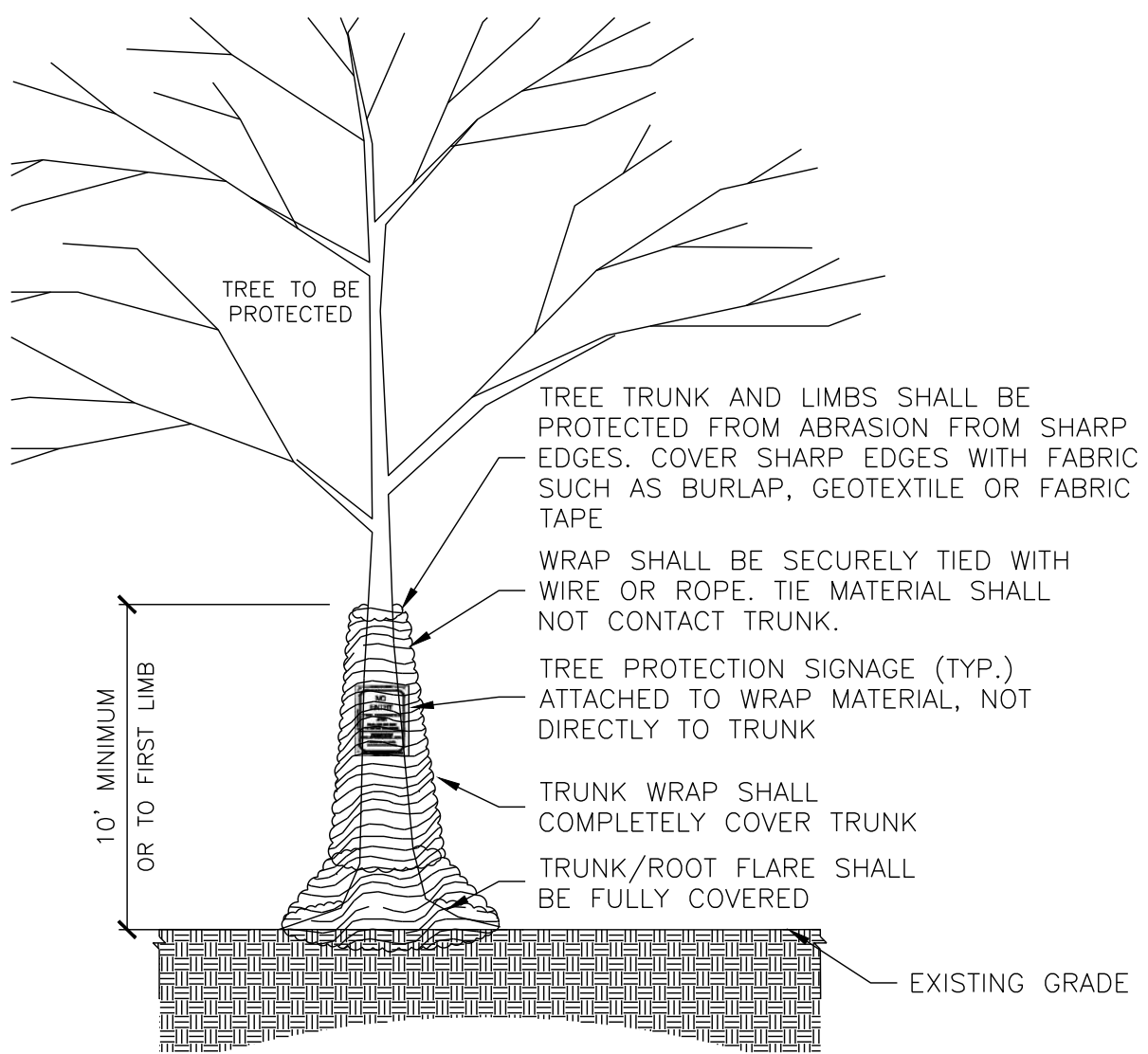
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Horizontal Datum: MD NAD 83									
Vertical Datum: NAVD 88									
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Design			Draft			Approved			
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WSSSI Project Number: 31089.01									



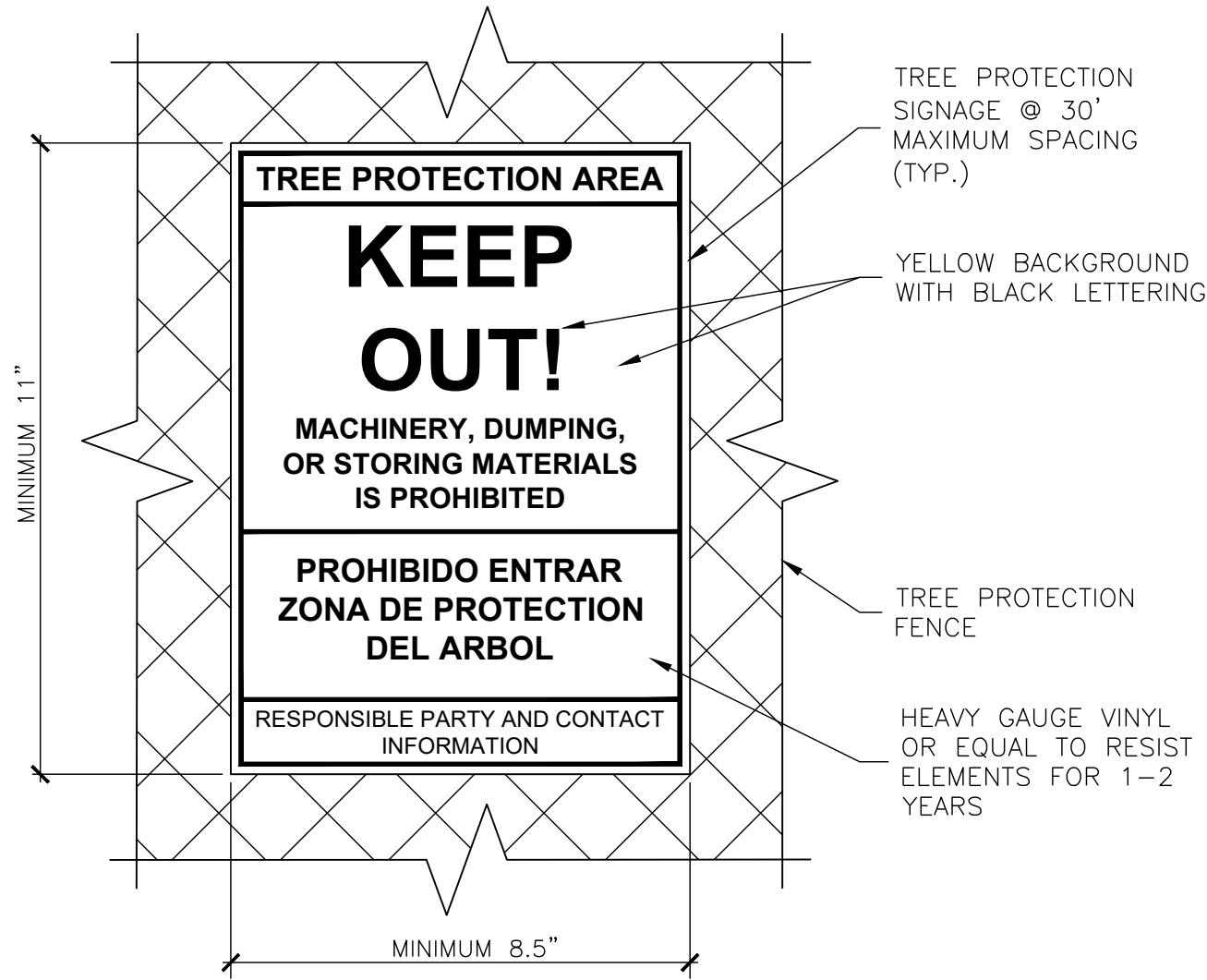
- NOTES:
1. TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION.
 2. SUPER SILT FENCE MAY BE USED IN LIEU OF WELDED WIRE FOR TREE PROTECTION PROVIDED IT IS INSTALLED AND MAINTAINED AS A TREE PROTECTION MEASURE AND IS POSTED WITH TREE PROTECTION SIGNS.
 3. TREE PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE FENCE ONLY WITH APPROVAL AND AFTER ALL SITE WORK HAS BEEN COMPLETED.

1 CHAIN LINK TREE PROTECTION FENCE (TYPICAL)
LR-6 SCALE: NTS



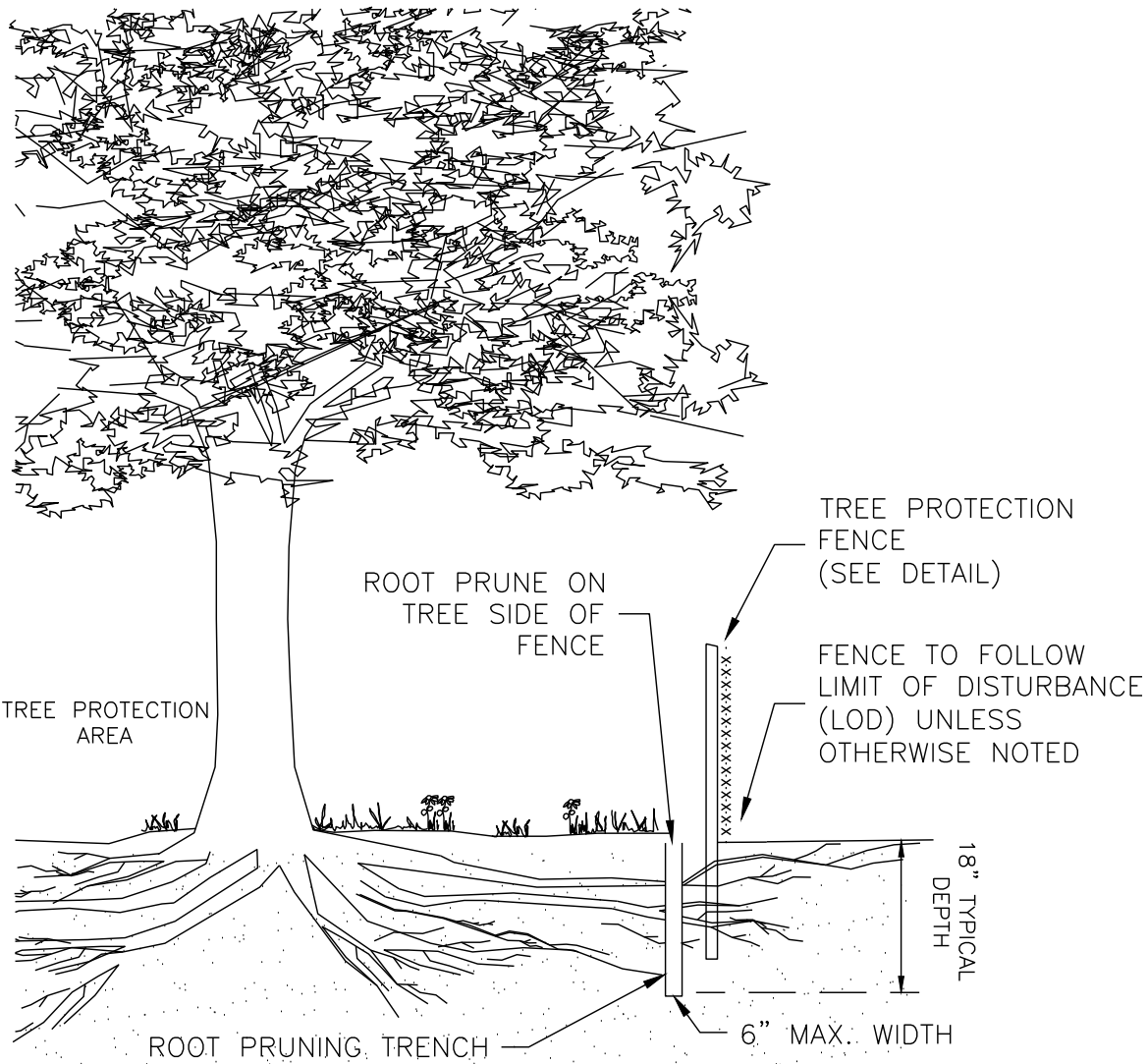
- NOTES:
1. TRUNK WRAP MATERIAL SHALL BE DOUBLE SIDED GEOCOMPOSITE, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENSAR ROADRAIN RD7) OR EQUIVALENT.
 2. WRAP SHALL BE INSTALLED BY A CERTIFIED ARBORIST.
 3. WRAP SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION.
 4. WRAP SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE WRAP ONLY WITH APPROVAL AND AFTER ALL SITE WORK HAS BEEN COMPLETED.
 5. WRAP SHALL BE REMOVED PROMPTLY AFTER CONSTRUCTION.
 6. MAJOR SCAFFOLD LIMBS MAY ALSO REQUIRE THIS PROTECTION AS DIRECTED BY THE PROJECT ARBORIST.

4 TREE TRUNK & LIMB PROTECTION WRAP (TYP)
LR-6 SCALE: NTS



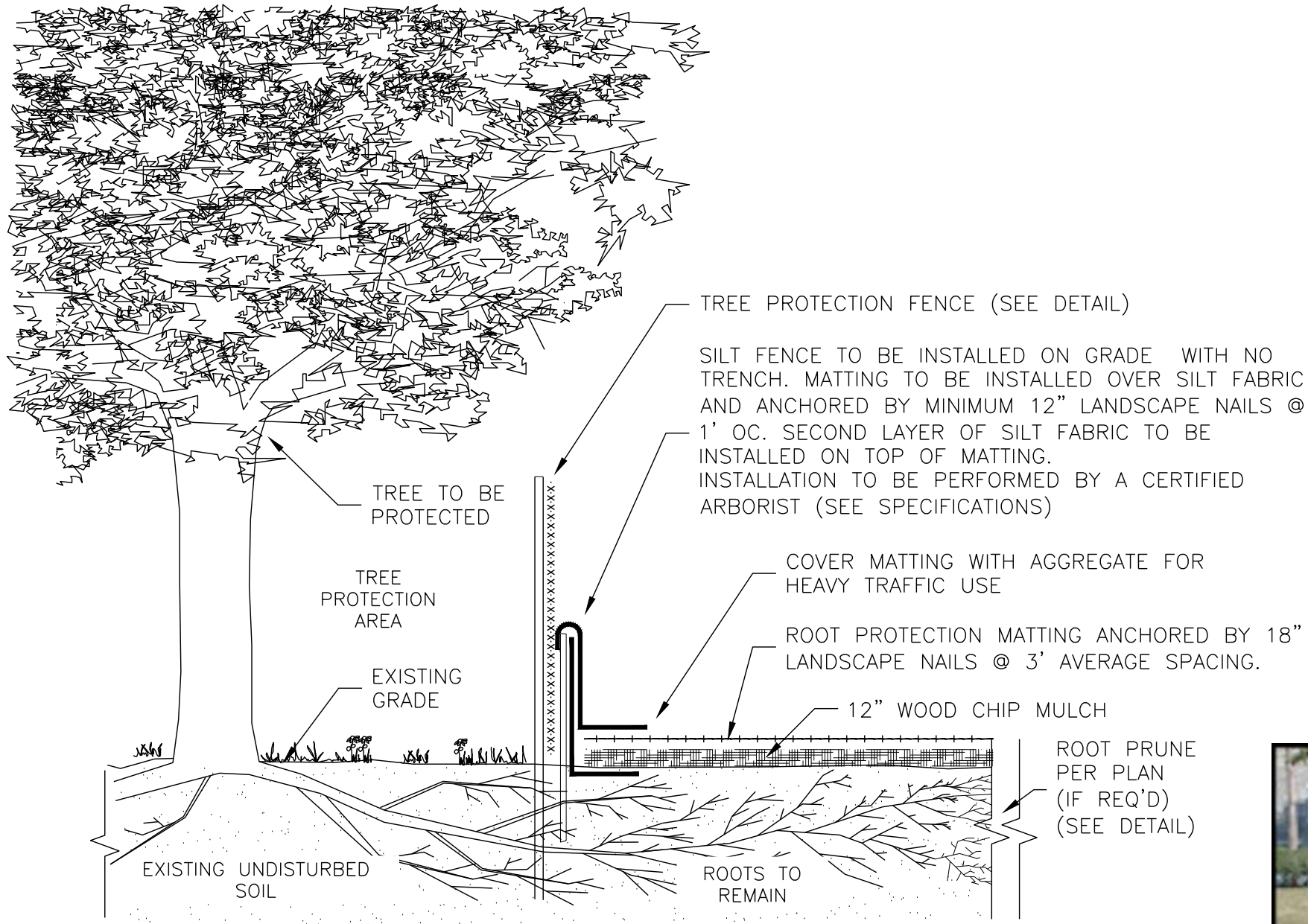
- NOTES:
1. SIGNS TO BE ATTACHED TO TREE PROTECTION FENCE OR POSTS AT READABLE LEVEL.
 2. 30' MINIMUM SPACING ADJUSTED FOR MAXIMUM READABILITY.
 3. MINIMUM ONE SIGN FOR SMALL TREE PROTECTION AREAS.
 4. SIGNS MAY BE REMOVED FROM RESIDENTIAL LOTS UPON ISSUANCE OF USE AND OCCUPANCY.
 5. SIGNS TO REMAIN ON NON RESIDENTIAL SITES FOR MAINTENANCE PERIOD.

2 TREE PROTECTION AREA SIGN (TYPICAL)
LR-6 SCALE: NTS



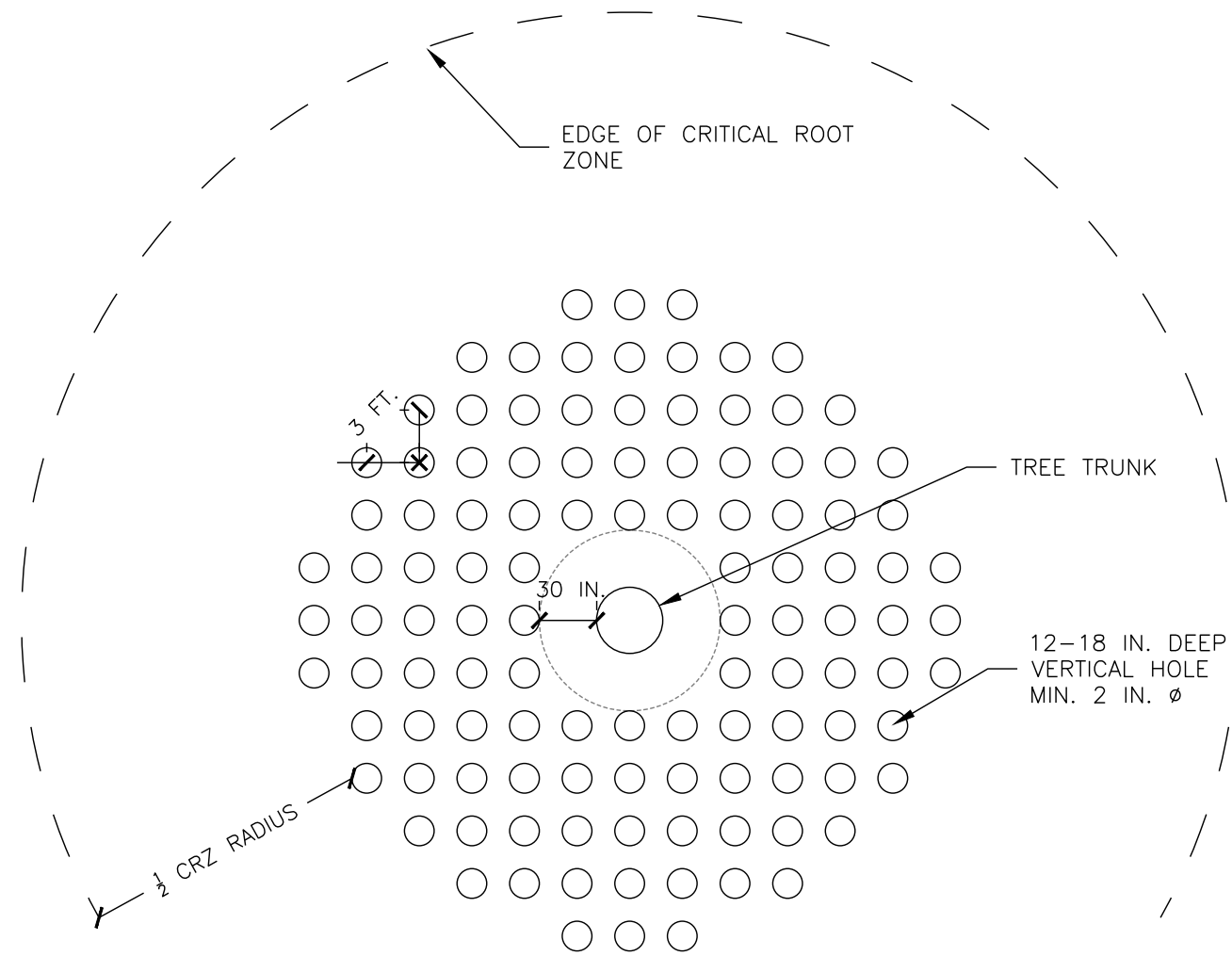
- NOTES:
1. TREE PROTECTION AREA WILL BE DETERMINED AS PART OF THE PLAN REVIEW PROCESS. EXACT LOCATION, DEPTH AND METHODS OF ROOT PRUNING TO BE DETERMINED IN THE FIELD BY PROJECT ARBORIST.
 2. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCING.
 3. TRENCH SHOULD BE BACKFILLED IMMEDIATELY OR INCORPORATED WITH SILT FENCE INSTALLATION.
 4. ROOTS SHOULD BE SEVERED BY ROCK SAW, TRENCHER, VIBRATORY PLOW OR APPROVED EQUIVALENT.
 5. ROOTS OVER 1.5\"/>
 6. COORDINATE WITH SILT FENCE INSTALLATION (IF REQUIRED) TO MINIMIZE ROOT IMPACTS FROM ADDITIONAL TRENCING.

5 ROOT PRUNING (TYPICAL)
LR-6 SCALE: NTS



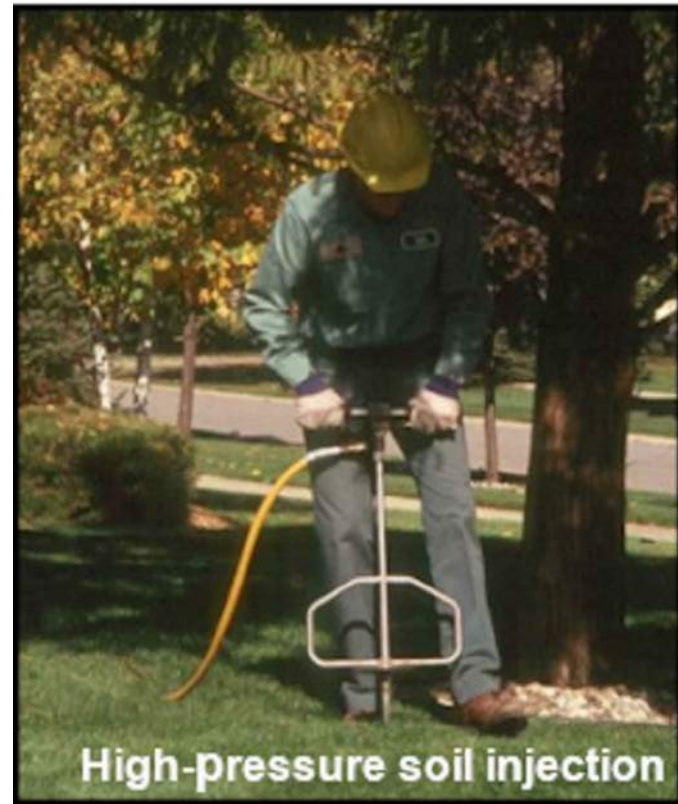
- NOTES:
1. MATTING MATERIAL SHALL BE DOUBLE SIDED GEOCOMPOSITE, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENSAR ROADRAIN RD7) OR APPROVED EQUIVALENT.
 2. RPM SHALL BE INSTALLED BY A CERTIFIED ARBORIST.
 3. TO BE USED FOR DESIGNATED TEMPORARY CONSTRUCTION ACCESS AND STOCKPILE AREAS.
 4. MATTING SHALL BE PLACED ON 12\"/>
 5. FOR HEAVY TRAFFIC AREAS, MATTING SHALL BE COVERED WITH 6-8\"/>

5 TEMPORARY ROOT PROTECTION MATTING (TYPICAL)
LR-6 SCALE: NTS



- NOTES:
1. WORK TO BE PERFORMED BY OR UNDER THE SUPERVISION OF AN ISA CERTIFIED ARBORIST.
 2. USE SUPERSONIC AIRTOOL TO BORE 12-18 IN. VERTICAL HOLES, MINIMUM 2 IN. Ø, ON 3x3 FT. SPACING.
 3. AREA OF TREATMENT TO BE 30 IN. FROM TRUNK TO ½ CRZ RADIUS AND ANY AREA PREVIOUSLY UNDER ROOT PROTECTION MATTING. EXACT CONFIGURATION TO VARY DEPENDING ON SITE CONDITIONS AND SPECIFIC AREAS OF COMPACTION.
 4. BACKFILL WITH CHIP-SIZED, PRE-MOISTENED BIOCHAR TO 1 IN. FROM TOP OF HOLE AND COVER WITH TOPSOIL OR SOD.
 5. IF FOLLOWED BY LIQUID FERTILIZER AND/OR BIOCHAR INJECTION, INJECTION LOCATIONS TO BE OFFSET FROM VERTICAL MULCHING HOLES.
 6. OFFSET HOLES IF TREATMENTS ARE REPEATED IN SUBSEQUENT YEARS.

6 VERTICAL MULCHING - PLAN VIEW
LR-6 SCALE: NTS



- NOTES:
1. FOR RESTORATION OF COMPACTED AND/OR OTHERWISE DEGRADED SOILS.
 2. WORK TO BE PERFORMED BY OR UNDER THE SUPERVISION OF AN ISA CERTIFIED ARBORIST.
 3. USE SUPERSONIC AIRTOOL TO BORE 12-18 IN. VERTICAL HOLES, MINIMUM 2 IN. Ø, ON 3x3 FT. SPACING.
 4. AREA OF TREATMENT TO BE 30 IN. FROM TRUNK TO ½ CRZ RADIUS AND ANY AREA PREVIOUSLY UNDER ROOT PROTECTION MATTING. EXACT CONFIGURATION TO VARY DEPENDING ON SITE CONDITIONS AND SPECIFIC AREAS OF COMPACTION.
 5. BACKFILL WITH CHIP-SIZED, PRE-MOISTENED BIOCHAR TO 1 IN. FROM TOP OF HOLE AND COVER WITH TOPSOIL OR SOD. BACKFILL MAY BE AMENDED WITH UP TO 50% ORGANIC COMPOST.
 6. IF FOLLOWED BY LIQUID FERTILIZER AND/OR POWDERED BIOCHAR INJECTION, INJECTION LOCATIONS TO BE OFFSET FROM VERTICAL MULCHING HOLES. CONTRACTOR TO SUBMIT RECOMMENDED MATERIALS FOR REVIEW.
 7. OFFSET HOLES IF TREATMENTS ARE REPEATED IN SUBSEQUENT YEARS.

7 VERTICAL MULCHING AND SOIL AMENDMENT - PHOTO DETAIL
LR-6 SCALE: NTS

HERITAGE TREE TRANSPLANT PLAN Details

Episcopal Center for Children
Washington, DC

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REVISIONS				App. By	
No.	Date	Description	Rev. By	By	CA
1	01/17/22	PER DDOT COMMENTS / REISED LOCATIONS			
DATE: 10/25/2021				SCALE: N/A	CL: 2'

Horizontal Datum: MD NAD 83		
Vertical Datum: NAVD 88		
Boundary and Topo Source: Vika Capitol		
Design	Draft	Approved
CK	CK	CC
Sheet # LR-6		
WSSI Project Number: 31089.01		

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Tree #	DBH		Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	REGULATED STATUS	Number of Stems	SRZ	CRZ	Canopy (FT)				Transplant	Preservation Measures												Preservation/ Transplant Notes	Assessment Notes
	(Diameter at 4.5 feet above grade)									Structural Critical Root Zone (radius in Ft) (1.5 x DBH)	CRZ Critical Root Zone Radius in Ft (1.5 x DBH)	NORTH	EAST	SOUTH	WEST		Removal By Arborist	Root Prune	Tree Protection Fence	Mulch	Year 1 Soil Care	Year 2 Soil Care	Year 3 Soil Care	Vertical Mulching	Tree Growth Regulator	Tree Condition Inspections	Watering	Temp Root Protection Mating		
301		11	maple, sugar	Acer saccharum	70%	Good	NO		1	6	17	—	—	—	—														NO DISTURBANCE	Included Bark/Weak Union
302		19	spruce, Norway	Picea abies	60%	Fair	NO	SPECIAL	1	10	29	—	—	—	—														NO DISTURBANCE	Surface Roots, Root Damage/Decay, Included Bark/Weak Union, Co-Dominant Stems Minor mower damage. Heavy sap buildup near base on building side.
303		27	ash, green	Fraxinus pennsylvanica	50%	Fair	NO	SPECIAL	1	14	41	—	—	—	—														NO DISTURBANCE	Full Crown, Large DW (3+), Small DW (1-2"), Insect/Disease Problem EAB exit holes visible.
304		21	ash, green	Fraxinus pennsylvanica	55%	Fair	NO	SPECIAL	1	11	32	—	—	—	—														NO DISTURBANCE	Co-Dominant Stems, Mechanical Damage, Small DW (1-2"), Insect/Disease Problem EAB
305		7	dogwood, Kousa	Cornus kousa	75%	Good	NO		1	4	11	—	—	—	—														NO DISTURBANCE	Mechanical Damage DBH @ 10cm. Multistem.
306		21	spruce, Norway	Picea abies	70%	Good	NO	SPECIAL	1	11	32	—	—	—	—														NO DISTURBANCE	Surface Roots, Restricted rooting area Minor sapsucker damage.
307		18	holly, American	Ilex opaca	70%	Good	NO	SPECIAL	1	9	27	—	—	—	—														NO DISTURBANCE	Restricted rooting area
308		20	spruce, Norway	Picea abies	55%	Fair	NO	SPECIAL	1	10	30	—	—	—	—														NO DISTURBANCE	Girdling Roots, Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2") Probable belowground GR. Minor mower and sapsucker damage.
309		10	dogwood, Kousa	Cornus kousa	80%	Good	NO		1	5	15	—	—	—	—														NO DISTURBANCE	Small DW (1-2"), Fungal Fruiting Bodies DBH @ 10 cm. Multistem. Fungi at base does not appear to be associated with significant decay.
310		23	holly, American	Ilex opaca	65%	Good	NO	SPECIAL	1	12	35	—	—	—	—														NO DISTURBANCE	Trunk Decay, Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2") trunk decay from failed stem
311		11	dogwood, flowering	Cornus florida	75%	Good	NO		1	6	17	—	—	—	—														NO DISTURBANCE	Mechanical Damage, Branch Decay DBH @ 2.5 ft.
312		30	holly, American	Ilex opaca	60%	Fair	NO	SPECIAL	1	15	45	—	—	—	—														NO DISTURBANCE	Included Bark/Weak Union, Co-Dominant Stems, Mechanical Damage
313		50	oak, willow	Quercus phellos	65%	Good	NO	HERITAGE	1	25	75	—	—	—	—														NO DISTURBANCE	Full Crown, Large DW (3+), Small DW (1-2"), Broken Limbs, Branch Decay, Fungal Fruiting Bodies Decay fungi visible on ~10 in. branch and on broken stubs. Could use a cleaning prune.
314		6	dogwood, flowering	Cornus florida	65%	Good	NO		1	3	9	—	—	—	—														NO DISTURBANCE	Mechanical Damage, Small DW (1-2"), Low Vigor
315		24	honeylocust	Gleditsia triacanthos	50%	Fair	NO	SPECIAL	1	12	36	—	—	—	—														NO DISTURBANCE	Branch Decay Long (~15 ft.) crack in large branch - nearly sealed over but concerning. Additional branch decay associated with pruning cuts.
316		9	arbutifae, eastern	Thuja occidentalis	30%	Poor	NO		1	5	14	—	—	—	—														NO DISTURBANCE	Basal Decay, Trunk Decay, Small DW (1-2"), Low Vigor, Stressed, Restricted rooting area Severe basal decay from failed stem.
317		7	holly, American	Ilex opaca	75%	Good	NO		1	4	11	—	—	—	—														NO DISTURBANCE	Girdling Roots, Restricted rooting area 2 in. GR from nearby honeysuckle shrub.
318		40	pine, eastern white	Pinus strobus	45%	Fair	NO	HERITAGE	1	20	60	—	—	—	—														NO DISTURBANCE	Large DW (3+), Small DW (1-2"), Low Vigor, Stressed, Broken Limbs, Crown dieback Many large pruning cuts. Little advancement of decay but poor woundwood formation.
319		7	dogwood, flowering	Cornus florida	70%	Good	NO		1	4	11	—	—	—	—														NO DISTURBANCE	One Sided, Small DW (1-2")
320		12	holly, American	Ilex opaca	75%	Good	NO		1	6	18	—	—	—	—														NO DISTURBANCE	Girdling Roots Possible belowground GR
321		32	arbutifae, eastern	Thuja occidentalis	40%	Poor	NO	HERITAGE	1	16	48	—	—	—	—														NO DISTURBANCE	Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2"), Low Vigor, Stressed, Vines, Restricted rooting area Four large codominant stems.
322		25	spruce, Norway	Picea abies	60%	Fair	NO	SPECIAL	1	13	38	—	—	—	—														NO DISTURBANCE	Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2"), Restricted rooting area
323		35	pine, eastern white	Pinus strobus	80%	Good	NO	HERITAGE	1	18	53	—	—	—	—														NO DISTURBANCE	Mechanical Damage, Broken Limbs
324		10	cherry/plum spp.	Prunus spp.	60%	Fair	NO		1	5	15	—	—	—	—														NO DISTURBANCE	Surface Roots, Girdling Roots, Root Damage/Decay Probable belowground GR. Mower damage.
325		48	oak, willow	Quercus phellos	65%	Good	NO	HERITAGE	1	24	72	—	—	—	—														NO DISTURBANCE	One Sided, Root Damage/Decay, Fungal Fruiting Bodies Many pruning cuts. Fungal bodies associated with pruning cut @ base of large branch. Mower damage.
326		47	oak, willow	Quercus phellos	65%	Good	NO	HERITAGE	1	24	71	—	—	—	—														NO DISTURBANCE	Full Crown, Root Damage/Decay, Large DW (3+), Small DW (1-2") Light mower damage. One buttress root decayed.
327		40	oak, willow	Quercus phellos	65%	Good	NO	HERITAGE	1	20	60	—	—	—	—														NO DISTURBANCE	Root Damage/Decay, Included Bark/Weak Union, Co-Dominant Stems, Large DW (3+) Mower damage.
328		43	oak, willow	Quercus phellos	75%	Good	NO	HERITAGE	1	22	65	—	—	—	—														NO DISTURBANCE	Full Crown, Included Bark/Weak Union, Small DW (1-2")
329		33	oak, willow	Quercus phellos	70%	Good	NO	HERITAGE	1	17	50	—	—	—	—														NO DISTURBANCE	One Sided, Small DW (1-2"), Branch Decay
330		55	oak, willow	Quercus phellos	60%	Fair	NO	HERITAGE	1	28	83	—	—	—	—														NO DISTURBANCE	Full Crown, Basal Decay, Small DW (1-2") Sounding/probing suggest basal decay on N side. Soid elsewhere, so unlikely to compromise structure. Resistograph would be reasonable follow-up.
331		45	oak, willow	Quercus phellos	80%	Good	NO	HERITAGE	1	23	68	—	—	—	—														NO DISTURBANCE	Full Crown, Large DW (3+), Small DW (1-2")
332		37	oak, willow	Quercus phellos	70%	Good	NO	HERITAGE	1	19	56	—	—	—	—														NO DISTURBANCE	Root Damage/Decay, Large DW (3+), Small DW (1-2"), Branch Decay Minor decay on one buttress root.
333		40	oak, willow	Quercus phellos	80%	Good	NO	HERITAGE	1	20	60	—	—	—	—														NO DISTURBANCE	Full Crown, Small DW (1-2")
334		44	oak, willow	Quercus phellos	75%	Good	NO	HERITAGE	1	22	66	—	—	—	—														NO DISTURBANCE	Full Crown, Small DW (1-2")
335		34	oak, willow	Quercus phellos	70%	Good	NO	HERITAGE	1	17	51	—	—	—	—														NO DISTURBANCE	Root Damage/Decay, Mechanical Damage, Large DW (3+), Small DW (1-2") Prior mechanical damage on buttress roots. Sounding does not suggest decay.
336		48	oak, willow	Quercus phellos	70%	Good	NO	HERITAGE	1	24	72	—	—	—	—														NO DISTURBANCE	Full Crown, Included Bark/Weak Union, Large DW (3+), Small DW (1-2")
337		8	dogwood, flowering	Cornus florida	30%	Poor	NO		1	4	12	—	—	—	—														NO DISTURBANCE	Basal Decay, Trunk Decay, Low Vigor, Stressed, Branch Decay
338		27	chestnut, Chinese	Castanea mollissima	60%	Fair	NO	SPECIAL	1	14	41	—	—	—	—			X											NO DISTURBANCE	Co-Dominant Stems, Large DW (3+), Small DW (1-2") DBH @ 1.5 ft.
339	18,17,13	arbutifae, eastern	Thuja occidentalis	50%	Fair	NO	SPECIAL	3	14	42	—	—	—	—	—			X											NO DISTURBANCE	Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2") Bottom limbs being shaded out.
340		46	pine, eastern white	Pinus strobus	30%	Poor	NO	HERITAGE	1	23	69	—	—	—	—			X											NO DISTURBANCE	Basal Decay, Trunk Decay, Small DW (1-2"), Broken Limbs, Vines Severe trunk decay. Top broken out.
341																														

GENERAL

1.1. REFER TO THE TREE PROTECTION ACTION KEY (TPAK) FOR SPECIFIC RECOMMENDATIONS FOR EACH TREE.

1.2. PRIOR TO ANY DEMOLITION OR CONSTRUCTION WORK WITHIN OR ADJACENT TO TREE PROTECTION AREAS (TPA), A PRE-CONSTRUCTION SITE WALK SHALL BE HELD TO INCLUDE THE RETAINED ARBORIST AND PROJECT FORESTER WITH THE CONTRACTOR, ARCHITECT, *DDOT*, AND OWNER.

1.3. SUBSTITUTIONS OR ALTERNATIVE METHODS OR MATERIALS SHALL BE REVIEWED AND APPROVED BY *DDOT*.

1.4. ALL TREE PROTECTION MEASURES MUST BE IN PLACE PRIOR TO COMMENCEMENT OF DEMOLITION, SITE CLEARING OR CONSTRUCTION AND MAINTAINED THROUGHOUT CONSTRUCTION. TREE PROTECTION MEASURES MAY ONLY BE REMOVED WITH *DDOT* APPROVAL.

1.5. ALL MEASURES WILL BE REVIEWED AFTER INSTALLATION AND APPROVED BY OWNER AND *DDOT*.

2. REMOVAL BY ARBORIST

2.1. TREES DESIGNATED AS "REMOVAL BY ARBORIST" SHALL BE REMOVED BY A QUALIFIED ARBORIST "BY HAND", TO MINIMIZE POTENTIAL FOR DAMAGE TO REMAINING TREES AND ROOTS.

2.2. CREWS SHALL BE DIRECTLY SUPERVISED BY A CERTIFIED ARBORIST.

2.3. TRUCKS AND MECHANIZED EQUIPMENT SHALL NOT ENTER THE FENCED TREE PROTECTION AREAS, EXCEPT WHERE EXPLICITLY APPROVED BY THE PROJECT FORESTER AND UTILIZING APPROVED ROOT PROTECTION DEVICE.

2.4. STUMPS SHALL BE LEFT IN PLACE OR GROUND OUT AT THE OWNERS DISCRETION. STUMPS IN TURF/LANDSCAPE AREAS OR WITHIN ROOT AERATION MATTING AREAS SHALL BE GROUND.

2.5. STUMP GRINDING SHALL BE DONE WITH SMALL MACHINES SPECIFICALLY DESIGNED FOR THAT PURPOSE. NO STUMPS SHALL BE EXCAVATED EXCEPT AS DESCRIBED HEREIN. STUMPS SHALL BE GROUND NOT MORE THAN 8" BELOW GRADE AND CARE MUST BE TAKEN TO MINIMIZE DAMAGE TO ROOTS OF RETAINED TREES.

3. TREE PROTECTION FENCE

3.1. INSTALL AND MAINTAIN TEMPORARY TREE PROTECTION FENCE FOR EACH TREE PROTECTION AREA AS SHOWN ON THE PLAN. INSTALLATION IS TYPICALLY AFTER ROOT PRUNING AND PRIOR TO CLEARING & GRADING.

3.2. FENCE SHALL BE (SEE DETAIL) 6' HIGH CHAIN LINK FENCE FABRIC MOUNTED ON 8', 1.5"Ø GALVANIZED STEEL PIPE LINE POSTS. CORNER POSTS SHALL BE 2"Ø. FENCE SHALL BE ATTACHED TO POSTS USING ALUMINUM TIES. PLASTIC "ZIP" TIES SHALL NOT BE USED.

3.3. SILT FENCE SHALL BE COORDINATED FOR INSTALLATION TO ENHANCE PROTECTION AND AVOID UNNECESSARY ROOT CUTS BY SILT FENCE INSTALLATION.

3.4. FENCE SHALL REMAIN FOR THE DURATION OF CONSTRUCTION. FENCE MAY BE REMOVED ONLY AFTER ALL CONSTRUCTION AND FINAL LANDSCAPING IS COMPLETE AND WITH *DDOT* APPROVAL.

4. TREE PROTECTION AREA SIGNS

4.1. TREE PROTECTION AREA SIGNS SHALL BE AFFIXED TO ALL TREE PROTECTION FENCE AT 30' SPACING AVERAGE.

4.2. SIGNS SHALL BE BILINGUAL (ENGLISH AND SPANISH).

4.3. SIGNS SHALL NOT BE AFFIXED DIRECTLY TO TREES. SEE DETAIL.

4.4. SIGN MATERIAL SHALL BE WATERPROOF, HEAVY VINYL OR SIMILAR.

4.5. SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

5. ROOT PRUNE

5.1. THE EXACT LOCATION AND DEPTH WILL BE DETERMINED DURING THE PRE-CONSTRUCTION MEETING. SPECIFIC EQUIPMENT & METHODS WILL BE DETERMINED BY PROJECT FORESTER AND *DDOT* BASED UPON DEPTH & TREE IMPACT. (SEE DETAIL)

5.2. HAND PRUNE ROOTS OVER 1" DIAMETER WITHIN CRZS OF SIGNIFICANT TREES. STEEP SLOPES, DEEP EXCAVATIONS AND PAVEMENT/CURB REMOVAL WILL BE REVIEWED WHEN OPEN FOR HAND ROOT PRUNING DURING CONSTRUCTION.

5.3. COORDINATE WITH SILT FENCE INSTALLATION TO MINIMIZE UNNECESSARY ROOT DAMAGE.

5.4. ROOT PRUNING SHALL BE PERFORMED BY A CERTIFIED ARBORIST.

6. WOOD CHIP MULCH

6.1. INSTALL MULCH FOR DESIGNATED SIGNIFICANT TREES. MULCH AREA SHALL BE ONE OF THE FOLLOWING, AT THE DISCRETION OF THE RETAINED ARBORIST AND OWNER:

6.1.1. INSTALL MULCH BED RINGS. MULCH SHOULD COVER AT LEAST THE ENTIRE STRUCTURAL ROOT ZONE. LARGER MULCH BEDS ARE PREFERRED.

6.1.2. PROVIDE CONTINUOUS MULCH STRIP 10' TO 15' WIDE ALONG LOD WITHIN PRESERVED CRZ AREAS.

6.2. MULCH SHALL BE INSTALLED TO A DEPTH OF 4". TOTAL MULCH DEPTH SHALL NOT EXCEED 4" SHOULD EXISTING MULCH BE PRESENT.

6.3. MULCH SHALL BE DOUBLE GROUND SHREDDED HARDWOOD, AGED FOR AT LEAST 6 MONTHS FROM AN APPROVED SOURCE. INSUFFICIENTLY OR IMPROPERLY AGED MULCH CONTAINING HIGH BACTERIAL COUNTS OR HIGH LEVELS OF BARK, WALNUT, INVASIVE SPECIES, OR OTHER MATERIALS RESISTANT TO DECOMPOSITION SHALL NOT BE USED.

6.4. MULCH SHALL NOT CONTACT TRUNK OF TREES.

6.5. EDGING SHALL NOT BE USED.

- 7.3.1. PHASE 1 (DURING INITIAL CLEARING AND INSTALLATION OF TREE PROTECTION AND PERIMETER E&S CONTROLS) INSPECTIONS SHALL BE AT LEAST WEEKLY.
- 7.3.2. PHASE 2 (DURING ALL REMAINING SITE WORK AND UNTIL PROJECT COMPLETION) INSPECTIONS SHALL BE AT LEAST MONTHLY.
- 7.3.3. TRANSITION FROM WEEKLY TO MONTHLY SCHEDULE SHALL REQUIRE OWNER AND *DDOT* APPROVAL.
- 7.4. REPORTS SHALL BE PROVIDED TO THE OWNER AND *DDOT*. REPORTS SHALL DOCUMENT CONDITION OF TREE PROTECTION DEVICES AND PROVIDE RECOMMENDATIONS FOR MAINTENANCE AND/OR ADDITIONAL CARE.
- 7.5. ADDITIONAL ARBORIST INSPECTIONS AND/OR DIRECT ARBORIST OVERSIGHT OF CRITICAL TREE PRESERVATION ACTIVITIES, TREE PRUNING, TREE REMOVAL, OR OTHER SENSITIVE ACTIVITIES MAY BE REQUIRED. WEEKLY INSPECTIONS DO NOT SATISFY THE NEED FOR DIRECT ARBORIST OVERSIGHT THAT MAY BE REQUIRED FOR SPECIFIC ACTIVITIES.

- 8.1. NO TOXIC MATERIALS SHALL BE STORED WITHIN 100' OF TREE PROTECTION AREAS.
- 8.2. ALL WORK IN OR NEAR TREE PROTECTION AREAS SHALL BE PERFORMED IN A MANNER TO MINIMIZE DAMAGE TO TREES, SHRUBS, GROUND COVER, SOIL AND ROOT SYSTEMS.
- 8.3. MECHANIZED EQUIPMENT SHALL NOT BE PERMITTED TO ENTER ANY TREE PROTECTION AREAS WITHOUT EXPLICIT APPROVAL BY THE PROJECT FORESTER AND *DDOT*, AND WITH ADEQUATE APPROVED ROOT PROTECTION DEVICES.

- 9.1. CANOPY PRUNING SHALL BE CLEANING PRUNING AND/OR RESTORATION PRUNING AND SHALL BE IN CONFORMANCE WITH CURRENT ANSI A300 STANDARDS AND ISA BEST MANAGEMENT PRACTICES.
- 9.2. PRUNING SHALL REMOVE ONLY DEAD, DYING, DAMAGED OR BROKEN BRANCHES GREATER THAN 1" IN DIAMETER. PRUNING OF SMALL TREES MAY INCLUDE REMOVAL OF LIMBS TO IMPROVE STRUCTURE.
- 9.3. FOLIAGE REMOVAL SHALL NOT BE MORE THAN 25% OF THE TOTAL LIVE CANOPY VOLUME OF ANY TREE IN ANY ONE SEASON. PRUNING SHALL NOT REMOVE INTERIOR BRANCHING EXCEPT AS OTHERWISE STATED.
- 9.4. PRUNING FOR SPECIFIC CLEARANCE (FOR CONSTRUCTION ACCESS OR PROPOSED IMPROVEMENTS) SHALL BE REVIEWED AND APPROVED BY THE OWNER AND *DDOT*.
- 9.5. SUPPORT CABLES SHALL BE INSTALLED IN CONFORMANCE WITH CURRENT ANSI A300 STANDARDS AND ISA BEST MANAGEMENT PRACTICES.

- 10.1. CONSTRUCTION STAGING, STOCKPILING, EQUIPMENT STORAGE, MASONRY SET-UP AND WASHOUT, ETC. SHALL BE LIMITED TO AREAS OF EXISTING PAVEMENT AND AREAS WITHIN THE LOD EXCEPT AS OTHERWISE NOTED.
- 10.2. CONSTRUCTION EQUIPMENT ACCESS BETWEEN VARIOUS WORK AREAS SHALL REMAIN ON EXISTING PAVEMENT/IMPROVED SURFACES TO THE GREATEST EXTENT POSSIBLE. WHERE THIS IS NOT POSSIBLE AND WITHIN THE CRITICAL ROOT ZONE (CRZ) OF ANY TREE TO REMAIN, ACCESS SHALL BE MADE ON ROOT PROTECTION MATTING (RPM)(SEE DETAIL) OR APPROVED ALTERNATIVE. CONTRACTOR TO DETERMINE ACCESS NEEDS AND COORDINATE RPM INSTALLATION WITH THE RETAINED ARBORIST AT THE PRE-CONSTRUCTION MEETING OR BEFORE.

- 11.1. TEMPORARY MATTING TO PROTECT EXISTING ROOTS AND SOILS FROM PROPOSED SHORT-TERM CONSTRUCTION TRAFFIC IMPACTS.
- 11.2. TO PREPARE SITE, REMOVE ANY DEBRIS BY HAND AND SPREAD AN EVEN LAYER OF WOOD CHIP MULCH 12" THICK OVER THE ENTIRE AREA TO RECEIVE MATTING.
- 11.3. MATTING SHALL BE INSTALLED IN A SINGLE LAYER ON MULCH.
- 11.4. TOPSOIL SHALL NOT BE DISTURBED OR REMOVED. NO GRUBBING, GRADING, EXCAVATION OR EQUIPMENT TRAFFIC SHALL BE ALLOWED IN THE AREA TO RECEIVE RPM. EQUIPMENT MAY TRAVEL ON RPM AFTER IT IS INSTALLED, BUT SHOULD BE MINIMIZED. TRACKED EQUIPMENT SHOULD NOT TURN ON RPM TO AVOID DAMAGE.
- 11.5. MATTING MATERIAL SHALL BE TENSAR ROADRAIN RD7 OR APPROVED EQUIVALENT.
- 11.6. RPM SHALL BE INSTALLED BY A CERTIFIED ARBORIST.
- 11.7. RPM SHALL NOT BE REMOVED OR DISTURBED BY SITE CONTRACTORS.
- 11.8. INSTALLATION OF SILT FENCE FOR EROSION CONTROL SHALL BE

- 12.1. INITIAL SOIL TESTING WITHIN TREE PROTECTION AREAS IS REQUIRED. CONDUCT INDIVIDUAL SOIL TESTS FOR SEPARATE TREE PROTECTION AREAS (SMALL ADJACENT AREAS MAY BE TESTED TOGETHER). SOIL TEST SHALL BE A REPRESENTATIVE SAMPLE FROM EACH AREA.
- 12.2. TREATMENTS TO THE TREE PROTECTION AREAS FOR SPECIFIED TREES (SEE TPAK) SHALL BE BASED ON THE RESULTS OF THE SOIL ANALYSIS. FERTILIZATION SHALL BE CONSISTENT WITH THE RECOMMENDATIONS OF THE CURRENT ANSI A-300 (PART 2) TREE, SHRUB, AND OTHER WOODY PLANT MAINTENANCE – STANDARD PRACTICES (FERTILIZATION).
- 12.3. APPLICATION RATES SHALL NOT EXCEED A RATE OF 1 POUND OF ACTUAL NITROGEN PER 1,000 SQUARE FEET ANNUALLY. FERTILIZER USED SHOULD INCLUDE HUMIC ACIDS, SOLUBLE SEAWEED EXTRACTS AND SOIL BIOLOGICAL INOCULANTS.

13.1. RETAINED ARBORIST SHALL PROVIDE MONITORING OF THE CONDITION OF

13.2. INSPECTIONS SHALL BE PERFORMED AT LEAST MONTHLY DURING THE GROWING SEASON, BEGINNING PRIOR TO CONSTRUCTION AND CONTINUING THROUGHOUT CONSTRUCTION AND FOR AT LEAST ONE YEAR SUBSEQUENT TO COMPLETION OF CONSTRUCTION ACTIVITIES.

14.1. PACLOBUTRAZOL SOIL-APPLIED TREE GROWTH REGULATOR (CAMBISTAT® OR EQUIVALENT) SHALL BE APPLIED TO INDICATED TREES. APPLICATIONS SHALL FOLLOW MANUFACTURER'S LABEL AND APPLICABLE LAWS.

15.1. TRUNKS OF TREES IN CLOSE PROXIMITY TO CONSTRUCTION SHALL BE PROTECTED WITH A SINGLE WRAP OF GEOCOMPOSITE. GEOCOMPOSITE SHALL BE DOUBLE SIDED, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENSAR ROADRAIN RD7) OR EQUIVALENT.

15.3. WRAP SHALL BE TIED WITH ROPE OR WIRE. TIE MATERIAL SHALL NOT CONTACT TRUNK.

15.4. WRAP SHALL BE REMOVED PROMPTLY AFTER CONSTRUCTION.

16.1.1. THE GENERAL CONTRACTOR SHALL ENTER INTO A CONTRACTUAL RELATIONSHIP WITH AN EXPERIENCED ARBORICULTURE/TREE CARE FIRM TO PERFORM THE WORK SPECIFIED HEREIN. THIS CONTRACT SHALL BE FULLY EXECUTED PRIOR TO RELEASE OF THE DEMOLITION/BUILDING PERMIT. THE GENERAL CONTRACTOR SHALL PROVIDE PROOF OF SUCH CONTRACT TO *DDOT* TO THE EXTENT *DDOT* IS ASSURED WORK WILL BE EXECUTED BY A COMPETENT FIRM AS OUTLINED BELOW:

16.2.1. RETAINED ARBORIST FIRM SHALL COMPLY WITH THE FOLLOWING:

16.2.2. ESTABLISHED BUSINESS WITH DOCUMENTED EXPERIENCE OF AT LEAST FIVE YEARS.

16.2.4. PROPERLY LICENSED AND INSURED TO PERFORM ARBORICULTURAL WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED.

16.3. PROVIDE NAMES OF EACH INDIVIDUAL TO COMPLY WITH THE FOLLOWING:

16.3.1. CERTIFICATION BY ISA (CERTIFIED ARBORIST OR BOARD CERTIFIED MASTER ARBORIST)

16.3.2. MINIMUM BS OR AS DEGREE IN FORESTRY, ARBORICULTURE, OR RELATED FIELD

16.3.3. RESUMES SHOULD REFLECT COMBINED 5 YEARS FULL-TIME EXPERIENCE ON SIMILAR TREE PRESERVATION PROJECTS.

16.4. PROVIDE INDIVIDUAL(S) NAMES, CERTIFICATIONS, AND EACH ANTICIPATED ROLE IN THIS PROJECT. ROLE(S) SHALL BE DEFINED AS ONE OR MORE OF THE FOLLOWING:

- 16.4.1. PROJECT MANAGER
- 16.4.2. TECHNICAL OVERSIGHT
- 16.4.3. FIELD ARBORIST/TECHNICIAN

16.5. FOR EACH STAFF MEMBER, LIST A MINIMUM OF THREE CONSTRUCTION PROJECTS AND A MINIMUM THREE YEARS EXPERIENCE IN THE FOLLOWING TECHNICAL APPLICATIONS:

- 16.5.1. SOIL AMENDMENT PRESCRIPTIONS AND APPLICATIONS
- 16.5.2. ROOT PROTECTION MATTING (RPM) OR SIMILAR APPLICATIONS
- 16.5.3. CONSTRUCTION OVERSIGHT AND MONITORING
- 16.5.4. COORDINATION OF ARBORICULTURAL ACTIVITIES WITH CONSTRUCTION PROJECT MANAGERS

PUBLICATIONS LISTED HEREIN ARE PART OF THIS WORK TO EXTENT
REFERENCED:

17.1. ANSI A300 STANDARD PRACTICES FOR TREES, SHRUBS, AND OTHER WOODY PLANT MAINTENANCE

- 17.1.1. PART 1 -- 2017, TREE PRUNING
- 17.1.2. PART 2 -- 2011, SOIL MANAGEMENT
- 17.1.3. PART 3 -- 2013, SUPPLEMENTAL SUPPORT SYSTEMS
- 17.1.4. PART 4 -- 2014, LIGHTNING PROTECTION SYSTEMS
- 17.1.5. PART 5 -- 2012, MANAGEMENT OF TREES AND SHRUBS DURING SITE PLANNING, SITE DEVELOPMENT, AND CONSTRUCTION
- 17.1.6. PART 6 -- 2012, PLANTING AND TRANSPLANTING
- 17.1.7. PART 8 -- 2013, ROOT MANAGEMENT
- 17.1.8. PART 9 -- 2017, TREE RISK ASSESSMENT
- 17.1.9. PART 10 -- 2016, IPM
- 17.2. ANSI Z133.1 -- 2017 AND MOST RECENT UPDATES, ARBORICULTURAL

- 18.1. THE AREA DESIGNATED FOR THIS OPERATION SHALL BE 30" FROM TREE BASE TO $\frac{1}{2}$ THE CRZ RADIUS. FOLLOW UP IF NEEDED CAN TREAT THE OUTER $\frac{1}{2}$ OF THE CRZ AREA. ALSO TREAT ANY AREA UNDER ROOT PROTECTION MATTING INSIDE CRZS, ONCE THE RPM IS REMOVED.
- 18.2. USE SUPERSONIC AIR TOOL (SSAT 150 OR 300CFM AS SITE DICTATES) TO VERTICALLY BORE 12"-18" DEEP HOLES MINIMUM OF 2" DIAMETER ON A SPACING OF ONE HOLE PER SQUARE YARD 3' x 3'.
- 18.3. BACKFILL WITH CHIP-SIZED, PRE-MOISTENED BIOCHAR UP TO TOP AND COVER.
- 18.4. CERTIFY THAT ADEQUATE SOIL MOISTURE IS AVAILABLE OR PRE-WATER AREA.
- 18.5. THE OPERATOR SHALL ATTEMPT TO CAUSE HORIZONTAL FRACTURING WITH THE SSAT AMONG THE SOIL LAYERS TO INCREASE PORE SPACE.
- 18.6. TYPICALLY THIS OPERATION IS FOLLOWED BY HIGH PRESSURE LIQUID FERTILIZATION INJECTION. OFFSET EACH HOLE TO FILL FISSURES. REFER TO SOIL CARE/FERTILIZATION.

- 19.1. RETAINED ARBORIST SHALL PROVIDE SUPPLEMENTAL WATERING FOR SIGNIFICANT TREES DURING SEASONAL DROUGHT TIMES.
- 19.4. TREES REQUIRING THIS TREATMENT ARE INDICATED IN THE TPAK. OTHER TREES WILL NOT RECEIVE THIS TREATMENT.
- 19.5. MINIMUM WATERING SHALL BE CONSIDERED TO BE 6 APPLICATIONS PER GROWING SEASON, TYPICALLY JULY THRU OCTOBER WITH THE EXACT TIMING AND DURATION TO BE DETERMINED BY THE PROJECT FORESTER AND *DDOT*. CALIBRATE FOR 5 TO 10 GALLONS PER DIAMETER INCH PER TREE. FOR EXAMPLE, A 30" DBH TREE = 150-300 GALLONS PER WATERING.
- 19.6. BASED UPON THE NUMBER AND SIZE OF TREES VARIOUS STRATEGIES CAN BE CONSIDERED TO MAINTAIN ADEQUATE SOIL MOISTURE DURING THESE TIMES. THESE STRATEGIES MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

19.6.1. FIRE HYDRANT CONNECTION WITH TIMER AND DRIP IRRIGATION HOSE / TUBING.

19.6.2. WATER TANK TRUCK AND HAND APPLIED AS DIRECTED.

19.6.3. TEMPORARY ABOVE GRADE POLY TANK WITH TIMERS FOR DRIP OR

SOAKER HOSES AT EACH TPA.

19.6.4. 30-50 GALLON WATERING CANS WITH 6-8 DRILLED HOLES IN BOTTOM TO ALLOW SLOW SEEPING OF WATER WITH SPACING AND ROTATION TO REACH DESIRED GALLONS.

19.6.5. EQUIVALENT MEANS OF EFFECTIVELY WATERING TREES AS APPROVED BY PROJECT FORESTER AND *DDOT*.

19.7. DROUGHT TIMES SHALL BE DEFINED AS:

19.7.1. PERIODS DURING THE GROWING SEASON OF TWO WEEKS OR LONGER WHERE DAYTIME HIGH TEMPERATURES REACH 80 DEGREES FAHRENHEIT OR HIGHER AND LESS THAN $\frac{3}{4}$ " RAINFALL IS RECORDED PER WEEK; OR,

19.7.2. PERIODS DURING THE GROWING SEASON DESIGNATED AS "ABNORMALLY DRY" OR "DROUGHT" OF ANY SEVERITY, BY THE U.S. DROUGHT MONITOR ([HTTP://DROUGHTMONITOR.UNL.EDU/](http://droughtmonitor.unl.edu/)); OR,

19.7.3. ANY PERIOD OF EXTRAORDINARY CIRCUMSTANCE, AS DETERMINED BY THE PROJECT FORESTER OR *DDOT*.

19.8. A PRESCRIPTION FOR THE NUMBER OF GALLONS AND STRATEGY FOR WATERING DESIGNATED TREES WILL BE DEVELOPED. LARGE MATURE TREES WITH IMPACTS TO ROOT SYSTEMS REQUIRE AS MUCH AS 100- 250 GALLONS PER WEEK DURING 90 DEGREE DAYS DURING SUMMER DROUGHT TIMES.

19.9. PERIODIC INSPECTIONS BY AN ISA CERTIFIED ARBORIST (PROVIDED BY THE RETAINED ARBORIST) AT THIS TIME ARE CRITICAL. DEPTH OF MOISTURE IN SOILS SHALL BE DETERMINED BY SOIL SAMPLE TUBE OR OTHER EXPLORATORY MEANS.

19.10. PRIOR TO CONSTRUCTION COMPLETION, THE RETAINED ARBORIST SHALL PROVIDE A POST-CONSTRUCTION AFTERCARE PROGRAM FOR UP TO THREE (3) YEARS DURATION TO BE APPROVED BY THE PROJECT FORESTER, OWNER, AND *DDOT*.

- **Certified Arborist:** Credential of an individual arborist issued and administered by the International Society of Arboriculture. This credential must be current and valid to qualify to use the copyrighted designation of "Certified Arborist". Refer to www.isa-arbor.com for additional information.
- **Project Forester:** Natural resource consulting firm contracted by the developer to develop tree preservation plans, methods, details, and specifications in collaboration with the project design team. Project Forester may provide site investigation and documentation (root investigation studies, GPR, tree inventories, assessments, forest stand delineations, etc.); construction-phase monitoring; coordinate between design team, construction team, and Retained Arborist; review submittals; and/or other management or oversight tasks.
- **Retained Arborist:** Arboricultural firm contracted to implement the approved tree preservation plans on site. All crews conducting arboricultural operations on site shall consist of at least one Certified Arborist who directly oversees all work by that crew. Arboricultural operations include, but are not limited to, pruning, tree protection device installation and maintenance (fence, matting, etc.), root pruning, air tool root excavation/exploration, soil care activities, soil testing, mulch application, tree inspections, pesticide/chemical applications and tree removal.

REVISONS				
No.	Date	Description	Rev. By	App. By
1	01/17/72	PER IDOT COMMENTS / REVISED LOCATIONS	CK	
DATE: 10/25/2021			SCALE: 1" = 40'	

Horizontal Datum: MD NAD 83

Vertical Datum: NAVD 88

Boundary and Topo Source:
Vika Capitol

Design	Draft	Approved
CK	CK	CC

Sheet #
LR-9

WSSI Project Number: 31089.01