NORTH SHORE DRIVE (ROUTE 4728)

NORTHGATE SQUARE

START LAKE ANNE EAST RESTORATION DOWNSTREAM OF EXISTING COVERED BRIDGE. (STA: 12+60)

NORTHGATE CONDO TEMPORARY EASEMENTS D.B. 21762, PGS. 1323,1327

NORTHGATE CONDOMINIUMS

TRIBUTARY #2

TRIBUTARY #1

TRIBUTARY #3

LAKE ANNE EAST

INLET CLUSTER RESTON ASSOCIATION

TEMPORARY ACCESS PATH

RESTON ASSOCIATION CHATHAM COLONY

RESTON ASSOCIATION WYNDEMERE CLUSTER

CHATHAM COLONY STREAM RESTORATION EASEMENTS D.B. 21844, PGS. 1641, 1647

RESTON ASSOCIATION STREAM RESTORATION EASEMENTS D.B. 21712, PG. 1797,1804

INLET CLUSTER TEMPORARY EASEMENTS D.B. 21762, PGS. 1262, 1267

INLET COURT (ROUTE 5330)

LAKE ANNE EAST CONSTRUCTION ACCESS

1. ACCESS TO THE STAGING AREA WILL BE FROM INLET COURT.

2. CONSTRUCTION TRAFFIC ON INLET COURT SHALL BE LIMITED TO MATERIALS AND EQUIPMENT DELIVERIES ONLY. CONSTRUCTION STAFF PARKING IS PROVIDED IN THE RESTON ASSOCIATION PAVILION PARKING AREA ADJACENT TO NORTH SHORE DRIVE.

STAGING AND STOCKPILE AREA

LAKE ANNE

MOORINGS CLUSTER

END LAKE ANNE EAST RESTORATION BY TYING INTO EXISTING CONCRETE DITCH (STA: 23+81).

MOORINGS DRIVE (ROUTE 4737)

WATERS EDGE LANE

1993 COUNTY-MAPPED RPA

11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 23+81

LOC-TP LTS RPA

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET) 1 inch = 50 feet

LOCATION MAP
1" = 250'

NORTH SHORE DRIVE
NORTHGATE SQUARE
LAKE ANNE EAST
MOORINGS DRIVE
WIEHLE AVENUE
INLET COURT
LAKE ANNE

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Overall Site Exhibit

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FRANK R. GRAZIANO
Lic. No. 032099
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By:	App. By:

SCALE: 1" = 50'

DATE: MARCH 2012

Horizontal Datum: VCS NAD 83

Vertical Datum: NGVD 29

Boundary and Topo Source: WSSI and Fairfax Digital Data

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NAS	NAS	FRG

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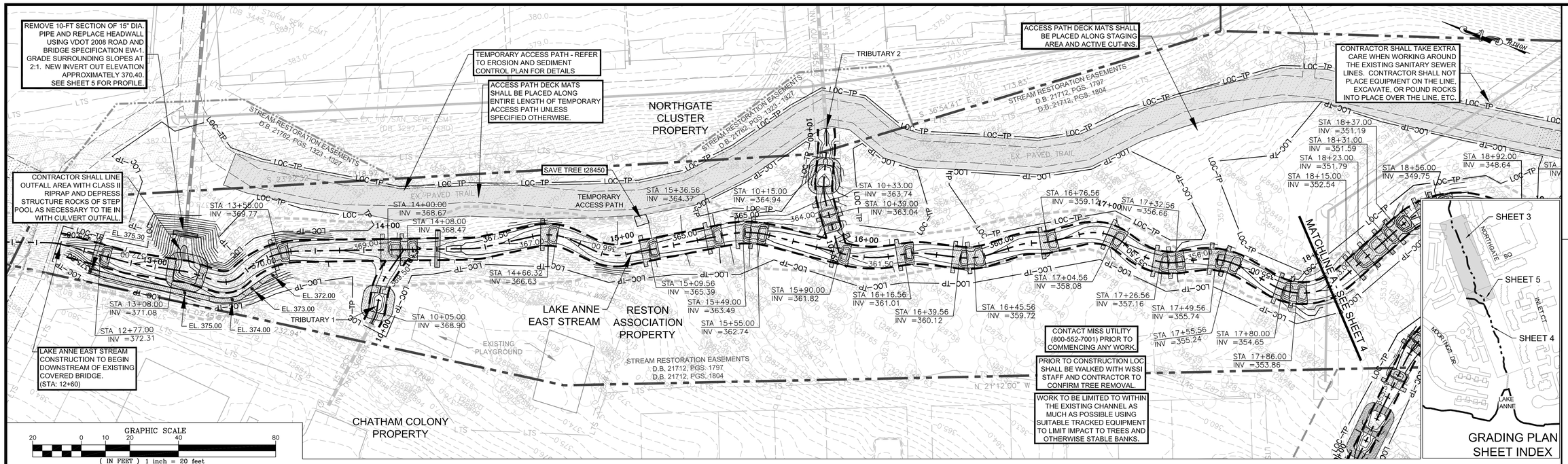
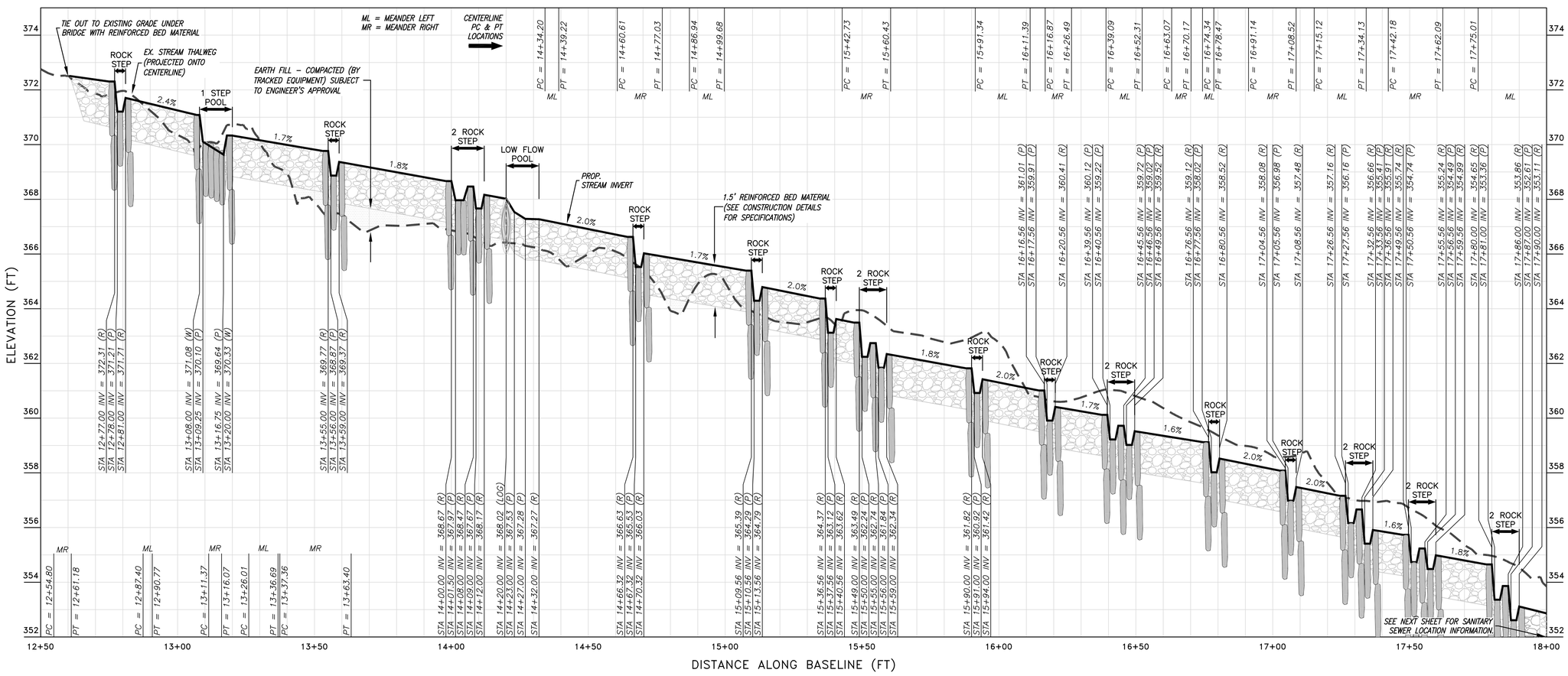


GRADING PLAN SHEET INDEX

REFER TO SHEET 5 FOR GRADING AND PROFILE LEGENDS

LONGITUDINAL PROFILE – LAKE ANNE EAST (STA: 12+50 – 18+00)



LONGITUDINAL PROFILE
SCALE: H: 1"=20' V: 1"= 2'

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Grading Plan and Longitudinal Profile

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3 of 49

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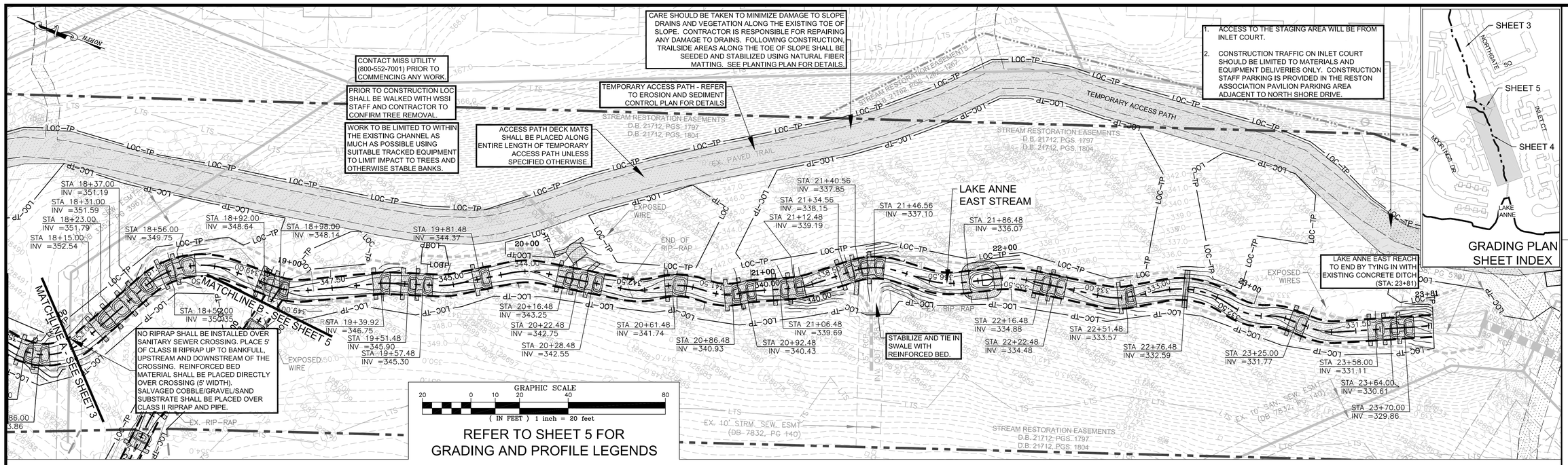
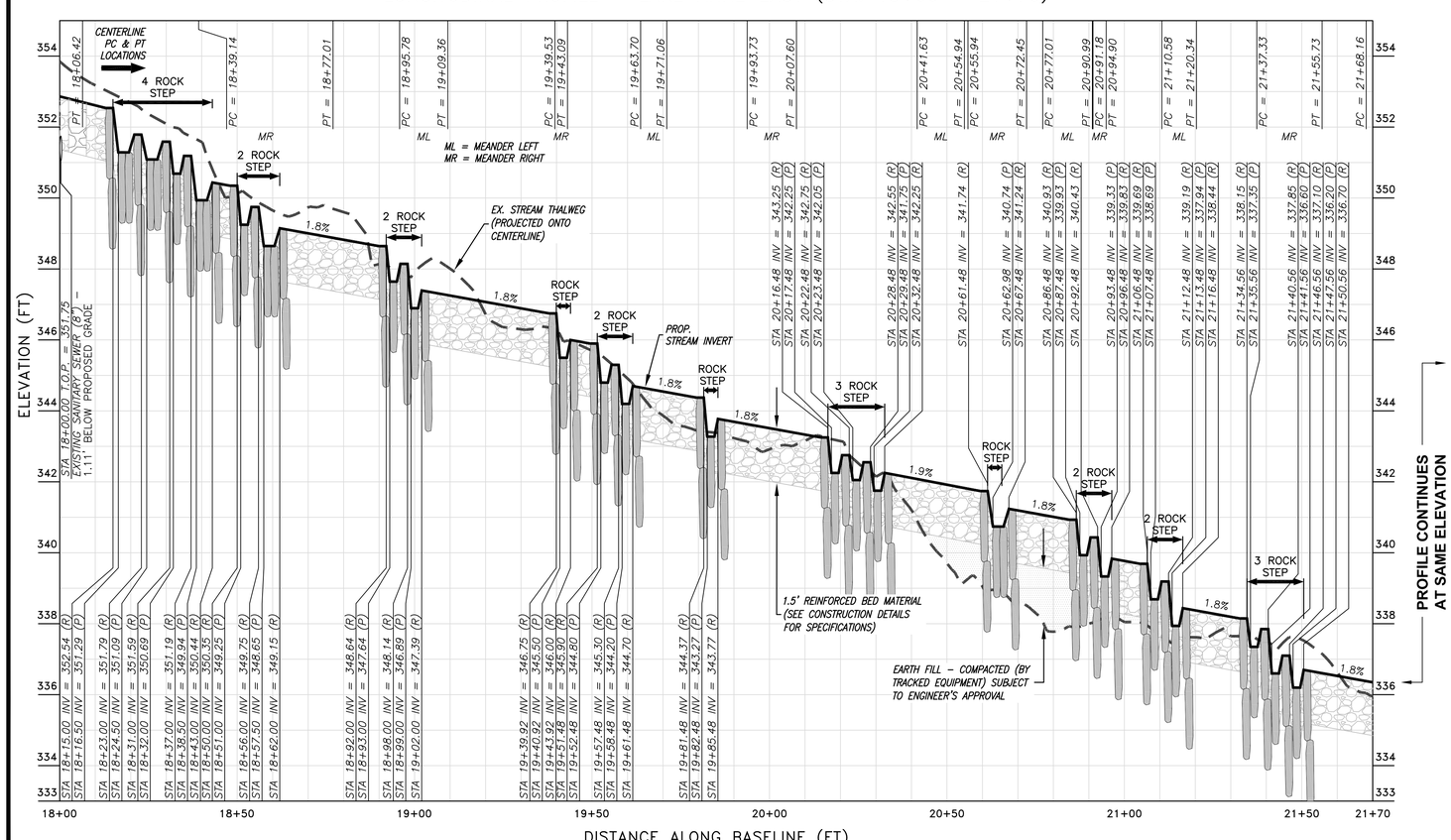
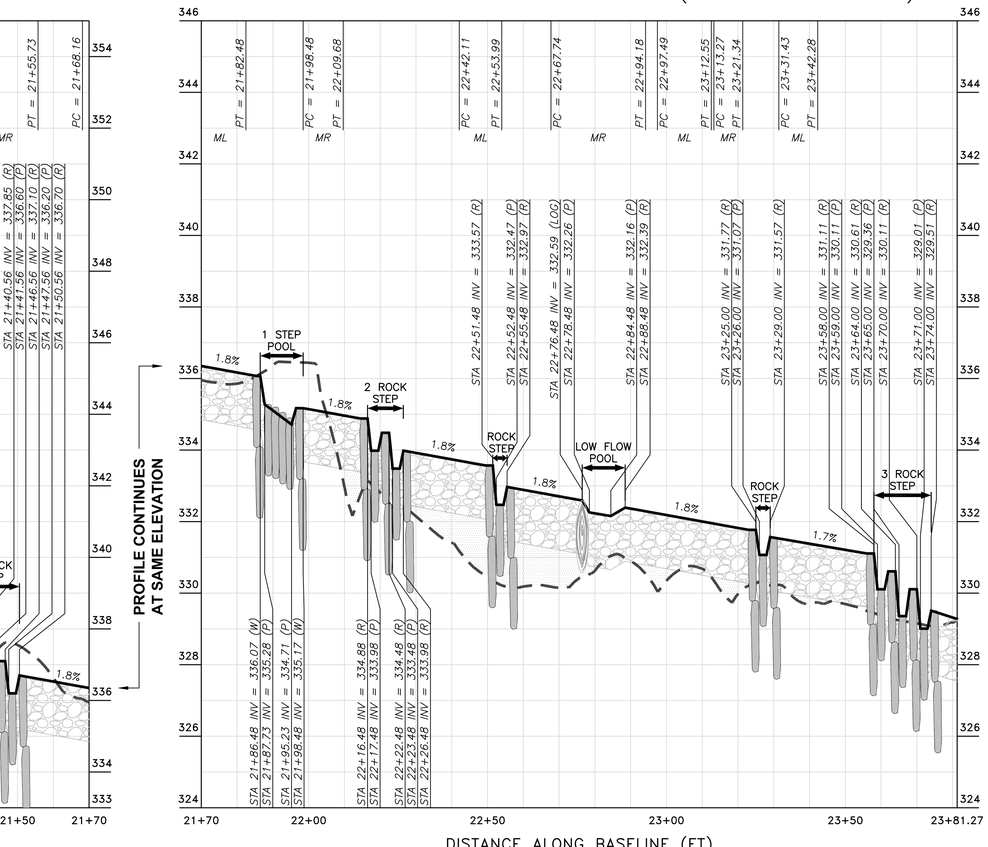


LONGITUDINAL PROFILE – LAKE ANNE EAST (STA: 18+00 – 21+70)



LONGITUDINAL PROFILE – LAKE ANNE EAST (STA: 21+70 – 23+81)



LONGITUDINAL PROFILE
SCALE: H: 1"=20' V: 1"= 2'

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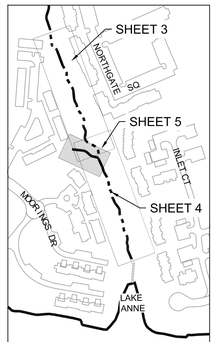
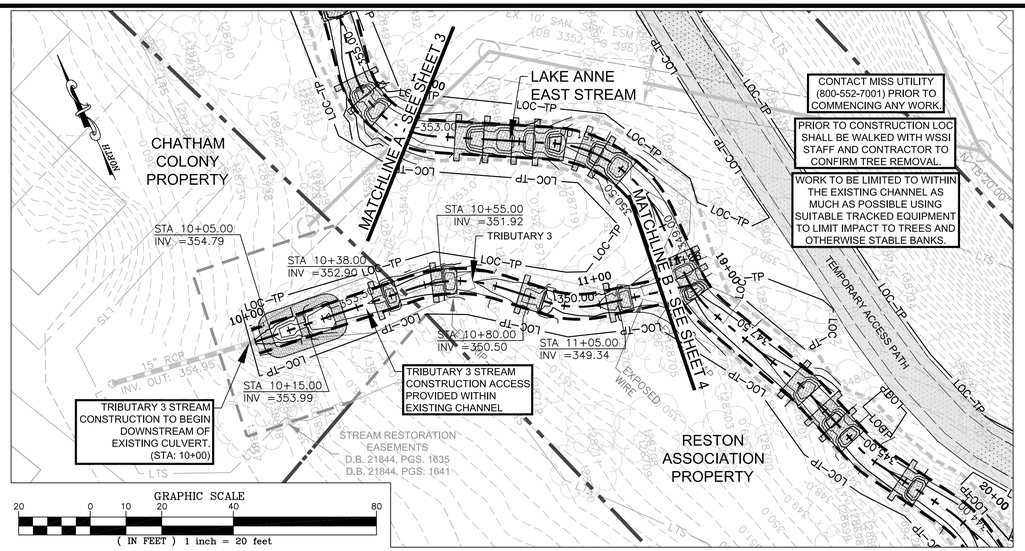


GRADING PLAN SHEET INDEX

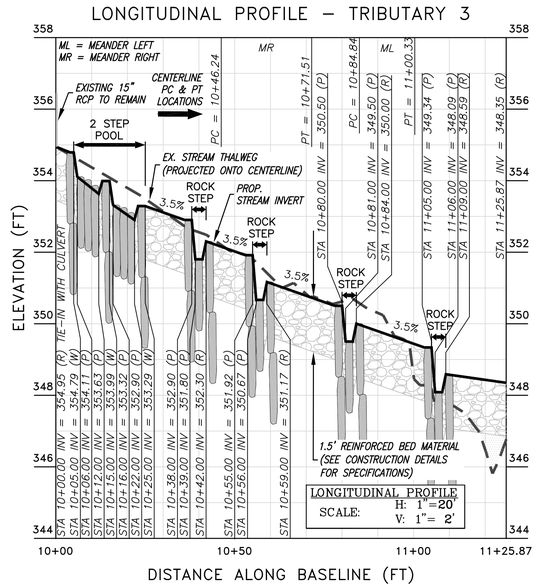


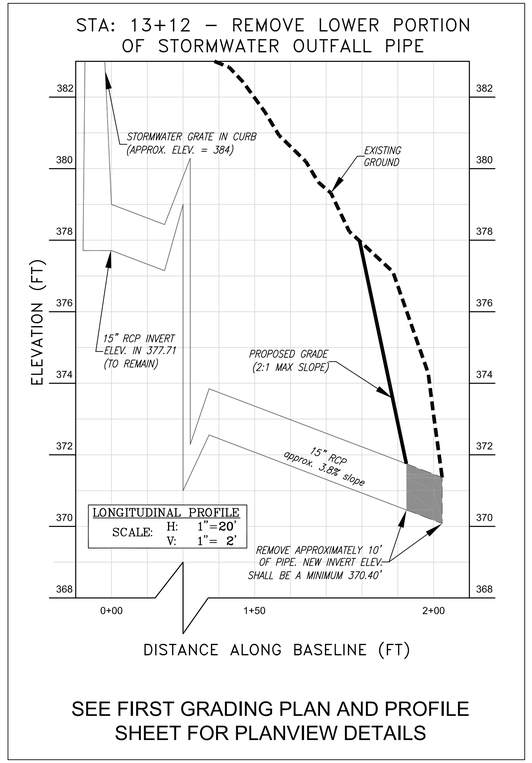
GRADING LEGEND

- PROPERTY BOUNDARY
- COMBINED PROPERTY BOUNDARY, STREAM ESMNT, AND TEMP. GRADING & CONST. / INGRESS-EGRESS ESMNT
- COMBINED STREAM ESMNT AND TEMP. GRADING & CONST. / INGRESS-EGRESS ESMNT
- TEMP. GRADING & CONSTRUCTION ESMNT / INGRESS-EGRESS ESMNT
- EXISTING EASEMENTS
- EXISTING INFRASTRUCTURE
- EXISTING CONTOURS (0.5')
- PROPOSED CONTOURS (0.5')
- NONPERENNIAL STREAM (EXISTING TOP OF BANK)
- PROPOSED CENTERLINE
- PROPOSED TOP OF BANK
- LOC–TP — LIMITS OF CLEARING / TREE PROTECTION
- PROPOSED ROCK STEP
- PROPOSED IMBRICATED ROCK WALL
- PROPOSED STEP POOL
- ACCESS PATH
- LOC — LIMITS OF CLEARING
- X–CLF — CHAINLINK FENCE

PROFILE LEGEND

- EXISTING STREAM INVERT PROJECTED TO PROPOSED CENTERLINE
- PROPOSED STREAM INVERT ALONG PROPOSED CENTERLINE
- STRUCTURE ROCKS
- REINFORCED BED
- EARTH FILL
- MR — PC = 0+37.66 — PT = 0+96.52 — PC & PT LOCATIONS WITH LINE OR CURVE DESIGNATION REFERENCED FROM STAKEOUT DATA





SEE FIRST GRADING PLAN AND PROFILE SHEET FOR PLANVIEW DETAILS

GRADING NOTES:

1. PROPOSED CONTOURS ARE INTENDED TO DEPICT OVERALL GRADING CONCEPT. DUE TO IRREGULARITY OF ROCK SHAPES, CONTOURS DEPICTING POOL GRADING WITHIN STRUCTURES ARE APPROXIMATE. SPECIFICATIONS FOR GRADING IN VICINITY OF STRUCTURES ARE PROVIDED IN TYPICAL SECTIONS AND CONSTRUCTION DETAILS. THE SPECIFICATIONS IN THE CONSTRUCTION DETAILS TAKE PRECEDENCE OVER THE CONTOURS DEPICTED ON THE GRADING PLAN.
2. TREE PROTECTION FENCING SHALL BE PLACED AROUND ALL AREAS OF TREES TO BE PRESERVED ADJACENT TO THE LIMITS OF CLEARING AND GRADING.
3. IT IS ASSUMED THAT ALL TREES WITHIN THE LIMITS OF CLEARING WILL NOT BE REMOVED. PRIOR TO CONSTRUCTION THE LIMITS OF CLEARING (LOC) SHALL BE WALKED BY WSSI STAFF TO CONFIRM TREE REMOVAL. IN THE EVENT THAT THE CONTRACTOR BELIEVES A TREE WITHIN THE LOC COULD BE SAVED, THE CONTRACTOR SHALL CONTACT WETLAND STUDIES AND SOLUTIONS, INC. AND HAVE THE PROJECT ENGINEER DETERMINE IF THE TREE SHOULD BE SAVED OR REMOVED.
4. REFER TO THE GEOMETRY PLAN FOR TRAVERSE LOCATIONS AND ELEVATIONS.
5. ALL STREAM BEDS REQUIRE 1.5 FT OF REINFORCED BED MATERIAL. FOR CLARITY IT IS NOT SHOWN IN STREAM BEDS WHERE GRADING IS DEPICTED.

CONSTRUCTION ACCESS NOTES:

1. ACCESS TO THE STAGING AREA WILL BE FROM INLET COURT.
2. CONSTRUCTION TRAFFIC ON INLET COURT SHOULD BE LIMITED TO MATERIALS AND EQUIPMENT DELIVERIES ONLY. CONSTRUCTION STAFF PARKING IS PROVIDED IN THE RESTON ASSOCIATION PAVILION PARKING AREA ADJACENT TO NORTH SHORE DRIVE.
3. CARE SHOULD BE TAKEN TO MINIMIZE DAMAGE TO SLOPE DRAINS AND VEGETATION ALONG THE EXISTING TOE OF SLOPE ADJACENT TO THE ACCESS ROAD AND INLET CLUSTER PROPERTY. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO DRAINS. FOLLOWING CONSTRUCTION, TRAILSIDE AREAS ALONG THE TOE OF SLOPE SHALL BE SEEDED AND STABILIZED USING NATURAL FIBER MATTING. SEE PLANTING PLAN FOR DETAILS.

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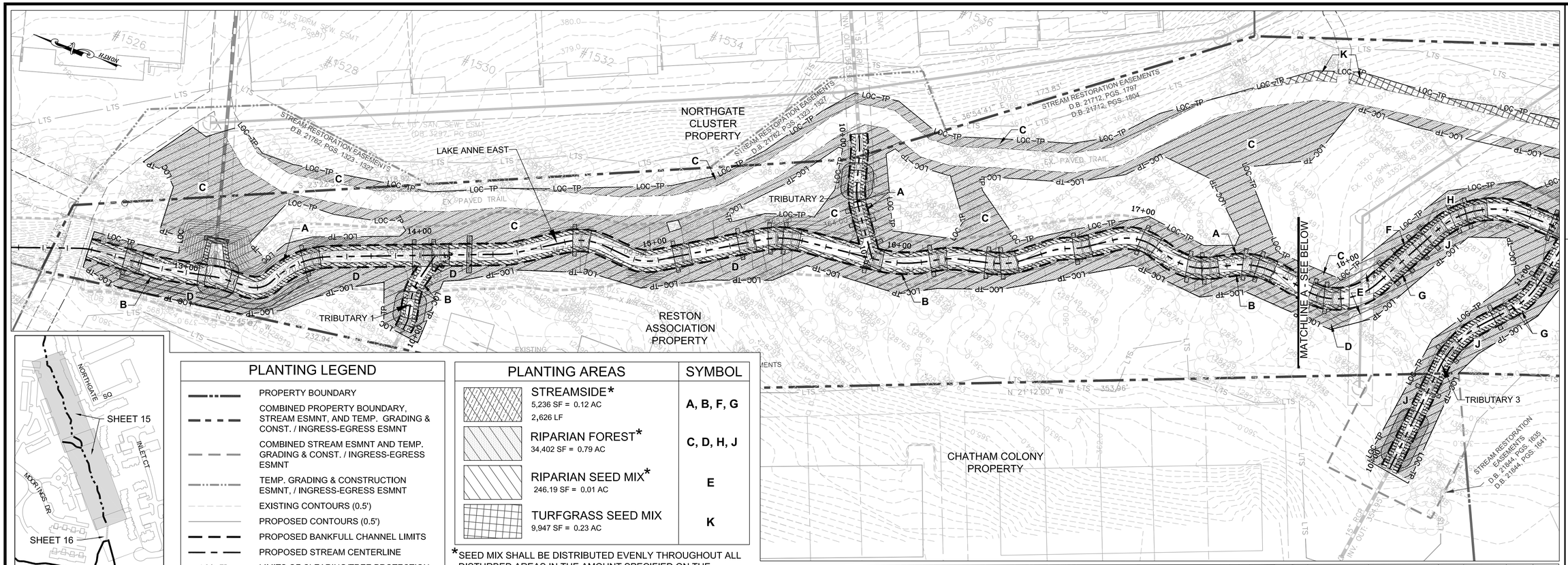
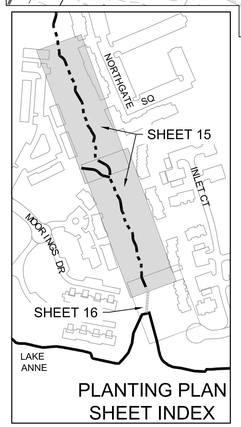




PLANTING PLAN SHEET INDEX

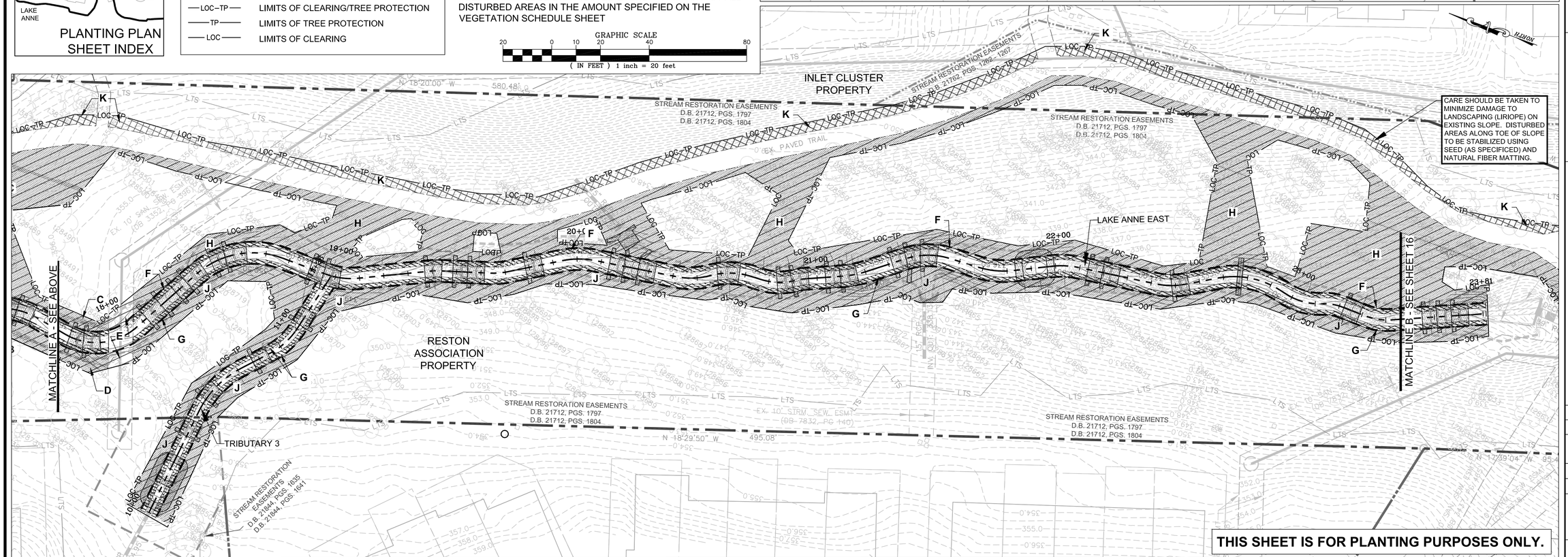
PLANTING LEGEND

- PROPERTY BOUNDARY
- COMBINED PROPERTY BOUNDARY, STREAM ESMNT, AND TEMP. GRADING & CONST. / INGRESS-EGRESS ESMNT
- COMBINED STREAM ESMNT AND TEMP. GRADING & CONST. / INGRESS-EGRESS ESMNT
- TEMP. GRADING & CONSTRUCTION ESMNT, / INGRESS-EGRESS ESMNT
- EXISTING CONTOURS (0.5')
- PROPOSED CONTOURS (0.5')
- PROPOSED BANKFULL CHANNEL LIMITS
- PROPOSED STREAM CENTERLINE
- LOC—TP — LIMITS OF CLEARING/TREE PROTECTION
- TP — LIMITS OF TREE PROTECTION
- LOC — LIMITS OF CLEARING

PLANTING AREAS	SYMBOL
STREAMSIDE* 5,236 SF = 0.12 AC 2,626 LF	A, B, F, G
RIPARIAN FOREST* 34,402 SF = 0.79 AC	C, D, H, J
RIPARIAN SEED MIX* 246.19 SF = 0.01 AC	E
TURFGRASS SEED MIX 9,947 SF = 0.23 AC	K

*SEED MIX SHALL BE DISTRIBUTED EVENLY THROUGHOUT ALL DISTURBED AREAS IN THE AMOUNT SPECIFIED ON THE VEGETATION SCHEDULE SHEET

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET) 1 inch = 20 feet



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Planting Plan

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Sheet # 15 of 49

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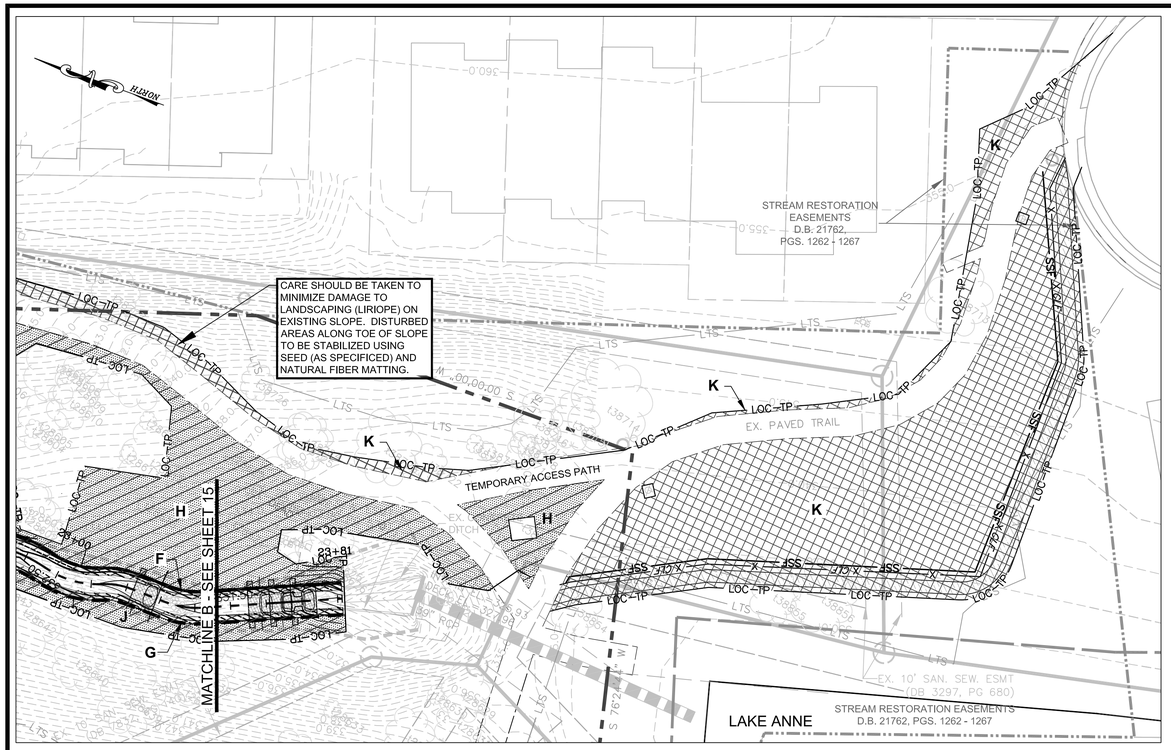

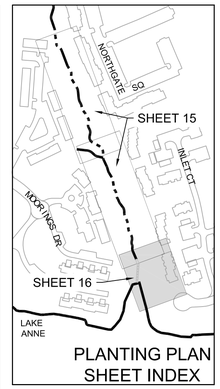

THIS SHEET IS FOR PLANTING PURPOSES ONLY.

REFER TO FIRST PLANTING PLAN SHEET FOR LEGENDS

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET) 1 inch = 20 feet

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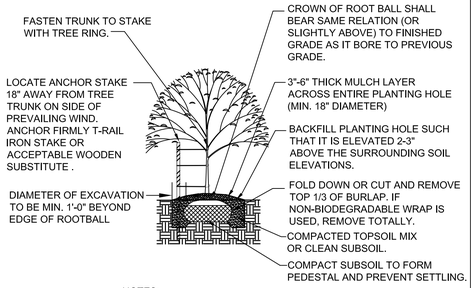
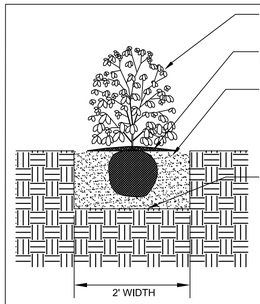


NOTES:
1. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKE.
2. WATER THOROUGHLY SUBSEQUENT TO INSTALLATION.
3. REMOVE HOSE AND STAKE AT END OF GUARANTEE PERIOD.

B&B DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

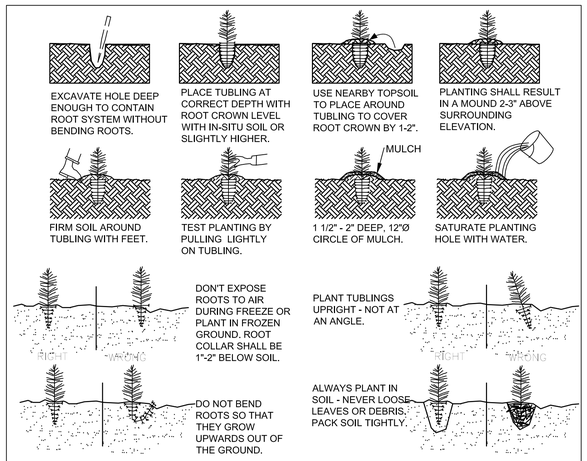


NOTE:
A CONTAINER SHRUB SHALL BE IN THAT CONTAINER SUFFICIENT TIME THAT FIBROUS ROOTS ARE FORMED SO THAT THE SHAPE WILL REMAIN AND THE MEDIUM WILL HOLD TOGETHER WHEN REMOVED FROM THE CONTAINER.

CONTAINER SHRUB PLANTING DETAIL

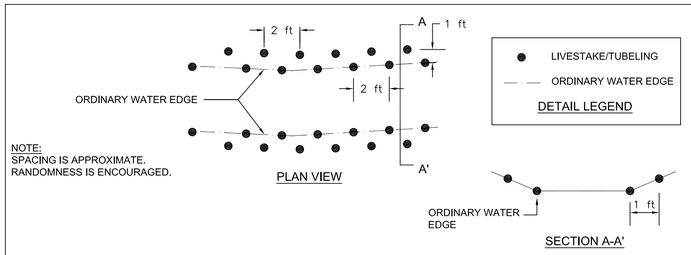
NOT TO SCALE

THIS PLAN IS FOR PLANTING PURPOSES ONLY.



PLANTING TUBLINGS

NOT TO SCALE



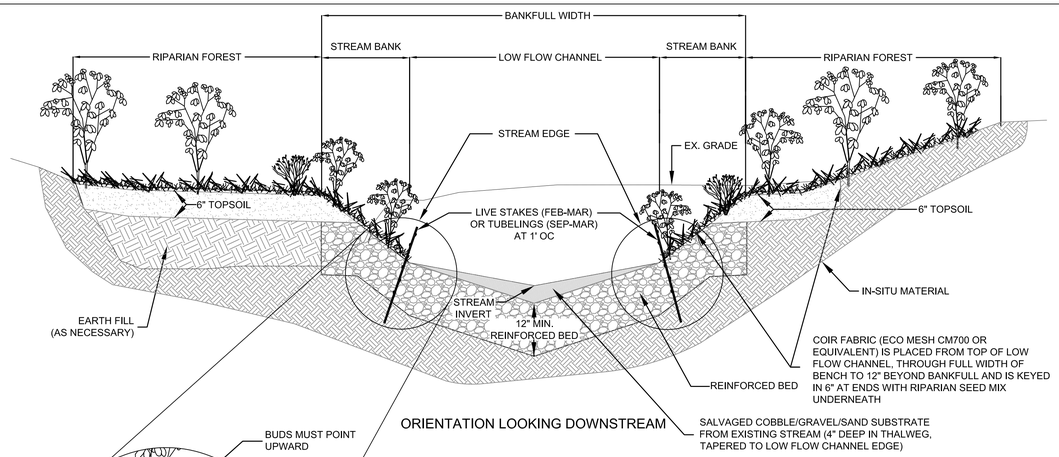
NOTE:
SPACING IS APPROXIMATE.
RANDOMNESS IS ENCOURAGED.

PLAN VIEW

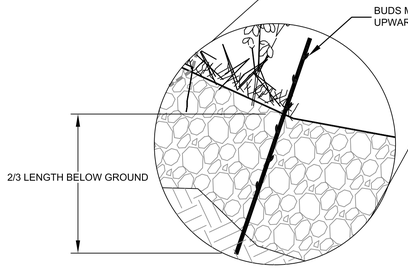
STREAM EDGE PLACEMENT DETAIL

NOT TO SCALE

PLEASE REFER TO PLANTING PLAN SHEETS FOR LEGEND



ORIENTATION LOOKING DOWNSTREAM



LIVE STAKE CROSS SECTION THROUGH STREAM BANK

LIVE STAKE PLANTING NOTES

1. A TOOL CALLED A PLANTING BAR MAY BE USED TO PUNCH A HOLE FOR THE CUTTING. IN SOFTER SOILS, LIVE STAKES CAN SOMETIMES BE DIRECTLY PUSHED OR HAMMERED IN.
2. ROOTS SHALL BE TREATED WITH ROOT HORMONE PRIOR TO PLANTING.
3. LIVE STAKES SHOULD BE 18" TO 24" IN LENGTH AND $\frac{3}{4}$" TO $1\frac{1}{2}$" IN DIAMETER.
4. INSTALL THE LIVE STAKE WITH THE CORRECT SIDE UP (SEE DETAIL THIS SHEET). LIVE STAKES SHOULD BE CUT ON AN ANGLE ON THE BOTTOM AND FLAT ON THE TOP. WHEN HELD WITH THE CORRECT END UP, THE BUDS MUST POINT UPWARD.
5. TWO-THIRDS ($\frac{2}{3}$) OF THE LIVE STAKE LENGTH MUST BE PLANTED BELOW GRADE. DEEPER IS FINE, AS LONG AS A FEW BUDS ARE EXPOSED AT THE TOP.
6. TAMP IN AROUND THE CUTTING TO ENSURE THAT THERE ARE NO AIR POCKETS ALONG THE STEM. YOU CAN PUSH THE PLANTING BAR INTO THE SOIL IMMEDIATELY AROUND THE STEM AND PUSH IN THE SOIL TOWARD THE PLANT.
7. REFER TO LIVESTAKE/TUBELING PLACEMENT DETAIL FOR SPECIFIC DETAILS OF PLANT PLACEMENT ALONG STREAM BANK.

RESTORED STREAM PLANTING DETAIL

NOT TO SCALE

k:\Cadd Files\Stream Restoration\Details\-D-LiveStake.dwg

PLANTING SPECIFICATIONS

1. PLAN DETAILS ARE INCORPORATED INTO THIS SPECIFICATION BY REFERENCE.
2. THE SUPPLIER OF ALL SEEDS AND/OR VEGETATION SHALL CERTIFY THAT THE ORIGIN OF THE SEEDS FROM WHICH THE PLANTS OR SEEDS WERE PRODUCED IS FROM HARDINESS ZONES 6 AND 7, FROM THE EASTERN OR CENTRAL PORTIONS OF THE U.S., PRIOR TO PLANTING.
3. ANY NURSERY SUPPLYING THE STOCK SHALL PROVIDE A CURRENT NURSERY INSPECTION CERTIFICATE FROM THE STATE DEPARTMENT OF AGRICULTURE, OR PROVIDE AT LEAST THIRTY DAYS ADVANCE NOTICE FOR WETLAND STUDIES AND SOLUTIONS, INC. (WSSI) TO INSPECT THE PLANT SOURCE AREAS AT WSSI'S DISCRETION. ANY SUCH INSPECTION IS NOT DEEMED APPROVAL OF THE PLANT MATERIALS.
4. ALL PLANTS SHALL BE SET STRAIGHT, OR PLUMB.
5. PLANTING SHALL ONLY BE PERMITTED BETWEEN SEPTEMBER 30 AND MARCH 31. NO PLANTING SHALL OCCUR WHEN THE SOIL IS FROZEN. SEEDING SHALL BE COMPLETED DURING MARCH THROUGH MAY OR SEPTEMBER THROUGH NOVEMBER. THESE TIME LIMITS MAY NOT BE MODIFIED UNLESS APPROVED BY WETLAND STUDIES AND SOLUTIONS, INC., IN ADVANCE WITH THE RISK OF SURVIVAL BORNE SOLELY BY THE CONTRACTOR.
6. PLANTING HOLES FOR BARE ROOT TREES SHALL BE 1-2" DEEPER THAN THE ROOT COLLAR (I.E. 1-2" DEEPER THAN THEY WERE GROWING IN THE NURSERY). BARE ROOT SEEDLINGS SHALL BE INSTALLED WITH THE USE OF A "SHARPSHOOTER SHOVEL", AS DEPICTED WITHIN THESE PLANS. THE PLANTING HOLE SHALL BE LARGE ENOUGH TO AVOID THE NEED FOR ROOT TRIMMING WHERE EVER POSSIBLE. NO J-ROOTS (SEE PLANTING DETAILS) SHALL BE ALLOWED; IT IS EXTREMELY CRITICAL THIS BE ADHERED TO FOR EVERGREENS. BARE ROOT STOCK SHALL BE PLANTED WITH THEIR ROOT-COLLAR 1 TO 2 INCHES DEEPER THAN THE ADJACENT SOIL ELEVATION, USING ADJACENT SOIL TO CREATE A HUMMOCK OR MOUND THAT THE SEEDLING IS SET WITHIN.
7. PLANTING HOLES FOR CONTAINER GROWN PLANTS SHALL BE ONE FOOT (1') DEEP PLUS THE CONTAINER DEPTH IN WHICH THE PLANT HAS BEEN GROWN AND TWO FEET (2') WIDER THAN CONTAINER.
8. BACKFILL THE PLANTING HOLES WITH THE IN-SITU SOIL MATERIALS REMOVED FOR PLANTING AFTER REMOVING ALL STONES, ROOTS, AND OTHER DEBRIS GREATER THAN 1-1/2" IN DIAMETER.
9. FOLLOWING THE BACKFILLING, WATER TO THE POINT OF SOIL SATURATION (IF NOT PLANTED IN THE "WET") AND TAMP TO COMPACT THE BACKFILL MIXTURE. ADD EXISTING SOIL TO BRING THE FINAL GRADE IN THE PLANTING HOLE TO THE SURROUNDING SOIL SURFACE. RAKE THE UNUSED EXISTING SOIL OUTSIDE THE PLANTING HOLES, TAKING CARE NOT TO MOUND THE SOIL OR TO SIGNIFICANTLY ALTER THE EXISTING GRADES AND THEN PLACE MULCH (MIN. 2" THICK) ATOP ENTIRE PLANTING HOLE (EXCEPT THAT NO MULCH IS REQUIRED FOR EMERGENT PLANTINGS). THE PLANTING HOLE AREAS MUST NOT BE DEPRESSED BELOW THE SURROUNDING SOIL SURFACE ELEVATIONS. SAID AREAS SHALL BE SLIGHTLY RAISED (2-3"), RELATIVE TO THE SOIL SURFACE.
10. AS INDICATED IN THE PLANT LIST, THE SHRUBS THAT ARE SPECIFIED AS CONTAINER GROWN SPECIMENS SHALL BE BETWEEN 15" AND 18" IN HEIGHT. THEY SHALL BE HEALTHY, VIGOROUS, WELL ROOTED AND ESTABLISHED IN THE PLANTING CONTAINER IN WHICH THEY ARE GROWING. A CONTAINER SHRUB SHALL BE IN THAT CONTAINER A SUFFICIENT TIME SUCH THAT FIBROUS ROOTS ARE FORMED SO THE SHAPE WILL REMAIN AND THE MEDIUM WILL HOLD TOGETHER WHEN REMOVED FROM THE CONTAINER (REFER TO AMERICAN STANDARD FOR NURSERY STOCK).
11. DO NOT REMOVE PLANTS FROM CONTAINERS UNTIL IMMEDIATELY BEFORE PLANTING. EXAMINE THE ROOTS TO SEE IF THEY ARE POT BOUND. CAREFULLY SEPARATE ANY POT BOUND OR CRAMPED ROOTS AND SPREAD THEM OUT WHEN PLACING THE PLANT SO THAT THE ROOTS CAN GROW WITHOUT FURTHER CONSTRUCTION OF THE ROOT BALL.
12. FERTILIZE EACH BARE ROOT, PLUG, TUBER, AND PINT CONTAINER PLANT WITH A 5 GRAM TABLET OF CONTROLLED RELEASE FERTILIZER. FERTILIZE EACH QUART CONTAINER WITH A 10 GRAM TABLET. USE A 20 GRAM TABLET OF FERTILIZER WITH EACH 1 GALLON AND 2 GALLON CONTAINER. GENERALLY, FOR EACH 12 TO 18 INCHES OF PLANT HEIGHT OR FOR EACH 1/2" OF TREE DIAMETER AT THE BASE, USE 20 GRAMS FOR SLOW GROWING PLANTS OR 40 GRAMS FOR FAST GROWING PLANTS OR POOR SOIL SITUATIONS. SAID FERTILIZER TABLETS SHALL BE AGRIFORM 20-10-5 OR APPROVED EQUIVALENT, APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
13. AS RECOMMENDED BY THE CONTRACTOR AND APPROVED BY ENGINEER, THE CONTRACTOR SHALL WATER THE PLANTS AS NEEDED DURING THE CARE AND REPLACEMENT PERIOD OR UNTIL FINAL ACCEPTANCE, WHICHEVER IS THE SHORTEST.
14. THE CONTRACTOR IS RESPONSIBLE FOR REPLACING NON- SURVIVING TREES AND SHRUBS DURING THE CARE AND REPLACEMENT PERIOD (12 MONTHS, UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS) OR UNTIL FINAL ACCEPTANCE, WHICHEVER IS THE SHORTEST, AS REQUIRED BY THE TERMS OF THE SURVIVAL WARRANTY SPECIFIED HEREIN AND/OR IN CONTRACT DOCUMENTS. THE SPECIFICATIONS FOR THE REPLACED PLANTS SHALL BE THOSE PROVIDED IN THE PLANT LIST.
15. REFER TO APPLICABLE SKETCHES WITHIN THIS PLAN SET FOR ADDITIONAL GUIDANCE ON PLANTING REQUIREMENTS.
16. INVASIVE AND NOXIOUS WEEDS SHALL BE REMOVED BY HAND WITH LOCALIZED APPLICATIONS OF ROUND-UP WHERE NECESSARY.
17. ALL BARE ROOT SEEDLINGS SHALL BE TREATED WITH ROOT DIP ABSORBENT POLYMERS AND MYCORRHIZAL ROOT DIP INOCULATES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. SAID ROOT DIP SHALL BE MYCORTREE ™ ROOT DIP OR APPROVED EQUAL.

SEEDING SPECIFICATIONS

1. SEED SHALL HAVE BEEN COLLECTED THE SAME YEAR OF SEEDING. A SEED GERMINATION AND PURITY RATE OF 75% IS REQUIRED. EVIDENCE OF SUCH SHALL BE PROVIDED TO OWNER'S REPRESENTATIVE PRIOR TO PLANTING.
2. THE SPECIFIED SEED SHALL BE BROADCAST IN AREAS SPECIFIED ON THE PLANTING PLAN. FOLLOWING SEEDING, MECHANICALLY SOW SEED TO A DEPTH OF 1/8TH OF AN INCH BY THE USE OF A HAND RAKE.
3. THE LANDSCAPE CONTRACTOR SHALL INSPECT THE AREAS AND CONDITIONS UNDER WHICH THE SEEDING WORK IS TO BE PERFORMED PRIOR TO COMMENCING WORK. IF CONDITIONS ARE DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF THE WORK, HE/SHE SHALL NOTIFY THE OWNER'S REPRESENTATIVE VERBALLY AND IN WRITING AND POSTPONE COMMENCING WORK UNTIL THE UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
4. PRIOR TO SEEDING, THE TOP SOIL SHALL BE RAKED SMOOTH AND CLEARED OF ALL STONES LARGER THAN 5" AND TRASH, DEBRIS, BRANCHES AND OTHER MATTER DETRIMENTAL TO THE SUCCESS OF SEEDING.
5. FERTILIZER IS TO BE BROADCAST AND RAKED INTO THE TOP ONE INCH OF TOP SOIL IMMEDIATELY BEFORE SEEDING. FERTILIZER SHALL HAVE A FORMULATION OF 10-10-10 AND BE APPLIED AT A RATE OF 50 POUNDS PER 1000 SQUARE FEET.
6. MULCH SHALL BE STRAW CAN BE SUBSTITUTED IF APPLIED AT A RATE SPECIFIED BY THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, 3RD EDITION, 1992.
7. CARE SHOULD BE EXERCISED TO INSURE UNIFORM SEED COVERAGE IS OBTAINED. SEED SHALL BE APPLIED AT THE RATE SPECIFIED ON THE PLANTING SCHEDULE.
8. FOLLOWING SEEDING, MECHANICALLY SOW SEED TO A DEPTH OF 1/8 OF AN INCH BY THE USE OF A CULTIPACTOR, YORK RAKE, OR HAND RAKE.

PLANTING AND SEEDING SURVIVAL WARRANTY

1. LANDSCAPE CONTRACTOR SHALL GUARANTEE A MINIMUM SURVIVAL RATE OF EACH VEGETATION SPECIES AFTER TWELVE MONTHS OF 85% FOR B&B, CONTAINER GROWN, AND TUBLINGS, AND 60% FOR BARE ROOT AND TUBER STOCK.
2. IF SURVIVAL RATES ARE LESS THAN THE ABOVE WARRANTY RATES, THEN LANDSCAPE CONTRACTOR SHALL REPLACE THE QUANTITY OF DEAD PLANTS WITHIN THE NEXT PLANTING WINDOW (SEPTEMBER 30 TO MARCH 31, EXCLUDING FROZEN GROUND PERIODS) FOLLOWING THE END OF THE APPLICABLE WARRANTY PERIOD.

PRODUCT HANDLING, STORAGE, AND DELIVERY

1. HANDLE PLANTS AT ALL TIMES SO THAT ROOTS OR BALLS ARE ADEQUATELY PROTECTED FROM BREAKAGE OF BALLS, FROM SUN AND DRYING WINDS. PLANTS WITH DRIED OUT TOPS OR ROOTS SHALL BE REJECTED.
2. ALL PLANT MATERIALS SHALL BE STORED AND DELIVERED IN SUCH A FASHION AND FOR TIME INTERVALS CONSISTENT WITH SOUND SILVICULTURAL PRACTICES.
3. PLANT MATERIAL WILL BE TRANSPORTED FROM THE NURSERY TO THE PLANTING AREAS BY SUCH MEANS AS TO AVOID WIND DAMAGE, OVER-CROWDING, OR OTHER MECHANISMS BY WHICH PHYSICAL DAMAGE MAY RESULT TO THE PLANTS.
4. PLANT MATERIAL MAY BE RANDOMLY INSPECTED BY THE DESIGN ENGINEER UPON ARRIVAL AT EACH PLANTING AREA AND DURING PLANTING ACTIVITIES. MATERIAL FOUND TO BE UNACCEPTABLE WILL BE REJECTED AND THE CONTRACTOR WILL BE REQUIRED TO SUPPLY REPLACEMENT MATERIAL WITHIN A REASONABLE TIME FRAME (I.E. 1-WEEK). UNACCEPTABLE MATERIAL IS TO BE DEFINED AS THE FOLLOWING:
   (A) PLANTS WITH BENT TRUNKS OR MULTIPLE LEADERS, UNLESS CHARACTERISTICS FOR THE SPECIES;
   (B) PLANTS WITH DISEASED TRUNKS, STEMS, OR LEAVES;
   (C) PLANTS WITH PEST-INFESTED TRUNKS, STEMS, OR LEAVES;
   (D) PLANTS OF INSUFFICIENT SIZE (LESS THAN A SPECIFIED HEIGHT);
   (E) PLANTS OF THE WRONG SPECIES/SUB-SPECIES;
   (F) PLANTS HAVING ROOT GIRDLING IN THE CONTAINER;

   UNLESS OTHERWISE APPROVED BY THE DESIGN ENGINEER. JUSTIFICATION FOR USE OF TENTATIVELY REJECTED MATERIAL MAY BE PRESENTED TO THE DESIGN ENGINEER.

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Planting Notes and Details

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COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
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PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

SCALE: N/A
DATE: MARCH 2012

Horizontal Datum: N/A
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LAKE ANNE EAST VEGETATION SCHEDULE

PLANTING SCHEDULE

CONTAINER PLANTING ZONE		SPECIES GROUP[1,2]	SPECIES[2]	INDICATOR STATUS	WILDLIFE VALUE: FUNCTIONS	WILDLIFE VALUE: PRIMARY SPECIES	WILDLIFE VALUE: PLANT PART	WILDLIFE VALUE: SEASON	PLANT SPACING[3]	CONTAINER SIZE, RATE, AND QUANTITY[4]: PLANTS PER ACRE	CONTAINER SIZE, RATE, AND QUANTITY[4]: # OF PLANTS
RIPARIAN FOREST	TREE LAYER	1	QUERCUS ALBA (WHITE OAK)	FACW	Food	Blue jays, woodpeckers, turkey, deer, fox, raccoons, squirrels; other small mammals	Nuts	Fall, Winter	SEE NOTE #3	300 ONE GAL -- or -- 600 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	102 (BASED ON ONE-GALLON)
			QUERCUS PALUSTRIS (PIN OAK)	FACW							
			QUERCUS PHELLOS (WILLOW OAK)	FAC+							
			QUERCUS RUBRA (NORTHERN RED OAK)	FACU-							
		2	ACER NEGUNDO (BOX ELDER)	FAC+	Food	Finches, chickadees, squirrels, robins, goldfinches, other birds	Seeds, buds, flowers, plant	Spring, summer	SEE NOTE #3	150 ONE-GALLON -- or -- 300 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	129 (BASED ON ONE-GALLON)
			ACER RUBRUM (RED MAPLE)	FAC	Food	Finches, chickadees, squirrels, robins, goldfinches, other birds	Seeds, buds, flowers, plant	Spring, summer			
			BETULA NIGRA (RIVER BIRCH)	FACW	Food, cover	Song birds	Seeds, plant	All			
			LIQUIDAMBAR STYRACIFULA (SWEET GUM)	FAC	Food	Finches, cardinals, chickadees, sparrows, squirrels	Seed	Summer, fall, winter			
		3	ILEX OPACA (AMERICAN HOLLY)	FACU+	Food, cover, reproductive areas	Robins, bluebirds, mockingbirds, hermit thrush	Fruit, plant	All	SEE NOTE #3	100 ONE-GALLON -- or -- 200 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	85 (BASED ON ONE-GALLON)
	SHRUB LAYER	4	AMELANCHIER CANADENSIS (CANADIAN SERVICEBERRY)	FAC	Food, cover	Song birds, small mammals	Fruit, plant	All	SEE NOTE #3	150 ONE-GALLON -- or -- 300 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	129 (BASED ON ONE-GALLON)
			CERCIS CANADENSIS (EASTERN REDBUD)	FACU-	Food	Honeybees, butterfly caterpillars	Flowers, leaves	Spring, summer			
			CORNUS FLORIDA (FLOWERING DOGWOOD)	FACU-	Food	Wild turkey, cardinal, cedar waxwing, robin, brown thrasher, wood thrush, rabbits	Flower, fruit	Spring, fall			
			CORYLUS AMERICANA (AMERICAN HAZELNUT)	FACU-	Food, cover	Songbirds, small mammals	Fruit	Summer, fall			
			LINDERA BENZOIN (NORTHERN SPICEBUSH)	FACW-	Food	Thrushes vireos, catbird, bluebird, butterfly caterpillars	Fruit, leaves	Spring, summer, fall			
			VIBURNUM DENTATUM (SOUTHERN ARROWWOOD)	FAC	Food	Robins, bluebirds, other thrushes, thrashers, catbirds, vireos	Fruit	Fall			
			VIBURNUM PRUNIFOLIUM (BLACK-HAW)	FACU	Food, cover	Catbirds, thrashers, thrushes, cover and next sites for songbirds	Fruit, plant	Spring, fall			
RIPARIAN FOREST QUANTITY SUBTOTALS										**400**	**445**
STREAM BANK	TREE AND SHRUB LAYER	5	CORNUS AMOMUM (SILKY DOGWOOD)	FACW	Food	Catbird, thrasher, thrushes, woodpeckers	Fruit	Summer, fall	SEE NOTE #3 (AVERAGES 3' O.C. FOR ONE-GALLON)	N/A	465 (BASED ON ONE-GALLON)
			ILEX VERTICILLATA (COMMON WINTERBERRY)	FACW+	Food, cover, reproductive areas	Bluebird, catbird, brown thrasher, robin, yellow bellied sapsucker, mockingbird	Flower, seed, leaves	All			
			SAMBUCUS CANADENSIS (ELDERBERRY)	FACW-	Food, cover	Brown thrasher, catbird, woodpeckers, thrushers	Seed	Spring, fall, winter			
			VIBURNUM DENTATUM (SOUTHERN ARROWWOOD)	FAC	Food, cover, reproductive areas	Purple finch, goldfinch, robin, junco, bluebird, hermit thrush	Flower, fruit	Spring, summer, fall			
STREAM BANK QUANTITY SUBTOTALS										**---**	**875**
STREAM EDGE	TREE AND SHRUB LAYER	6	CORNUS AMOMUM (SILKY DOGWOOD)	FACW	Food, cover, reproductive areas	Catbird, thrasher, thrushes, cedar waxwings, rabbits	Flower, fruit	Summer, fall, winter	1' O.C. (SEE NOTES #5, #6)	N/A	1,395 (TUBELINGS OR LIVESTAKES ONLY -- SEE NOTE #5)
			SALIX NIGRA (BLACK WILLOW)	FACW+	Food, cover	Beaver, porcupine, deer, muskrat, ducks, fish	Seeds, plant, leaves	Spring, summer, fall			
			ALNUS SERRULATA (BROOKSIDE ALDER)	OBL	Food, reproductive areas	Finches, sparrows, doves, yellow warbler, song sparrow, other songbirds	Seeds, buds, stems	Summer, fall, winter			
			VIBURNUM DENTATUM (SOUTHERN ARROWWOOD)	FAC	Food	Robins, bluebirds, other thrushes, thrashers, catbirds, vireos	Fruit	Fall			
STREAM EDGE QUANTITY SUBTOTALS										**---**	**4,003**

PLANTING QUANTITIES (BASED ON ONE-GALLON SIZE)[4]

	A	B	C	D	E	F	G	H	J
AREA (SF):	1,281	1,171	10,464	4,023	246	1,152	1,632	10,561	9,353
AREA (AC):	0.03	0.03	0.24	0.09	0.01	0.03	0.04	0.24	0.21
LENGTH (LF):	642	589	-	-	-	576	819	-	-
RIPARIAN FOREST	-	-	72	27	3	-			
RIPARIAN FOREST	-	-	36	14	-	5	6	36	32
RIPARIAN FOREST	-	-	24	9	-	3	4	24	21
RIPARIAN FOREST	-	-	36	14	-	5	6	36	32
RIPARIAN FOREST QUANTITY SUBTOTALS	**-**	**-**	**168**	**64**	**3**	**13**	**16**	**96**	**85**
STREAM BANK	214	196	-	-	-	192	273	-	-
STREAM BANK QUANTITY SUBTOTALS	**214**	**196**	**-**	**-**	**-**	**192**	**273**	**-**	**-**
STREAM EDGE	625	589	-	-	-	576	819	-	-
STREAM EDGE						576	819		
STREAM EDGE QUANTITY SUBTOTALS	**625**	**589**	**-**	**-**	**-**	**1,152**	**1,638**	**-**	**-**

TURFGRASS AREA SEEDING SCHEDULE

SEED PLANTING ZONE	SPECIES[3]	SEEDING RATE[2] (LBS/AC)	AREA PER PLANT (AC)	QUANTITY (LBS)
GRASSLAND AREA ("K")	KENTUCKY 31 OR TURF-TYPE TALL FESCU	190.00	0.23	43.70
	IMPROVED PERENNIAL RYEGRASS	5.00	0.23	1.15
	KENTUCKY BLUEGRASS	5.00	0.23	1.15
SEEDING TOTALS		**200.00**		**46.00**

SEEDING NOTES:

1. **Substitutions for selected species based upon availability shall be requested in writing to engineer documenting the lack of availability if the flexibility inherent in the above schedule is still not sufficient. Engineer is under no obligation to approve substitutions.**
2. **All seeding rates are expressed in pounds of pure live seed (PLS).**
3. **Grassland Area to be seeded according to the Minimum Care Lawn specifications included in Table 3.32-D of the Virginia Erosion and Sediment Control Handbook, Third Edition.**

SEEDING SCHEDULE

SEED PLANTING ZONE	SPECIES GROUP[1,2]	SPECIES[2]	INDICATOR STATUS	WILDLIFE VALUE: FUNCTIONS	WILDLIFE VALUE: PRIMARY SPECIES	WILDLIFE VALUE: PLANT PART	WILDLIFE VALUE: SEASON	SEEDING RATE[7] (LBS/AC)	AREA PER PLANT (AC)	QUANTITY (LBS)
RIPARIAN BUFFER SEED MIX	7	LOLIUM MULTIFLORUM (ANNUAL RYEGRASS)	NI	Erosion control, food	Sparrows, finches, small mammals	Seeds	Summer, fall	45.00	0.92	41.40
		SETARIA ITALICA (FOXTAIL MILLET)	UPL	Food	Sparrows, finches, small mammals	Seeds	Fall, winter	45.00	0.92	41.40
	8	CAREX SCOPARIA (BLUNT BROOM SEDGE)	FACW	Food, cover	Songs birds (esp. sparrows), small mammals	Seeds, plant	Summer, fall	0.20	0.92	0.20
		CAREX SQUARROSA (SQUARROSE SEDGE)	NI	Food	Song birds, waterfowl	Seeds	Summer, fall	0.20	0.92	0.20
		CAREX VULPINOIDEA (FOX SEDGE)	OBL	Food	Song birds, waterfowl	Seeds	Summer, fall	0.20	0.92	0.20
		CYPERUS ESCULENTUS (CHUFA)	FACW	Food	Song birds, waterfowl	Seeds	Summer, fall	0.20	0.92	0.20
		JUNCUS EFFUSUS (SOFT RUSH)	FACW+	Food, cover, reproductive areas	Waterfowl, songbirds (esp. sparrows), bluegill and other fish	Seeds, stems	Summer, fall, winter	0.20	0.92	0.20
		JUNCUS TENUIS (PATH RUSH)	FAC-	Food	Songbirds, small mammals	Seeds	Summer, fall	0.20	0.92	0.20
	9	ELYMUS RIPARIUS (RIVERBANK WILD RYE)	FACW	Food	Song birds, small mammals	Seeds, leaves	All	10.00	0.92	9.20
		ELYMUS VIRGINICUS (VIRGINIA WILD RYE)	FACW-	Food	Deer, sparrows, small mammals	Seeds, leaves	All	10.00	0.92	9.20
		PANICUM CLANDESTINUM (DEER TONGUE GRASS)	FAC+	Food	Song birds, waterfowl, small mammals	Seeds	Summer, fall	10.00	0.92	9.20
		PANICUM DICHOTOMIFLORUM (SMOOTH PANIC GRASS)	FACW-	Food	Song birds, waterfowl, small mammals	Seeds	Summer, fall	10.00	0.92	9.20
	10	ANEMONE VIRGINIANA (THIMBLEWEED)	NI	Food	Pollinators, butterflies, beneficial insects	Flowers	Spring, summer	0.10	0.92	0.07
		ASTER NOVAE-ANGLIAE (NEW ENGLAND ASTER)	FACW-	Food	Butterflies	Flowers	Summer, fall	0.10	0.92	0.07
		ASTER PILOSUS (HEATH ASTER)	UPL	Food	Butterflies	Flowers	Summer, fall	0.10	0.92	0.07
		ASTER PRENANTHOIDES (ZIG ZAG ASTER)	FAC	Food	Butterflies	Flowers	Summer, fall	0.10	0.92	0.07
		LILIUM SUPERBUM (TURKSCAP LILY)	FACW+	Food	Butterflies, song birds	Flowers	Summer	0.10	0.92	0.07
		SOLIDAGO JUNCEA (EARLY GOLDENROD)	UPL	Food	Pollinators, butterflies, beneficial insects	Seeds	Fall, winter	0.10	0.92	0.07
	11	EUPATORIUM FISTULOSUS (JOE PYE WEED)	FACW	Food	Pollinators, butterflies, beneficial insects	Flowers, seeds	Summer, fall	0.10	0.92	0.07
		EUPATORIUM PERFOLIATUM (BONESET)	FACW+	Food	Pollinators, butterflies, beneficial insects	Flowers	Summer	0.10	0.92	0.07
		EUTHAMIA GRAMINIFOLIA (GRASS LEAVED GOLDENROD)	FAC	Food	Butterflies	Flowers	Summer, fall	0.10	0.92	0.07
		SOLIDAGO CANADENSIS (CANADIAN GOLDENROD)	FACU	Food	Butterflies, song birds, small mammals	Flowers	Summer, fall	0.10	0.92	0.07
		SOLIDAGO SPECOSA (SHOWY GOLDENROD)	UPL	Food	Butterflies, song birds, small mammals	Flowers	Summer, fall	0.10	0.92	0.07
		VERNONIA NOVEBORACENSIS (NEW YORK IRONWEED)	FACW+	Food	Butterflies	Flowers	Fall	0.10	0.92	0.07
		ZIZIA AUREA (GOLDEN ALEXANDERS)	FAC	Food	Beneficial insects	Flowers	Spring, summer	0.10	0.92	0.07
	12	ASCLEPIAS SYRIACA (COMMON MILKWEED)	UPL	Food	Butterflies, beneficial insects	Flowers	Spring, summer	0.20	0.92	0.20
		BIDENS FRONDOSA (BEGGAR TICKS)	FACW	Food	Pollinators, butterflies, beneficial insects	Seeds	Summer, fall, winter	0.20	0.92	0.20
		HELENIUM AUTUMNALE (COMMON SNEEZEWEED)	FACW+	Food	Butterflies	Flowers	Summer, fall	0.20	0.92	0.20
		HELIANTHUS ANGUSTIFOLIUS (NARROW-LEAF SUNFLOWER)	FACW	Food	Butterflies, song birds	Flowers, seeds	Summer, fall	0.20	0.92	0.20
		ONOCLEA SENSIBILIS (SENSITIVE FERN)	FACW	Food	Songbirds, small mammals	Fronds	Spring, summer, fall	0.20	0.92	0.20
		PENSTEMON DIGITALIS (PENSTEMON)	FAC	Food	Pollinators, butterflies, beneficial insects	Leaves, seeds	All	0.20	0.92	0.20
		VERBENA HASTATA (BLUE VERVAIN)	FACW+	Food	Pollinators, butterflies, beneficial insects	Flowers, seeds	Spring, summer, fall	0.20	0.92	0.20
		VERBESINA ALTERNIFOLIA (WINGSTEM)	FAC	Food	Butterflies, other insects	Flowers	Summer, fall	0.20	0.92	0.20
	13	COREOPSIS LANCEOLATA (LANCE LEAVED COREOPSIS)	FACU	Food	Song birds, butterflies	Flowers, seeds	Spring, summer, fall	0.20	0.92	0.20
		HELIOPSIS HELIANTHOIDES (OXEYE SUNFLOWER)	UPL	Food	Pollinators, butterflies, beneficial insects	Flowers, seeds	Spring, summer, fall	0.20	0.92	0.20
		POLYGONUM PENSYLVANICUM (PA SMARTWEED)	FACW	Food	Sparrows, finches, blackbirds, quail, small mammals	Seeds	Fall, winter	0.20	0.92	0.20
		RUDBECKIA HIRTA (BLACK EYED SUSAN)	FACU-	Food	Butterflies and other pollinators	Flowers, seeds	Summer, fall, winter	0.20	0.92	0.20
		SENNA HEBECARPA (WILD SENNA)	FAC	Food	Song birds, upland game birds	Seeds	Summer	0.20	0.92	0.20
	14	AMELANCHIER CANADENSIS (CANADIAN SERVICEBERRY)	FAC	Food, cover	Song birds, small mammals	Fruit, plant	All	0.20	0.92	0.20
		ARONIA MELANOCARPA (BLACK CHOKEBERRY)	UPL	Food	Songbirds, upland game birds, small mammals	Fruit	Fall, winter	0.20	0.92	0.20
		HAMAMELIS VIRGINIANA (WITCH HAZEL)	FAC-	Food, cover, reproductive areas	Ruffed grouse, wild turkey, rabbit, deer, beaver	Flowers, fruit	Spring, fall, winter	0.20	0.92	0.20
		ILEX VERTICILLATA (WINTERBERRY)	FACW+	Food, cover, reproductive areas	Song birds, upland game birds	Flower, seed, leaves	All	0.20	0.92	0.20
		LINDERA BENZOIN (NORTHERN SPICEBUSH)	FACW-	Food	Thrushes vireos, catbird, bluebird, butterfly caterpillars	Fruit, leaves	Spring, summer, fall	0.20	0.92	0.20
		PHYSOCARPUS OPULIFOLIUS (COMMON NINEBARK)	FACW-	Food, cover	Songbirds, waterfowl, small mammals, beneficial insects	Flowers, fruit	All	0.20	0.92	0.20
		VIBURNUM DENTATUM (SOUTHERN ARROW WOOD)	FAC	Food	Robins, bluebirds, other thrushes, thrashers, catbirds, vireos	Fruit	Fall	0.20	0.92	0.20
		VIBURNUM PRUNIFOLIUM (BLACK-HAW)	FACU	Food, cover	Catbirds, thrashers, thrushes, cover and next sites for songbirds	Fruit, plant	Spring, fall	0.20	0.92	0.20
	15	ACER RUBRUM (RED MAPLE)	FAC	Food	Finches, chickadees, squirrels, robins, goldfinches, other birds	Seeds, buds, flowers, plant	Spring, summer	0.20	0.92	0.20
		CARPINUS CAROLINIANA (MUSCLEWOOD)	FAC	Food	Ruffed grouse, bobwhite, pheasant, wild turkey, squirrel, rabbit, deer	Fruit	Summer, fall	0.20	0.92	0.20
		CERCIS CANADENSIS (EASTERN REDBUD)	FACU-	Food	Honeybees, butterfly caterpillars	Flowers, leaves	Spring, summer	0.20	0.92	0.20
		CORNUS FLORIDA (FLOWERING DOGWOOD)	FACU-	Food	Wild turkey, cardinal, cedar waxwing, robin, brown thrasher, wood thrush, rabbits	Flower, fruit	Spring, fall	0.20	0.92	0.20
		NYSSA SYLVATICA (BLACK GUM)	FAC	Food, cover	Song birds, waterfowl, small mammals	Fruit, plant	All	0.20	0.92	0.20
		PLATANUS OCCIDENTALIS (AMERICAN SYCAMORE)	FAC	Food, cover	Raccoons, opossum, wood duck, pileated and other woodpeckers	Fruit, Hollow trunks	All	0.20	0.92	0.20
SEEDING TOTALS								**137.90**		**127.11**

SEEDING QUANTITIES

	A	B	C	D	E	F	G	H	J
AREA (SF):	1,281	1,171	10,464	4,023	246	1,152	1,632	10,561	9,353
AREA (AC):	0.03	0.03	0.24	0.09	0.01	0.03	0.04	0.24	0.21
RIPARIAN BUFFER SEED MIX	1.35	1.35	10.80	4.05	0.45	1.35	1.80	10.80	9.45
RIPARIAN BUFFER SEED MIX	1.35	1.35	10.80	4.05	0.45	1.35	1.80	10.80	9.45
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.30	0.30	2.40	0.90	0.10	0.30	0.40	2.40	2.10
RIPARIAN BUFFER SEED MIX	0.30	0.30	2.40	0.90	0.10	0.30	0.40	2.40	2.10
RIPARIAN BUFFER SEED MIX	0.30	0.30	2.40	0.90	0.10	0.30	0.40	2.40	2.10
RIPARIAN BUFFER SEED MIX	0.30	0.30	2.40	0.90	0.10	0.30	0.40	2.40	2.10
RIPARIAN BUFFER SEED MIX	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.02	0.02
RIPARIAN BUFFER SEED MIX	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.02	0.02
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RIPARIAN BUFFER SEED MIX	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.02	0.02
RIPARIAN BUFFER SEED MIX	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.02	0.02
RIPARIAN BUFFER SEED MIX	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.02	0.02
RIPARIAN BUFFER SEED MIX	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.02	0.02
RIPARIAN BUFFER SEED MIX	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.02	0.02
RIPARIAN BUFFER SEED MIX	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.02	0.02
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
RIPARIAN BUFFER SEED MIX	0.01	0.01	0.05	0.02	0.00	0.01	0.01	0.05	0.04
SEEDING TOTALS	**4.23**	**4.23**	**33.11**	**12.49**	**1.30**	**4.23**	**5.53**	**33.11**	**28.88**

PLANTING AND SEEDING NOTES

1. It is expected and preferred that all species in each of the Species Groups are planted. The tolerances listed in this note are intended to incorporate flexibility according to species availability. At a minimum, Contractor to provide at least:
   a) 3 of the 4 species in Group 1,
   b) 3 of the 4 species in Group 2,
   c) all of Group 3,
   d) 6 of the 7 species in Group 4,
   e) 3 of the 4 species in Group 5,
   f) 3 of the 4 species in Group 6 (with Salix nigra a required species),
   g) all of Group 7,
   h) 4 of the 6 species in Group 8,
   i) 3 of the 4 species in Group 9,
   j) 5 of 6 species in Group 10,
   k) 5 of 7 in Group 11,
   l) 6 of 8 in Group 12
   m) 4 of 5 in Group 13,
   n) 5 of 8 in Group 14, and
   o) 5 of 6 in Group 15.
2. Substitutions for selected species based upon availability shall be requested in writing to engineer documenting the lack of availability if the flexibility inherent in the above schedule is still not sufficient. Engineer is under no obligation to approve substitutions.
3. The planted trees and shrubs shall be randomly spaced and species mixed throughout the planting areas.
4. Container rates and quantities shown for one gallon size. For purposes of substitution, two tubelings are the equivalent of one 1-gallon container plant in this schedule. Contractor may provide a mix of container and tubeling sizes for each species requirement, provided the ratio of tubelings to containers is not less than 2:1. Exception – Group 6 (Stream Edge) shall be planted in accordance with Note #5.
5. Group 6 (Stream Edge) zone shall be planted with tubelings, or as livestakes (Salix nigra only, and only between February 1 and March 31). No one gallons are required to be used for any of this Group's species.
6. Stream Bank and Stream Edge zones shall be planted such that the combined mix of species is spaced approx. 3' O.C. and 1' O.C, respectively. These zones shall not be planted such that each individual species in these zones is planted at these rates, resulting in tighter spacing.
7. All seeding rates are expressed in pounds of pure live seed (PLS).

L:\20000s\20018.02\Admin\04-ENGR\15-PropSitePlan\[2012-0221 Planting Schedule.xls]Reston Riparian

Wetland Studies and Solutions, Inc.
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Northern Virginia Stream Restoration Bank
Lake Anne East
Fairfax County, Virginia

Vegetation Schedule & Planting Details

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COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
PROFESSIONAL ENGINEER

No.	Date	Description	Rev. By:	App. By:

REVISIONS

SCALE: N/A

DATE: MARCH 2012

Horizontal Datum: N/A
Vertical Datum: N/A
Boundary and Topo Source: N/A

Design	Draft	Approved
NAS	NAS	FRG

Sheet #
17 of 49

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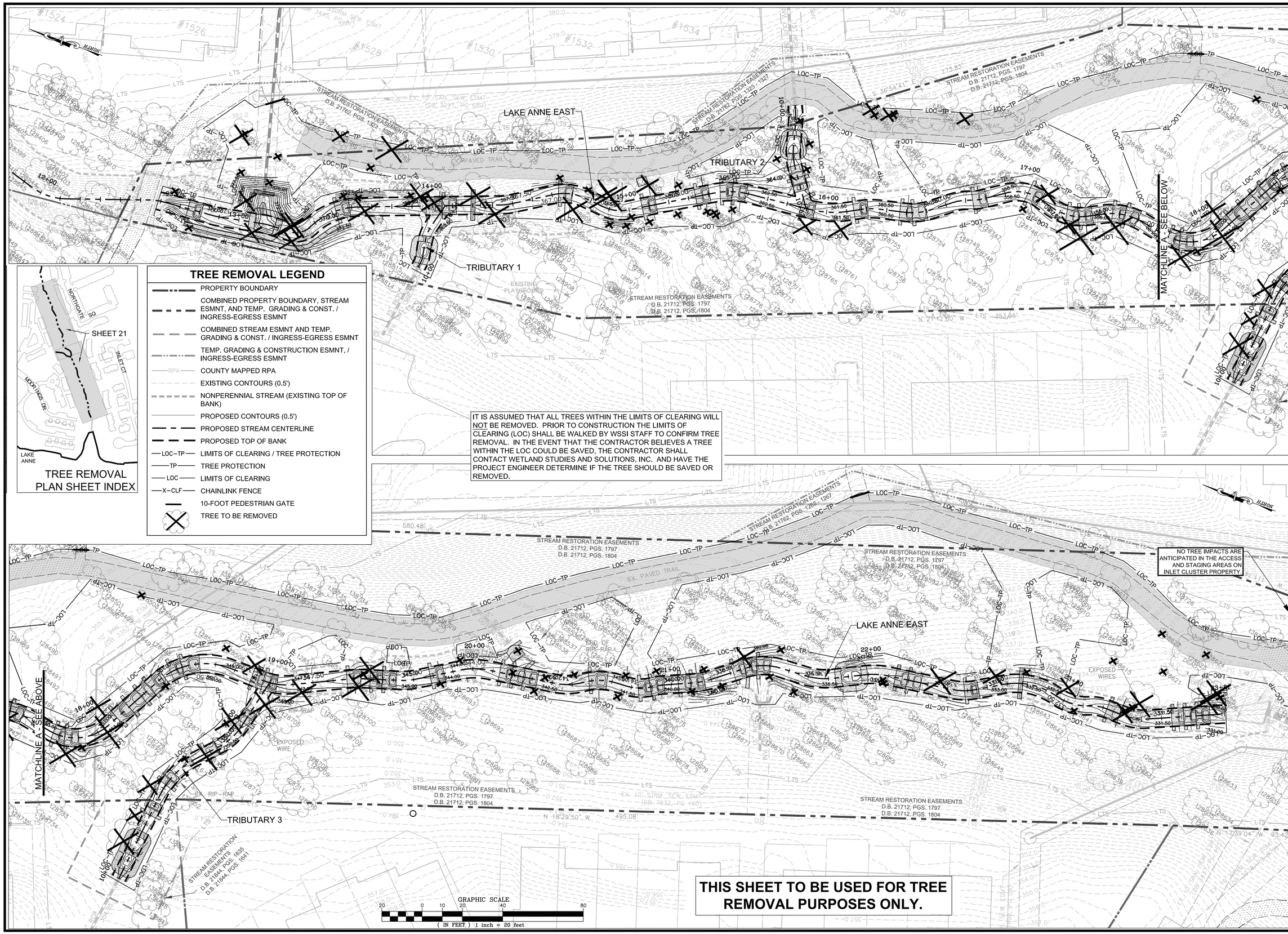

TREE REMOVAL LEGEND

- PROPERTY BOUNDARY
- COMBINED PROPERTY BOUNDARY, STREAM ESMNT, AND TEMP. GRADING & CONST. / INGRESS-EGRESS ESMNT
- COMBINED STREAM ESMNT AND TEMP. GRADING & CONST. / INGRESS-EGRESS ESMNT
- TEMP. GRADING & CONSTRUCTION ESMNT, / INGRESS-EGRESS ESMNT
- RPA — COUNTY MAPPED RPA
- EXISTING CONTOURS (0.5')
- NONPERENNIAL STREAM (EXISTING TOP OF BANK)
- PROPOSED CONTOURS (0.5')
- PROPOSED STREAM CENTERLINE
- PROPOSED TOP OF BANK
- LOC–TP — LIMITS OF CLEARING / TREE PROTECTION
- TP — TREE PROTECTION
- LOC — LIMITS OF CLEARING
- X–CLF — CHAINLINK FENCE
- 10-FOOT PEDESTRIAN GATE
- TREE TO BE REMOVED

TREE REMOVAL PLAN SHEET INDEX

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Northern Virginia Stream Restoration Bank

Lake Anne East

Fairfax County, Virginia

Tree Removal Plan

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PROFESSIONAL ENGINEER

REVISIONS				
No.	Date	Description	Rev. By:	App. By:

SCALE: 1" = 20'

DATE: MARCH 2012

Horizontal Datum: VCS NAD 83

Vertical Datum: NGVD 29

Boundary and Topo Source: WSSI and Fairfax Digital Data

Design	Draft	Approved
NAS	NAS	FRG

Sheet # 21 of 49

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TREE REMOVAL PLAN 01.dwg