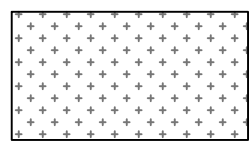
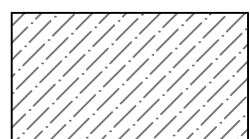


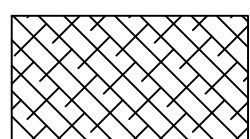





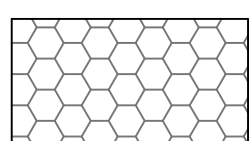
LEGEND

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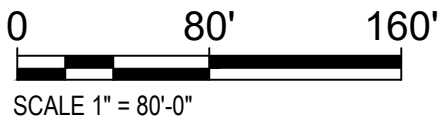
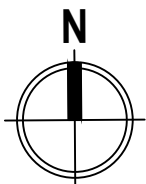
ZONE 1: SALT MARSH  
117,400 SQUARE FEET (2.7 ACRES)
- 

ZONE 2: FLOODPLAIN FOREST  
188,850 SQUARE FEET (4.3 ACRES)
- 

ZONE 3: WOODY UPLAND  
82,765 SQUARE FEET (1.9 ACRES)
- 

ZONE 4: MEADOW  
40,700 SQUARE FEET (0.9 ACRES)
- 

ZONE 5: GREEN SPACE  
24,950 SQUARE FEET (0.6 ACRES)



New Jersey Agricultural  
Experiment Station

SEWAREN  
RESTORATION IMPLEMENTATION PROJECT  
WOODBRIDGE TOWNSHIP  
MIDDLESEX COUNTY, NJ  
HABITAT RESTORATION PLAN

REVISIONS	
No.	DATE

DESCRIPTION


JEREMIAH D. BERGSTROM, LLA  
LICENSED LANDSCAPE ARCHITECT  
NJ LICENSE # 21A500090700

DRAWN  
JOB

CHECKED  
JOB

APPROVED  
SM

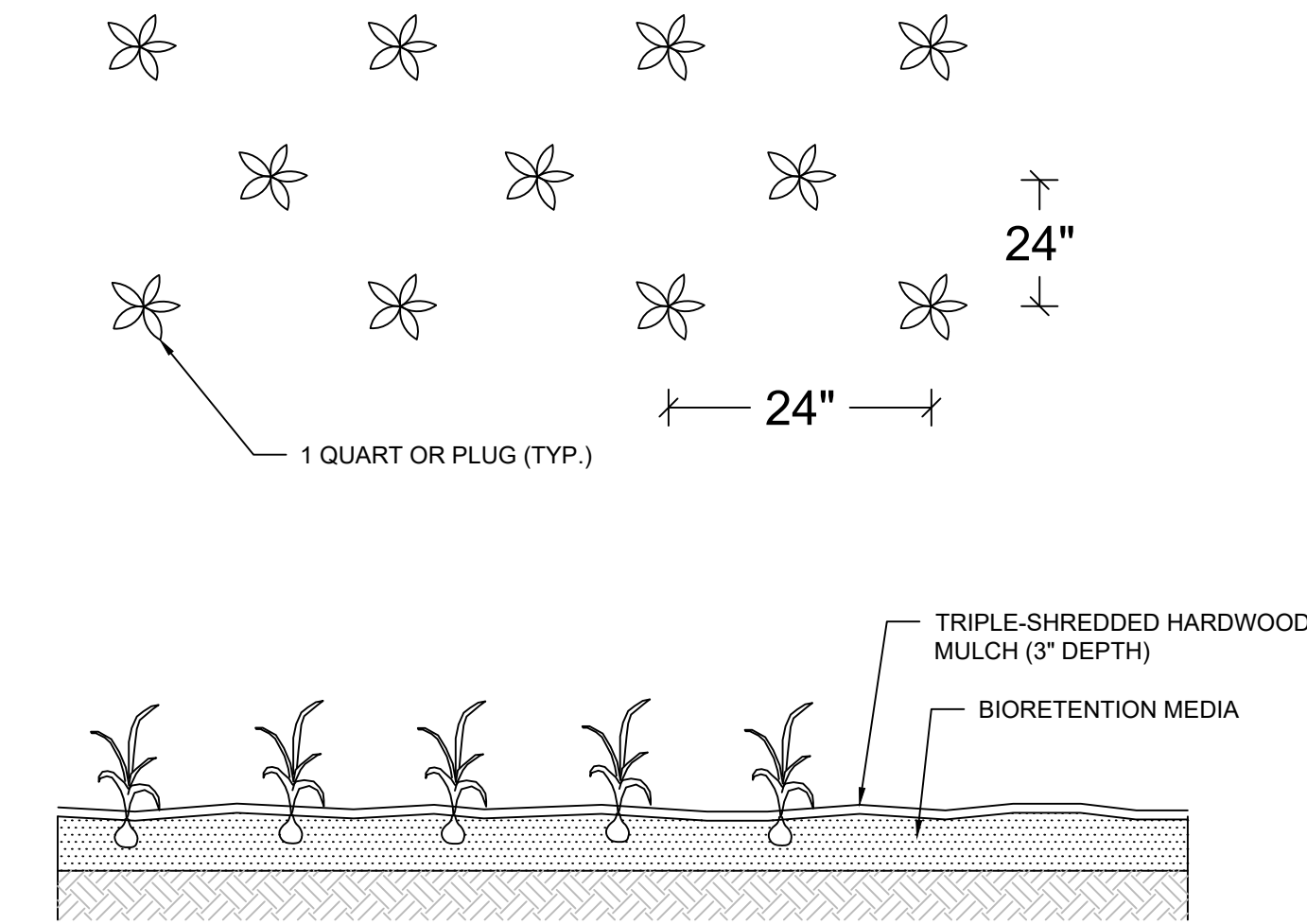
DATE  
07/19/2021

DATE  
XXXXXX

SHEET NAME

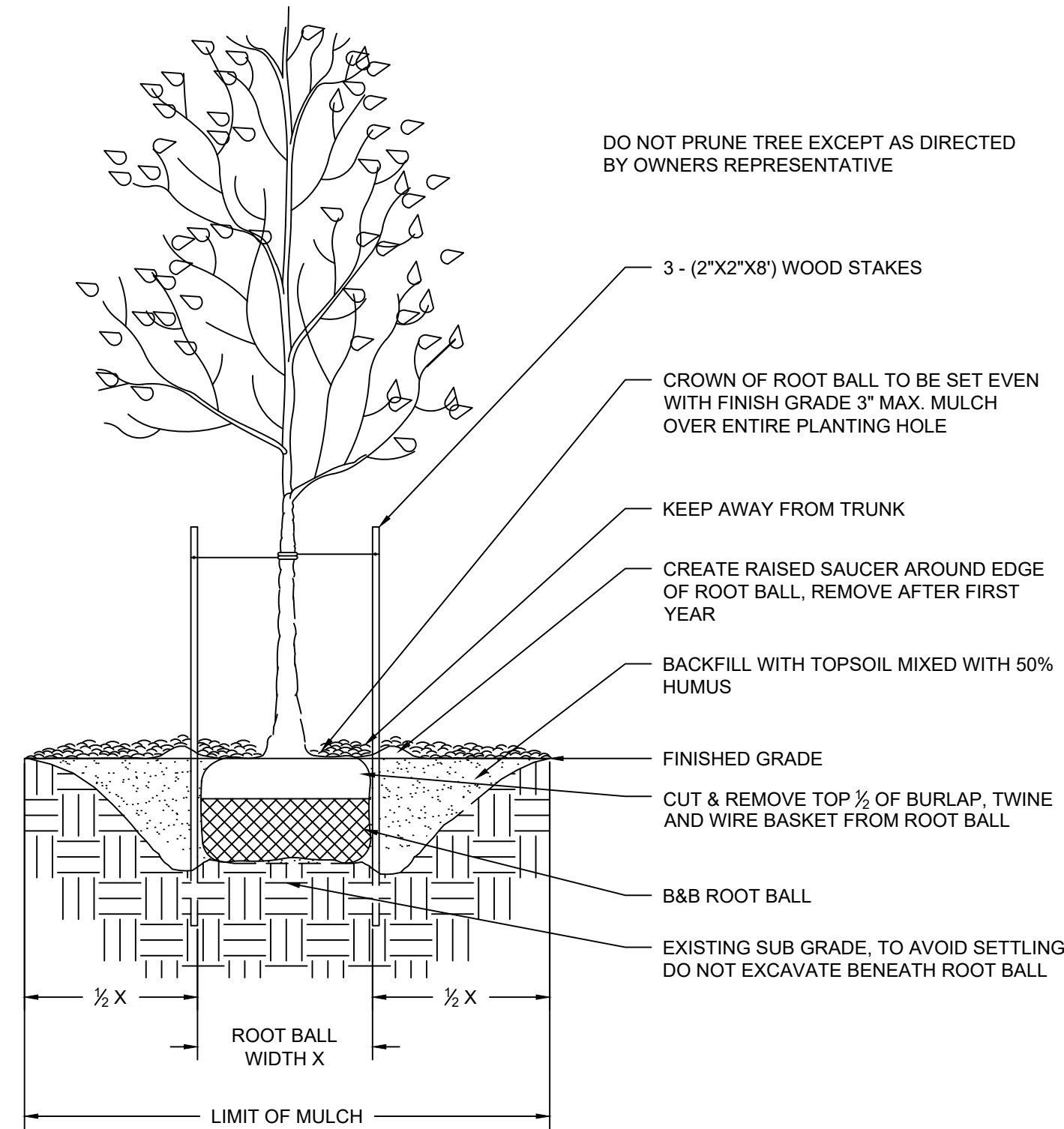
PLAN 01





1  
DT-1

HERBACEOUS PLUG PLANTING DETAIL  
N.T.S.



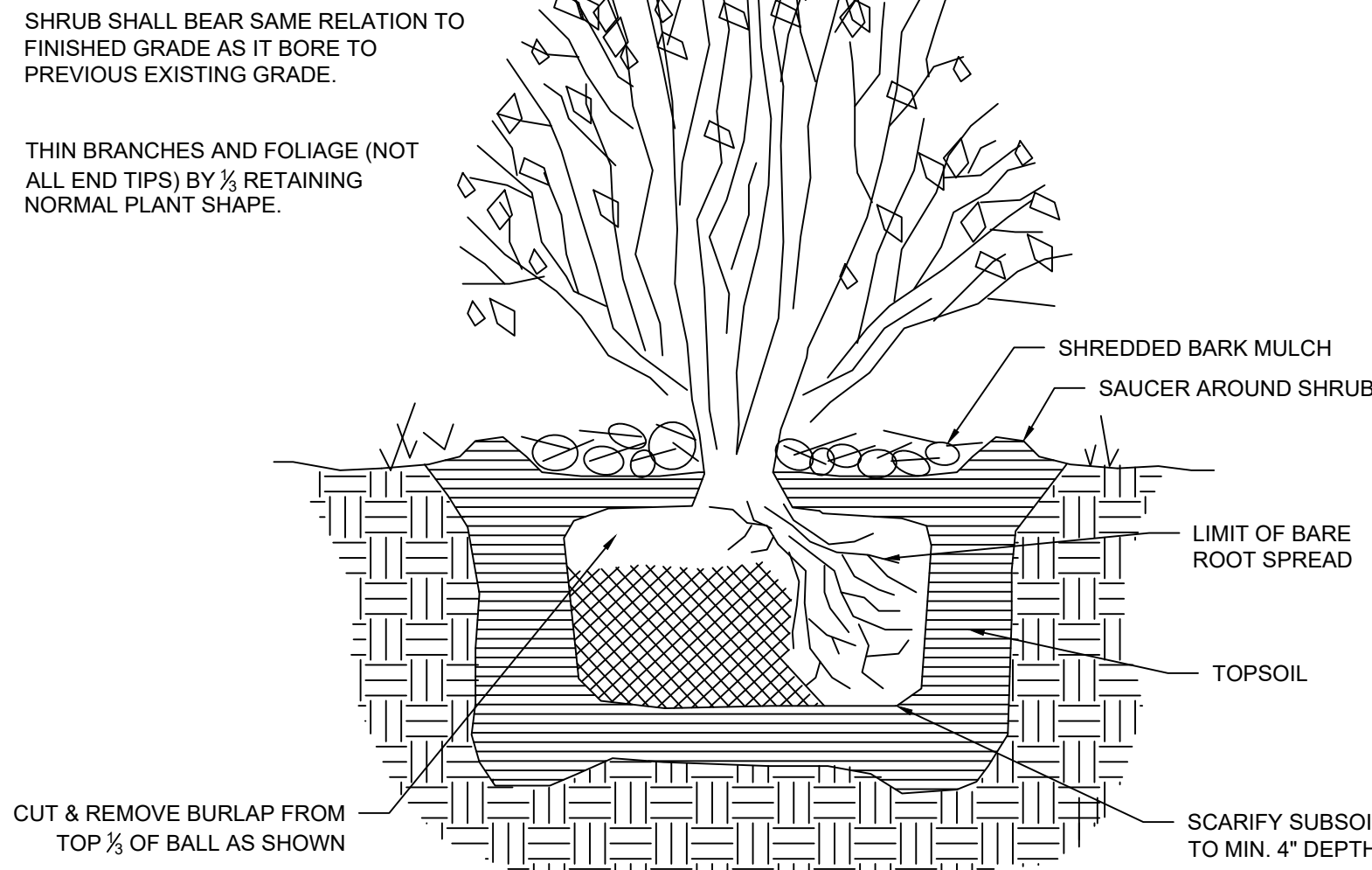
NOTES:  
1. DO NOT DAMAGE MAIN ROOTS OR ROOT BALL WHEN INSTALLING TREE STAKE.  
2. WATER THOROUGHLY AFTER INSTALLATION.  
3. REMOVE SAUCER AND STAKES TWO YEARS OR LESS AFTER INSTALLATION.  
4. CONTRACTOR IS NOT TO USE TREE WRAP.

2  
DT-1

TREE PLANTING DETAIL  
N.T.S.

- OPEN LAWN AND TURF AREAS
- SEED ALL REMAINING PARK AREAS WITH TURF TYPE FESCUE AND PERENNIAL RYEGRASS BLEND (LOFTS - SUMMER STRESS MIX II OR APPROVED EQUIVALENT). INSTALL AT A RATE OF 350 LBS. PER ACRE PER MANUFACTURERS SPECIFICATIONS.
- TOPSOILING, SEEDING AND MULCHING NOTES
- ANY UNDISTURBED AREA ON WHICH ACTIVITY HAS CEASED AND WHICH WILL REMAIN EXPOSED FOR MORE THAN 10 DAYS MUST BE SEEDED AND MULCHED IMMEDIATELY. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE REQUIRED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR SHALL BE SEEDED AND MULCHED WITH A QUICK GROWING TEMPORARY SEEDING MIXTURE AND MULCH. DISTURBED AREAS WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE SEEDED AND MULCHED WITH A PERMANENT SEED MIXTURE AND MULCH.
  - DIVERSIONS, CHANNELS, SEDIMENTATION BASINS, SEDIMENT TRAPS, AND STOCKPILES MUST BE SEEDED AND MULCHED IMMEDIATELY.
  - GRADED AREAS SHALL BE TEMPORARILY SEEDED AND MULCHED IMMEDIATELY FOLLOWING EARTH MOVING PROCEDURES. TEMPORARY SEED SHALL BE ANNUAL RYE GRASS APPLIED AT A RATE OF 3 LBS. PER 1000 SQ. FT.
  - AFTER SEEDING, HAY OR STRAW MULCH MUST BE APPLIED AT A RATE OF AT LEAST 3.0 TONS PER ACRE. MULCH SHALL BE ANCHORED BY EITHER CRIMPING WITH A COULTER IMPLEMENT, OR BY STAPLING BIODEGRADABLE NETTING TO THE SURFACE.
  - SITE PREPARATION TO UPLAND AREAS: APPLY 1 TON OF AGRICULTURAL-GRADE LIMESTONE PER ACRE PLUS 10-20-10 FERTILIZER AT THE RATE OF 500 LB. PER ACRE. WORK IN WHERE POSSIBLE. SEEDING OF DISTURBED UPLAND AREAS (BEYOND LIMITS OF RIPARIAN ENHANCEMENT AREA) TO BE DONE USING MIX OF FINE FESCUE AT 35 LBS/ACRE (PURE LIVE SEED) PLUS PERENNIAL RYEGRASS AT 15 LBS/ACRE (PURE LIVE SEED).
  - TOPSOIL SHALL BE A CLEAN FRIABLE LOAM WITH SUFFICIENT ORGANIC CONTENT (2.75%) TO PROMOTE PLANT VIGOR. AMENDMENTS SHALL BE ADDED AS NEEDED TO IMPROVE DEFICIENT SOILS. TOPSOIL SHALL BE RETURNED AT A LOOSE DEPTH OF FIVE INCHES TO ALLOW FOR SETTLEMENT.
  - ESTABLISH PERMANENT SEEDING AS SOON AS POSSIBLE AFTER FINAL GRADING IS COMPLETE. UNLESS OTHERWISE INDICATED, PERMANENT SEEDING SHALL BE SEED MIXTURE SPECIFIED IN TABLE.
  - SEE TABLES FOR SEED SPECIES MIXTURE AND APPLICATION RATES.
  - SEED MIXES ARE AVAILABLE AT ERNST CONSERVATION SEEDS IN MEADVILLE, PA. WEBSITE: WWW.ERNSTSEED.COM OR PHONE: 1-800-873-3321.
  - NATIVE SHRUBS AND HERBACEOUS PLUGS ARE AVAILABLE AT PINELANDS NURSERY AND SUPPLY, COLUMBUS NJ. WEBSITE: WWW.PINELANDSNURSERY.COM OR PHONE 1-800-667-2729

- GENERAL LANDSCAPING NOTES
- ALL PLANT MATERIALS SHALL CONFIRM TO THE AMERICAN ASSOCIATION OF NURSERYMEN'S AMERICAN STANDARD FOR NURSERY STOCK (LATEST EDITION)
  - INSPECTION OF PLANTING BEDS - THE LANDSCAPE ARCHITECT SHALL INSPECT ALL PLANTING AREAS BEFORE ANY TOPSOILING OR PLANTING IS BEGUN TO INSURE THAT ADEQUATE DRAINAGE EXISTS. IF ANY AREAS TO BE LANDSCAPED SHOW EVIDENCE OF POOR DRAINAGE, THE LANDSCAPE ARCHITECT SHALL NOTIFY THE OWNER IMMEDIATELY FOR CORRECTIVE ACTION
  - THE LANDSCAPE ARCHITECT SHALL APPROVE ALL PLANT MATERIAL AND STAKED PLANT LOCATIONS PRIOR TO INSTALLATION. ALL HERBACEOUS PLUG PLANTINGS SHALL BE A MINIMUM 3 INCH DEPTH. PLUGS SHALL BE PLANTED 1 FOOT O.C. AS INDICATED ON PLAN.
  - ALL TREES, SHRUBS, AND GROUNDCOVER SHALL BE PLACED IN CONTINUOUS MULCHED BEDS 4" IN DEPTH. MUCH SHALL BE TRIPLE SHREDDED HARDWOOD.
  - ALL TREES, SHRUBS, AND GROUNDCOVER SHALL BE AS SPECIFIED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS AND COMMENTS NOTED ON THE DRAWINGS.
  - TOPSOIL SHALL BE PROVIDED BY THE LANDSCAPE CONTRACTOR FOR PLANTING ACCORDING TO THE PLANS AND DETAILS.
  - PREPARED TOPSOIL FOR BACKFILLING AROUND TREE BALLS SHALL BE A MIXTURE OF VOLUME OF THE FOLLOWING MATERIALS IN QUANTITIES SPECIFIED: 1/2 COMPOST, 1/2 TOPSOIL
  - ALL HERBACEOUS PLUG PLANTINGS SHALL BE MINIMUM 3 INCH DEPTH. PLUGS SHALL BE PLANTED 1 FOOT O.C. AS INDICATED ON PLAN.



NOTES:  
1. DEER PROTECTION REQUIRED AROUND SHRUB PLANTINGS.

3  
DT-1

SHRUB PLANTING DETAIL  
N.T.S.

Habitat Zone	~ Coverage	~ Planting Area	Plantings++	Plant Quantity
1 (Salt Marsh - Wettest)	90% Phrag 5% Woody cover 5% Open	~95% needs to be planted  111,530 ft2 27,883 plantlings	Salt-meadow grass Spike grass Marsh elder <b>Groundsel bush</b> <b>Bayberry</b> Seaside goldenrod Rose mallow Indigo bush	6971 6971 3134 702 702 3134 3134 3134
2 (Floodplains - Facultative)	25% Phrag 30% Woody cover 45% Open	~70% needs to be planted  188,850 ft2 0.03 plants/ft2 5,666 plantlings	<b>Swamp white oak</b> <b>Black (Sour) gum</b> <b>River birch</b> Red maple Pin oak Shadbush/Serviceberry <b>Common elder (Elderberry)</b> <b>Arrowwood viburnum</b>	661 661 661 61 61 61 900 900
3 (Woody Uplands - Dry)	50% Woody cover 50% Open	~50% needs to be planted  82,765 ft2 0.03 plants/ft2 2483 plantlings	<b>Arrowwood viburnum</b> <b>Eastern red cedar</b> Red maple Black cherry Scarlet oak Flowering dogwood	311 311 207 207 103 103
4 (Meadow - Driest)	40% Woody cover 60% Open	~60% needs to be planted  65,650 ft2 Seeding	<b>Big bluestem</b> <b>Switchgrass</b> Broomsedge bluestem Smooth oxeye Little bluestem Seaside goldenrod Blue vervain Swamp milkweed	   Seeding

ZONE 1: SALT MARSH

<i>Spartina patens</i>	Salt-meadow grass
<i>Distichlis spicata</i>	Spike grass
<i>Iva frutescens</i>	Marsh elder
<i>Baccharis halimifolia</i>	Groundsel bush
<i>Myrica pensylvanica</i>	Bayberry
<i>Solidago sempervirens</i>	Seaside goldenrod
<i>Hibiscus moscheutos</i>	Rose mallow
<i>Amorpha fruticosa</i>	Indigo bush

ZONE 2: FLOODPLAIN FOREST

<i>Quercus bicolor</i>	Swamp white oak
<i>Nyssa sylvatica</i>	Black (Sour) gum
<i>Betula nigra</i>	River birch
<i>Acer rubrum</i>	Red maple
<i>Quercus palustris</i>	Pin oak
<i>Amelanchier canadensis</i>	Shadbush/Serviceberry
<i>Sambucus canadensis</i>	Common elder (Elderberry)
<i>Viburnum dentatum</i>	Arrowwood viburnum

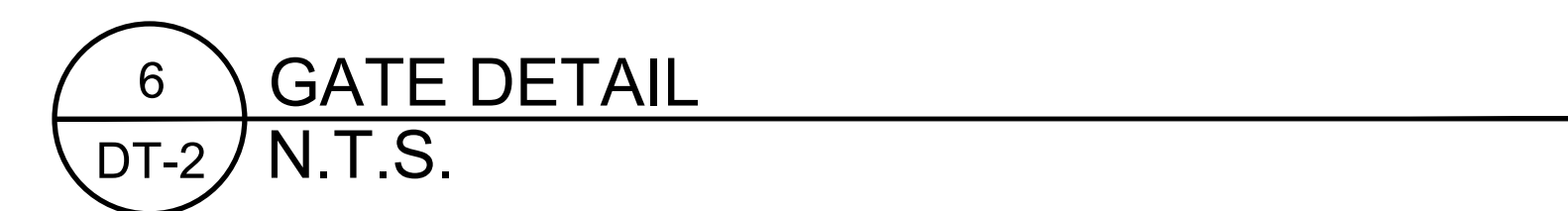
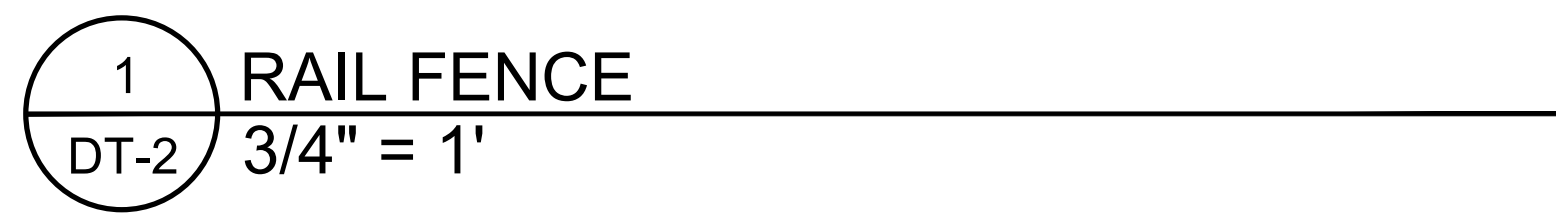
ZONE 3: WOODY UPLAND

<i>Viburnum dentatum</i>	Arrowwood viburnum
<i>Juniperus virginiana</i>	Eastern red cedar
<i>Acer rubrum</i>	Red maple
<i>Prunus serotina</i>	Black cherry
<i>Quercus coccinea</i>	Scarlet oak
<i>Cornus florida</i>	Flowering dogwood

ZONE 4: MEADOW

<i>Andropogon gerardii</i>	Big bluestem
<i>Panicum virgatum</i>	Switchgrass
<i>Andropogon virginicus</i>	Broomsedge bluestem
<i>Heliopsis helianthoides</i>	Smooth oxeye
<i>Schizachyrium scoparium</i>	Little bluestem
<i>Solidago sempervirens</i>	Seaside goldenrod
<i>Verbena hastata</i>	Blue vervain
<i>Aesclepias incarnata</i>	Swamp milkweed



[illegible]