WETLAND REPLICATION PART 1 GENERAL

- A. THE TOWN OF HARVARD CONSERVATION COMMISSION WILL BE NOTIFIED 72 HOURS IN ADVANCE OF THE COMMENCEMENT OF THE WETLAND REPLICATION CONSTRUCTION
- B. THE WORK INCLUDES THE FURNISHING OF ALL PLANT, LABOR, EQUIPMENT. MATERIALS AND REQUIRED PROFESSIONAL SERVICES IN CONNECTION WITH THE PROTECTION, REPLICATION AND PROVISION OF SPECIFIC MITIGATION AND ENHANCEMENT MEASURES TO MINIMIZE AND COMPENSATE FOR IMPACTS TO
- . IT SHALL BE THE RESPONSIBILITY OF THE APPLICANT TO RETAIN A WETLAND SCIENTIST AND A MINIMUM OF FIVE YEARS EXPERIENCE IN SIMILAR WETLAND REPLICATIONS, AND THOROUGHLY VERSED IN THE COMMONWEALTH OF MASSACHUSETTS WETLANDS PROTECTION ACT (MGL CHAPTER 131, SECTION 40) AND ALL OTHER RELEVANT REGULATIONS OF THE DEPARTMENT O ENVIRONMENTAL PROTECTION. THIS INDIVIDUAL, HEREIN AFTER REFERRED TO AS "WETLAND SCIENTIST", SHALL BE APPROVED BY THE TOWN OF HARVARD CONSERVATION COMMISSION.

PART 2 EXECUTION

- A. THE APPLICANT SHALL PLAN AND EXECUTE OPERATIONS IN A MANNER MINIMIZING THE AMOUNT OF EXCAVATED AND EXPOSED FILL, OR OTHER FOREIGN MATERIALS THAT MAY BE WASHED OR OTHERWISE CARRIED INTO THE REPLICATION AREAS.
- 2.02 EROSION/SEDIMENTATION CONTROL A. THE APPLICANT SHALL INSTALL STRAW WATTLES AND/OR SILTATION FENCING AND UTILIZE EROSION/SEDIMENTATION CONTROL METHODS PRIOR TO THE COMMENCEMENT OF ANY WORK. 2.03A REPLICATION AREA PREPARATION
- A. THE REPLICATION AREAS ARE TO BE CONSTRUCTED IN FULL PRIOR TO THE COMMENCEMENT OF ANY OTHER SITE WORK. THIS WETLAND REPLICATION SHALL BE PERFORMED UNDER THE DIRECTION AND GUIDANCE OF A QUALIFIED WETLAND SCIENTIST AND AS SPECIFIED HEREIN.
- A.1. ONCE MACHINE WORK TO EXCAVATE THE REPLICATION AREA. TRANSFER THE ORGANIC SOILS AND FINALIZE PREPARATION FOR PLANTING HAS BEEN B. COMPLETED SITE WORK CAN BEGIN ON OTHER JURISDICTIONAL AREAS PROVIDED THE HAND PLANTING, TRANSPLANTING AND SEEDING IS BEING
- COMPLETED IN AN EXPEDIENT AND ONGOING MANNER. A.2 SITE WORK NOT WITHIN THE JURISDICTION OF THE HARVARD WETLAND BYLAW OR THE MASS WETLAND PROTECTION ACT IS NOT INCLUDED UNDER C. THIS REQUIREMENT.
- B. THE REPLICATION AREAS SHALL HAVE FINISHED GRADES WHICH MEET THE EXISTING GRADES IN THE ADJACENT WETLAND AS SHOWN ON THIS SHEET. BEFORE PLANTING THE REPLICATION AREAS, THE APPLICANT SHALL REMOVE ALL TREES, SHRUBS, STUMPS, AND SOD FROM THE REPLICATION AREAS. THESE ARE NOT TO BE STOCKPILED IN THE RESOURCE AREAS OR BUFFER ZONES WHILE AWAITING DISPOSITION.
- D. DURING THE REMOVAL OF THE TREES, SHRUBS, STUMPS AND SOD, SOME OF THE SOILS (WITHIN THE REPLICATION AREAS) WILL LIKELY BE REMOVED DURING THE PROCESS. ADDITIONAL WETLAND SOILS SHALL BE PROVIDED IN QUANTITIES SUFFICIENT TO ESTABLISH GRADES AS SHOWN. THE REPLACEMENT SOIL SHALL BE PURCHASED BY THE APPLICANT AT A 1:1 MIX OF PEAT TO LOAM. D.1. THE REPLICATION AREAS SHALL BE EXCAVATED TO A DEPTH OF
- INCHES BELOW PROPOSED FINISH GRADES. THE REPLICATION AREAS ARE TO THEN BE BACKFILLED WITH A 1:1 MIXTURE OF LOAM TO PEAT. D.2. THE WETLAND SOILS SHALL BE DEPOSITED IN THE REPLICATION AREAS IN A MANNER MINIMIZING TRAVEL AND SUBSEQUENT COMPACTION OF THE
- UNDERLYING MATERIAL AND REPLACEMENT WETLAND SOILS. D.3. THE REPLICATION AREAS SHALL NOT HAVE FINISHED GRADING WHICH RESULTS IN A COMPLETELY FLAT TOPOGRAPHY. THE FINISH GRADING SHOULD RESULT IN A SHALLOW PIT AND MOUND TOPOGRAPHY THROUGHOUT THE REPLICATION AREAS.
- . ALL FILL MUST BE STOCKPILED BEYOND THE RESOURCE AREAS AND BUFFER ZONES. PRECAUTIONS SHALL BE TAKEN AS NECESSARY TO PREVENT EROSION OF THE STOCKPILED MATERIAL. BEFORE FILL IS PUT INTO PLACE, ALL TREES, BRUSH AND STUMPS SHALL BE REMOVED FROM THE AREAS TO BE FILLED. THESE ARE NOT TO BE STOCKPILED IN THE RESOURCE AREAS OR BUFFER ZONES WHILE AWAITING DISPOSITION.
- ANY SIGNIFICANT FIELD CHANGES DEEMED NECESSARY TO ACHIEVE FINAL GRADING WITHIN TWELVE INCHES FROM THE GROUNDWATER TABLE, MUST BE APPROVED BY THE WETLAND SCIENTIST (IN THE FIELD) AND REPORTED TO THE CONSERVATION COMMISSION IN THE WEEKLY REPORT. THE OUTER EDGES OF THE REPLICATION AREAS SHALL BE BERMED TO
- PREVENT WATER DRAINING FROM THE REPLICATION AREAS. UPON COMPLETION OF THE REPLICATION AREAS, SILTATION FENCE SHALL BE PLACED AROUND THE ENTIRE PERIMETER (OF THE REPLICATION AREAS) TO PROTECT THE REPLICATION AREAS DURING THE REMAINDER OF CONSTRUCTION. AFTER REPLICATION CONSTRUCTION IS COMPLETED, NO FERTILIZER, LIMESTONE, SUPERPHOSPHATE, MULCH OR OTHER AMENDMENTS SHALL BE ADDED TO THE WETLAND SOILS.

PART 3 REMOVING. STORING. AND REPLANTING OF EXISTING WETLAND TREES AND SHRUBS

A. IN ANY DISTURBED WETLAND (WHERE PRACTICAL), THE APPLICANT MAY, AT HIS OPTION, DIG UP, STORE AND MAINTAIN EXISTING WETLAND TREES AND SHRUBS FOR USE IN THE REPLICATION AREAS. TREES SHALL BE A MINIMUM OF ONE INCH CALIPER AND SHRUBS SHALL BE THIRTY-SIX INCHES IN SPREAD OR HEIGHT ALL PLANTS SHALL BE VIGOROUS AND WELL FORMED SPECIMENS. ALL PLANT MATERIALS DUG FOR THIS PURPOSE SHALL BE DUG BY HAND, HYDRAULIC TREE SPADE SPECIFICALLY DESIGNED FOR THIS PURPOSE OR OTHER SUITABLE EQUIPMENT OF SUFFICIENT SIZE TO REMOVE THE ROOTBALL. ROOTBALL SIZE SHALL BE THE MINIMUM SPECIFIED BY THE AMERICAN ASSOCIATION OF NURSERYMEN FOR EACH SPECIES. FOR HAND DUG PLANTS, A SUITABLE BURLAP OR OTHER WRAP OR CONTAINER SHALL BE PROVIDED TO KEEP THE ROOTBALL INTACT.

A.1. ALL PLANTS DUG FOR REUSE SHALL BE IMMEDIATELY MOVED TO A PROTECTIVE STORAGE AREA APPROVED BY THE WETLAND SCIENTIST. PLANTS SHALL BE SET PLUMB ON GRADE OR IN PREPARED HOLES AND GUYED AS NECESSARY. THE AREA OR HOLES SHALL BE BACKFILLED WITH SUITABLE TOPSOIL TO COVER THE ROOTBALLS ENTIRELY MULCHED TO PREVENT EROSION. ALL STORED VEGETATION SHALL BE MAINTAINED IN A DAMP CONDITION BY REGULAR WATERING. ALL HORTICULTURAL MEASURES REQUIRED FOR THE SURVIVAL OF COLLECTED PLANTINGS SHALL BE UTILIZED BY THE APPLICANT.

A.2. AFTER THE REPLICATION AREAS HAVE BEEN CONSTRUCTED, STOCKPILED PLANTS SHALL BE REPLANTED IN LOCATIONS SPECIFIED AND APPROVED BY THE WETLAND SCIENTIST.

PART 4 WETLAND REPLICATION PLANTING A. WETLAND PLANTING SHALL BE PERFORMED BETWEEN MARCH 1 AND OCTOBER 30

- OR AS RECOMMENDED BY THE WETLAND SCIENTIST. . WETLAND PLANTINGS TYPE AND QUANTITY SHALL BE PER PROVIDED PLANT LIST. TREES SHALL BE PLANTED NO FARTHER APART THAN TWENTY-FIVE FEET ON CENTER AND SHRUBS PLANTED NO FARTHER APART THAN EIGHT FEET ON
- THE APPLICANT SHALL HAVE THE OPTION OF DIGGING, STORING AND REPLANTING EXISTING TREES AND SHRUBS PER PART 3 OF THIS SCHEDULE, OR ALTERNATIVELY, PROVIDING AND PLANTING NEW WETLAND SPECIES, PURCHASED BY THE APPLICANT FROM NURSERY STOCK, AND APPROVED BY THE WETLAND
- EXISTING FALLEN TREE SECTIONS/LARGE BRANCHES ON SITE MAY BE USED FOR
- WETLAND REPLICATION AREA AS APPROVED BY THE WETLAND SCIENTIST. WETLAND PLANTING. IN THE REPLICATION AREAS, WILL BE PERFORMED IN A MANNER WHICH REPRODUCES THE PLACEMENT AND PROPORTIONS OF THE PLANT SPECIES THAT WERE FOUND IN THE ORIGINAL LOST WETLAND AREAS.
- ALL WETLAND PLANTINGS WILL BE PERFORMED BY HAND. BURLAP WILL BE REMOVED FROM THE TOP THIRD OF THE ROOTBALLS AND ROPES, TWINE AND WRE BASKETS WILL BE COMPLETELY REMOVED FROM THE ROOTBALLS. COMPLETELY REMOVE ALL PLASTIC BURLAP, ROPE, TWINE AND WIRE BASKETS FROM THE REPLICATION AREAS. COMPLETELY REMOVE THE CONTAINERS FROM THE POTTED PLANTS WHILE KEEPING THE SOIL AROUND THE ROOTS UNBROKEN. PRIOR TO THE START OF WETLAND CONSTRUCTION DETAILED MEASUREMENTS OF THE DEPTH OF THE SOIL O AND A HORIZONS WITHIN THE WETLAND TO BE LOST DURING CONSTRUCTION SHALL BE CONDUCTED. THE PROJECT SHALL USE THIS INFORMATION TO DETERMINE THE SUITABILITY OF THESE HORIZONS FOR REUSE IN THE REPLICATION AREA AND TO CALCULATE THE NEED FOR ADDITIONAL SOIL MATERIALS. THE TOP 12 INCHES OF SOIL FROM THE ORIGINAL WETLAND MUST BE TRANSPLANTED WITH SOIL STRUCTURE, ESPECIALLY LAMINATION AND DENSITY PROFILE. INTACT TO THE REPLICATION AREA. THIS IS INTENDED TO PRESERVE
- INHIBIT THE BLOSSOMING OF INVASIVE SPECIES. SOIL MATERIALS TO BE REUSED (FROM THE WETLAND TO BE LOST DURING CONSTRUCTION) SHALL BE REMOVED AND PLACED IN THE PREPARED REPLICATION AREA WITHIN ONE DAY. IF THIS IS NOT POSSIBLE, THESE SOILS SHALL BE STOCKPILED FOR THE MINIMUM AMOUNT OF TIME FEASIBLE AND KEPT LOOSELY COVERED AND MOIST AT ALL TIMES. EACH DAY ANY SOILS ARE STOCKPILED. THE PROJECT MANAGER SHALL NOTIFY THE COMMISSION IN WRITING OF THE STOCKPILING, THE VOLUME OF SOILS STOCKPILED, THE REASON THEREFORE, AND THE EXPECTED DURATION OF THE STOCKPILING. THE NOTIFICATION SHALL CONTAIN A CERTIFICATION SIGNED BY THE WETLAND SCIENTIST THAT HE/SHE HAS INSPECTED THE STOCKPILE THAT DAY AND THAT

PLANT, INVERTEBRATE AND PLANKTONIC COMMUNITIES OF THE WETLAND AND

IT IS LOOSELY COVERED AND MOIST. THE PROPOSED REPLICATION AREA SHALL BE EXCAVATED TO A DEPTH OF ONE FOOT BELOW THE PROPOSED FINAL GRADE AND TO BE REFERRED TO IN THE

ORDER OF CONDITIONS. THE SUBSOIL WITHIN THE REPLICATION AREA SHALL BE EXAMINED BY THE WETLAND SCIENTIST TO DETERMINE WHETHER IT IS FINE TEXTURED (FINE SANDY LOAM OR FINER, AS DEFINED BY NRCS STANDARDS). IF SUBSOIL IS COARSE-TEXTURED, IT SHALL BE REPLACED WITH FINE-TEXTURED MATERIAL TO ALLOW FOR THE DEVELOPMENT OF A CAPILLARY FRINGE BETWEEN THE GROUNDWATER AND THE SOIL SURFACE.

FOLLOWING REPLACEMENT OF TOP SOIL. A MINIMUM OF 48 HOURS SHALL PASS PRIOR TO PLANTING OF WETLAND VEGETATION TO ALLOW FOR REBOUND OF BURIED OR COMPACTED PEAT. THE FINAL GRADE SHALL BE ADJUSTED AS

K. AFTER PLANTINGS ARE COMPLETED, THE REPLICATION AREAS SHALL BE HAND RAKED TO ELIMINATE ANY DEPRÉSSIONS, GREATER THAN FOUR INCHES IN DEPTH. WHICH MAY BE CREATED DURING DIGGING AND TO ELIMINATE COMPACTION OF THE SOILS AS MUCH AS POSSIBLE.

K.1. ONCE PLANTING IS COMPLETED, LEAVES (COLLECTED FROM UPLAND AREAS OF THE PROPOSED SITE CONSTRUCTION) SHALL BE SPREAD THROUGHOUT THE REPLICATION AREAS.

INTENT OF THIS SCHEDULE IS TO INSURE THAT AT LEAST 75 PERCENT OF THE REPLICATION SURFACE AREA IS RE-ESTABLISHED WITH INDIGENOUS WETLAND PLANT SPECIES WITHIN THREE GROWING SEASONS OF THEIR PLANTING. IN ACCORDANCE WITH THE MASSACHUSETTS DEP WETLANDS PROTECTION ACT REGULATIONS. PURPLE LOOSESTRIFE (LYTHRUM SALICARI) AND EUROPEAN BUCKTHORN (RHAMNUS FRANGULA) SHALL NOT BE PLANTED IN THE REPLICATION AREAS. IF AFTER THREE GROWING SEASON, IT IS EVIDENT IN THE OPINION OF THE BOTANIST THAT IT IS UNLIKELY THAT THE 75 PERCENT RE-ESTABLISHMENT REQUIREMENT WILL BE ACHIEVED, THE APPLICANT SHALL SUPPLEMENT THE PLANTINGS AS NECESSARY TO ACHIEVE THE REQUIRED COVERAGE. IF AFTER THE END OF THREE GROWING SEASONS, 75 PERCENT RE-ESTABLISHMENT HAS NOT BEEN ACHIEVED, THE APPLICANT SHALL PROVIDE AND PLANT HEALTHY WETLAND VEGETATION IN SUFFICIENT QUANTITIES TO ACHIEVE THE 75 PERCENT

100-FT WETLAND BUFFER LIMIT

INVASIVE PLANT CONTROL

INVASIVE SPECIES ONSITE INCLUDE BUT NOT LIMITED TO: JAPANESE KNOTWEED (POLYGONUM CUSPIDATUM)

BACKGROUND:

JAPANESE KNOTWEED SPREADS QUICKLY TO FORM DENSE THICKETS THAT EXCLUDE NATIVE VEGETATION AND GREATLY ALTERS NATURAL ECOSYSTEMS. IT POSES A SIGNIFICANT THREAT TO RIPARIAN AREAS, WHERE IT CAN SURVIVE SEVERE FLOODS AND RAPIDLY COLONIZE SCOURED SHORES AND ISLANDS. ONCE ESTABLISHED, POPULATIONS ARE EXTREMELY PERSISTENT. JAPANESE KNOTWEED SPREADS PRIMARILY BY VEGETATIVE MEANS WITH THE HELP OF ITS LONG, STOUT RHIZOMES. IT IS OFTEN TRANSPORTED TO NEW SITES AS A CONTAMINANT IN FILL. SEEDS ARE FREQUENTLY DISTRIBUTED BY WATER, AND CARRIED TO A LESSER EXTENT BY WIND. DISCARDED CUTTINGS ARE COMMON ROUTES OF DISPERSAL. KNOTWEED PREVENTS ESTABLISHMENT OF NATIVE TREES AND SHRUBS, REDUCES ACCESS TO THE WATER, AND ITS COARSE RHIZOMES DO NOT STABILIZE THE BANKS AS WELL AS THE FINER ROOTS OF TREES OR GRASSES. MANAGEMENT REQUIRES TREATMENT OF THE RHIZOME SYSTEM, AND WILL TAKE AT

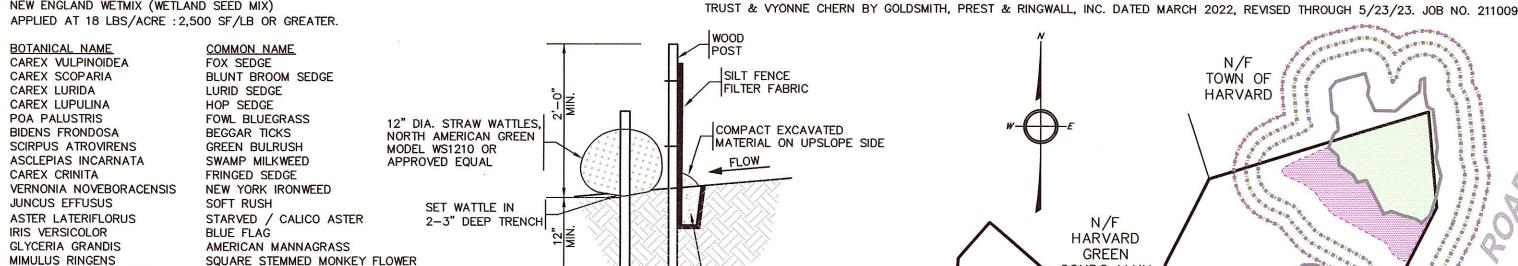
<u> CONTROL:</u>

CUT AND PAINT METHOD DOES NOT WORK WHEN THE GROUND IS FROZEN AND IS LESS EFFECTIVE IN THE SPRING WHEN PLANT SAP IS RUNNING OUT OF THE ROOTS. CONTROL AT THE SITE SHALL CONSIST OF CUTTING THE STEM JUST AFTER FLOWERING (TYPICALLY LATE JUNE OR JULY) AND IMMEDIATELY INJECTING A 25% GLYPHOSATE SOLUTION INTO CUT STEMS. THE GLYPHOSATE PRODUCT SHALL BE ONE APPROVED FOR USE NEAR WETLANDS. A FOLLOW-UP TREATMENT SHALL OCCUR IN SEPTEMBER,

EXISTING CONDITIONS NOTES: WETLAND REPLICATION PLANT LIST 1. EXISTING CONDITION INFORMATION BASED ON AN ON-THE-GROUND TOPOGRAPHIC AND BOUNDARY SURVEY PERFORMED BY GOLDSMITH, PREST & RINGWALL, INC. DATED JUNE 2021. EDGE OF WETLAND DELINEATION WAS PREVIOUSLY APPROVED AS PART OF AN ORDER OF CONDITIONS (MASSDEP #177-0707) AS ISSUED BY THE TOWN OF HARVARD CONSERVATION COMMISSION ON JUNE 2021.

ACER RUBRUM RED MAPLE 6'-8' HT. 1.5'-2' CAL B & B FRAXINUS PENNSYLVANICA GREEN ASH 6'-8' HT. 1.5'-2' CAL B & B PLAN REFERENCES: VACCINIUM CORYMBOSUM HIGHBUSH BLUEBERRY CONT. GROWN 2'-3' HT. ILEX VERTICILLATA WINTER BERRY 2'-3' HT. CONT. GROWN CONT. GROWN VIBURNUM DENTATUM NORTHERN ARROWWOOD 3'-4' HT. LINDERA BENZOIN SPICEBUSH 3'-4' HT. CONT. GROWN HERBACIOUS PLANTS CONT. GROWN CONT. GROWN ONOCLEA SENSIBILIS SENSITIVE FERN OSMUNDA REGALIS ROYAL FERN #1 POT CONT. GROWN

NEW ENGLAND WETMIX (WETLAND SEED MIX)



COUNTY ROAD LLC 12 LANCASTER

46829, PAGE 295.

PREST & RINGWALL, INC. DATED OCTOBER 2010. JOB NO. 99116B.

INC. DATED JULY 2021. LAST REVISED 9/9/21. JOB NO. 211009A.

PLOT PLAN

ORDER OF CONDITIONS ISSUED FOR 69 LANCASTER COUNTY ROAD & AYER ROAD, HARVARD, MA. BY THE TOWN OF HARVARD CONSERVATION

"PUBLIC WATER SUPPLY, NOTICE OF INTENT - 69 LANCASTER COUNTY ROAD & 203 AYER ROAD, HARVARD, MA" PREPARED BY GOLDSMITH,

ORDER OF CONDITIONS ISSUED FOR 203 AYER ROAD, HARVARD, MA. BY THE TOWN OF HARVARD CONSERVATION COMMISSION. MASSDEP

"COMMERCIAL DEVELOPMENT - 203 AYER ROAD, HARVARD, MA" PREPARED FOR WHEELER REALTY TRUST BY GOLDSMITH, PREST & RINGWALI

TOWN OF

HARVARD

5. "COMMERCIAL DEVELOPMENT - AYER ROAD VILLAGE SPECIAL PERMIT - 203 AYER ROAD, HARVARD, MA" PREPARED FOR WHEELER REALT

HARVARD

GREEN

CONDO MAIN

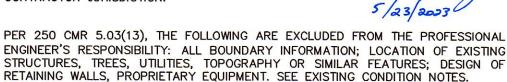
#177-0707. HARVARD #0721-02. DATED 9/27/2021. RECORDED AT THE WORCESTER REGISTRY OF DEEDS. BOOK 47179, PAGE 189.

COMMISSION. MASSDEP #177-0587. HARVARD #1010-02. DATED 11/18/2010. RECORDED AT THE WORCESTER REGISTRY OF DEEDS. BOOK

☐ CONCEPT ☐ CONSTRUCTION PERMIT ☐ CONSTRUCTION

DRAWING ISSUED FOR:

THIS DRAWING MAY NOT SHOW CONSTRUCTION DETAILS AND SPECIFICATIONS FOR ALL PROPOSED IMPROVEMENTS, AND MAY NOT IDENTIFY ALL CONSTRUCTION WORK ITEMS/AREAS OF CONTRACTOR JURISDICTION.



NICHOLAS >

PAULING

No. 47114

Engineering Solutions

for Land & Structures

3 | 5/23/23 | JFB | NMP PER REVIEW COMMENTS 4/24/23 | JFB | NMP PER REVIEW COMMENTS 3/8/23 | JFB | NMP PER REVIEW COMMENTS DATE BY APP. REVISION DESCRIPTION

GOLDSMITH, PREST & RINGWALL, INC.

39 MAIN STREET, SUITE 301. AYER, MA 01432 CIVIL ENGINEERING • LAND SURVEYING • LAND PLANNING VOICE: 978.772.1590 FAX: 978.772.1591 www.gpr-inc.com

COMMERCIAL DEVELOPMENT NOTICE OF INTENT

WETLAND REPLICATION PLAN

203 AYER ROAD HARVARD, MA

PREPARED FOR: VYONNE CHERN 7 GREEN WAY WAYLAND, MA 01778

WHEELER REALTY TRUST 198 WHEELER TRUST HARVARD, MA 01451

DES. BY: LT CHK. BY: NMP

DATE: MARCH 2022 JOB 211009

