

GREAT BROOK VALLEY PARK IMPROVEMENTS



CITY OF WORCESTER

33 Northeast Cutoff, Worcester, Massachusetts, 01605

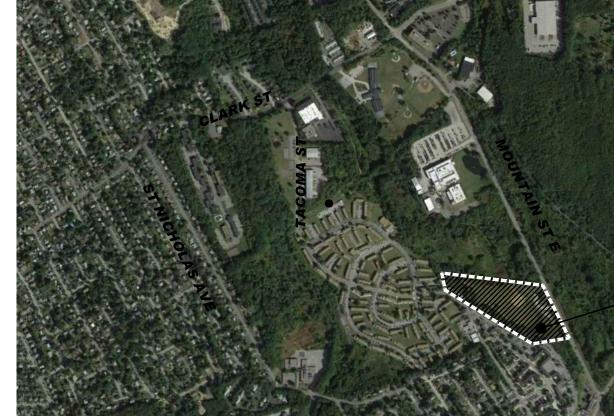
CITY OF WORCESTER, MASSACHUSETTS

DEPARTMENT OF PARKS, RECREATION & CEMETERY 50 Officer Manny Familia Way Worcester, MA 01605 (508)929-1300

LANDSCAPE ARCHITECT / ENGINEER: WESTON & SAMPSON



Locus Map



GREAT BROOK VALLEY PARK



FOR ILLUSTRATIVE PURPOSES ONLY

PHASE ONE CONSTRUCTION DOCUMENTS

MAY 23, 2025

Prepared By



427 Main Street, Suite 400, Worcester, MA (508) 698-3034 (800) Sampson www.westonandsampson.com

www.westonandsampson.com

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GENERAL NOTES

- PARTIAL FIELD SURVEY BY RTK GPS AND RTK DRONE IN OCTOBER 2024.
- THE HORIZONTAL DATUM OF THIS PLAN IS NAD83 (2011) (MASS. MAINLAND) AND THE VERTICAL DATUM IS NAVD88. BOTH ARE BASED ON AN RTK GPS SURVEY PERFORMED ON
- ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY MAPS THE LOCUS PROPERTIES ARE IN ZONE X UNSHADED (AREAS OF MINIMAL FLOODING), AND ZONE A (BASE FLOOD ELEVATION NOT DETERMINED). COMMUNITY-PANEL NUMBER 25027C 0620 E. EFFECTIVE ON 7/4/2011.
- THE LOCUS PARCEL IS LOCATED IN THE CITY OF WORCESTER RG-5 & BG-2 ZONING DISTRICTS.
- REFER TO GENERAL SYMBOLS FOR SURVEY LEGEND. ALL BIDDERS ARE REQUIRED TO INSPECT THE PROJECT SITE IN ITS ENTIRETY PRIOR TO SUBMITTING THEIR BID, AND BECOME FAMILIAR WITH ALL CONDITIONS AS THEY MAY AFFECT THEIR BID. CONTRACTOR AND SUB-CONTRACTOR SHALL BE FAMILIAR WITH ALL DRAWINGS AND SPECIFICATIONS PRIOR TO COMMENCING THE CONSTRUCTION.
- LOCATIONS OF ANY UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF SUCH UTILITIES, PROTECTING ALL EXISTING UTILITIES AND REPAIRING ANY DAMAGE DONE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE COORDINATION WITH UTILITY COMPANIES AND PUBLIC AGENCIES AND FOR OBTAINING ALL REQUIRED PERMITS AND PAYING ALL REQUIRED FEES. IN ACCORDANCE WITH M.G.L. CHAPTER 82, SECTION 40, INCLUDING AMENDMENTS, CONTRACTORS SHALL NOTIFY ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING PRIOR TO EXCAVATION. CONTRACTOR SHALL ALSO CALL "DIG SAFE" AT (888) 344-7233 NO LESS THAN 72 HOURS, (EXCLUSIVE OF WEEKENDS AND HOLIDAYS), PRIOR TO SUCH EXCAVATION. DOCUMENTATION OF REQUESTS SHALL BE PROVIDED TO OWNER'S REPRESENTATIVE PRIOR TO EXCAVATION
- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION OF THE CONFLICT.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY OWNER AT NO ADDITIONAL COST TO THE CITY OF WORCESTER

THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF REMOVING ANY EXISTING SITE

PROPOSED SITE IMPROVEMENTS. THE CONTRACTOR SHALL ALSO INCLUDE IN THE BID THE

COST NECESSARY TO RESTORE SUCH ITEMS IF THEY ARE SCHEDULED TO REMAIN AS PART

OF THE FINAL SITE IMPROVEMENTS. REFER TO PLANS TO DETERMINE EXCAVATION AND

DEMOLITION REQUIREMENTS AND TO DETERMINE THE LOCATION OF THE PROPOSED SITE

THE OWNER RESERVES THE RIGHT TO REVIEW ALL MATERIALS DESIGNATED FOR REMOVAL

MATERIALS REMOVED OFF SITE TO A DESIGNATED MUNICIPAL PROPERTY AT NO ADDITIONAL

REMOVAL ACTIVITIES SHALL BE ACCORDANCE WITH STATE AND LOCAL REGULATIONS AT NO

UNLESS SPECIFICALLY NOTED TO BE REMOVED AND SALVAGE (R&S) OR REMOVE AND RESET

REMOVED WITH THEIR FOOTINGS, ATTACHMENTS, BASE MATERIAL, ETC. TRANSPORTED FROM

THE SITE TO BE DISPOSED OF IN A LAWFUL MANNER AT AN ACCEPTABLE DISPOSAL SITE AND

CONSTRUCTION PERIOD. ANY FEATURES DAMAGED DURING CONSTRUCTION OPERATIONS

DURING EARTHWORK OPERATIONS, CONTRACTOR SHALL TAKE CARE TO NOT DISTURB

SHALL TAKE WHATEVER MEASURES NECESSARY, AT THE CONTRACTOR'S EXPENSE, TO

PLACED AND COMPACTED AS SPECIFIED TO THE SUBGRADE REQUIRED FOR THE

INSTALLATION OF THE REMAINDER OF THE CONTRACT WORK.

EXISTING MATERIALS TO REMAIN, OUTSIDE THE LIMITS OF EXCAVATION AND BACKFILL AND

STRIP & STOCKPILE EXISTING TOPSOIL FOR LATER REUSE AS REQUIRED. STOCKPILE SHALL

THE REQUIREMENTS OF THE SPECIFICATIONS AT NO ADDITIONAL COST TO THE OWNER.

UNDERBRUSH, REMOVAL OF ROOTS, AND ROUGH GRADING. INSTALLATION OF LOAM (IF

THE CONTRACTOR SHALL PROTECT EXISTING TREES TO REMAIN. CONTRACTOR SHALL

AND TAKE DUE CARE TO PREVENT INJURY TO TREES DURING CLEARING OPERATIONS.

APPLICABLE), FINE GRADING, SEEDING AND TURF OR VEGETATION ESTABLISHMENT BY THE

INSTALL TREE PROTECTION BARRIERS AFTER CLEARING TURF AND UNDERBRUSH BY HAND

HAVE APPROPRIATE EROSION AND SEDIMENT CONTROLS. THE CONTRACTOR SHALL CONFIRM

THROUGH ALL REQUIRED TESTING THAT THE TOPSOIL IS SUITABLE FOR REUSE AND IT MEETS

CLEAR AND GRUB VEGETATION SHALL INCLUDE REMOVAL OF ALL GRASS/LAWN, SHRUBS, AND

PREVENT ANY EXCAVATED MATERIAL FROM COLLAPSING. ALL BACKFILL MATERIALS SHALL BE

SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER AND/OR OWNER'S

(R&R), ALL SITE FEATURES CALLED TO BE REMOVED AND DEMOLISHED (R&D) SHALL BE

ALL EXISTING SITE FEATURES TO REMAIN SHALL BE PROTECTED THROUGHOUT THE

COST. ALL GEOTECHNICALLY OR UNSUITABLE EXCESS SOIL FROM CONSTRUCTION ACTIVITIES

AND TO RETAIN OWNERSHIP OF SUCH MATERIALS. IF THE OWNER RETAINS ANY MATERIAL

THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OWNER TO HAVE THOSE

SHALL BE DISPOSED OF BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY.

DEMOLITION & SITE PREPARATION NOTES

IMPROVEMENTS.

CONTRACTOR.

AT NO ADDITIONAL COST TO THE OWNER.

REPRESENTATIVE AT NO ADDITIONAL COST.

- CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL DRAWINGS AND SPECIFICATIONS TO DETERMINE THE EXTENT OF EXCAVATION AND DEMOLITION REQUIRED TO RECEIVE SITE IMPROVEMENTS.
- ANY DISCREPANCIES OR CONFLICTS BETWEEN THE DRAWINGS AND EXISTING CONDITIONS, EXISTING CONDITIONS TO REMAIN, TEMPORARY CONSTRUCTION, PERMANENT CONSTRUCTION AND WORK OF ADJACENT CONTRACTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE BEFORE PROCEEDING. ITEMS ENCOUNTERED 20. IN AREAS OF EXCAVATION THAT ARE NOT INDICATED ON THE DRAWINGS, BUT ARE VISIBLE ON SURFACE, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE REMOVED AT NO ADDITIONAL COST TO THE OWNER.
- 11. ANY ALTERATIONS TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE GENERAL CONTRACTOR ON "AS BUILT" DRAWINGS.
- 12. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS OUTSIDE THE PROJECT LIMITS, SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST AND TO THE SATISFACTION OF THE OWNER.
- ALL WORK SHOWN ON THE PLANS AS BOLD SHALL REPRESENT PROPOSED WORK. THE TERM "PROPOSED (PROP)" INDICATES WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET (R&R)" OR "REMOVE AND SALVAGE (R&S).
- 14. ALL KNOWN EXISTING STATE, COUNTY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND ARE INDICATED ON THE PLANS.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT HIS EMPLOYEES, AS WELL AS PUBLIC USERS FROM INJURY DURING THE ENTIRE CONSTRUCTION PERIOD USING ALL NECESSARY SAFEGUARDS, INCLUDING BUT NOT LIMITED TO, THE ERECTION OF TEMPORARY WALKS, STRUCTURES, PROTECTIVE BARRIERS, COVERING, OR FENCES AS NEEDED.
- THE CONTRACTOR SHALL SUPPLY THE OWNER WITH THE NAME OF THE OSHA "COMPETENT PERSON" PRIOR TO CONSTRUCTION.
- 17. FILLING OF EXCAVATED AREAS SHALL NOT TAKE PLACE WITHOUT THE PRESENCE OR PERMISSION OF THE OWNER.
- EXISTING TREES TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. NO STOCKPILING OF MATERIAL, EQUIPMENT OR VEHICULAR TRAFFIC SHALL BE ALLOWED WITHIN

REMAIN. WHEN NECESSARY OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE, THE CONTRACTOR SHALL ERECT TEMPORARY BARRIERS FOR THE PROTECTION OF EXISTING TREES DURING CONSTRUCTION.

THE DRIP LINE OF TREES TO REMAIN. NO GUYS SHALL BE ATTACHED TO ANY TREE TO

- TREES AND SHRUBS WITHIN THE LIMITS OF WORK SHALL BE REMOVED ONLY UPON THE APPROVAL OF THE OWNER'S REPRESENTATIVE OR AS NOTED ON THE PLANS.
- NO FILLING SHALL OCCUR AROUND EXISTING TREES TO REMAIN WITHOUT THE APPROVAL OF THE OWNER OR OWNER REPRESENTATIVE.
- 21. THE CONTRACTOR SHALL REMOVE ALL SURFACE VEGETATION PRIOR TO GRADING THE SITE. FREES AND STUMPS SHALL BE REMOVED AND DISPOSED COMPLETE BY CONTRACTOR. TEMPORARY EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS (INCLUDING SILT FENCE, COMPOST FILTER TUBES, OR SILT SOCKS) AND SEDIMENT CURTAINS SHALL BE INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THESE TEMPORARY EROSION CONTROL MEASURES THROUGHOUT THE PROJECT WHICH COST SHALL BE INCIDENTAL TO THE PROJECT.
- ALL UNSUITABLE EXCESS SOIL FROM CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY. REMOVAL ACTIVITIES SHALL BE ACCORDANCE WITH STATE AND LOCAL REGULATIONS AT NO ADDITIONAL COST TO THE TOWN. REFER TO WORCESTER CITY BY-LAWS REGARDING EARTH MOVEMENT. SUITABLE SOIL EXCAVATION AS PART OF THE PROJECT MUST MEET ONE OR MORE OF THE MATERIAL REQUIREMENTS SPECIFIED IN 31 00 00-EARTHWORK. IF THE CONTRACTOR PROPOSES TO USE 33. THE EXISTING FILL ON SITE BELOW PAVEMENT AREAS. HE MUST DEMONSTRATE THAT THE FILL MEETS THE REQUIREMENTS PER THE SPECIFICATIONS. ALL EXCAVATED FILL MATERIAL WHICH DOES NOT MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL BE REMOVED AND DISPOSED OF OFF-SITE AT NO ADDITIONAL COST.
- CONTRACTOR IS RESPONSIBLE FOR STAKING CONSTRUCTION BASELINES IN FIELD WITH A MA. REGISTERED PROFESSIONAL LAND SURVEYOR. NO CONSTRUCTION WILL BE PERFORMED WITHOUT THE PROPOSED BASELINES AND LAYOUTS APPROVED BY THE ENGINEER.
- 24. NO FILL SHALL CONTAIN HAZARDOUS MATERIALS.
- CONTRACTOR SHALL PROVIDE TEMPORARY CONSTRUCTION FENCING AROUND PERIMETER OF WORK AREA (LIMIT OF WORK). FENCE SHALL NOT IMPEDE TRAVEL WAYS.
- 26. ANY QUANTITIES SHOWN ON PLANS ARE FOR COMPARATIVE BIDDING PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE PROJECT SITE TO VERIFY ALL QUANTITIES AND CONDITIONS PRIOR TO SUBMITTING BID.
- ALL EXISTING DRAINAGE FACILITIES TO REMAIN SHALL BE MAINTAINED FREE OF DEBRIS, SOIL,

- SEDIMENT, AND FOREIGN MATERIAL AND OPERATIONAL THROUGHOUT THE LIFE OF THE CONTRACT. REMOVE ALL SOIL, SEDIMENT, DEBRIS AND FOREIGN MATERIAL FROM ALL DRAINAGE STRUCTURES, INCLUDING BUT NOT LIMITED TO, DRAINAGE INLETS, MANHOLES AND CATCH BASINS WITHIN THE LIMIT OF WORK AND DRAINAGE STRUCTURES OUTSIDE THE LIMIT OF WORK THAT ARE IMPACTED BY THE WORK FOR THE ENTIRE DURATION OF
- CONTRACTOR'S STAGING AREA MUST BE WITHIN THE CONTRACT LIMIT LINE AND IN AREAS APPROVED BY OWNER. ANY OTHER AREAS THAT THE CONTRACTOR MAY WISH TO USE FOR STAGING MUST BE COORDINATED WITH THE OWNER.
- THE CONTRACTOR SHALL KEEP ALL STREETS. PARKING LOTS AND WALKS THAT ARE NOT RESTRICTED FROM PUBLIC USE DURING CONSTRUCTION BROOM CLEAN AT ALL TIMES. THE CONTRACTOR SHALL USE ACCEPTABLE METHODS AND MATERIALS TO MAINTAIN ADEQUATE DUST CONTROL THROUGHOUT CONSTRUCTION.
- 30. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER.
- 31. THE LIMIT OF WORK SHALL BE DELINEATED IN THE FIELD PRIOR TO THE START OF SITE CLEARING OR CONSTRUCTION AND AGREED UPON WITH THE OWNER'S REPRESENTATIVE.
- DEEP SUMP CATCH BASINS AND STORMWATER BASINS SHALL BE CLEANED FOLLOWING CONSTRUCTION AND SHALL FOLLOW THE OPERATION AND MAINTENANCE PLAN THEREAFTER.
- HAULING OF EARTH MATERIALS TO AND FROM THE SITE SHALL BE RESTRICTED TO THE HOURS OF 7 AM TO 3:30 PM.
- ANY BOULDERS 3 CY OR SMALLER SHALL BE CONSIDERED UNDOCUMENTED FILL AND SHALL BE DISPOSED OF AT NO ADDITIONAL COST TO THE CITY.
- 35. WORK ON WEEKENDS SHALL ONLY BE CONDUCTED IF PRIOR WRITTEN PERMISSION IS PROVIDED BY THE CITY.
- NO TRUCKS SHALL BE LEFT IDLING ON CITY STREETS DURING CONSTRUCTION. CONSTRUCTION TRAFFIC AT NO TIME SHALL IMPEDE FLOW OF RESIDENT TRAFFIC.
- WETLAND RESOURCE AREA BOUNDARIES WERE DETERMINED PER WETLAND DELINEATION PERFORMED ON 9/5/2024

EROSION AND SEDIMENT CONTROL NOTES

- 1. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE PUT INTO PLACE PRIOR TO FEATURES AND APPURTENANCES NECESSARY TO ACCOMPLISH THE CONSTRUCTION OF THE BEGINNING ANY CONSTRUCTION OR DEMOLITION. REFER TO PLANS FOR APPROXIMATE LOCATION OF EROSION AND SEDIMENT CONTROL. REFER TO SPECS AND DETAILS FOR TYPE OF EROSION AND SEDIMENT CONTROL.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUAL MAINTENANCE OF ALL CONTROL DEVICES THROUGHOUT THE DURATION OF THE PROJECT.
 - CONTRACTOR SHALL MEET ALL OF THE STATE OF MASSACHUSETTS AND THE CITY OF WORCESTER WETLAND ORDINANCE REGULATIONS FOR SEDIMENT AND EROSION CONTROL.
 - EXCAVATED MATERIAL STOCKPILED ON THE SITE SHALL BE SURROUNDED BY A RING OF UNBROKEN SEDIMENT AND EROSION CONTROL FENCE. THE LIMITS OF ALL GRADING AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE APPROVED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THE LIMIT OF CONTRACT SHALL REMAIN TOTALLY UNDISTURBED UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
 - ALL CATCH BASINS AND DRAIN GRATES WITHIN THE LIMIT OF WORK SHALL BE PROTECTED WITH SILT SACKS DURING THE ENTIRE DURATION OF CONSTRUCTION.
 - 6. EROSION CONTROL BARRIERS TO BE INSTALLED AT THE TOE OF SLOPES. SEE GRADING & DRAINAGE PLANS, NOTES, DETAILS AND SPECIFICATIONS.
 - THE CONTRACTOR SHALL PROVIDE DUST CONTROL FOR CONSTRUCTION OPERATIONS AS APPROVED BY THE OWNER'S REPRESENTATIVE AND MASSACHUSETTS D.E.P. REQUIREMENTS.
 - ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ON TO PUBLIC/PRIVATE ROADS.
 - 9. ALL MATERIAL HAULING VEHICLES SHALL BE COMPLETELY COVERED PRIOR TO LEAVING THE SITE.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR WHEEL CLEANING OF ALL CONSTRUCTION VEHICLES PRIOR TO EXITING THE SITE. CONTRACTOR SHALL ENSURE THAT MATERIAL HAULING VEHICLES REMAIN ON PAVED SURFACES AS MUCH AS POSSIBLE

LAYOUT & MATERIALS NOTES

- 1. REFER TO EXISTING CONDITIONS PLANS FOR SURVEY INFORMATION (SHEET L1.01).
- COORDINATE ALL LAYOUT ACTIVITIES WITH THE SCOPE OF WORK CALLED FOR BY DEMOLITION, GRADING AND UTILITIES OPERATIONS ENCOMPASSED BY THIS CONTRACT. SET, PROTECT AND REPLACE REFERENCE STAKES AS NECESSARY OR AS REQUIRED BY THE OWNER'S REPRESENTATIVE.
- 3. ALL WORK SHALL BE PERFORMED BY CONTRACTOR UNLESS SPECIFICALLY INDICATED THAT THE WORK WILL BE PERFORMED "BY OTHERS" OR "UNDER SEPARATE CONTRACT".
- 4. TO FACILITATE LAYOUT OF PROPOSED SITE FEATURES AND FACILITIES, LAYOUT INFORMATION FOR CERTAIN FUTURE WORK, WHICH IS NOT INCLUDED WITHIN THE SCOPE OF THIS CONTRACT HAS BEEN PROVIDED ON THE LAYOUT AND MATERIALS PLAN FOR INFORMATION ONLY. SOME ITEMS ARE "NOT IN CONTRACT" (NIC) AND SHOWN FOR REFERENCE ONLY.
- 5. THE LAYOUT OF SITE AMENITIES AND FENCES MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- 6. THE LAYOUT OF ALL NEW PATHWAYS / WALKWAYS AND THE GRADING OF ALL SLOPES AND CROSS SLOPES SHALL CONFORM TO THE STATE RULES AND REGULATIONS FOR HANDICAP ACCESS CMR 521, AND THE AMERICANS WITH DISABILITIES ACT (ADA), TITLE 3. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE
- ALL LAYOUT LINES, OFFSETS, OR REFERENCES TO LOCATING OBJECTS ARE EITHER PARALLEL OR PERPENDICULAR UNLESS OTHERWISE DESIGNATED WITH ANGLE OFFSETS NOTED.
- ALL PROPOSED SITE FEATURES SHALL BE LAID OUT AND STAKED FOR REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF INSTALLATION, ANY REQUIRED ADJUSTMENTS TO THE LAYOUT SHALL BE UNDERTAKEN AS DIRECTED. AT NO ADDITIONAL COST TO THE OWNER. ALL LAYOUT SHALL BE PERFORMED BY A MA. REGISTERED PROFESSIONAL LAND SURVEYOR.
- SURFACES. ALL BITUMINOUS CONCRETE SHALL BE TREATED WITH AN RS-1 TACK COAT AT POINT OF CONNECTION. ALL PATHWAY WIDTHS SHALL BE AS NOTED ON THE LAYOUT AND MATERIALS PLAN.

9. ALL PROPOSED PAVEMENTS SHALL MEET THE LINE AND GRADE OF EXISTING ADJACENT PAVEMENT

- 10. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
- 11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD MEASUREMENT OF ALL PROPOSED FENCES
- 12. THE DEPTH OF LOAM BORROW FOR ALL PROPOSED LAWN AREAS SHALL BE 6" MINIMUM. ALL DISTURBED AREAS SHALL BE RESTORED WITH LOAM AND SEED UNLESS OTHERWISE NOTED.
- 13. REFER TO DETAIL DRAWINGS FOR CONSTRUCTION DETAILS.
- 14. SURVEY CONTROL POINTS AND COORDINATES ARE INDICATED ON THE PLANS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT OR CREATE HIS OWN PROTECTED CONTROL POINTS FROM THIS INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL LAYOUT POINTS ARE CONSISTENT WITH CONTROL INFORMATION. RESETTING OF DAMAGED OR MISSING LAYOUT MARKERS AS NECESSARY IS AT NO ADDITIONAL COST TO THE OWNER.

GRADING & DRAINAGE NOTES

AT THE END OF THE PROJECT.

- 1. ALL WORK RELATING TO INSTALLATION, RENOVATION OR MODIFICATION OF DRAINAGE SERVICES SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE CITY OF WORCESTER AND ITS DEPARTMENT OF PUBLIC WORKS.
- 2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, GRADES AND INVERT ELEVATIONS IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER AND OWNER'S REPRESENTATIVE.
- 3. ALL NEW WALKWAYS MUST CONFORM TO DRAWINGS AND TO CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REGULATIONS: WALKWAYS SHALL MAINTAIN A CROSS PITCH OF NOT MORE THAN TWO (2%) PERCENT MAXIMUM AND THE RUNNING SLOPE (PARALLEL TO THE DIRECTION OF TRAVEL) OF FIVE (5%) PERCENT MAXIMUM.
- 4. MINIMUM SLOPE ON ALL WALKWAYS WILL BE 1:100 OR 1% TO PROVIDE POSITIVE DRAINAGE ANY DISCREPANCIES NOT ALLOWING THIS TO OCCUR SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE PRIOR TO CONTINUING WORK.
- 5. ALL UTILITY GRATES, COVERS OR OTHER SURFACE ELEMENTS INTENDED TO BE EXPOSED AT GRADE SHALL BE FLUSH WITH THE ADJACENT FINISHED GRADE AND ADJUSTED TO PROVIDE A SMOOTH TRANSITION AT ALL EDGES.
- 6. THE CONTRACTOR SHALL SET SUBGRADE ELEVATIONS TO ALLOW FOR POSITIVE DRAINAGE AND PROVIDE EROSION CONTROL DEVICES, STRUCTURES, MATERIALS AND CONSTRUCTION METHODS TO DIRECT SILT MIGRATION AWAY FROM DRAINAGE AND OTHER UTILITY SYSTEMS, PUBLIC/ PRIVATE STREETS AND WORK AREAS. CLEAN BASINS REGULARLY AND
- 7. CONTRACTOR SHALL ENSURE ALL AREAS ARE PROPERLY PITCHED TO DRAIN, WITH NO SURFACE WATER PONDING OR PUDDLING.
- 8. EXCAVATION REQUIRED WITHIN PROXIMITY OF KNOWN EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE
- 9. WHERE NEW EARTHWORK MEETS EXISTING EARTHWORK, CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING, PROVIDING VERTICAL CURVES OR ROUNDS AT ALL TOP AND BOTTOM OF SLOPES.
- 10. WHERE A SPECIFIC LIMIT OF WORK LINE IS NOT OBVIOUS OR IMPLIED, BLEND GRADES TO
- EXISTING CONDITIONS WITHIN 5 FEET OF PROPOSED CONTOURS.
- 11. RESTORE ALL DISTURBED AREAS AND LIMITS OF ALL REMOVALS TO LOAM AND SPECIFIED CONSERVATION SEED MIX UNLESS OTHERWISE NOTED.
- 12. WHERE NEW IMPROVEMENTS MEET EXISTING CONDITIONS, MEET LINE AND GRADE OF EXISTING ADJACENT PAVEMENTS, TYPICAL.

ABBREVIATIONS

GENERAL PROP PROPOSED ADJ ADJUST BIT. CONC. BITUMINOUS CONCRETE CEM. CONC. CEMENT CONCRETE BASELINE N.T.S. NOT TO SCALE **BVCL** BLACK VINYL CHAIN LINK B.M. BENCH MARK ABAN ABANDON MB MAIL BOX GRAN. CURB **GRANITE CURB** EXIST. (OR EX.) EXISTING FDN FOUNDATION (OR F) FLOW LINE PROPERTY LINE **PVMT** PAVEMENT P.W.W. PAVED WATERWAY REINFORCED CONCRETE REM REMOVE **REMOD** REMODEL RET RETAIN R.O.W. RIGHT-OF-WAY

R&S REMOVE AND SALVAGE R,R&S REMOVE, RELOCATE AND SALVAGE R&D REMOVE AND DISPOSE STONE BOUND NOT IN CONTRACT HANDICAP WHEELCHAIR RAMP FINISHED FLOOR HOT MIX ASPHALT

GENERAL CONTRACTOR ELECTRICAL CONTRACTOR E.C. PLUMBING CONTRACTOR **SWEL** SOLID WHITE EDGE LINE **BWLL** BROKEN WHITE LANE LINE SYEL SOLID YELLOW EDGE LINE SB/DH STONE BOUND/ DRILL HOLE CLF CHAIN LINK FENCE **TEMP** TEMPORARY TYPICAL EQUIPMENT

HANDICAP EOP EDGE OF PAVEMENT **PROT** PROTECT CTE CONNECT TO EXISTING ROOF LEADER L.O.W. LIMIT OF WORK VERIFY IN FIELD

BORDERING VEGETATED WETLAND

GUTTER INLET W/ CURB INLET

UTILITIES

CATCH BASIN C.I.T. CHANGE IN TYPE FRAME AND GRATE F&G F&C FRAME AND COVER CURB INLET CAST IRON PIPE CMP CORRUGATED METAL PIPE DRAIN INLET **GUTTER INLET** ACCM PIPE ASPHALT COATED CORRUGATED METAL PIPE HYD HYDRANT INV. ELEV. INVERT ELEVATION UTILITY POLE SEWER MANHOLE WATER GATE DOWN SPOUT HIGH DENSITY POLYETHYLENE PIPE **HDPE** PVC POLYVINYL CHLORIDE RCP REINFORCED CONCRETE PIPE **DMH** DRAIN MANHOLE LEACHING BASIN LEACHING GALLEY CAST IRON OCS OUTLET CONTROL STRUCTURE OGT OIL AND GRIT TRAP VITRIFIED CLAY PIPE LIGHT POLE OVERHEAD WIRE OHW UPLP UTILITY POLE WITH LIGHT STORM WATER TREATMENT UNIT **SWTU** HANDHOLE **GARAGE WASTE** CLEANOUT LEACHING CHAMBER GATE VALVE CONNECTION UNKNOWN

ALIGNMENT/GRADING

BOTTOM OF WALL

BOTTOM OF CURB POINT OF INTERSECTION POINT OF CURVATURE POINT OF TANGENCY POINT OF REVERSE CURVATURE PCC POINT OF COMPOUND CURVATURE POINT OF VERTICAL INTERSECTION PVC POINT OF VERTICAL CURVATURE POINT OF VERTICAL TANGENCY **ELEV** ELEVATION CENTER OF CURVE HIGH POINT LOW POINT RADIUS OF CURVATURE STA STATION S.S.D. STOPPING SIGHT DISTANCE TOP OF CURB TOP OF WALL

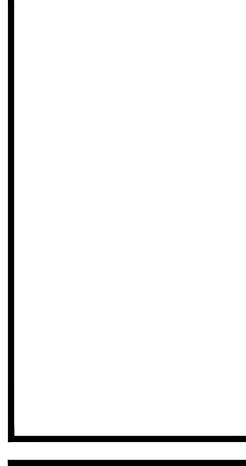
CITY OF WORCESTER Dept. of Parks, Recreation & Cemeter

GREAT BROOK VALLEY PARKS **IMPROVEMENTS** 33 Northeast Cutoff, Worcester Massachusetts 01605

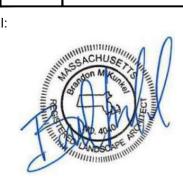


Worcester, MA 01608 508.762.1676 800.SAMPSON www.westonandsampson.com

Consultants:



No. Date Description



Issued For:

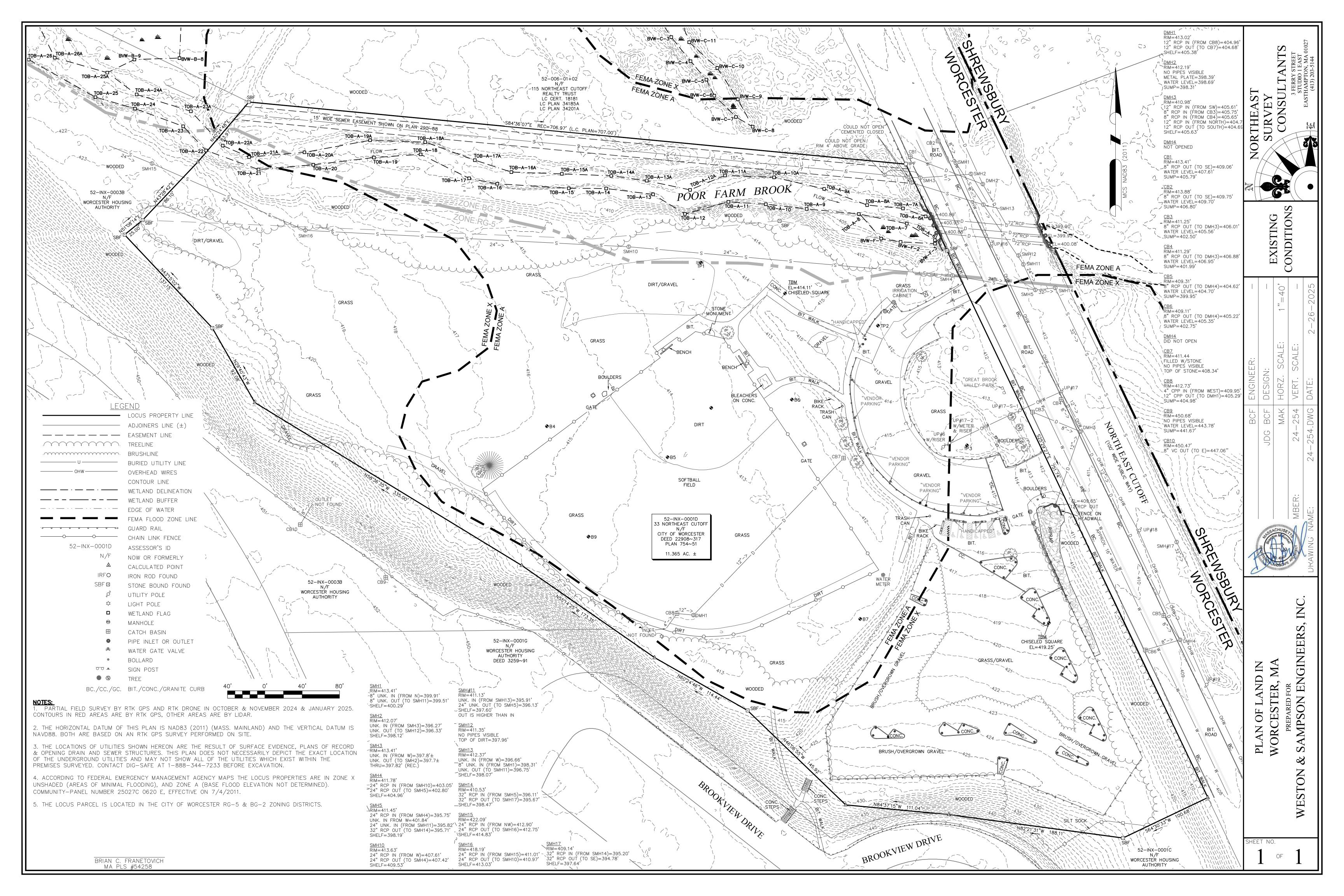
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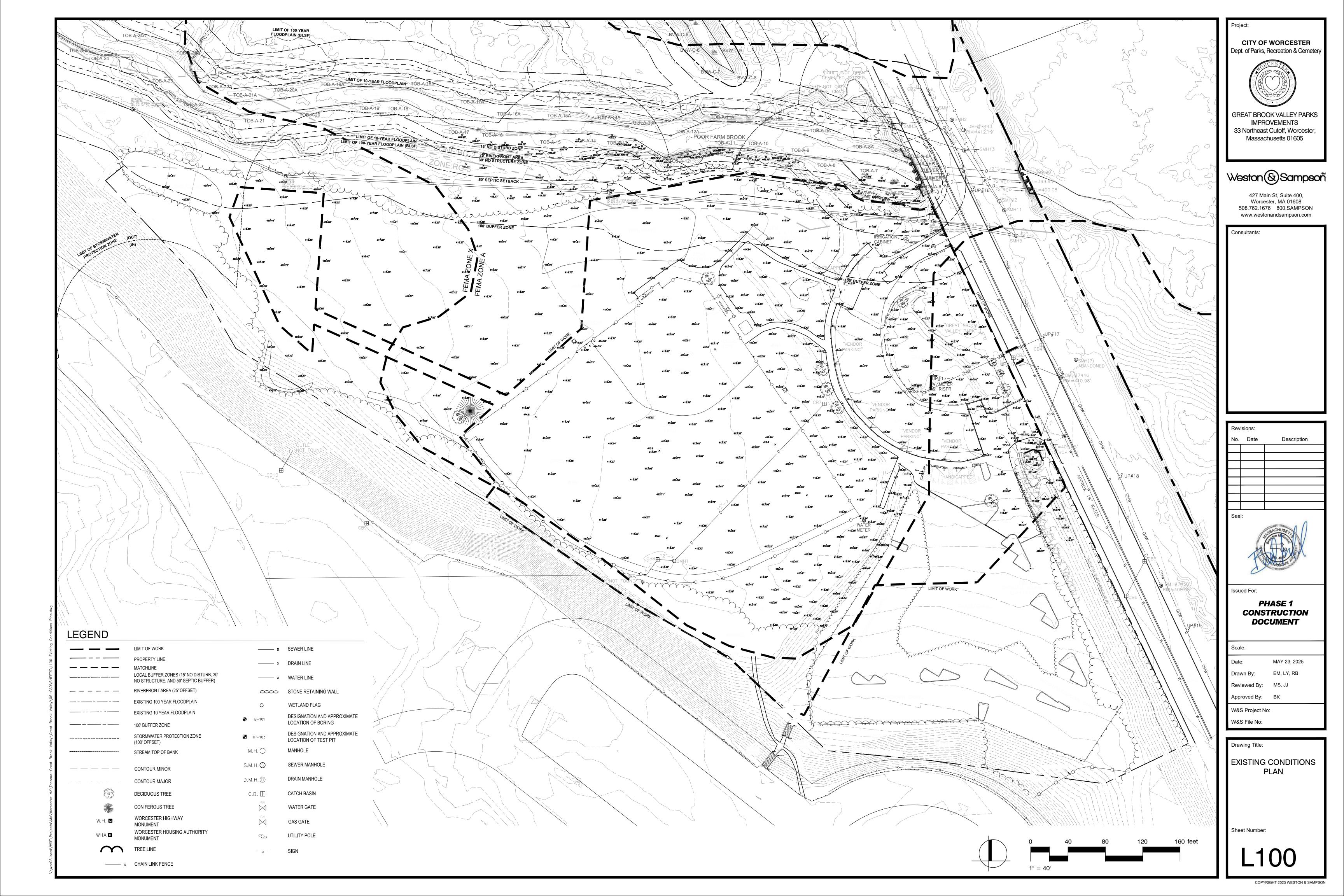
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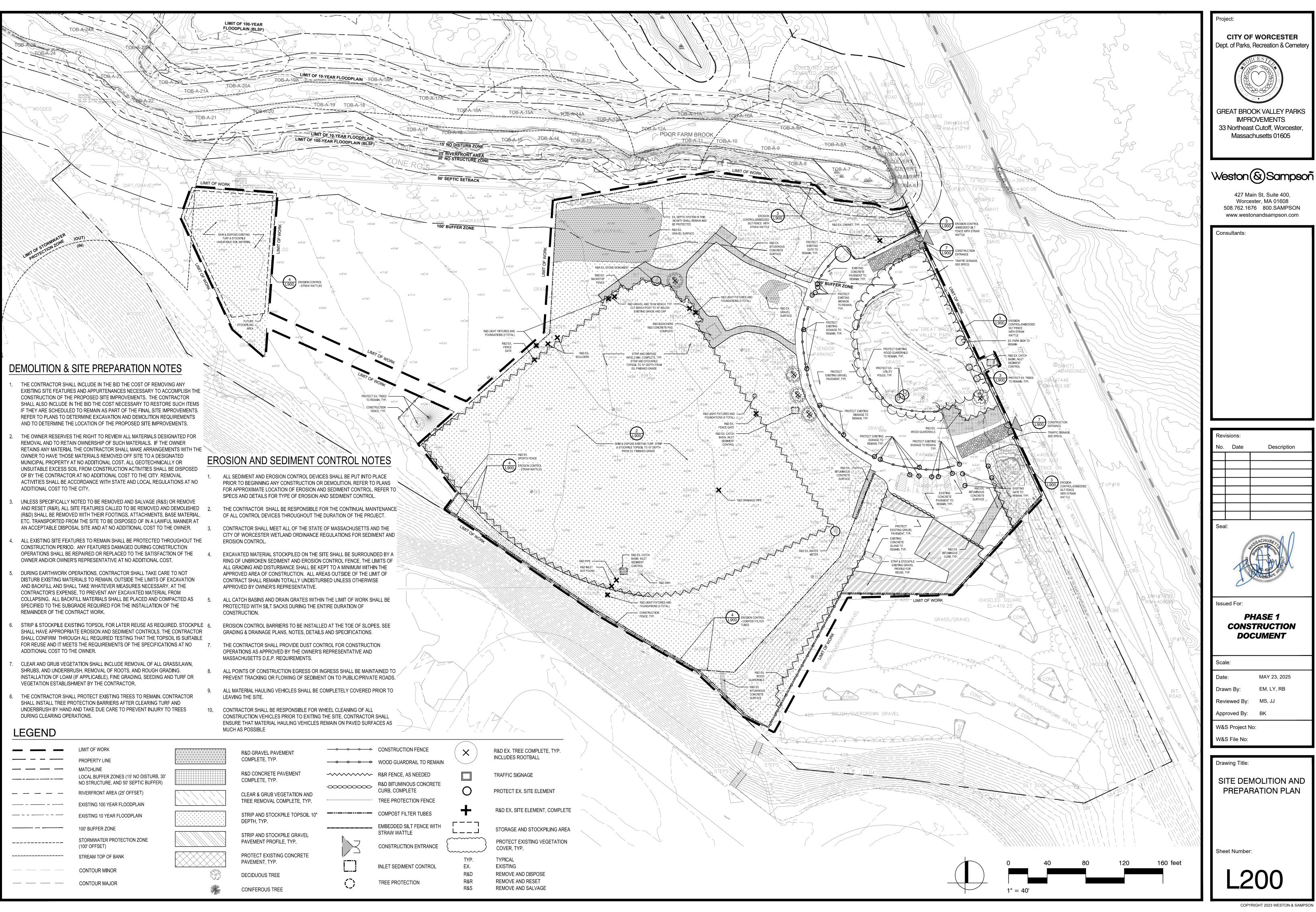
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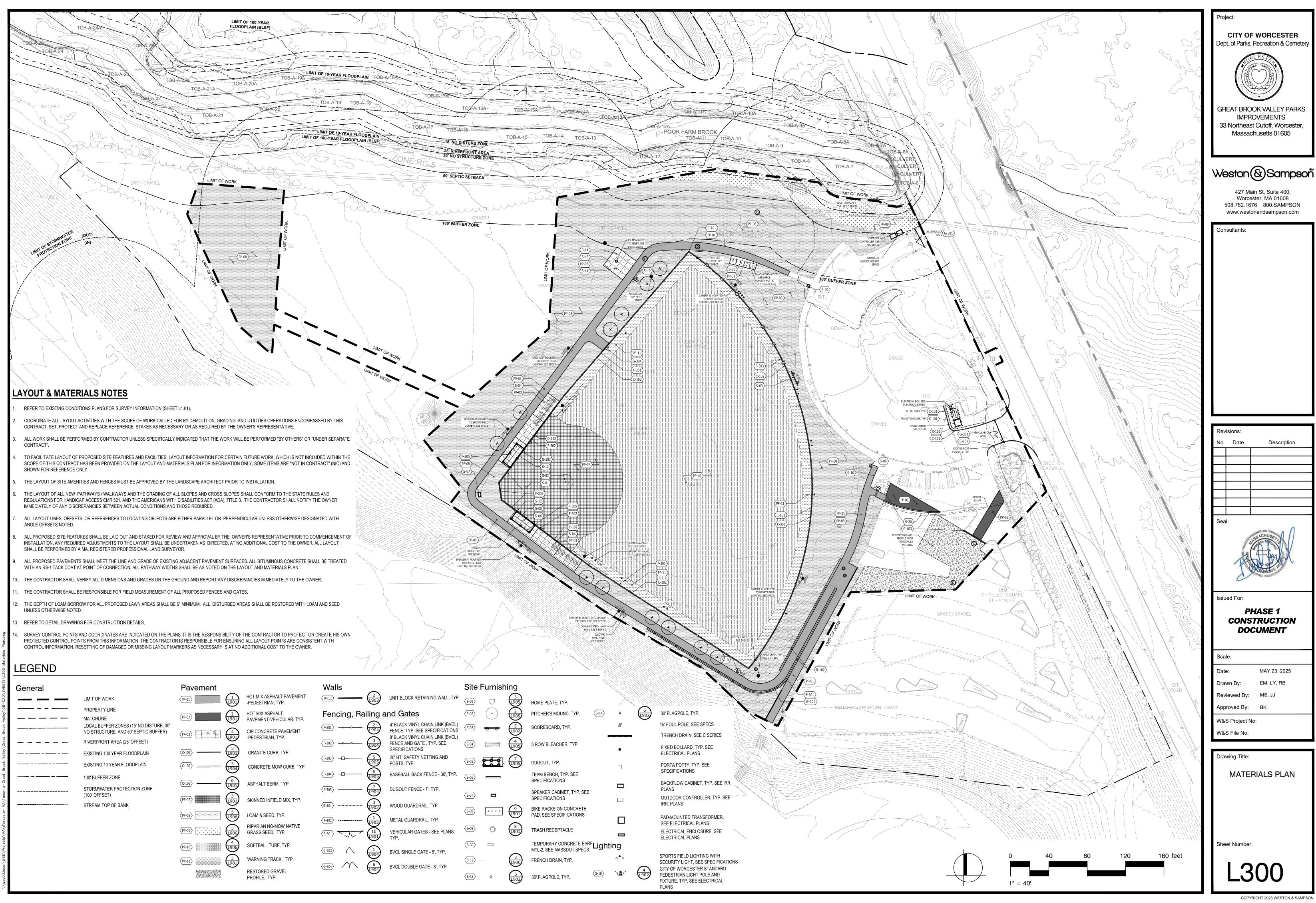
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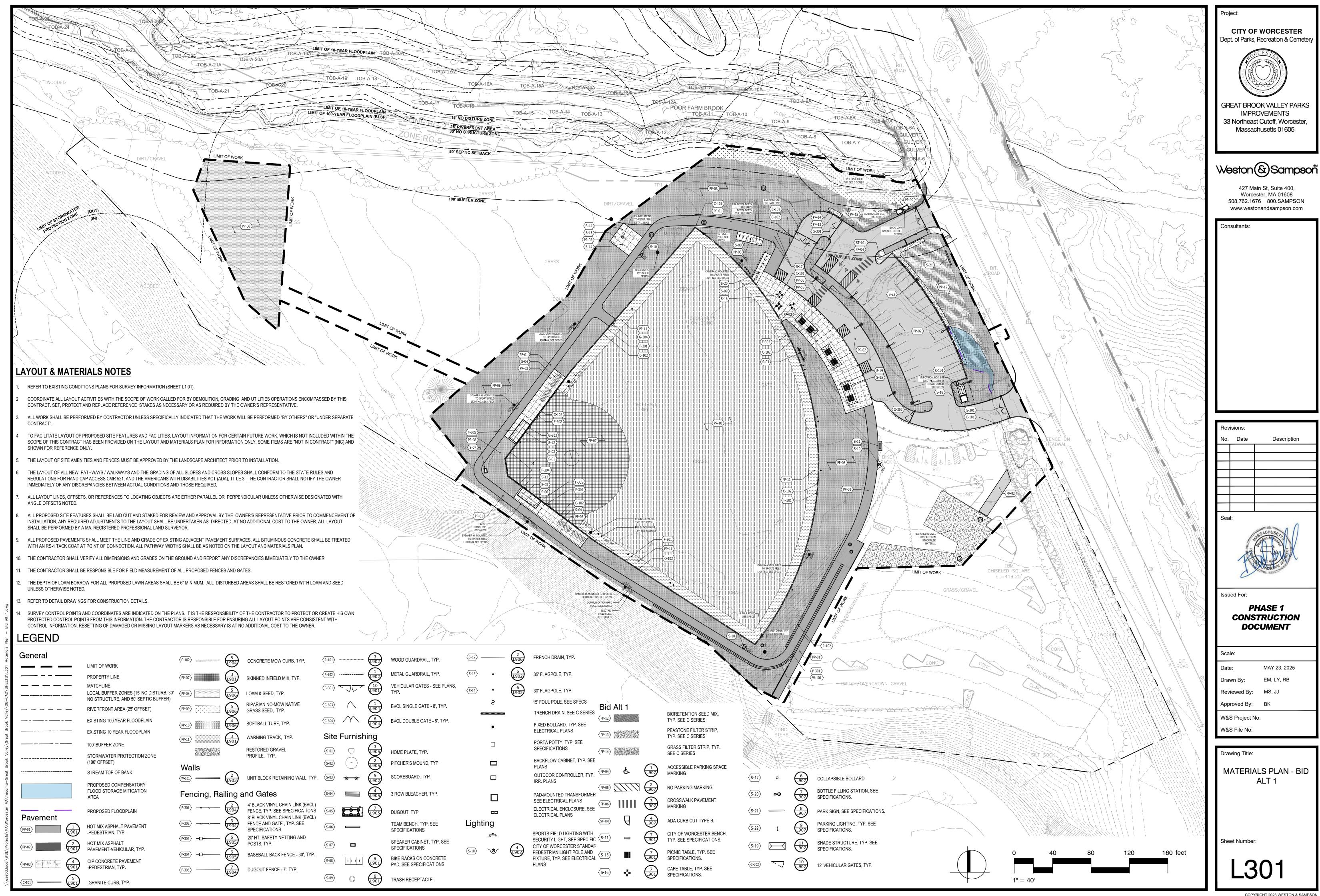
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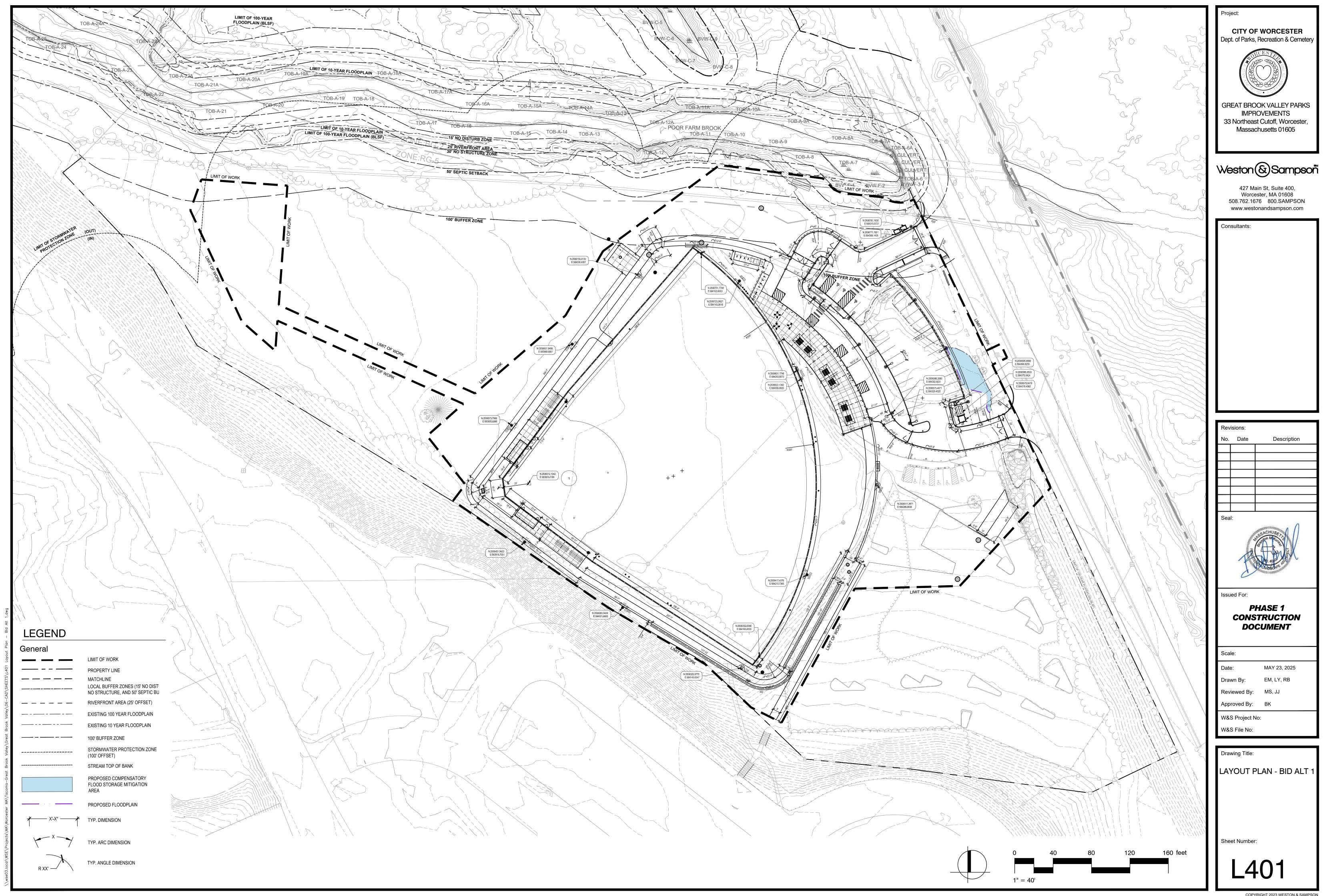


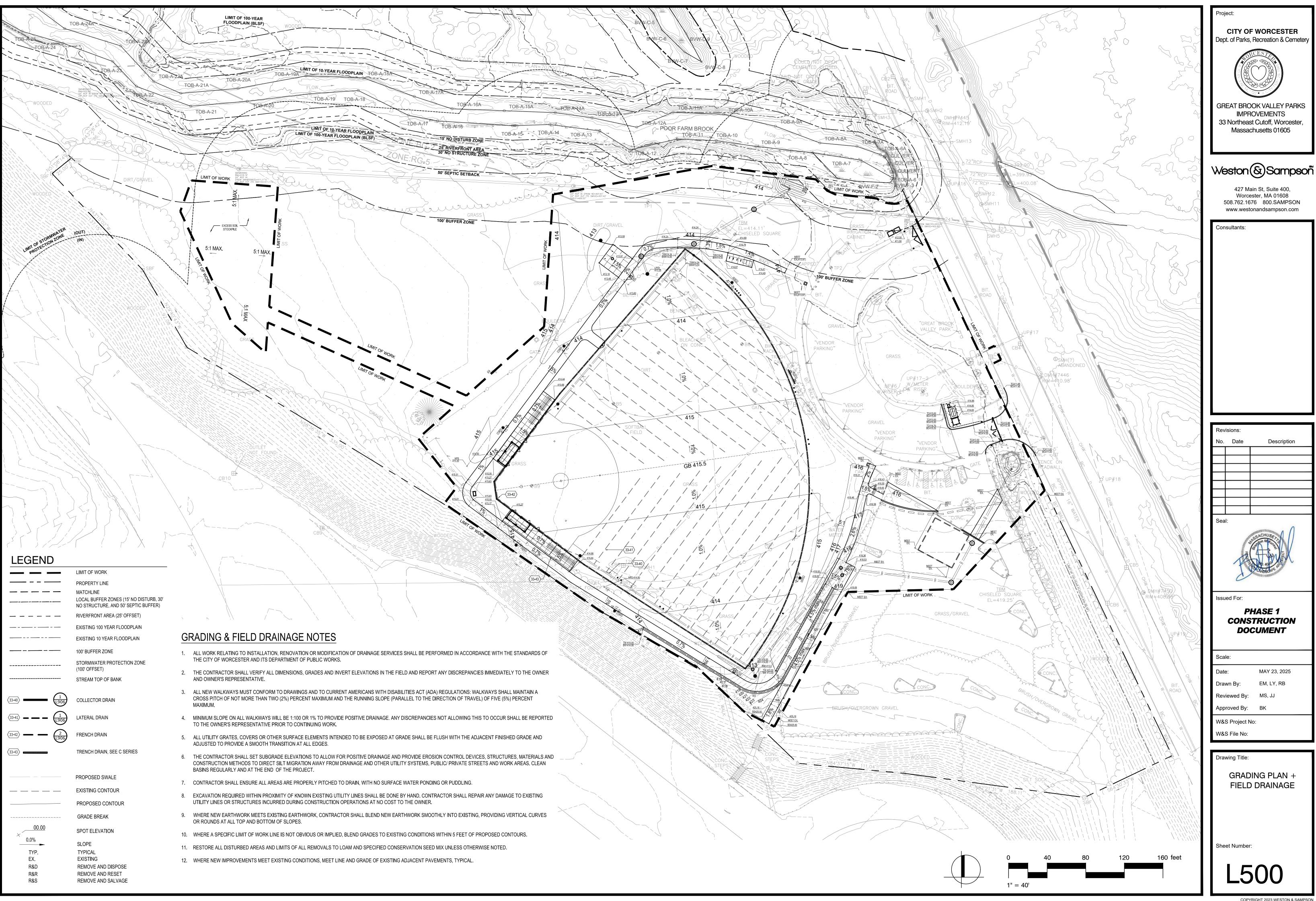


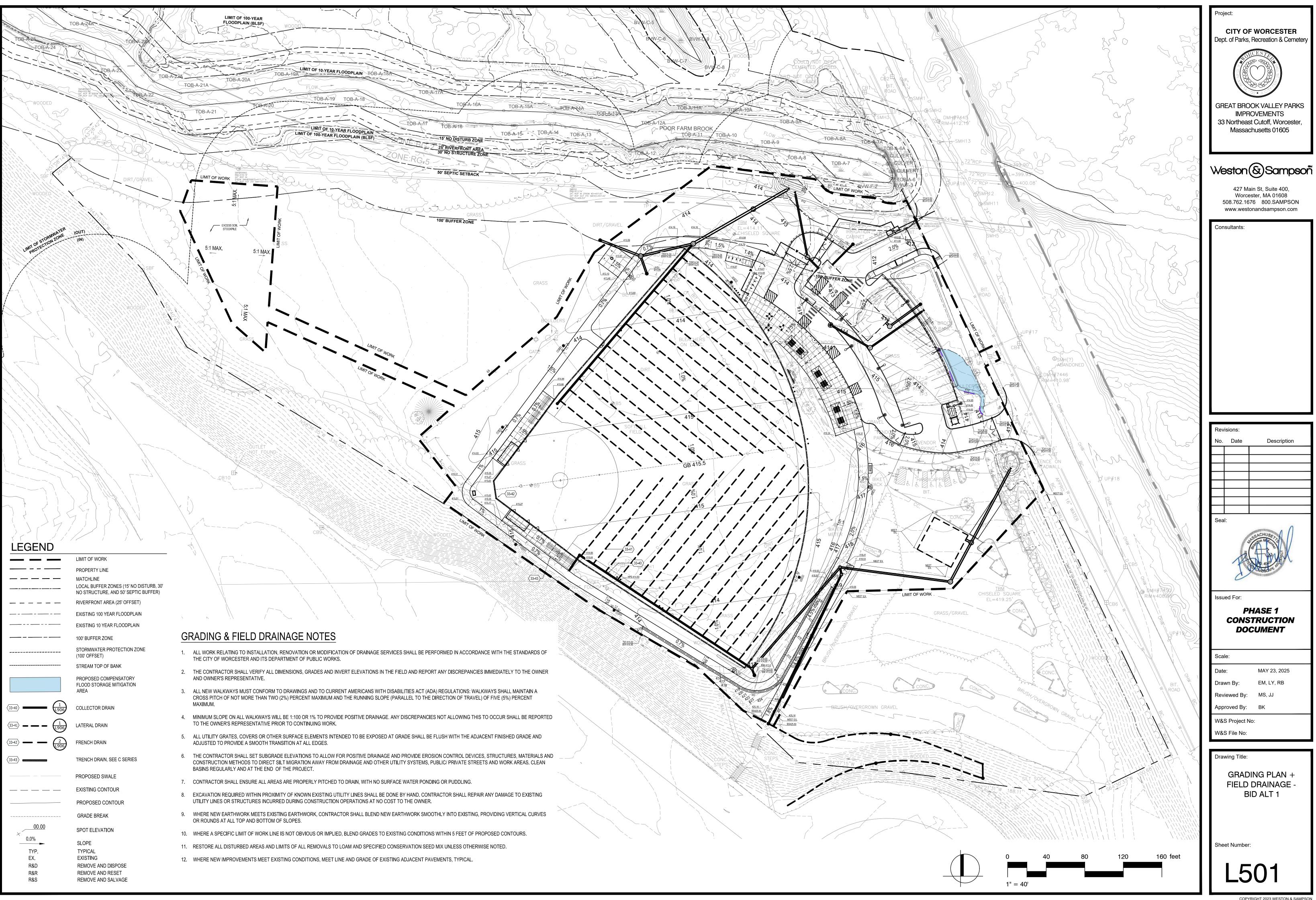


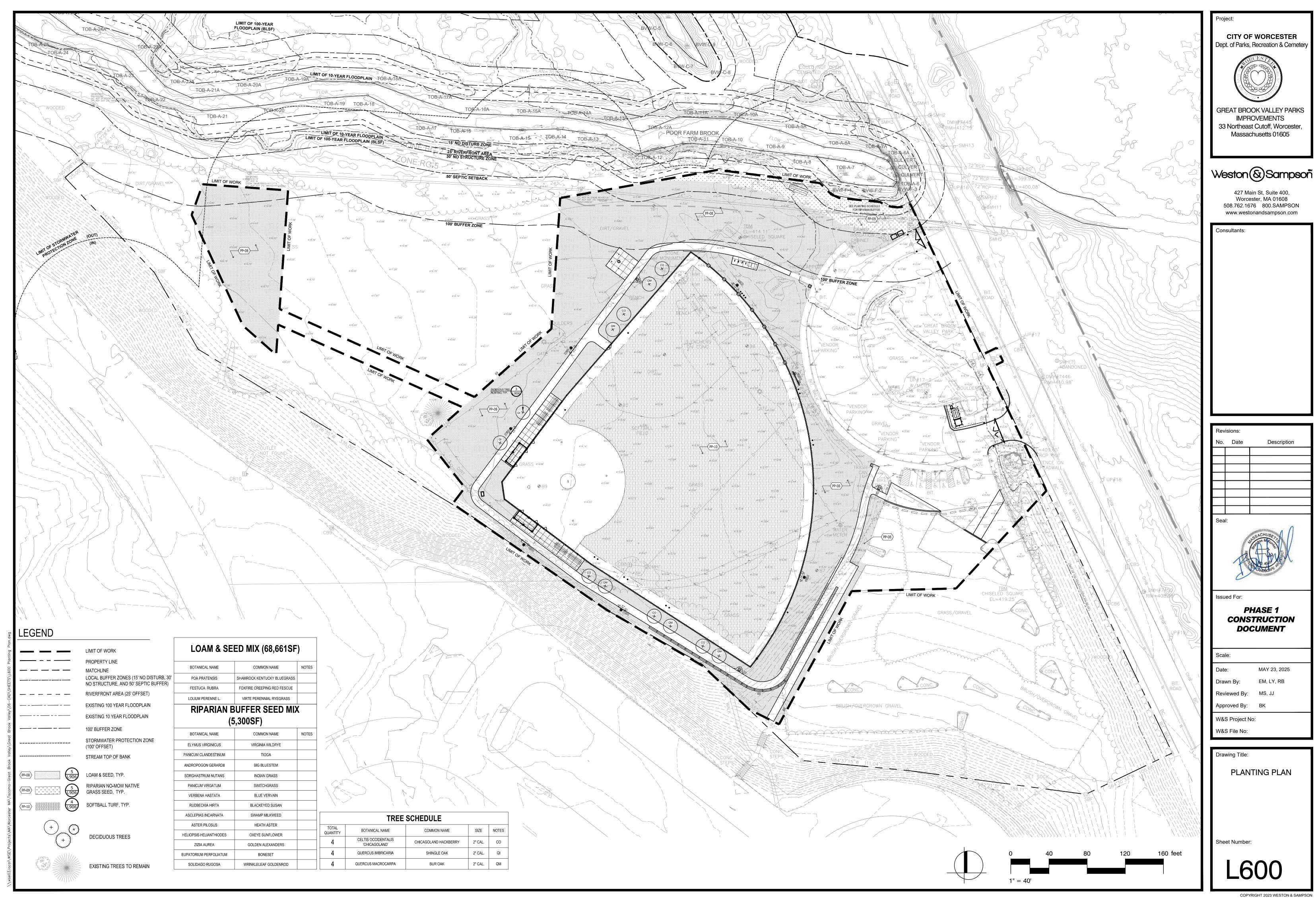


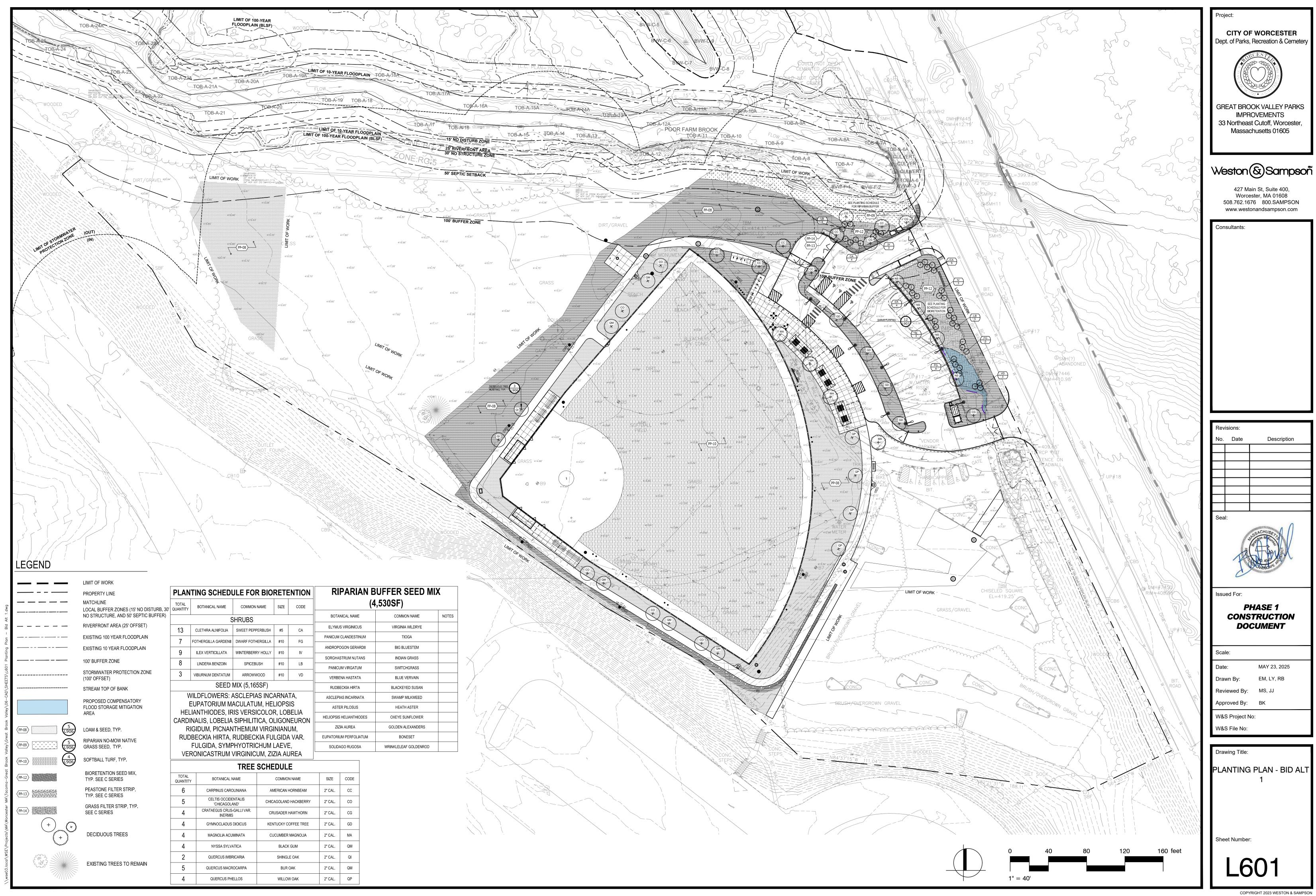


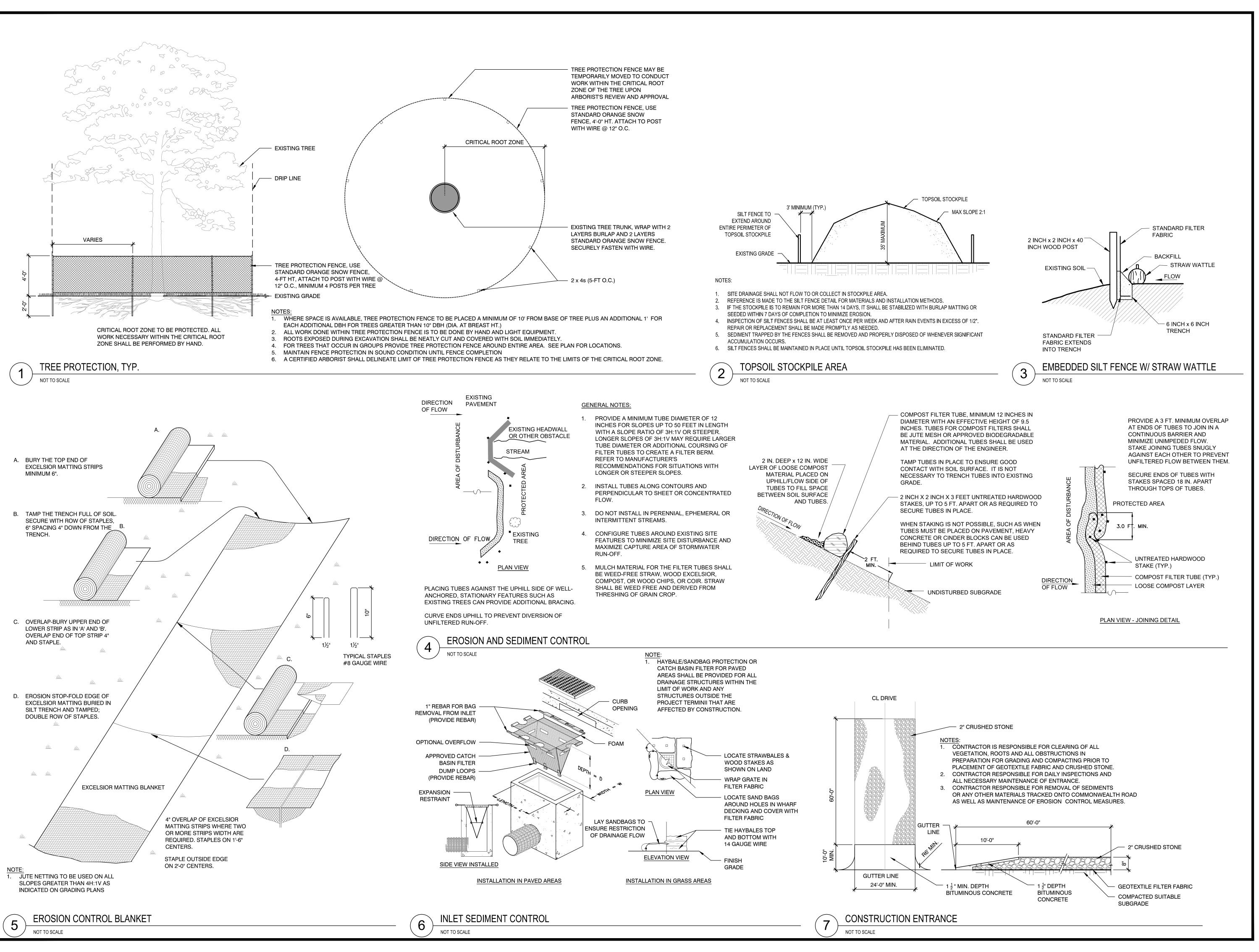












CITY OF WORCESTER
Dept. of Parks, Recreation & Cemetery

GREAT BROOK VALLEY PARKS
IMPROVEMENTS
33 Northeast Cutoff, Worcester,
Massachusetts 01605

Weston & Sampson

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Reviewed By: MS, JJ

Approved By: BK

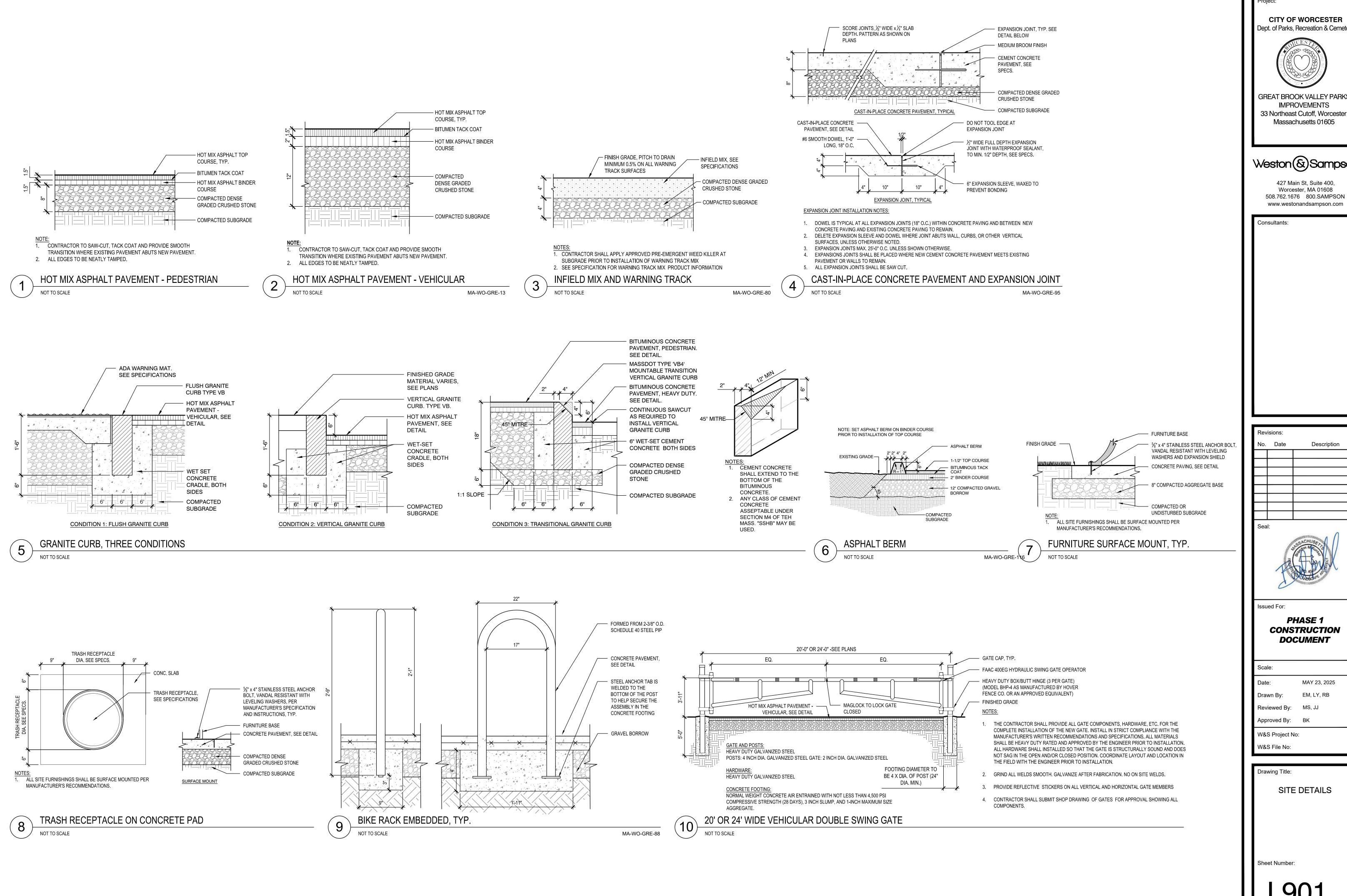
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SITE DETAILS

Sheet Number:

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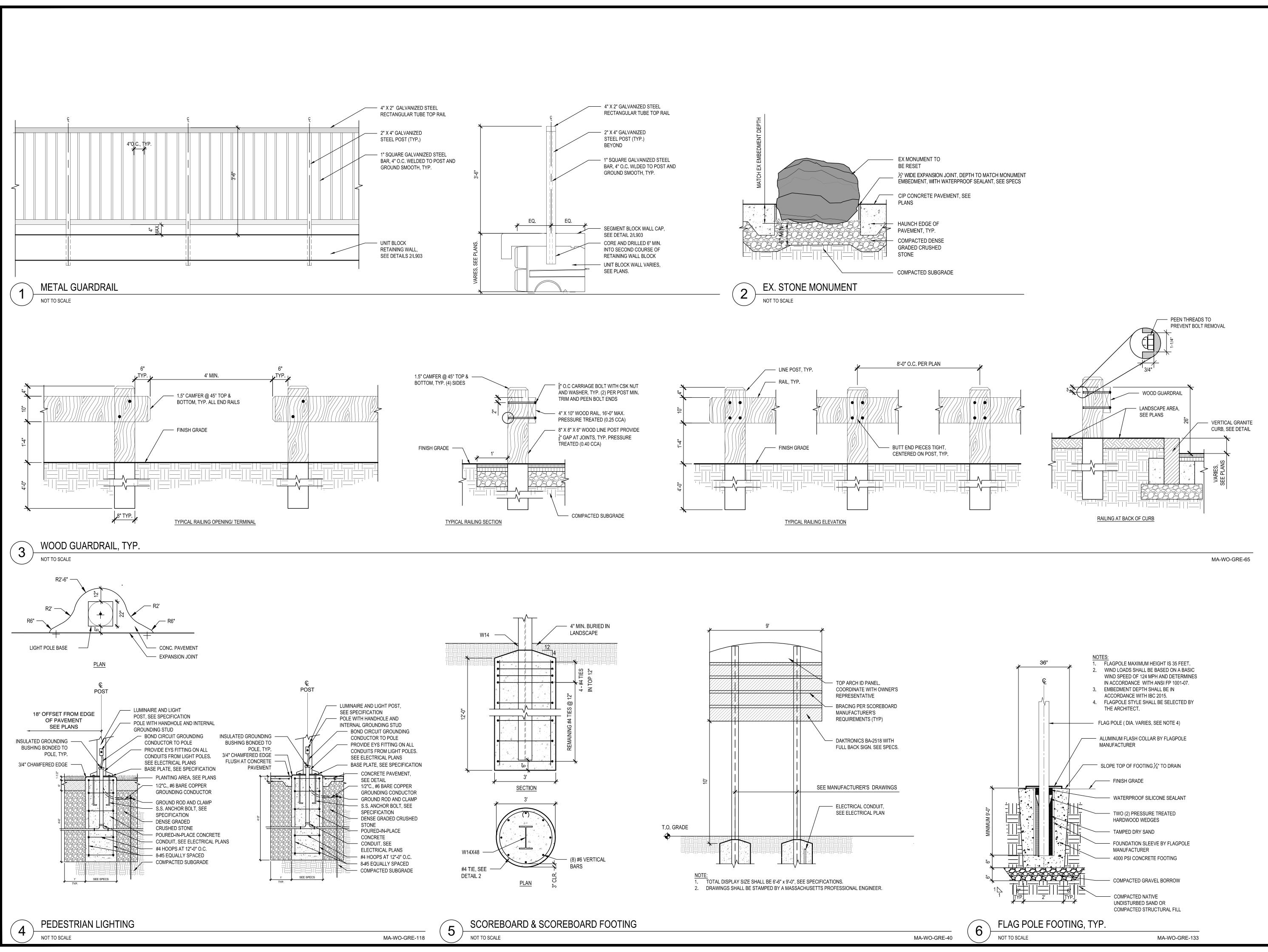
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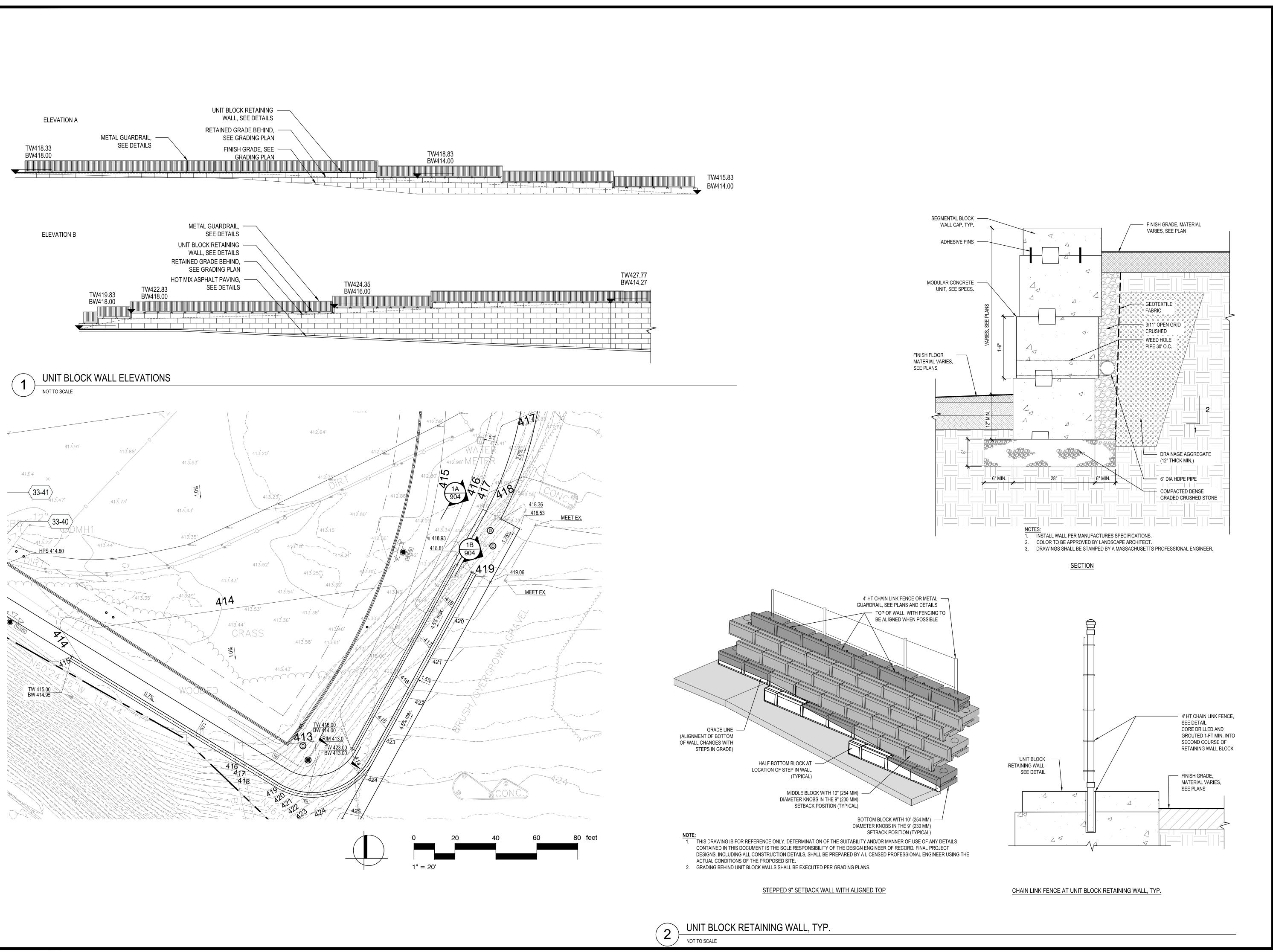
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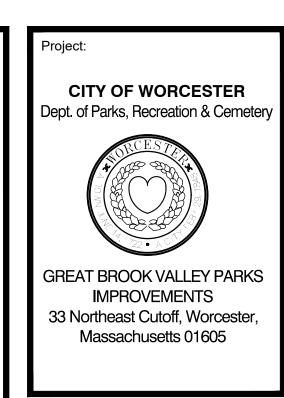
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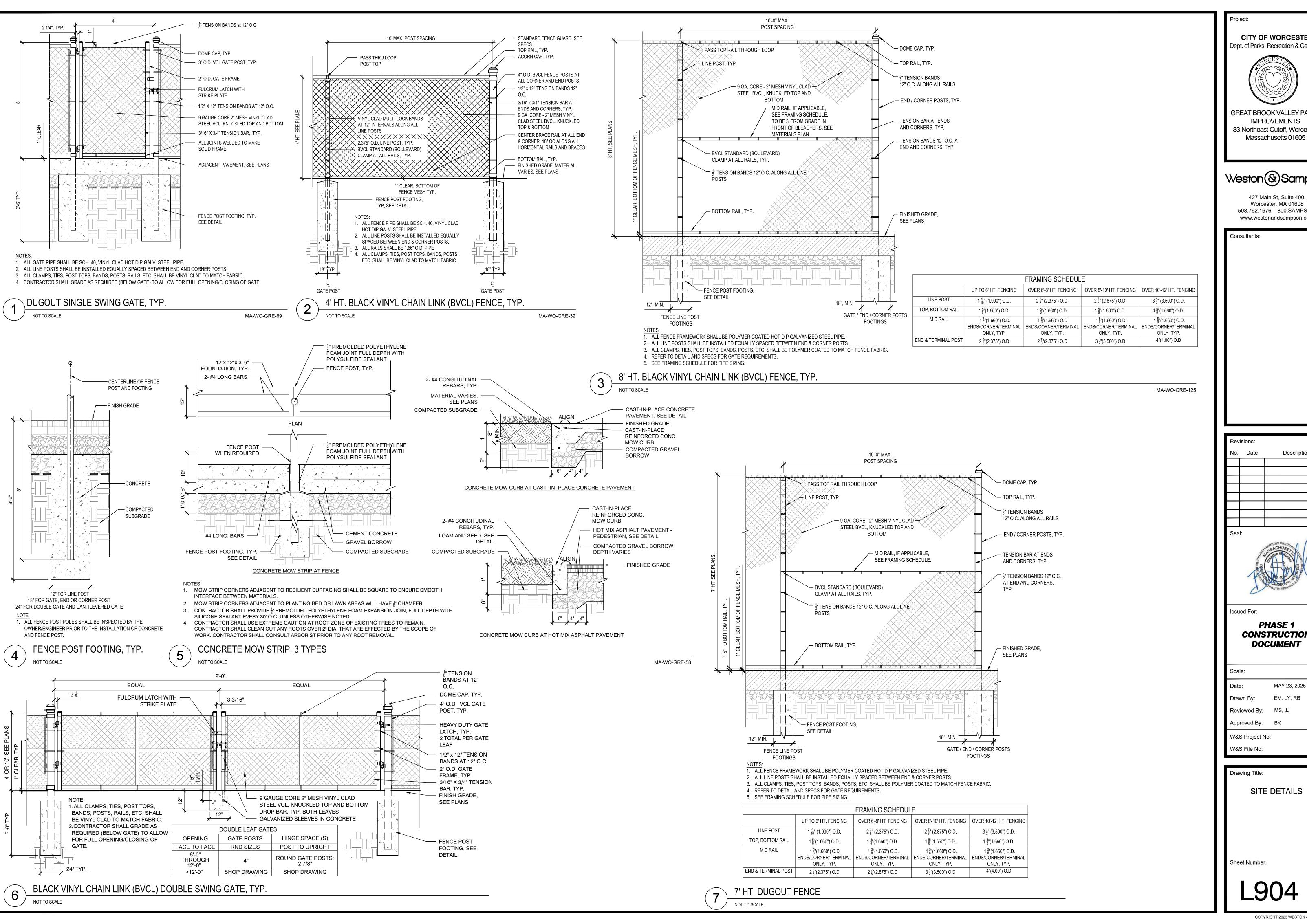
Date: MAY 23, 2025 EM, LY, RB Drawn By: Reviewed By: MS, JJ Approved By: BK W&S Project No:

Drawing Title:

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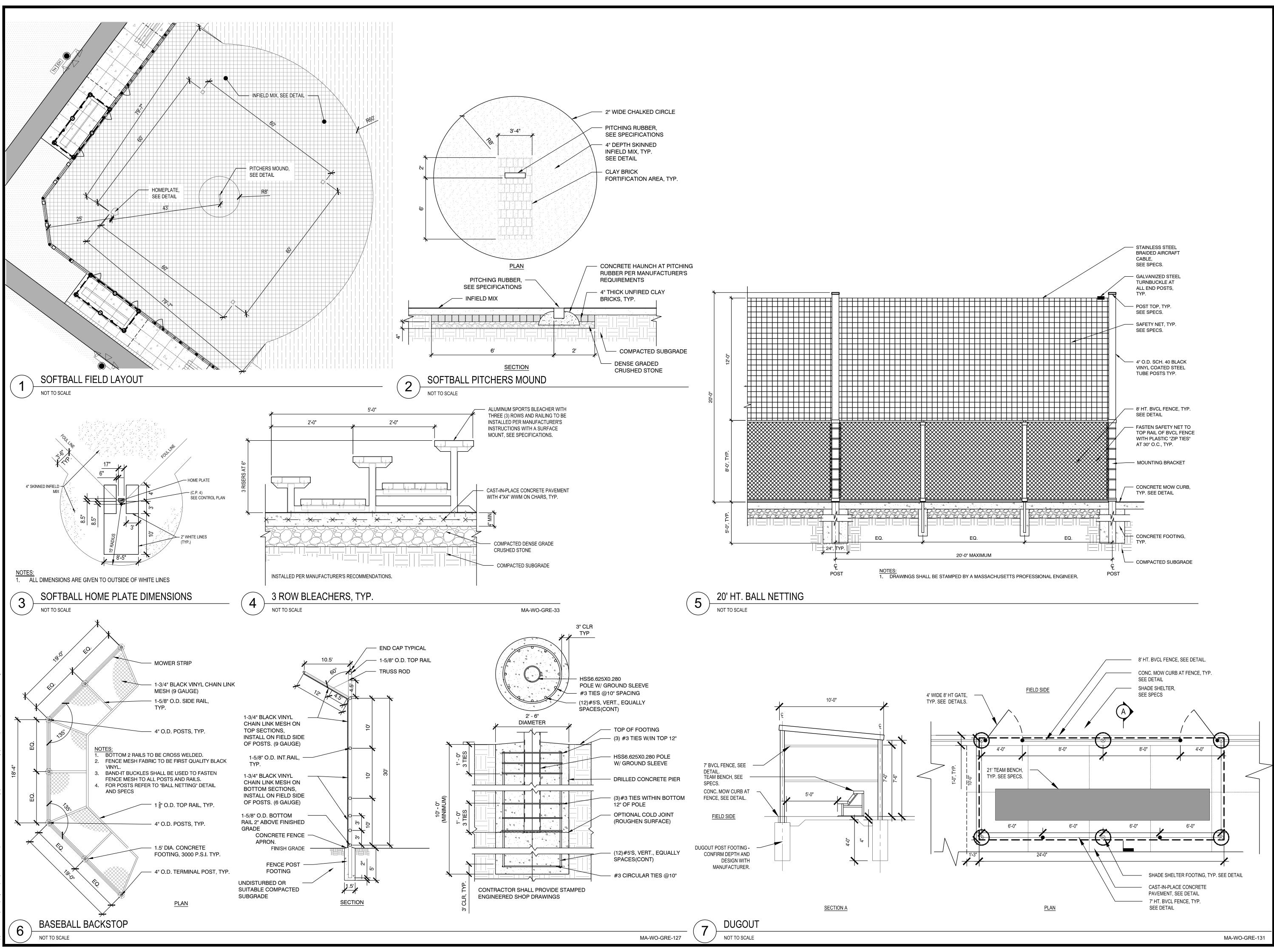
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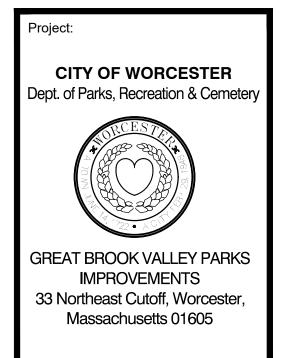
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Drawing Title: SITE DETAILS

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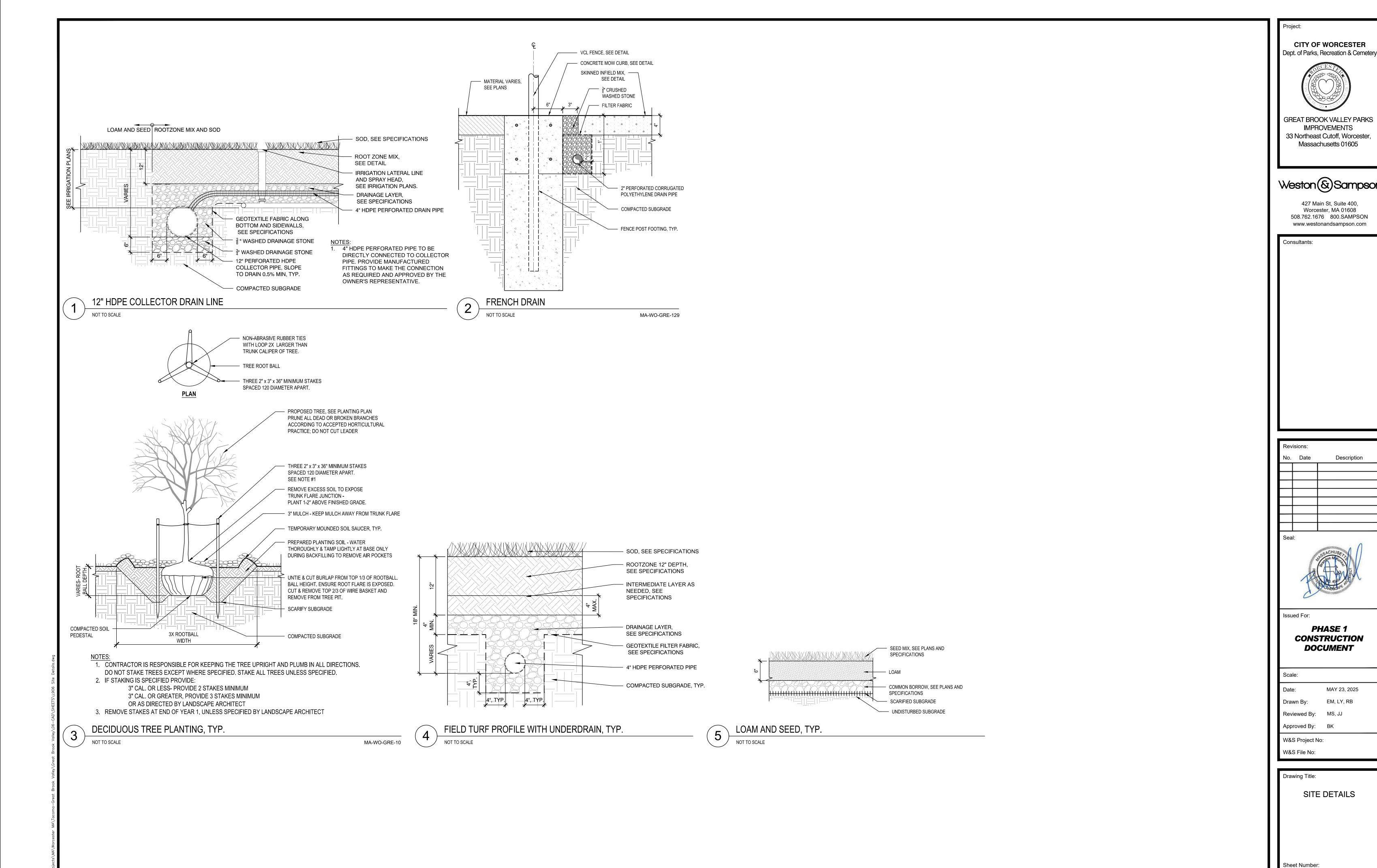
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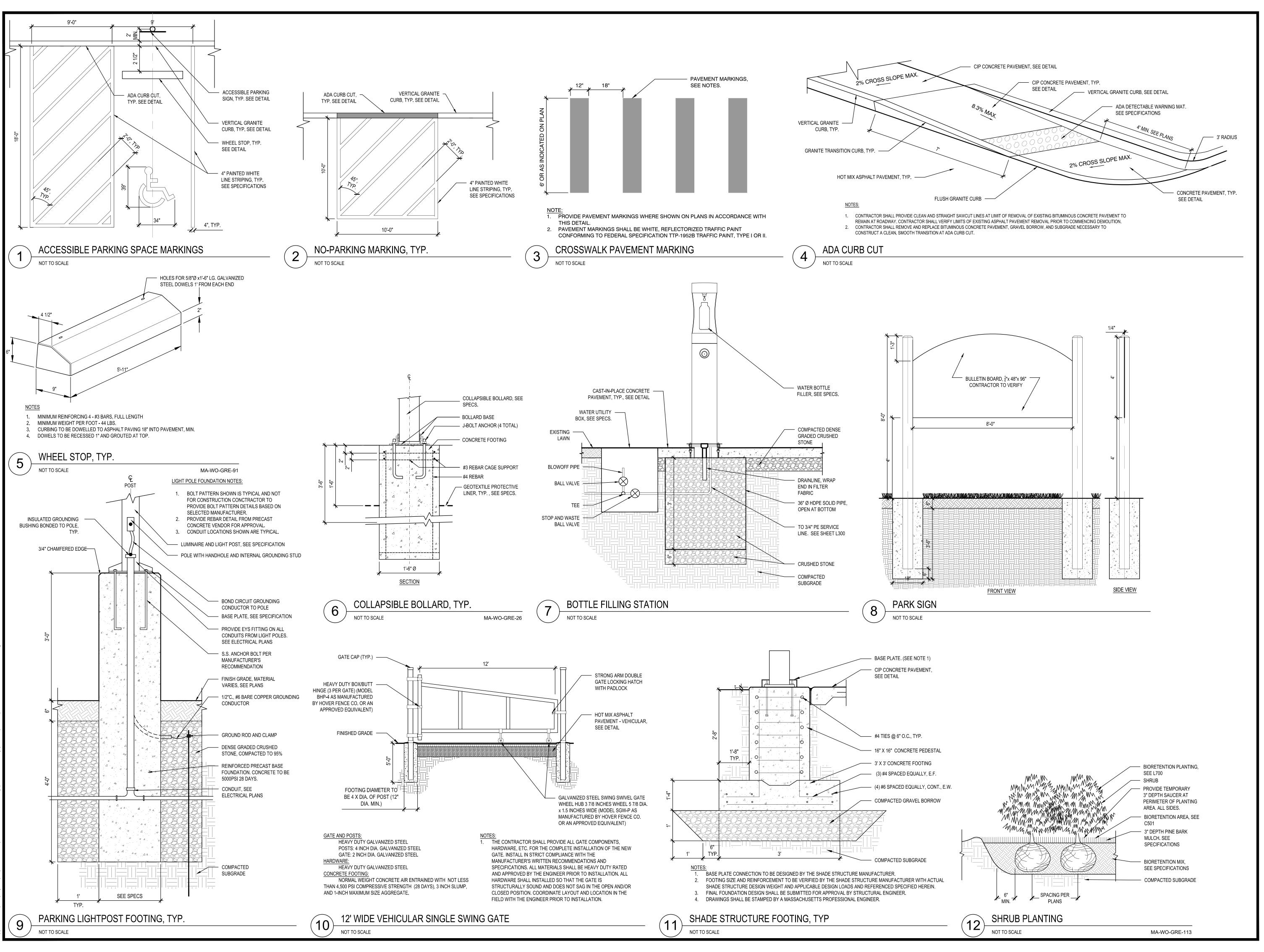
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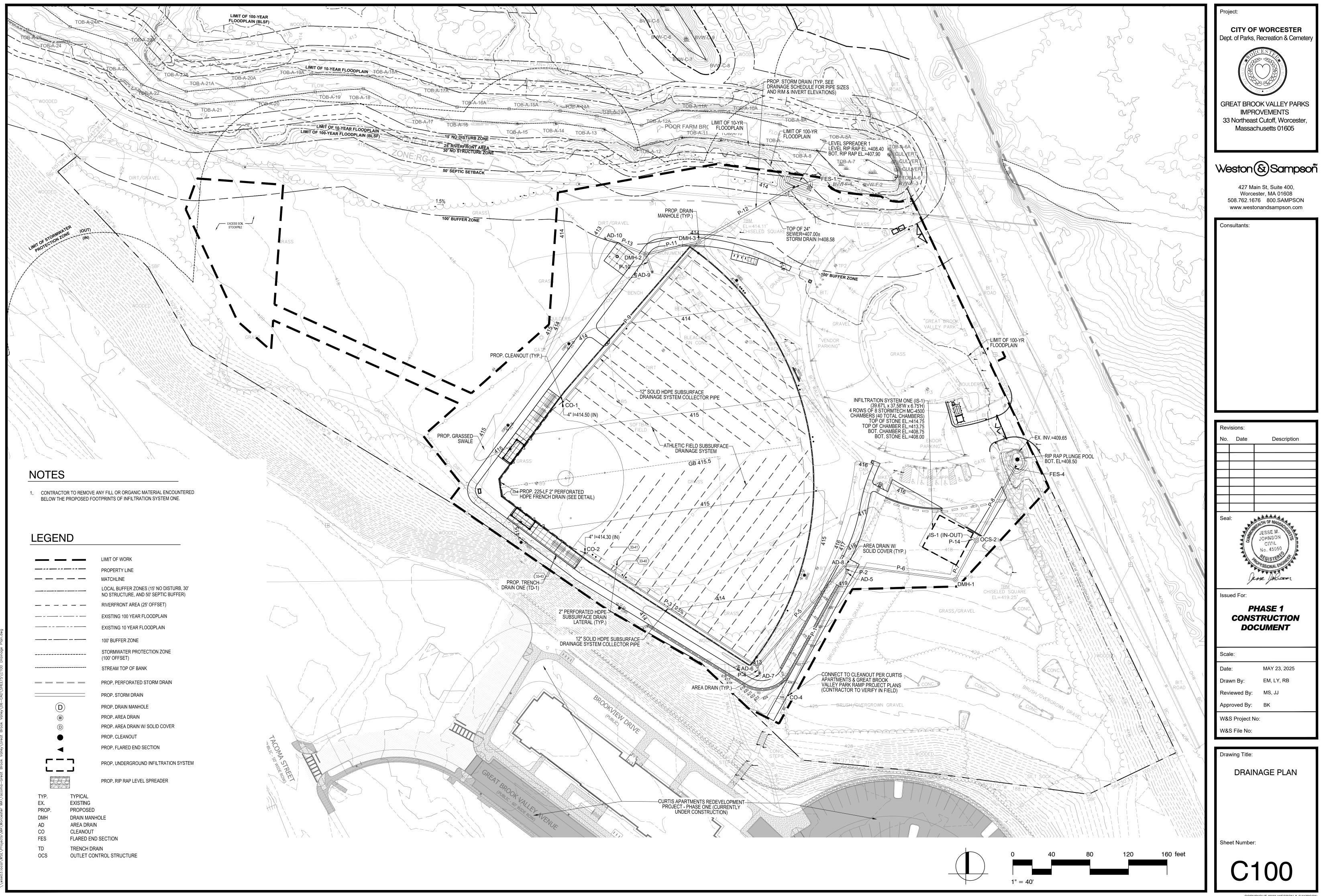
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Dept. of Parks, Recreation & Cemetery GREAT BROOK VALLEY PARKS

| | DRAINAGE STRUCTURE TABLE | | | | |
|---------------|--------------------------|-------------------------------------|--|--|--|
| NAME | RIM | INVERT IN | INVERT OUT | DETAILS | |
| AD-5 | 418.70 | I=415.70 (CO-4) | I=415.70 (AD-8) | 30" AREA DRAIN (SOLID COVER) | |
| AD-6 | 413.20 | I=411.00 (CO-2) I=410.96 (AD-7) | I=410.70 (AD-8) | 30" AREA DRAIN (SOLID COVER) | |
| AD-7 | 413.00 | | I=411.00 (AD-6) | 30" AREA DRAIN | |
| AD-8 | 418.57 | I=410.00 (AD-6) I=415.66 (AD-5) | I=410.00 (DMH-1) | 30" AREA DRAIN (SOLID COVER) | |
| AD-9 | 414.70 | | I=410.09 (DMH-2) | 30" AREA DRAIN | |
| AD-10 | 412.75 | | I=409.50 (DMH-2) | 30" AREA DRAIN | |
| CO-1 | 414.70 | | I=412.70 (DMH-3) | CLEANOUT | |
| CO-2 | 414.70 | I=412.70 (TD-1) | I=412.70 (AD-6) | CLEANOUT | |
| CO-4 | 424.70 | | I=421.22 (AD-5) | CLEANOUT | |
| DMH-1 | 419.19 | I=409.42 (AD-8) | I=409.42 (OCS-2) | DRAIN MANHOLE | |
| DMH-2 | 414.70 | I=410.00 (AD-9) I=409.27 (AD-10) | I=409.27 (DMH-3) | DRAIN MANHOLE | |
| DMH-3 | 414.70 | I=410.98 (CO-1) I=408.99 (DMH-2) | I=408.99 (FES-1) | DRAIN MANHOLE | |
| FES-1 | 409.59 | I=408.43 (DMH-3) | | FLARED END SECTION | |
| FES-4 | 410.59 | I=408.76 (OCS-2) | | FLARED END SECTION | |
| IS-1 (IN-OUT) | 410.64 | I=408.92 (OCS-2) | | IS-1 INLET | |
| OCS-2 | 417.63 | I=409.17 (DMH-1) | I=409.17 (FES-4) I=408.92 (IS-1 (IN-OUT)) | 5' ID WEIR EL.=413.00 2"H X 8"W ORIFICE EL.=410.00 | |
| TD-1 | 414.44 | | I=412.80 (CO-2) | TRENCH DRAIN | |

| PIPE TABLE | | | | |
|------------|-------------|--------|-------|--|
| PIPE | SIZE & TYPE | LENGTH | SLOPE | |
| P-1 | 12" HDPE | 137-LF | 0.039 | |
| P-2 | 12" HDPE | 4-LF | 0.005 | |
| P-3 | 12" HDPE | 211-LF | 0.008 | |
| P-4 | 12" HDPE | 4-LF | 0.005 | |
| P-5 | 15" HDPE | 136-LF | 0.005 | |
| P-6 | 15" HDPE | 111-LF | 0.005 | |
| P-7 | 18" HDPE | 42-LF | 0.005 | |
| P-8 | 18" HDPE | 83-LF | 0.005 | |
| P-9 | 12" HDPE | 214-LF | 0.008 | |
| P-10 | 15" HDPE | 15-LF | 0.005 | |
| P-11 | 18" HDPE | 52-LF | 0.005 | |
| P-12 | 24" HDPE | 110-LF | 0.005 | |
| P-13 | 18" HDPE | 41-LF | 0.005 | |
| P-14 | 18" HDPE | 4-LF | 0.000 | |
| P-20 | 6" HDPE | 11-LF | 0.004 | |
| P-25 | 12" HDPE | 16-LF | 0.005 | |

Project:

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Dept. of Parks, Recreation & Cemetery



GREAT BROOK VALLEY PARKS
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JESSE M.
JOHNSON
CIVIL
NO. 45050

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CIVIL
NO. 45050

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PHASE 1
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Date: MAY 23, 2025

Drawn By: EM, LY, RB

Reviewed By: MS, JJ

Approved By: BK

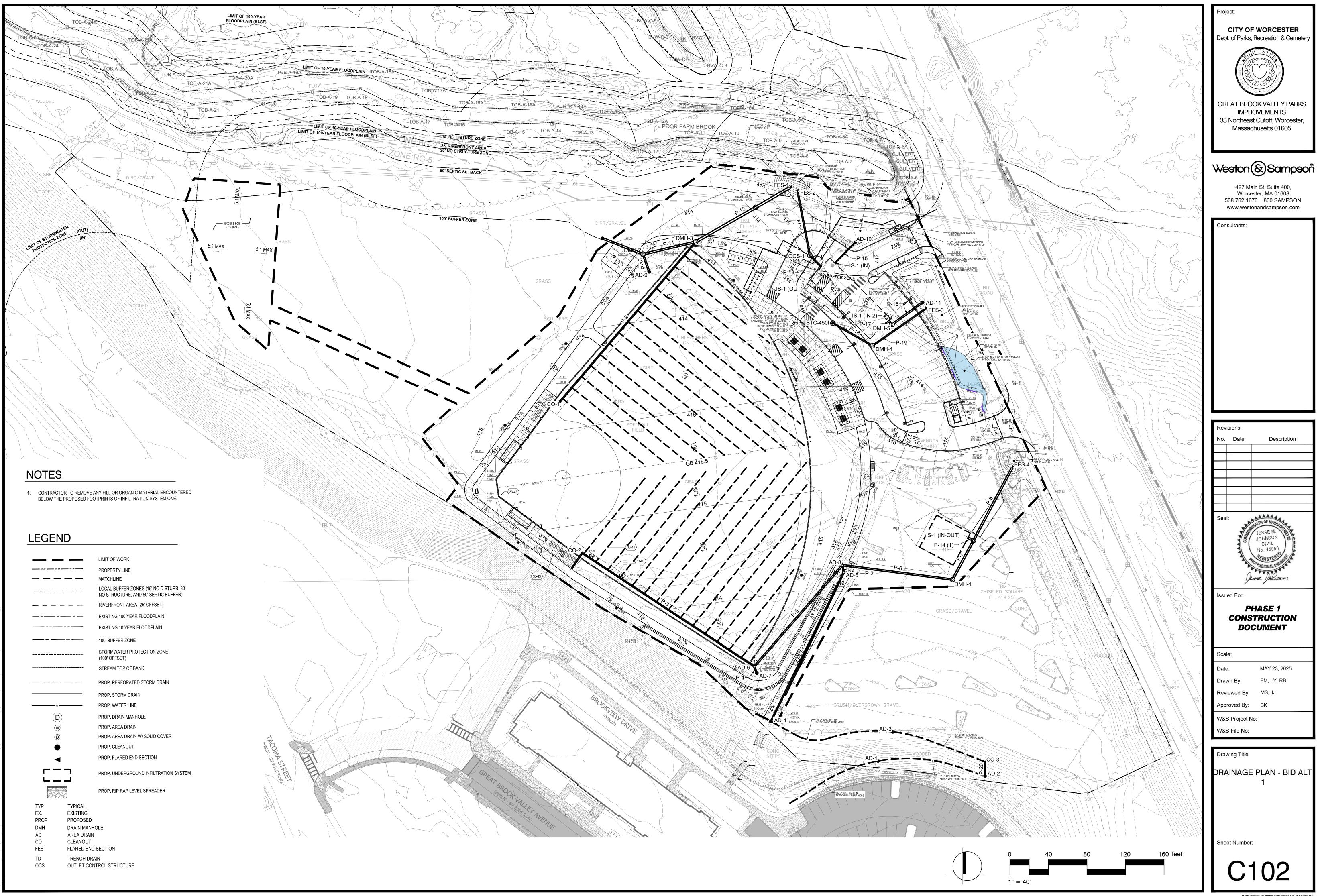
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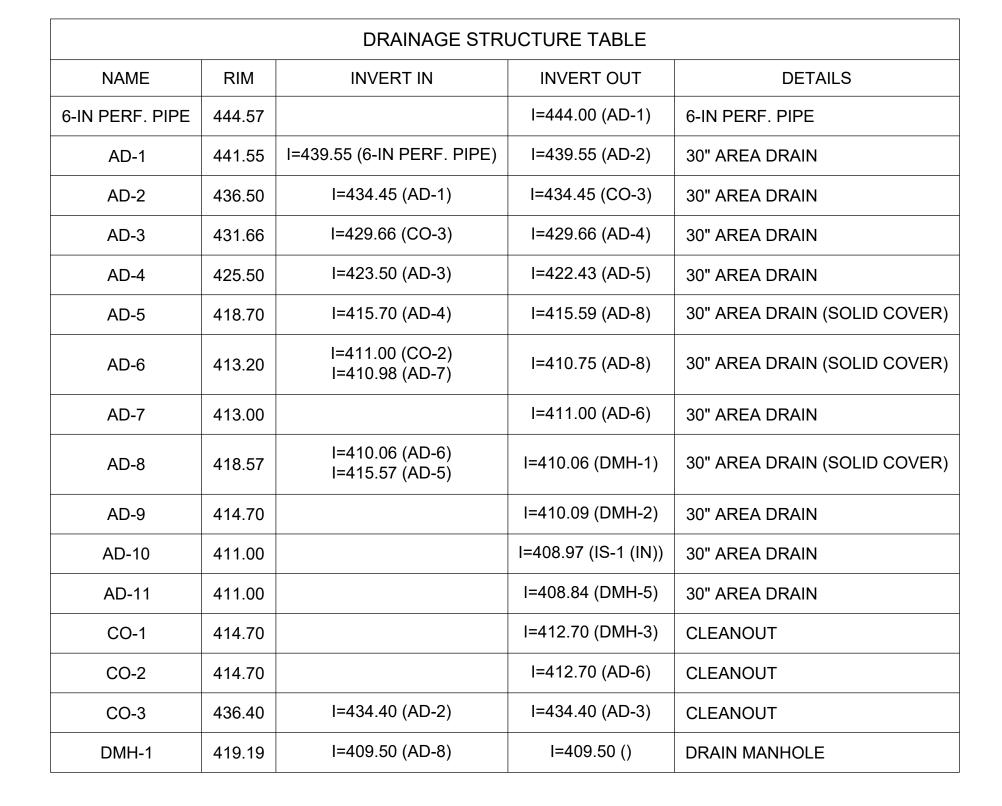
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DRAINAGE SCHEDULE

Sheet Number:

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| DRAINAGE ST | | | TRUCTURE TABLE | |
|-------------|--------|-------------------------------------|------------------------|--|
| NAME | RIM | INVERT IN | INVERT OUT | DETAILS |
| DMH-2 | 414.70 | I=410.00 (AD-9) | I=409.27 (DMH-3) | DRAIN MANHOLE |
| DMH-3 | 414.70 | I=410.98 (CO-1) I=408.99 (DMH-2) | I=408.99 (FES-1) | DRAIN MANHOLE |
| DMH-4 | 413.83 | I=410.22 (STC-450I) | I=410.12 (FES-3) | DRAIN MANHOLE |
| DMH-5 | 413.19 | I=408.66 (AD-11) | I=408.66 (IS-1 (IN-2)) | DRAIN MANHOLE |
| FES-1 | 409.59 | I=408.43 (DMH-3) | | FLARED END SECTION |
| FES-2 | 410.38 | I=409.22 (OCS-1) | | FLARED END SECTION |
| FES-3 | 408.54 | I=407.38 (DMH-4) | | FLARED END SECTION |
| FES-4 | 410.61 | I=408.86 () | | FLARED END SECTION |
| IS-1 (IN-2) | 409.79 | I=408.63 (DMH-5) | | IS-1 INLET |
| IS-1 (IN) | 409.77 | I=408.83 (AD-10) | | INSERTA TEE |
| IS-1 (OUT) | 410.86 | | I=409.70 (OCS-1) | IS-1 OUTLET |
| OCS-1 | 413.08 | I=409.62 (IS-1 (OUT)) | I=409.55 (FES-2) | WEIR EL.=411.00 6"X24" ORIFICE EL.=409.65 |
| STC-450i | 413.56 | | I=410.46 (DMH-4) | STORMCEPTOR STC-450I |
| | | | | |

| PIPE TABLE SIZE & TYPE LENGTH SLOPE 12" HDPE 168-LF 0.039 12" HDPE 4-LF 0.002 12" HDPE 211-LF 0.008 12" HDPE 4-LF 0.002 15" HDPE 136-LF 0.005 15" HDPE 111-LF 0.005 18" HDPE 48-LF 0.005 18" HDPE 81-LF 0.005 |
|--|
| 12" HDPE 168-LF 0.039 12" HDPE 4-LF 0.002 12" HDPE 211-LF 0.008 12" HDPE 4-LF 0.002 15" HDPE 136-LF 0.005 15" HDPE 111-LF 0.005 18" HDPE 48-LF 0.005 |
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| 15" HDPE 136-LF 0.005 15" HDPE 111-LF 0.005 18" HDPE 48-LF 0.005 |
| 15" HDPE 111-LF 0.005 18" HDPE 48-LF 0.005 |
| 18" HDPE 48-LF 0.005 |
| |
| 18" HDPE 81-LF 0.005 |
| |
| 12" HDPE 214-LF 0.008 |
| 0 15" HDPE 15-LF 0.005 |
| 0 15" HDPE 15-LF 0.005 |

| PIPE TABLE | | | |
|------------------|----------|--------|-------|
| PIPE SIZE & TYPE | | LENGTH | SLOPE |
| P-11 | 18" HDPE | 52-LF | 0.005 |
| P-12 | 24" HDPE | 110-LF | 0.005 |
| P-13 | 12" HDPE | 14-LF | 0.005 |
| P-14 | 12" HDPE | 64-LF | 0.005 |
| P-15 | 10" HDPE | 28-LF | 0.005 |
| P-16 | 15" HDPE | 35-LF | 0.005 |
| P-17 | 18" HDPE | 3-LF | 0.005 |
| P-18 | 12" HDPE | 43-LF | 0.005 |
| P-19 | 12" HDPE | 64-LF | 0.042 |
| P-20 | 6" HDPE | 11-LF | 0.004 |

Project:

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CIVIL
No. 45050

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Approved By: BK

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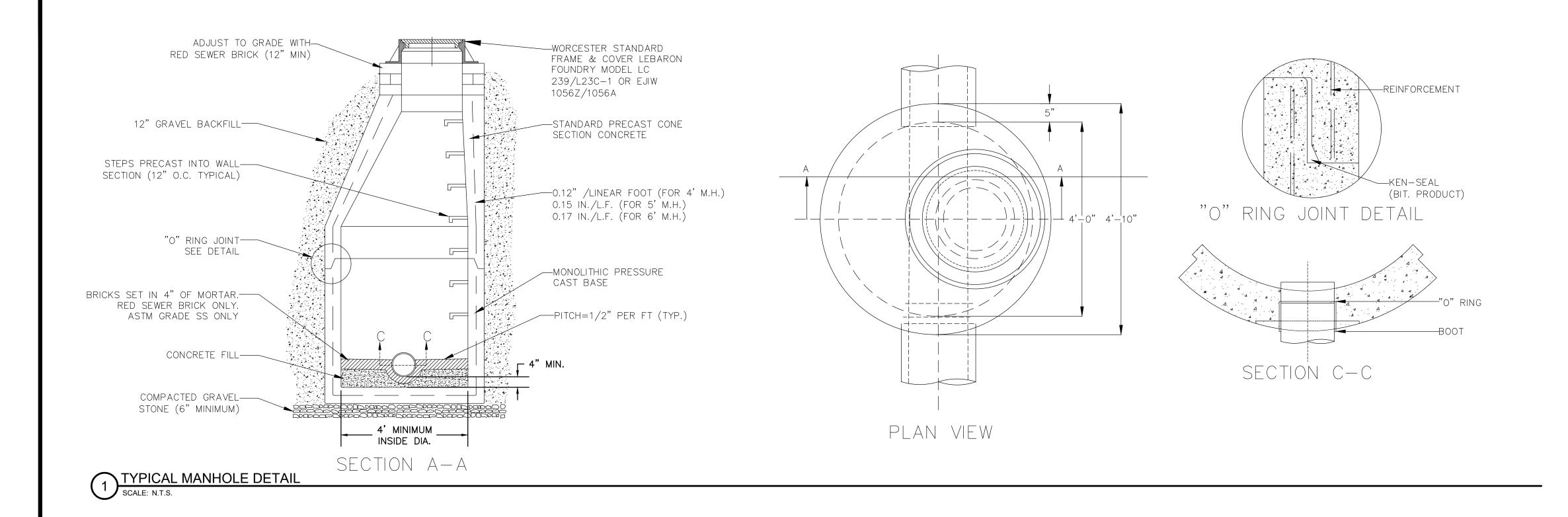
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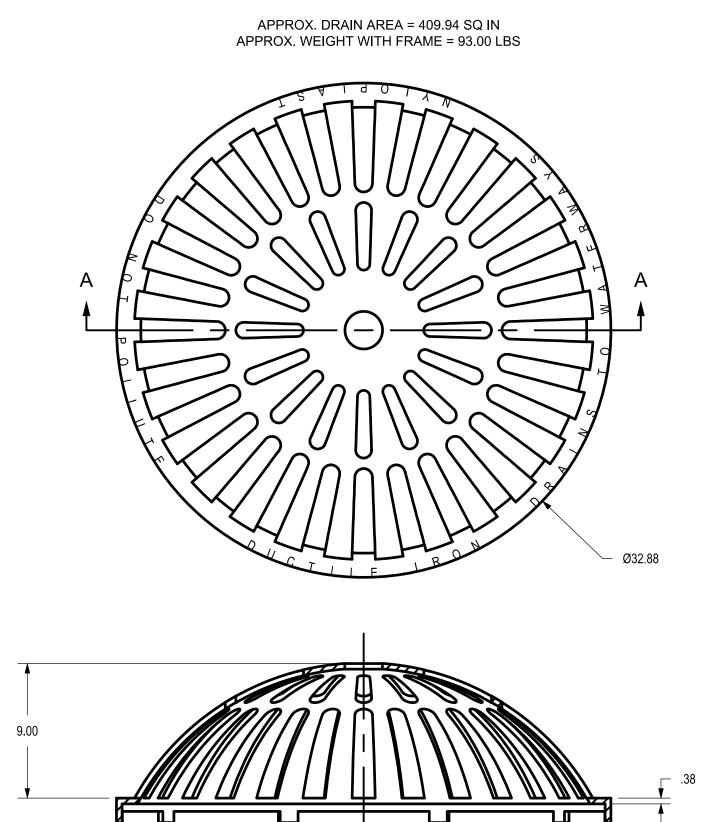
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<u></u> 1'-6" MIN.→ -COMPACTED BACKFILL —SHEETING, IF USED -COMPACTED SELECTED BACKFILL -SEE PLAN FOR PIPE TYPE AND DIAMETER -TOP OF GRAVEL STONE CRADLE -GRAVEL STONE NORMAL EARTH EXCAVATION

2 DRAIN TRENCH DETAIL SCALE: N.T.S.



ACTUAL DIMENSIONS MAY VARY DIMENSIONS ARE IN INCHES QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05

SECTION A-A

PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT LOCKING DEVICE AVAILABLE UPON REQUEST

DIMENSIONS ARE FOR REFERENCE ONLY

4 INLET GRATE DETAILS

SCALE: N.T.S.

(1, 2) INTEGRATED DUCTILE IRON GRATE TO MATCH BASIN O.D. MINIMUM PIPE BURIAL DEPTH PER PIPE MANUFACTURER RECOMMENDATION (MIN. MANUFACTURING (5) ADAPTER RÈQ. SAME AS MIN. SUMP) ANGLES 'ARIABLE 0° - 360° THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER ACCORDING TO GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, PLANS (3) VARIABLE INVERT HEIGHTS CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. AVAILABLE (ACCORDING TO PLANS/TAKE OFF) BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321. (3) VARIABLE SUMP DEPTH ACCORDING TO PLANS (4) VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE: (10" MIN. BASED ON 4" - 30" FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL, MÀNUFACTURING REQ.) ADS/HANCOR SINGLE WALL), N-12 HP, PVC SEWER (EX: SDR 35), - 6" MIN PVC DWV (EX: SCH 40), PVC C900/C905, CORRUGATED & RIBBED PVC WATERTIGHT JOINT (CORRUGATED HDPE SHOWN)
 GRATE OPTIONS
 LOAD RATING
 PART # DRAWING # DEDESTRIAN

 MEETS H-20
 3099CGP
 7001-110-220

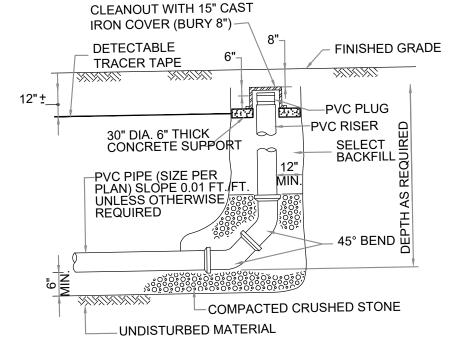
1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.

2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05. 3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS.

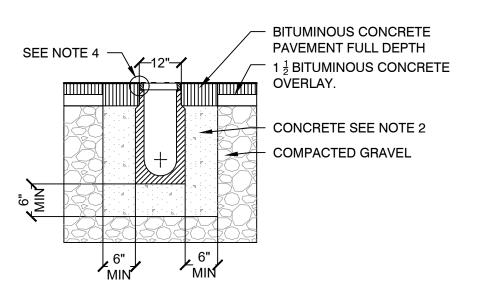
SEE DRAWING NO. 7001-110-065. 4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").

5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

AREA DRAIN



TORAIN CLEANOUT



1. CONTRACTOR TO ENSURE THE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR THE EXISTING GROUND CONDITIONS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

2. MINIMUM CONCRETE STRENGTH OF 3000 PSI. THE CONCRETE

SHALL BE VIBRATED TO ELIMINATE AIR POCKETS. 3. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE

APPROX. 1/8" ABOVE THE TOP OF THE CHANNEL EDGE. 4. TRENCH DRAIN SHALL BE MANUFACTURED BY ACO OR APPROVED EQUAL. REFER TO MANUFACTURER'S LATEST INSTALLATION INSTRUCTIONS FOR COMPLETE DETAILS.

TRENCH DRAIN

SCALE: N.T.

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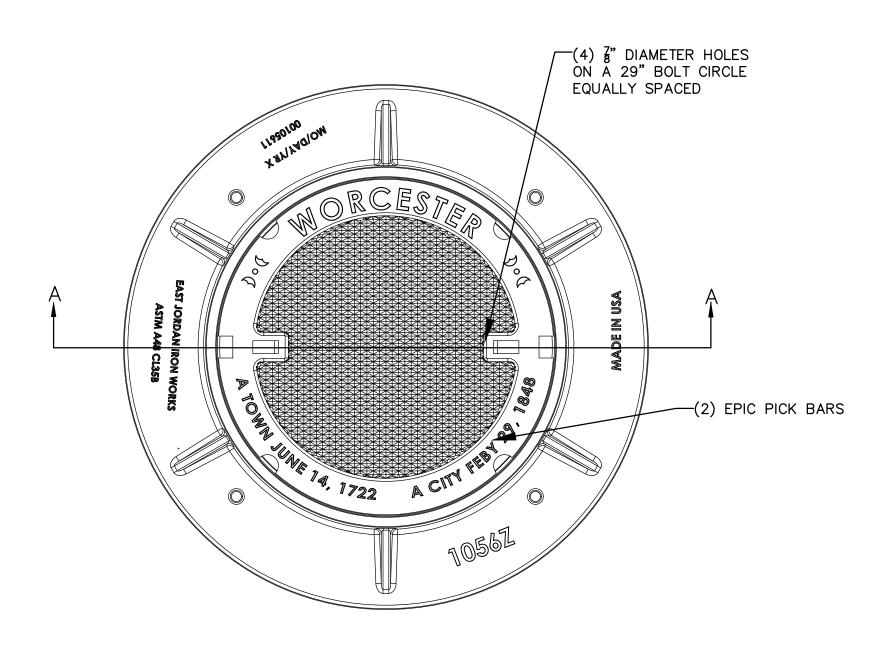
PHASE 1 CONSTRUCTION **DOCUMENT**

MAY 23, 2025 Date: EM, LY, RB Drawn By: Reviewed By: Approved By: BK

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Drawing Title: CIVIL DETAILS

Sheet Number:



SECTION A-A

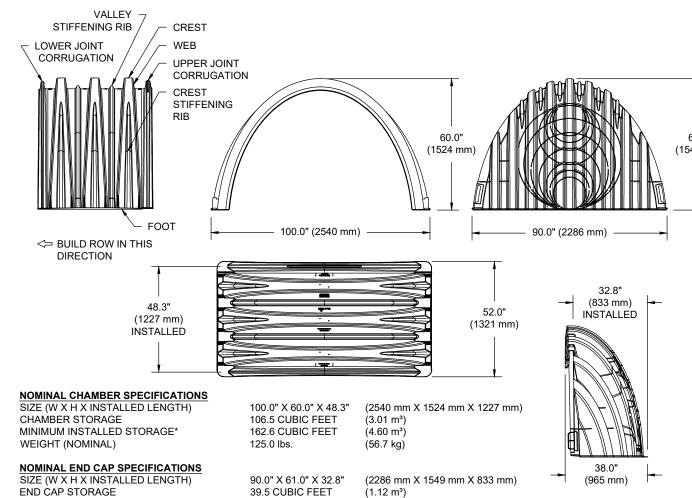
MANHOLE FRAME & COVER EJIW 1056Z/1056A, LEBARON LC239/L23C-1, OR EQUAL.

MANHOLE FRAME & COVER ASSEMBLY DETAIL SCALE: N.T.S.

OPENING PER PLAN ← LEVEL RIP RAP APPROX. LIMITS OF RIP RAP (SEE PLAN) PLAN VIEW - RIP RAP IN ACCORDANCE WITH MASS DOT SPEC. M2.02.03 "STONE FOR FLARED END — PIPE ENDS" (SEE BELOW) SECTION PER LEVEL RIP RAP LOAM AND SEED OUTLET PIPE (SIZE AND -INVERT PER PLANS) 3'-0" 3'-0" 3'-0" 140N OR ÈQUAL)

M2.02.03 STONE FOR PIPE ENDS. STONE FOR PIPE ENDS SHALL BE SOUND, DURABLE ROCK WHICH IS ANGULAR IN SHAPE. ROUNDED STONES. BOULDERS, SANDSTONE OR SIMILAR STONE OR RELATIVELY THIN SLABS WILL NOT BE ACCEPTABLE. EACH STONE SHALL WEIGH NOT LESS THAN 50 POUNDS NOT MORE THAN 125 POUNDS AND AT LEAST 75% OF THE VOLUME SHALL CONSIST OF STONES WEIGHING NOT LESS THAN 75 POUNDS EACH. THE REMAINDER OF THE STONES SHALL BE SO GRADED THAN WHEN PLACED WITH THE LARGER STONES THE ENTIRE MASS WILL BE COMPCT.

2 LEVEL SPREADER DETAIL SCALE: N.T.S.



MINIMUM INSTALLED STORAGE* WEIGHT (NOMINAL) *ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS,

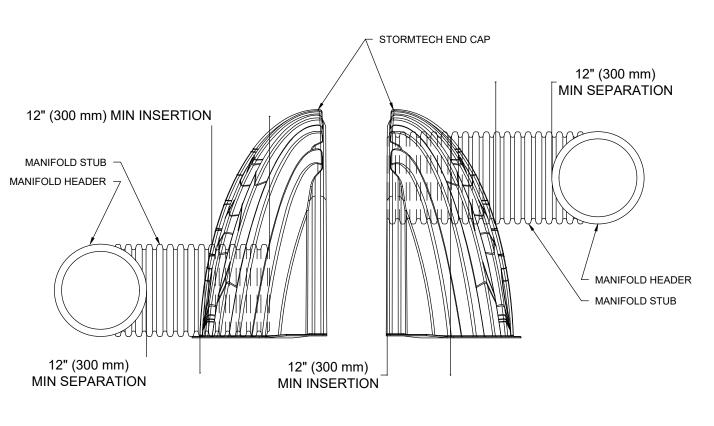
12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

| PARTIAL CUT HOLES AT | | OR PART NUMBERS ENDING ART NUMBERS ENDING WIT IB END WITH "W" | | |
|----------------------|----------------|---|-----------------|---|
| PART# | STUB | В | С | |
| MC4500IEPP06T | 6" (1E0 mm) | 42.54" (1081 mm) | | — B U A 17 / 7 / 16 |
| MC4500IEPP06B | 6" (150 mm) | | 0.86" (22 mm) | |
| MC4500IEPP08T | 8" (200 mm) | 40.50" (1029 mm) | | |
| MC4500IEPP08B | 0 (200 11111) | | 1.01" (26 mm) | |
| MC4500IEPP10T | 10" (250 mm) | 38.37" (975 mm) | | |
| MC4500IEPP10B | 10 (230 11111) | | 1.33" (34 mm) | |
| MC4500IEPP12T | 12" (300 mm) | 35.69" (907 mm) | | |
| MC4500IEPP12B | 12 (300 11111) | | 1.55" (39 mm) | □ |
| MC4500IEPP15T | 15" (375 mm) | 32.72" (831 mm) | | |
| MC4500IEPP15B | 13 (3/3/11111) | | 1.70" (43 mm) | 1 |
| MC4500IEPP18T | | 29.36" (746 mm) | | |
| MC4500IEPP18TW | 18" (450 mm) | 23.30 (740 11111) | | CUSTOM PREFABRICATED INVERTS ARE AVAILABLE UPON REQUEST. |
| MC4500IEPP18B | 10 (430 11111) | ` ' | 1.97" (50 mm) | INVENTORIED MANIFOLDS INCLUDE |
| MC4500IEPP18BW | | | 1.37 (30 11111) | 12-24" (300-600 mm) SIZE ON SIZE |
| MC4500IEPP24T | | 23.05" (585 mm) | | AND 15-48" (375-1200 mm) |
| MC4500IEPP24TW | 24" (600 mm) | 20.00 (000 11111) | | ECCENTRIC MANIFOLDS. CUSTOM |
| MC4500IEPP24B | 24 (000 11111) | 1111) | 2.26" (57 mm) | INVERT LOCATIONS ON THE MC-4500 |
| MC4500IEPP24BW | | | 2.20 (07 11111) | END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES |
| MC4500IEPP30BW | 30" (750 mm) | | 2.95" (75 mm) | GREATER THAN 10" (250 mm). THE |
| MOAFOOIEDDOCDIM | 26" (000 mm) | | 2 2E" (02 mm) | |

3.25" (83 mm)

CANANANANANANANANA SEED WITH RESTORATION MIX — FOR DETENTION BASINS, 4" LOAM AND SEED OR APPROVED EQUAL (SEE C001 FOR SPECIFICATIONS).

3 GRASSED SWALE



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

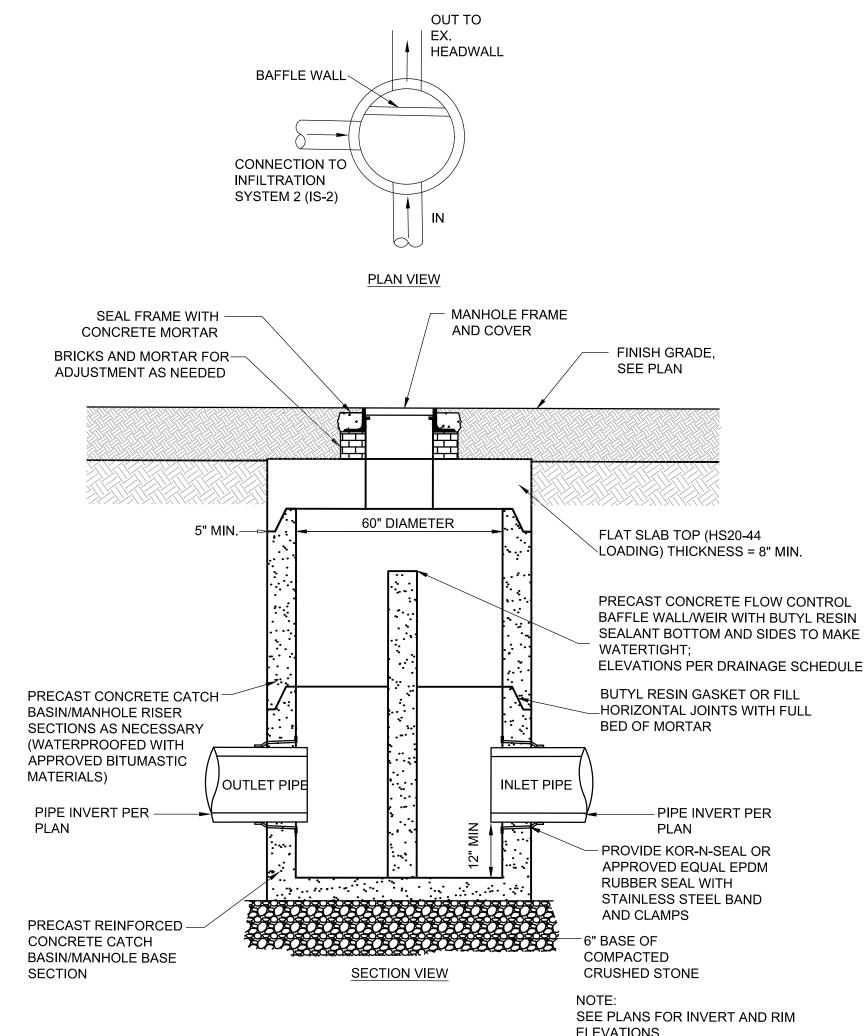
MC SERIES END CAP INSERTION DETAIL

SCALE: N.T.S.

INVERT LOCATION IN COLUMN 'B'

3.55" (90 mm) ARE THE HIGHEST POSSIBLE FOR

THE PIPE SIZE.

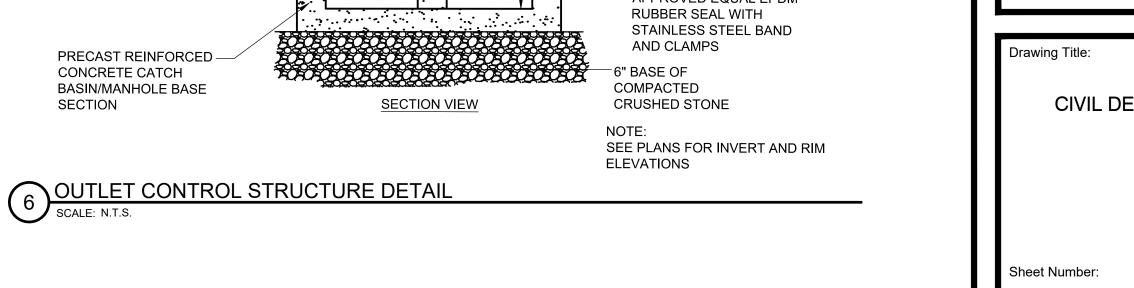




36" (900 mm)

MC4500IEPP42BW 42" (1050 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



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Massachusetts 01605

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Consultants:

Description

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Scale: MAY 23, 2025 Date: EM, LY, RB Drawn By: Reviewed By: MS, JJ Approved By: BK W&S Project No: W&S File No:

CIVIL DETAILS

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

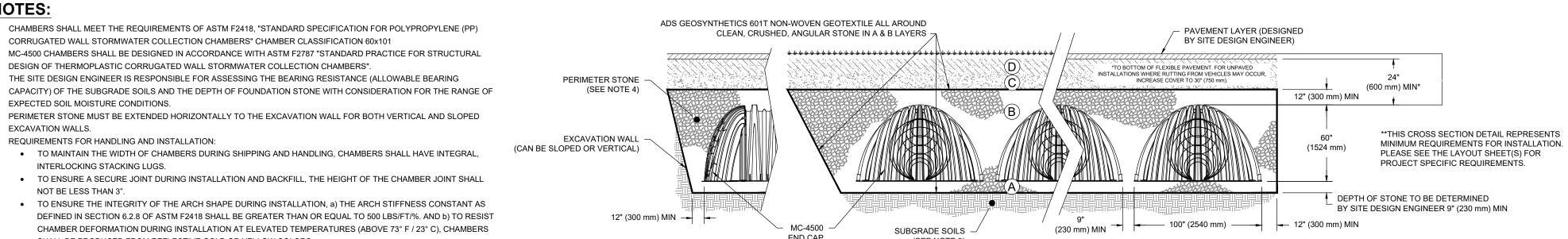
| | MATERIAL LOCATION | DESCRIPTION | AASHTO MATERIAL CLASSIFICATIONS | COMPACTION / DENSITY REQUIREMENT |
|---|---|--|---|---|
| D | FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER | ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS. | N/A | PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS. |
| С | INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER. | GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER. | AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10 | BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. |
| В | EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE. | CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE⁵ | AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57 | NO COMPACTION REQUIRED. |
| А | FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER. | CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE⁵ | AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57 | PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3} |

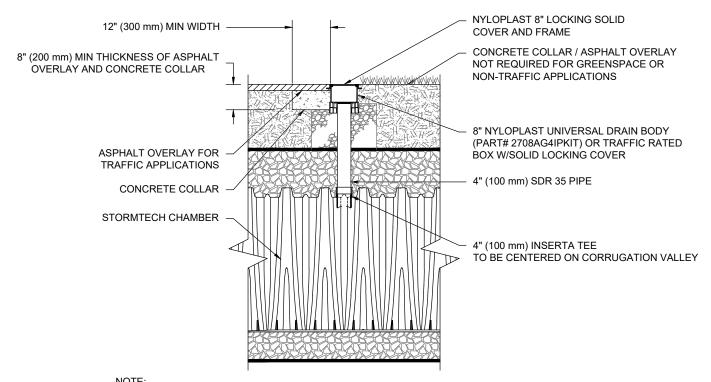
PLEASE NOTE:

- 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE". 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- 3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR
- 4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION. 5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".

NOTES:

- 1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
- 2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL
- DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". 3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING
- EXPECTED SOIL MOISTURE CONDITIONS. 4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED
- EXCAVATION WALLS.
- 5. REQUIREMENTS FOR HANDLING AND INSTALLATION: • TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL,
- INTERLOCKING STACKING LUGS.
- TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
- TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

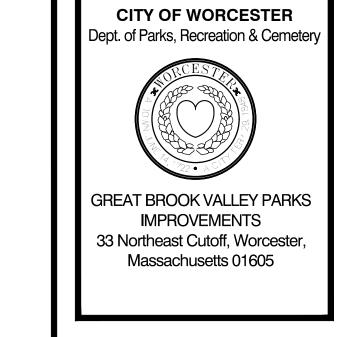




INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)

SCALE: N.T.S.



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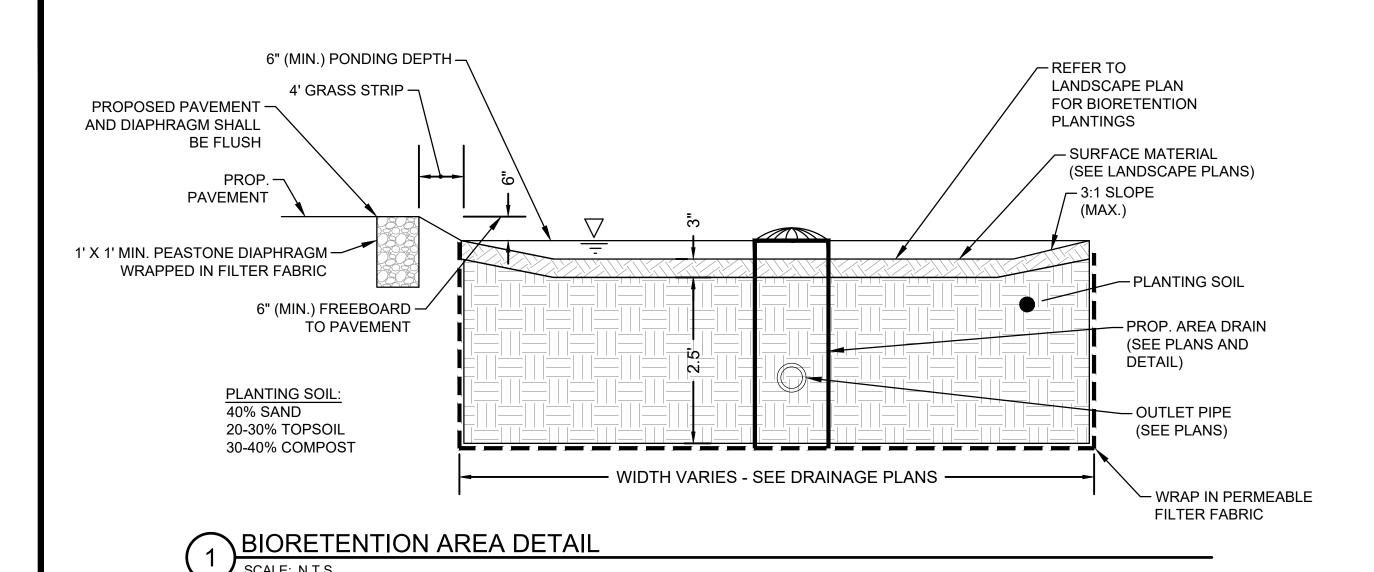
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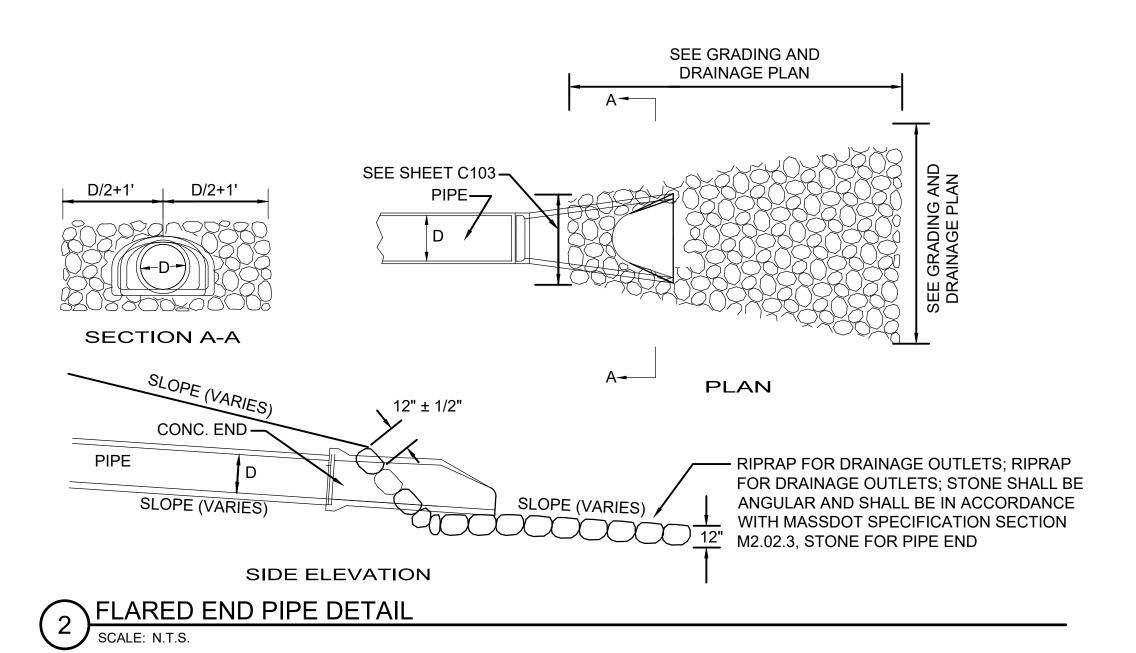
CIVIL DETAILS

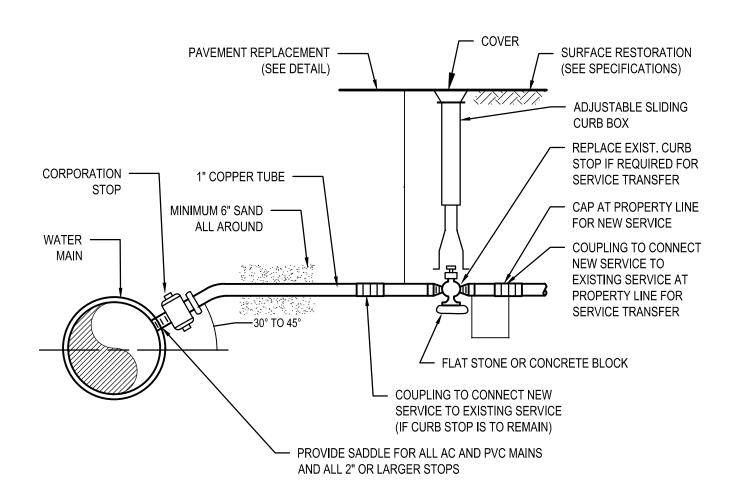
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MC-4500 CROSS SECTION DETAIL

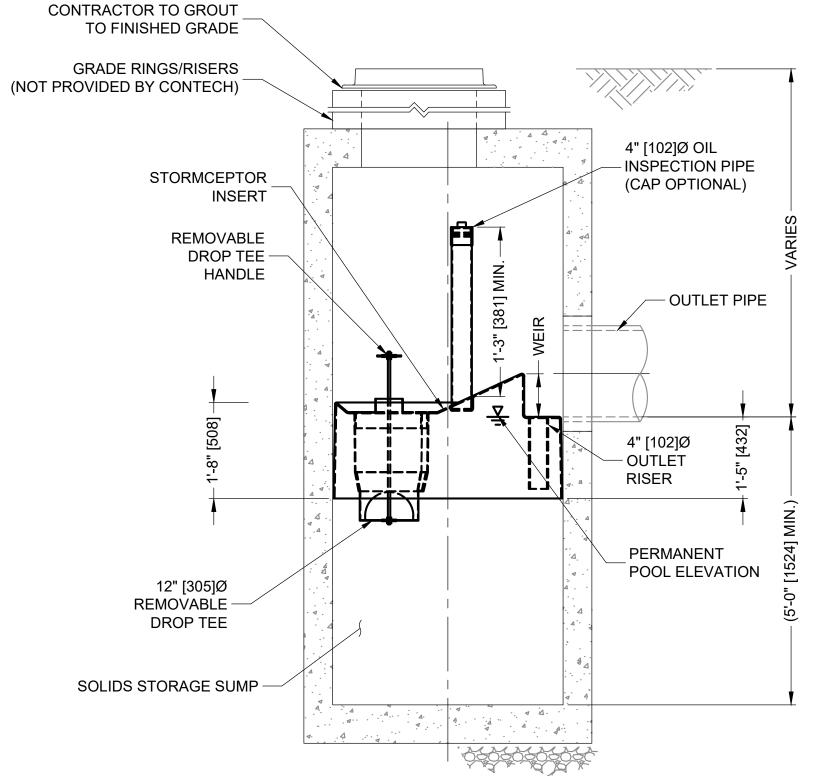
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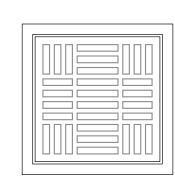
4 1" WATER SERVICE CONNECTION WITH CURB STOP AND CORP STOP SCALE: N.T.S.



TOP SLAB ACCESS
(SEE FRAME AND
GRATE DETAIL)

48" [1219] I.D. MANHOLE
STRUCTURE

PLAN VIEW
TOP SLAB NOT SHOWN



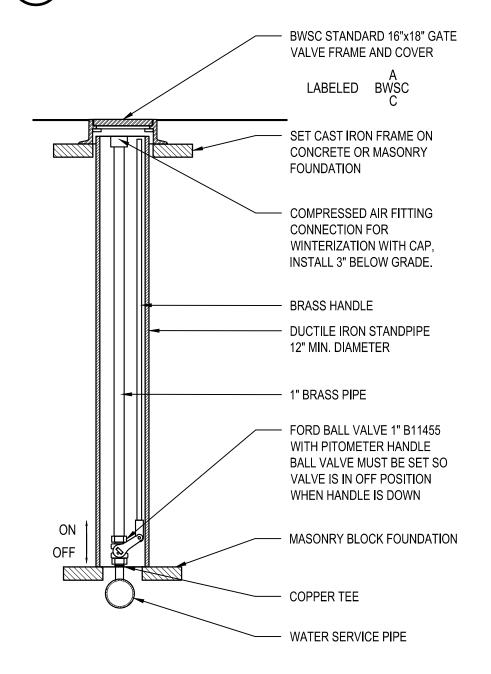
FRAME AND GRATE

(MAY VARY)

NOT TO SCALE

3 CONTECH STORMCEPTOR STC450i DETAIL SCALE: N.T.S.

SECTION A-A



WINTERIZATION BLOWOUT STRUCTURE

SCALE: N.T.S.

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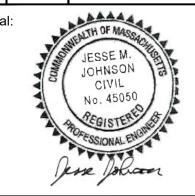
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Approved By: BK

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Sheet Number:

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