SOIL TREATMENT & STABILIZATION NOTES - WETLAND PLANTINGS 1. Dredge material for use within the top 6 inches of the Wetland Planting Zones, as described in the Plans and Details, shall be augmented with Erosion Control Mix (Casella Organics, Portland, ME or equal) at a mixture ratio of 3 parts dredge material to 1 part EC Mix or as otherwise determined by soil testing described 2. Contractor should adjust amendment and/or mixing ratio based on soil sampling of the dredge material to be augmented and to achieve optimal growing conditions for the specified wetland plant species. Contractor shall provide sampling data, augmentation material specifications and mixing ratios to the City for approval. Treatment strategy shall be prepared by a wetland professional. Augmented material shall be soley used for the top 6 inches of the wetland planting zones unless otherwise recommended by the wetland professional and authorized by the City Engineer. All grades shall be as specified on the plans. Soils shall be stabilized as shown in the Typical Section / Approach to Wetland Plantings detail. Root Carpet shall be as supplied by Cardno JFNew, 128 Sunset Drive, Walkerton, IN 46574, Tel. 547-586-2412 - or an approved equal. Coir Weed Mat shall be as supplied by Granite Environmental, Inc., PO Box 780928, Sebastian, FL 32978, Tel. 888-703-9889 — or approved equal. Products shall be installed per manufacturer's specifications.  $\pm 30.5$ LIVE STAKES / CUTTINGS IN FACW / FAC SPECIES OBLIGATE SPECIES
12" ABOVE WATER LINE) OBLIGATE SPECIES (TO 12" ABOVE WATER LINE) (18"+ ABOVE WATER LINE) RETENTION SOCK ABOVE WATER;-(12 -18" ABOVE WATER LINE) FILLED WITH GROWING MEDIA (APPROX. 5 LF) (APPROX. 6 LF) 8% SLOPE (VARIES) 8% SLOPE 8% SLOPE 20% SLOPE PROPOSED POND BANK EDGE: WATTLES/FASCINES RETENTION SYSTEM VARIES; REFER SEE DETAILS TO CIVIL PLANS AND DETAILS; EX. GRADE VARIES COIR WEED MAT - EXTENT OF DREDGED FILL ---NOTE: AUGMENT DREDGE MATERIAL WITH 3" EROSION CONTROL MIX (OR EQUAL); INCORPORATE INTO TOP 6" OF WETLAND PLANTING ZONES TYPICAL SECTION / APPROACH TO WETLAND PLANTINGS GENERAL PLANTING NOTES - WETLAND PLANTINGS (POND) Native species were chosen based on several factors, including known suitability for wetland enhancement plantings, known ability to provide wildlife habitat, and availability of stock from local nurseries. If substitutions are required due to stocking or other issues, only native plants that can survive in similar hydrologic regime and provide a similar functional role will be considered. Any requests for substitutions in plant material, including size or condition, must be submitted to the City for review and approval. Reference the Typical Section / Approach to Wetland Plantings for guidance related to species placement. Plant placement will need to respond to the specific field conditions and suitability of the growing conditions for the species. Unless otherwise directed plants shall be spaced within the ranges specified herein. Plantings within Viewshed Overlay Areas, as noted on the Plan, shall not exceed 5 feet mature height throughout all zones and shall consist of at least 50% herbaceous material within Zone A. Wattles / Fascinces should NOT be used in these locations unless otherwise directed by the Wetland Professional. All materials shall conform to the guidelines established by the American Association of Nurserymen as well as the technical and planting specifications specific MIMIMUM OF TWO BUDS EXPOSED ABOVE GROUND The Contractor shall hire an independent biologist or similary qualified wetland professional to be on site to monitor construction of the wetland enhancement area to ensure compliance with the intent of the enhancement plan and construction documents. Woody species shall be arranged in groupings of no less than 7 plants. Herbaceous plants shall be used to fill gaps between groupings. Herbaceous plantings shall be spaced at 24" on center average and within Zone A only unless otherwise directed by the Wetland Professional. The Wetland Professional may adjust the planting zone boundaries and/or species if he/she determines that as—built site conditions would pose an unreasonable threat to the survival of plantings installed per the construction documents. The plantings shall be relocated to locations with suitable hydrology and soils and where appropriate structural context with other plantings can be maintained. Trees shown on the plan are approximate and should be field located within the allocated zone to provide satisfactory growing conditions. Plantings in Zone D shall be field located as required for optimal growing conditions. Areas designated as Zone D shall be seeded as noted in the Plantings Key. The Contractor shall assume responsibility to ensure that all work is performed in compliance with all State and Local requirements and permitting autorities. 11. Contractor shall provide a watering plan for approval by the City. The plan should include weekly monitoring and/or watering during dry, hot weather. All plants and newly grassed areas shall be watered as required thereafter to ensure survival and growth through the first growing season or the end of the plant warranty တာ ဖ LIVE STAKE CROSS SECTION LIVE CUTTING CROSS SECTION NOT TO SCALE NOT TO SCALE 12. The Wetland Professional shall monitor / inspect restoraton plantings twice per month, or as required to determine soil moisture levels. watering requirements. condition of irrigation system, as well as weeding and browse protection requirements. Wetland plantings, except as noted below, shal be considered successful if the cover of the wetland species is equal to 80% within the project planting area. If LIVE STAKES / CUTTINGS - INSTALLATION DETAIL cover of the wetland species falls below 80% at the end of 1 year, the Wetland Professional shall determine if additional planting is required or if an additional growing season for existing plants will be required until the area has 80% coverage. The plant warranty shall remain in effect for the additional growing season. If coverage is less than 80% at the end of the second growing season, additional plantings shall be required and as specified by the wetland specialist. 14. Woody plant material over 15—inches high at installation shall be guaranteed by the contractor for a period of one year from the date of installation. During the one year guarantee, the contractor shall replace, in kind, any dead, diseased, or substandard plant material at no cost to the owner. The contractor shall receive WETLAND PLANTINGS: final acceptance from the owner following the one year guarantee, provided the provisions of the plant guarantee have been satisfactorily met. GENUS/SPECIES/CULTIVAR COMMON NAME SIZE/CONDITION NOTES PLANTING AREAS (APPROX.): PLANT QUANTITIES BY CONDITION / SIZE (FOR PRICING); GENUS/SPECIES/CULTIVAR COMMON NAME SIZE/CONDITION NOTES ALL ZONES: 2.4 ACRES (APPROX.) TREES (BB, 5-6') ZONES A-C: 1.3 ACRES (APPROX.) TREES (#7 POT) CEPHALANTHUS OCCIDENTALIS BUTTONBUSH 3-5' OC ZONE D (FAC) PLANTING NOTES - CONTAINERIZED PLANTINGS ZONE D: 1.1 ACRES (APPROX.) TREES (#5 POT) CORNUS SERICEA RED TWIG DOGWOOD LS/T 3-5'0C ARONIA ARBUTIFOLIA RED CHOKEBERRY POT, #1 B 5'OC MIN TREES (#3 POT) 3-5' OC ILEX MUCRONULATA MOUNTAIN HOLLY PLANT QUANTITIES: CORNUS AMOMUM SILKY DOGWOOD POT, #1 B 5'OC MIN 1,015 SHRUBs (T/C/LS) ZONE A: TREES (SEE ZONES A-C) SHRUBS: 313 HERBACEOUS: 1,552 SWAMP AZALEA 3-5' OC RHODORA VISCOSUM CORNUS SERICEA RED TWIG DOGWOOD LS/T 3-5'0C 235 SHRUBS (#1 POT) 1. Container plantings shall have a media and root volume of not less than 7 cubic inches. Volumes of 10 to 40 cubic inches are preferred. Property aged and SLENDER WILLOW SALIX PETIOLARIS 3-5' OC ZONE B: TREES (SEE ZONES A-C) SHRUBS: 1,342 HERBACEOUS: N/A ILEX VERTICILLATA **WINTERBERRY** 3-5'0C 332 SHRUBS (BR/12-18") sized container plants should consist of enough fibrous root mass to retain the shape of the media when removed from the container. Container plants shall be HERBACEOUS: LS/T 3-5'0C ZONE C: TREES (SEE ZONES A-C) SHRUBS: 240 SALIX DISCOLOR PUSSYWILLOW 1,552 HERBACEOUS (BR/PLUG/2" PEAT POT) at least 2 years old. 2" PEAT POT 18-24" OC CAREX VULPINOIDES FOX SEDGE <u>ZONES A-C:</u> TREES: 9 3-5'0C SAMBUCUS CANADENSIS AMERICAN ELDERBERRY All containers shall be removed at the time of planting only. 2" PEAT POT 18-24"OC SHRUBS: 1,582 GREEN BULRUSH TREES: 49 SCIRPUS ATROVIRENS 5'OC MIN VIBURNUM DENTATUM ARROWWOOD VIBURNUM Excavate a planting hole 1.5 tiimes the diameter of the container and to the depth required. Each plant should be installed so that the top of the root ball is WOOLGRASS BR/PLUG SCIRPUS CYPERINUS level with the grade of the surface grade. Place excavated soil next to hole for later use. Do not reuse unsuitable materials, including but not limited to rocks, . ALL TREES AND SHRUBS TO BE FIELD-LOCATED; REFERENCE PLAN AND PLANTING NOTES ZONE B (FACW) TREES (TO BE FIELD-LOCATED IN ZONES A-D; REFERENCE PLAN FOR APPROX. LOCATIONS) FOR GUIDANCE. SPECKLED ALDER Take a dull knife and run it vertically down the sides and bottom of the rootball making several shallow slits to loosen the roots. Gently spread roots by hand. ALNUS INCANA ABIES BALSAMEA BALSAM FIR 5-6'BB THIS LIST IS PROVIDED FOR GUIDANCE AND PRICING. THE PLANTING PLAN SHOULD BE LS/T 3-5' OC CORNUS SERICEA RED TWIG DOGWOOD FAC ACFR RUBRUM RED MAPLE #7 POT Place plant plumb in hole. RE-EVALUATED AND ADJUSTED AS REQUIRED AT THE TIME OF PLANTING AND FOLLOWING AMELANCHIER CANADENSIS #5 POT SERVICEBERRY FAC ILEX VERTICILLATA WINTERBERRY 5' OC MIN For woody, containerized plant material, mix suitable excavated soil with Superhumus (Casella Organics, Portland, ME) at a rate of 25% per volume or as required THE POND EXCAVATION AND REGRADING WORK TO RESPOND TO AS-BUILT GROWING #3 POT LARIX LARCINA AMERICAN LARCH FACW SALIX DISCOLOR **PUSSYWILLOW** 3-5'0C CONDITIONS AND AVAILABILITY FROM LOCAL SOURCES AT THE TIME OF PLANTING. for optimal soil aggregation, improved porosity, permeabilty, aeraton, drainage and rooting depth. Amendment application and rates should be confirmed via soil PICEA MARIANA BLACK SPRUCE 5-6'BB FACW SAMBUCUS CANADENSIS AMERICAN ELDERBERRY 3-5'0C tests of the placed dredge material. PICEA GLAUCA WHITE SPRUCE 5–6'BB Begin to refill the hole with prepared soil a little at a time, lightly compacting the soil every few inches around the root ball. Finishing filling hole with soil to INSTALL AS REQUIRED BY WETLAND PROFESSIONAL: 4
\_INCH DIAMOND RIGID MESH PLASTIC SEEDLING ZONE C (FACW / FAC) the specified height compacting as you go. RED CHOKEBERRY POT, #1 B 5'OC MIN ARONIA ARBUTIFOLIA PROTECTOR, SET 1 INCH BELOW GRADE AND SECURED To the extent possible, create a 3-4 inch raised saucer at edge of the plant root zone to capture water. SILKY DOGWOOD CORNUS AMOMUM POT, #1 B 5'OC MIN WITH BAMBOO STAKES WOVEN THROUGH MESH NEW ENGLAND CONSERVATION / WILDLIFE MIX Place an organic based mulch around the plant to pre—determined standards (typical specification is a minimum of 2 inches deep and an area 24" wide CORNUS SERICEA RED TWIG DOGWOOD APPLICATION RATE: 25 LBS/ACRE (X2) - SPRING SEEDING (FALL) ILEX VERTICILLATA WINTERBERRY 3-5'0C INSTALL PLANT WITH ROOT CROWN AT 1 INCH MAX. ABOVE centered on the plant). Water thoroughly. CREATE 2 INCH COMPACTED BERM ON DOWNHILL SIDE OF PLANT TO CREATE 12 PUSSYWILLOW 3-5'0C SALIX DISCOLOR Stake containerized trees as directed by the wetland professional. NEW ENGLAND WETLAND PLANTS, INC. AMERICAN ELDERBERRY 3-5'0C SAMBUCUS CANADENSIS EXCAVATE HOLE TO SAME DEPTH AS ROOT MASS AND INCH DIA. WATERING BASIN AROUND ROOT 820 WEST STREET, AMHERST, MA 01002 VIBURNUM DENTATUM ARROWWOOD VIBURNUM 5'OC MIN TEL. 413-548-8000 PLANT NOTES - BARE ROOT PLANTINGS . WEED CONTROL FABRIC INSTALLED AT GRADE. SEE ELEVATION / SPECIFICATIONS. 2. SOIL TO BE AMENDED AS NOTED IN THE PLANTING NOTES Plants designated as bare root or collected plants shall conform to the American Standard for NurseryStock. FOR TUBELINGS / SEEDLINGS HEREIN. Bare root material shall not be dug or installed after bud break or before dormancy. Immediately after harvesting plants, protect from drying and damage until shipped and delivered to the planting site. All bare root stock sent from the storage facility shall be adequately protected from damage and covered with wet soil, sawdust, woodchips, moss, peat, straw, hay, or other acceptable moisture—holding medium. DORMANT PLANTS AND INSTALLED WITHIN 24 HOURS OF THE 1. Obtain Slender Willow or similar shrub species with adventitiously Plants must be protected at all times from sun or drying winds and shall be covered with a tarpaulin or canvas. Bare root material that cannot be planted TIME THE MATERIAL IS HARVESTED. UNLESS PROPERLY STORE immediately on delivery shall be kept in the shade, well protected with soil, wet mulch, or other acceptable material, and kept well watered. Plants shall not . LIVE FASCINE SHALL BE OBTAINED FROM SOURCES APPROVED rootable stock. 1/2 to 2 inch diameter, 5 to 10 ft long — as approved by Wetland Professional. BY THE WETLAND PROFESSONAL remain unplanted any longer than three days after delivery. 3. LIVE FASCINES SHALL BE 4" TO 8" IN DIAMETER. LENGTHS MAY Material should be from an area with similar soil, climate, an 4. Excavate a planting hole 1.5 tilmes the diameter of the container and to the depth required. Each plant should be installed so that the top of the root ball is TUBELING / SEEDLING - INSTALLATION DETAIL location relative to the stream. The material shall be free of VARY TO SUIT CONDITIONS. A MINIMUM LENGTH OF 8' IS level with the grade of the surface grade. Place excavated soil next to hole for later use. Do not reuse unsuitable materials, including but not limited to rocks, disease, rot, or insect infestation 4. THE TIPS OF THE BRANCHES WITHIN THE LIVE FASCINE SHALL Material shall be harvested while dormant and soaked (1 to 14 days) debris or solid clay. Plants shall be lifted and handled with suitable support of the soil ball to avoid damaging it. 4. Side branches can be left intact 5. LIVE FASCINES SHALL BE PLACED AS INDICATED IN THE H DO NOT PRUNE LEADER BRANCH CONTRACT DOCUMENTS. The roots of bare—root trees shall be pruned at the time of planting to remove damaged or undesirable roots (those likely to become a detriment to future 6. FASCINE SHALL BE PLACED IMMEDIATELY BEHIND RETENTION SOCK AT TOP OF BANK. TO THE EXTENT REQUIRED BY FIELD APPEARANCE IN RELATION TO STRUCTURES CONDITIONS, A TRENCH SHALL BE DUG LARGE ENOUGH TO Bare—root trees shall have the roots spread to approximate the natural position of the roots and shall be centered in the planting pit on a firmly packed DIRECTED BY LANDSCAPE ARCHITECT PLACED IN THE TRENCH, WHERE ENDS MEET IN THE TRENCH, mound of prepared soil. Determine the elevation of the root flare and ensure that it is planted at grade. THE FASCINES SHALL OVERLAP BY 18". Hold the plant plumb and work planting—soil backfill firmly into and around the roots, with care taken to fill in completely with no air pockets. WOOD POSTS SHALL BE INSTALLED FLUSH TO THE TOP OF THE FASCINE EVERY 48" ALONG THE LENGTH OF THE BUNDLES AS DRIVEN TO A MINIMUM DEPTH OF 900mm. SHOWN ON THE CROSS SECTION, LIVE STAKES SHALL BE SET SHRUBS 2 IN HIGHER THAN CONSTRUCT TOPSOIL SAUCER 4IN CONNECT TO TREE WITH BURLAP [MINIMUM Place an organic based mulch around the plant to pre—determined standards (typical specification is a minimum of 2 inches deep and an area 24" wide PLACED. ALTERNATELY AT A SPACING OF 48" ON CENTER -SURROUNDING GRADE FOR HIGH AT DOWNHILL & SIDES | 25-50mm WIDTH]. WRAP ONCE AROUND TRUNK centered on the plant). THE TRENCH SHALL BE BACKFILLED WITH MOIST SOIL AND OF TREE. STAKES TO BE CLEAR OF ROOT Stagger cuttings in a uniform bundle, 5 to 20 feet long depending on site conditions and handling capabilities. Vary orientation of HAND TAMPED. THE TOP OF THE FASCINE SHALL BE SLIGHTLY \_MULCH AS SPECIFIED IN EXPOSED WHEN THE INSTALLATION IS COMPLETE AS SHOWN ON ALL STAKES TO BE FLAGGED WITH ORANGE OR 2. Tie bundle with string or non— galvanized wire. 9. LIVE FASCINES SHALL BE USED ALONG THE TOP OF BANK IN FAN ROOTS EVENLY PLANTING NOTES - LIVE STAKES — PVC SPIRAL TREE GUARD DIRECTED BY THE WETLAND PROFESSIONAL AND/OR CITY. SCARIFY SUBSOILS PRIOR TO CUT 2x4 TO CREATE WEDGE STAKE SET TREE 50mm HIGHER THAN ADJACENT FINISHED GRADE TO ALLOW FOR SETTLEMENT 1. The live stakes shall be from native woody plant materials or woody plant materials adapted to the site. The plant species and dimensions are shown on the FASCINE BUNDLE \_\_\_\_ 3 INCH DEPTH SHREDDED BARK MULCH drawings. The plant material shall be free from disease and harmful insects. The plant materials shall be installed within 48 hours after initial preparation unless refrigerated. Cut stakes form long, upright branches taken off the patent plant. Only take cuttings from plants where landowner permission is obtained and the cutting will FORM EARTH WATERING SAUCER AROUND TREE, 4 INCHES HIGH not unduly impact the health of parent plants. Cuttings must not be allowed to dry out and must be kept covered and moist during transport and storage. DRIVE STAKE THROUGH FASCINE BUNDLE (SHOWN IN PLAN VIEW) Remove leaves and side branches from cuttings and do not use the first year growth. The basal ends should be cut at an angle and the top cut square. Live + FINISHED GRADE stakes should be between 18 and 24 inches long and at least three—eighths of an inch in diameter. BARE ROOT SHRUB - INSTALLATION DETAIL 4. Make a straight cut at the narrow end of the stake (toward the tip of the branch). At the thicker end (toward the trunk) cut the branch at an angle to make NOTES: a point that can be diven into the ground. | MAINTAIN ORIGINAL GRADE OF TREE BASE 1. THE ABOVE DETAILS DO NOT REPRESENT ANY PARTICULAR SPECIES. Dip the top (blunt cut, narrow end) 2—3 inches of the stakes in latex paint immediately after they are cut. Use the paint to mark correct planting end, seal Step 3 SUIT SITE SOIL CONDITIONS the exposed cut and helps prevent drying and cracking. You can also use different colors of paint to color code different species of cuttings, planting times, 2.SOIL MIXTURE SHOULD BE FIRMLY COMPACTED TO ELIMINATE AIR POCKETS AND TO PREVENT SETTLEMENT. 1. As required, excavate trench approximately 3<sup>rds</sup> bundle diameter (optional). and other treatments. The paint will also make the stakes visible in the field. Plant live stakes within 24 hours for best results. In the meantime, keep them moist and wet in buckets or wet burlap sacks. On hot days, keep them in the - PLANTING SOIL MIXTURE 3.FERTILIZING DURING FIRST PLANTING YEAR IS NOT RECOMMENDED. FERTILIZE ONLY TO ENCOURAGE Place erosion control fabric specified beneath wattle and up—slope as ROOT GROWTH (e.g. SUPERPHOSPHATE). OB NO.: 225672.15 Place and stake fascine bundle in trench with alternating live stakes Soak or dip the bottom ends of cuttings in a solution of plant rooting hormone before planting to speed up growth. The willows and red osier dogwood species ATF: DECEMBER 2013 4.REMOVE SPIRAL TRUNK GUARDAND/OR STAKES AFTER 2 GROWING SEASONS. and wedge stakes.
4. Wash loose soil into trench and around cuttings to get good soil to SCARIFY SIDES AND BOTTOM OF do not require rooting hormone. CALE: AS NOTED 5. PLANTING SOIL MIXTURE AS PER SPECIFICATION. Drive the stakes into the bank or wetland soil at least one foot deep (the deeper the better) using a rubber mallet. Use a planting bar or length of rebar to EET: 7 OF 9 6. WHERE POSSIBLE, USE CONTINOUS BEDS FOR SHRUBS INSTALLED IN GROUPINGS. start the hole in hard soils. Leave three to six inches above ground surface so they can sprout leaves. Use longer stakes and leave one—foot sticking above the ground if the stake will be shaded by surrounding vegetation. BARE ROOT TREE - INSTALLATION DETAIL WATTLES / FASCINES - INSTALLATION DETAIL C-201 10. Retain the whips to use to fill gaps in wetter soils as directed by the wetland specialist. Store and plant as described herein. PERMIT REVIEW SET - NOT FOR CONSTRUCTION