

GENERAL NOTES

CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE NOTES AND SPECIFICATIONS CONTAINED HEREIN. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL SUBCONTRACTORS FULLY AND COMPLETELY CONFORM TO AND COMPLY WITH THESE REQUIREMENTS.

1. THE FOLLOWING DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THIS SITE PLAN:

- BOUNDARY & TOPOGRAPHIC SURVEY - MASSDEVELOPMENT; PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED 10/22/18, REVISED THROUGH 11/12/18 (7 SHEETS).

PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR MUST VERIFY THAT HESHE HAS THE LATEST EDITION OF THE DOCUMENTS REFERENCED ABOVE. THIS IS CONTRACTOR'S RESPONSIBILITY.

2. ALL ACCESSIBLE (AKA ADA) PARKING SPACES MUST BE CONSTRUCTED TO MEET, AT A MINIMUM, THE MORE STRINGENT OF THE REQUIREMENTS OF THE "AMERICANS WITH DISABILITIES ACT" (ADA CODE 42 U.S.C. § 12101 et seq. AND 42 U.S.C. § 4151 et seq.) OR THE REQUIREMENTS OF THE JURISDICTION WHERE THE PROJECT IS TO BE CONSTRUCTED, AND ANY AND ALL AMENDMENTS TO BOTH WHICH ARE IN EFFECT WHEN THESE PLANS ARE COMPLETED.

3. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED THE COMMENTS TO ALL PLANS AND OTHER DOCUMENTS REVIEWED AND APPROVED BY THE PERMITTING AUTHORITIES AND CONFIRMED THAT ALL NECESSARY OR REQUIRED PERMITS HAVE BEEN OBTAINED. CONTRACTOR MUST HAVE COPIES OF ALL PERMITS AND APPROVALS ON SITE AT ALL TIMES.

4. THE OWNER/CONTRACTOR MUST BE FAMILIAR WITH AND RESPONSIBLE FOR THE PROCUREMENT OF ANY AND ALL CERTIFICATIONS REQUIRED FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

5. ALL WORK MUST BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND CONDITIONS OF APPROVAL, AND ALL APPLICABLE REQUIREMENTS, RULES, REGULATIONS, STATUTORY REQUIREMENTS, CODES, LAWS AND STANDARDS OF ALL GOVERNMENTAL ENTITIES WITH JURISDICTION OVER THIS PROJECT.

6. THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SET FORTH HEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND, IN CASE OF CONFLICT, DISCREPANCY OR AMBIGUITY, THE MORE STRINGENT REQUIREMENTS AND/OR RECOMMENDATIONS CONTAINED IN THE PLANS AND THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR MUST NOTIFY THE ENGINEER, IN WRITING, OF ANY SUCH CONFLICT, DISCREPANCY OR AMBIGUITY BETWEEN THE GEOTECHNICAL REPORTS AND PLANS AND SPECIFICATIONS PRIOR TO PROCEEDING WITH ANY FURTHER WORK.

7. THESE PLANS ARE BASED ON INFORMATION PROVIDED TO BOHLER ENGINEERING BY THE OWNER AND OTHERS PRIOR TO THE TIME OF PLAN PREPARATION. CONTRACTOR MUST FIELD VERIFY EXISTING CONDITIONS AND NOTIFY BOHLER ENGINEERING, IN WRITING, IMMEDIATELY IF ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THE PLAN, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.

8. ALL DIMENSIONS SHOWN ON THE PLANS MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR MUST NOTIFY ENGINEER, IN WRITING, IF ANY CONFLICTS, DISCREPANCIES, OR AMBIGUITIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR WORK WHICH HAS TO BE REDONE OR REPAIRED DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS PRIOR TO CONTRACTOR GIVING ENGINEER WRITTEN NOTIFICATION OF SAME AND ENGINEER, THEREAFTER, PROVIDING CONTRACTOR WITH WRITTEN AUTHORIZATION TO PROCEED WITH SUCH ADDITIONAL WORK.

9. CONTRACTOR MUST REFER TO THE ARCHITECTURAL/BUILDING PLANS OF RECORD FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS.

10. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR MUST COORDINATE THE BUILDING LAYOUT BY CAREFUL REVIEW OF THE ENTIRE SITE PLAN AND THE LATEST ARCHITECTURAL PLANS (INCLUDING, BUT NOT LIMITED TO, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SUPPRESSION PLAN, WHERE APPLICABLE). CONTRACTOR MUST IMMEDIATELY NOTIFY OWNER, ARCHITECT AND SITE ENGINEER, IN WRITING, OF ANY CONFLICTS, DISCREPANCIES OR AMBIGUITIES WHICH EXIST.

11. DEBRIS MUST NOT BE BURIED ON THE SUBJECT SITE AND ALL UNSUITABLE EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) MUST BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF ANY AND ALL GOVERNMENTAL AUTHORITIES WHICH HAVE JURISDICTION OVER THIS PROJECT OR OVER CONTRACTOR.

12. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING WHEN SHORING IS REQUIRED AND FOR INSTALLING ALL SHORING REQUIRED DURING EXCAVATION TO BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PRECAUTIONS TO BE TAKEN TO ASSURE THE STABILITY OF ADJACENT, NEARBY AND CONTIGUOUS STRUCTURES AND PROPERTIES.

13. THE CONTRACTOR IS TO EXERCISE EXTREME CARE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. WHICH ARE TO REMAIN EITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE MEASURES REQUIRED TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT, UTILITIES, BUILDINGS, AND INFRASTRUCTURE WHICH ARE TO REMAIN, AND TO PROVIDE A SAFE WORK AREA FOR THIRD PARTIES, PEDESTRIANS AND ANYONE INVOLVED WITH THE PROJECT.

14. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION OR PROPERTY DURING THE COURSE OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, CURB, ETC. AND SHALL BEAR ALL COSTS ASSOCIATED WITH SAME TO INCLUDE, BUT NOT BE LIMITED TO, REVISION, SURVEY, REMITTING AND CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR AND MUST REPLACE ALL SIGNAL, INTERCONNECTED CABLE, WIRING CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE REPAIR OF ANY SUCH NEW OR EXISTING CONSTRUCTION OR PROPERTY MUST RESTORE SUCH CONSTRUCTION OR PROPERTY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE CONDITIONS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION, AND IN CONFORMANCE WITH APPLICABLE CODES, LAWS, RULES, REGULATIONS, STATUTORY REQUIREMENTS AND STATUTES. CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH SAME. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND TO NOTIFY THE OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.

15. ALL CONCRETE MUST BE AIR ENTRAINED AND HAVE THE MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS UNLESS OTHERWISE NOTED ON THE PLANS, DETAILS AND/OR GEOTECHNICAL REPORT.

16. THE ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION METHODS, MEANS, TECHNIQUES OR PROCEDURES, GENERALLY OR FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES OR PROCEDURES FOR COMPLETION OF THE PROJECT DEPICTED BOTH ON THESE PLANS, AND FOR ANY CONFLICTS/SCOPE REVISIONS WHICH RESULT FROM SAME. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE METHODS/MEANS FOR COMPLETION OF THE WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

17. THE ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY. THE ENGINEER OF RECORD HAS NOT BEEN RETAINED TO PERFORM OR BE RESPONSIBLE FOR JOB SITE SAFETY, SAME BEING WHOLLY OUTSIDE OF ENGINEER'S SERVICES AS RELATED TO THE PROJECT. THE ENGINEER OF RECORD IS NOT RESPONSIBLE TO IDENTIFY OR REPORT ANY JOB SITE SAFETY ISSUES, AT ANY TIME.

18. ALL CONTRACTORS MUST CARRY THE SPECIFIED STATUTORY WORKERS COMPENSATION INSURANCE, EMPLOYER'S LIABILITY INSURANCE AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE (CGL). ALL CONTRACTORS MUST HAVE THEIR CGL POLICIES ENDORSED TO NAME BOHLER ENGINEERING AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBSIDENTS. THE CONTRACTOR IS RESPONSIBLE FOR AND MUST REPLACE ALL SIGNAL, INTERCONNECTED CABLE, WIRING CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE REPAIR OF ANY SUCH NEW OR EXISTING CONSTRUCTION OR PROPERTY MUST RESTORE SUCH CONSTRUCTION OR PROPERTY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE CONDITIONS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION, AND IN CONFORMANCE WITH APPLICABLE CODES, LAWS, RULES, REGULATIONS, STATUTORY REQUIREMENTS AND STATUTES. CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH SAME. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND TO NOTIFY THE OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.

19. BOHLER ENGINEERING WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN INTENT AND THE INFORMATION SHOWN IN THE CONSTRUCTION CONTRACT. CONTRACTOR MEANS AND/OR TECHNIQUES OR PROCEDURES COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND BOHLER HAS NO RESPONSIBILITY OR LIABILITY FOR SAME HEREUNDER. BOHLER ENGINEERING'S SHOP DRAWING REVIEW WILL BE CONDUCTED WITH THE REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM MUST NOT INDICATE THAT BOHLER ENGINEERING HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. BOHLER ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT PROMPTLY AND IMMEDIATELY BROUGHT TO ITS ATTENTION, IN WRITING, BY THE CONTRACTOR. BOHLER ENGINEERING WILL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.

20. NEITHER THE PROFESSIONAL ACTIVITIES OF BOHLER ENGINEERING, NOR THE PRESENCE OF BOHLER ENGINEERING AND/OR ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBSIDENTS AT A CONSTRUCTION PROJECT SITE, SHALL RELIEVE THE GENERAL CONTRACTOR OF ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, TECHNIQUES OR PROCEDURES, NECESSARY FOR PERFORMING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND COMPLIANCE WITH ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES WITH JURISDICTION OVER THE PROJECT AND/OR PROPERTY. BOHLER ENGINEERING AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PROGRAMS OR PROCEDURES. THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY. BOHLER ENGINEERING SHALL BE INDEMNIFIED BY THE GENERAL CONTRACTOR AND MUST BE NAMED AN ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE IN NOTE 19 FOR JOB SITE SAFETY.

21. IF THE CONTRACTOR DEVIATES FROM THE PLANS AND SPECIFICATIONS, INCLUDING THE NOTES CONTAINED HEREIN, WITHOUT FIRST OBTAINING THE PRIOR WRITTEN AUTHORIZATION OF THE ENGINEER FOR SUCH DEVIATIONS, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PAYMENT OF ALL COSTS INCURRED IN CORRECTING ANY WORK DONE WHICH DEVIATES FROM THE PLANS, ALL FINES AND/OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM AND, FURTHER, SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE ENGINEER, TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, IN ACCORDANCE WITH PARAGRAPH 19 HEREIN, FOR AND FROM ALL FEES, ATTORNEY'S FEES, DAMAGES, COSTS, JUDGMENTS, PENALTIES AND THE LIKE RELATED TO SAME.

22. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND PROTECTION OF TRAFFIC PLAN FOR ALL WORK THAT AFFECTS PUBLIC TRAVEL EITHER IN THE R.O.W. OR ON SITE. THE COST FOR THIS ITEM MUST BE INCLUDED IN THE CONTRACTOR'S PRICE.

23. ALL SIGNING AND PAVEMENT STRIPING MUST CONFORM TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES OR LOCALLY APPROVED SUPPLEMENT.

24. ENGINEER IS NOT RESPONSIBLE FOR ANY INJURY OR DAMAGES RESULTING FROM CONTRACTOR'S FAILURE TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH THE APPROVED PLANS. IF CONTRACTOR AND/OR OWNER FAIL TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH APPROVED PLANS, THEY AGREE TO JOINTLY AND SEVERALLY INDEMNIFY AND HOLD ENGINEER HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER INCURS.

25. OWNER MUST MAINTAIN AND PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES DEPICED ON THE PLANS AND RELATED DOCUMENTS. IN STRICT ACCORDANCE WITH THE APPROVED PLANS AND DESIGN, FURTHER ENGINEER IS NOT RESPONSIBLE FOR ANY FAILURE TO SO MAINTAIN OR PRESERVE SUCH SITE AND/OR DESIGN FEATURES. IF OWNER FAILS TO MAINTAIN AND/OR PRESERVE ALL PHYSICAL SITE FEATURES AND/OR DESIGN FEATURES DEPICED ON THE PLANS AND RELATED DOCUMENTS, OWNER AGREES TO INDEMNIFY AND HOLD ENGINEER HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER INCURS AS A RESULT OF SAID FAILURE.

26. ALL DIMENSIONS MUST BE TO FACE OF CURB, EDGE OF PAVEMENT, OR EDGE OF BUILDING, UNLESS NOTED OTHERWISE.

27. ALL CONSTRUCTION AND MATERIALS MUST COMPLY WITH AND CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, LAWS, ORDINANCES, RULES AND CODES, AND ALL APPLICABLE OSHA REQUIREMENTS.

28. CONTRACTOR AND OWNER MUST INSTALL ALL ELEMENTS AND COMPONENTS IN STRICT COMPLIANCE WITH AND ACCORDANCE WITH MANUFACTURERS STANDARDS AND RECOMMENDED INSTALLATION METHODS AND DESIGN. FURTHER ENGINEER IS NOT RESPONSIBLE FOR ANY FAILURE TO DO SO. CONTRACTOR AND OWNER AGREE TO JOINTLY INDEMNIFY AND HOLD ENGINEER HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER INCURS AS A RESULT OF SAID FAILURE.

29. CONTRACTOR IS RESPONSIBLE TO MAINTAIN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN COMPLIANCE WITH EPA REQUIREMENTS FOR SITES WHERE ONE (1) ACRE OR MORE (UNLESS THE LOCAL JURISDICTION REQUIRES FEWER) IS DISTURBED BY CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL ACTIVITIES, INCLUDING THOSE OF SUBCONTRACTORS, ARE IN COMPLIANCE WITH THE SWPPP, INCLUDING BUT NOT LIMITED TO LOGGING ACTIVITIES (MINIMUM ONCE PER WEEK AND AFTER RAINFALL EVENTS) AND CORRECTIVE MEASURES, AS APPROPRIATE.

30. AS CONTAINED IN THESE DRAWINGS AND ASSOCIATED APPLICATION DOCUMENTS PREPARED BY THE SIGNATORY PROFESSIONAL ENGINEER, THE USE OF THE WORDS CERTIFY OR CERTIFICATION CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THE INFORMATION WHICH IS THE SUBJECT OF THE UNDERSIGNED PROFESSIONAL'S KNOWLEDGE OR BELIEF AND IN ACCORDANCE WITH COMMON ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESSED OR IMPLIED.

GENERAL GRADING & UTILITY PLAN NOTES

1. LOCATIONS OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE INDEPENDENTLY CONFIRMED WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS MUST BE INDEPENDENTLY CONFIRMED BY THE CONTRACTOR IN THE FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES MUST IMMEDIATELY BE REPORTED, IN WRITING, TO THE ENGINEER. CONSTRUCTION MUST COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.

2. CONTRACTOR MUST VERTICALLY AND HORIZONTALLY LOCATE ALL UTILITIES AND SERVICES INCLUDING, BUT NOT LIMITED TO, GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE OR WORK SPACE, WHICHEVER IS GREATER. THE CONTRACTOR MUST USE REFER TO, AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION, AT NO COST TO THE OWNER. CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION.

3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE AND THE LOCATION AND COMMENCEMENT OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT AND/OR DISCREPANCY BETWEEN THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR THE RELATIVE OR APPLICABLE CODES, REGULATIONS, LAWS, RULES, STATUTES AND/OR ORDINANCES, IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD, IN WRITING, OF SAID CONFLICT AND/OR DISCREPANCY PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR'S FAILURE TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE CONTRACTOR'S FULL AND COMPLETE ACCEPTANCE OF ALL RESPONSIBILITY TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND TO FULL COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, LAWS, STATUTES, ORDINANCES AND CODES AND, FURTHER, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SAME.

4. THE CONTRACTOR MUST LOCATE AND CLEARLY AND UNAMBIGUOUSLY DEFINE VERTICALLY AND HORIZONTALLY ALL ACTIVE AND INACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE AND INACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE ACTIVITY.

5. THE CONTRACTOR MUST FAMILIARIZE ITSELF WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AS IDENTIFIED OR REQUIRED FOR THE PROJECT. THE CONTRACTOR MUST PROVIDE THE OWNER WITH WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH THE JURISDICTION AND UTILITY COMPANY REQUIREMENTS AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES.

6. THE CONTRACTOR MUST INSTALL ALL STORM SEWER AND SANITARY SEWER COMPONENTS WHICH FUNCTION BY GRAVITY PRIOR TO THE INSTALLATION OF ALL OTHER UTILITIES.

7. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXISTING BUILDING UTILITY CONNECTION LOCATIONS, GRESSE TRAP REQUIREMENTS, FLOOR ACCESS, AND EXTERIOR GRADING. THE ARCHITECT WILL DETERMINE THE UTILITY SERVICE SIZES. THE CONTRACTOR MUST COORDINATE INSTALLATION OF UTILITIES/SERVICES WITH THE INDIVIDUAL COMPANIES, TO AVOID CONFLICTS AND TO ENSURE THAT PROPER DEPTHS ARE ACHIEVED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT INSTALLATION OF ALL IMPROVEMENTS COMPLIES WITH ALL UTILITY REQUIREMENTS WITH JURISDICTION AND/OR CONTROL OF THE SITE, AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES, AND, FURTHER, IS RESPONSIBLE FOR COORDINATING THE UTILITY INTERCONNECTIONS PRIOR TO CONNECTING TO THE EXISTING UTILITY SERVICE WHERE A CONFLICT EXISTS BETWEEN THESE SITE PLANS AND THE ARCHITECTURAL PLANS, OR WHERE ARCHITECTURAL PLAN UTILITY CONNECTION POINTS DIFFER, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER, IN WRITING, AND PRIOR TO CONSTRUCTION, RESOLVE SAME.

8. WATER SERVICE MATERIALS, BURIAL DEPTH, AND COVER REQUIREMENTS MUST BE SPECIFIED BY THE LOCAL UTILITY COMPANY. CONTRACTOR'S PRICE FOR WATER SERVICE MUST INCLUDE ALL FEES, COSTS AND APPURTENANCES REQUIRED BY THE UTILITY TO PROVIDE FULL AND COMPLETE WORKING SERVICE. CONTRACTOR MUST CONTACT THE APPLICABLE MUNICIPALITY TO CONFIRM THE PROPER WATER METER AND VAULT, PRIOR TO COMMENCING CONSTRUCTION.

9. ALL NEW UTILITIES/SERVICES, INCLUDING ELECTRIC, TELEPHONE, CABLE TV, ETC. ARE TO BE INSTALLED UNDERGROUND. ALL NEW UTILITIES/SERVICES MUST BE INSTALLED IN ACCORDANCE WITH THE UTILITY/SERVICE PROVIDER INSTALLATION SPECIFICATIONS AND STANDARDS.

10. SITE GRADING MUST BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT REFERENCED IN THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING UNSUITABLE MATERIALS WITH SUITABLE MATERIALS AS SPECIFIED IN THE GEOTECHNICAL REPORT. ALL EXCAVATED OR FILLED AREAS MUST BE COMPACTED AS OUTLINED IN THE GEOTECHNICAL REPORT. MOISTURE CONTENT AT TIME OF PLACEMENT MUST BE SUBMITTED IN A COMPACTION REPORT PREPARED BY A QUALIFIED GEOTECHNICAL ENGINEER, REGISTERED WITH THE STATE WHERE THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT AND ALL APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT MUST BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DETERMINED UNSUITABLE BY OWNER/DEVELOPER, OR OWNER/DEVELOPER'S REPRESENTATIVE, SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL AS WITH OTHER MATERIALS AS DIRECTED BY THE GEOTECHNICAL REPORT. EARTHWORK ACTIVITIES INCLUDING, BUT NOT LIMITED TO, EXCAVATION, BACKFILL, AND COMPACTING MUST COMPLY WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AND ALL APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES. EARTHWORK ACTIVITIES MUST COMPLY WITH THE STANDARD STATE DOT SPECIFICATIONS FOR ROADWAY CONSTRUCTION (LATEST EDITION) AND ANY AMENDMENTS OR REVISIONS THERETO.

11. ALL FILL, COMPACTION AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION MUST BE AS PER THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT AND MUST BE COORDINATED WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS. WHEN THE PROJECT DOES NOT HAVE GEOTECHNICAL RECOMMENDATIONS, FILL AND COMPACTION MUST, AT A MINIMUM, COMPLY WITH THE STATE DOT REQUIREMENTS AND SPECIFICATIONS AND CONSULTANT SHALL HAVE NO LIABILITY OR RESPONSIBILITY FOR OR AS RELATED TO FILL, COMPACTION AND BACKFILL. FURTHER, CONTRACTOR IS FULLY RESPONSIBLE FOR EARTHWORK CONSTRUCTION.

12. THE CONTRACTOR MUST COMPLY TO THE FULLEST EXTENT, WITH THE LATEST OSHA STANDARDS AND REGULATIONS, AND/OR ANY OTHER AGENCY WITH JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE "MEANS AND METHODS" REQUIRED TO MEET THE INTENT AND PERFORMANCE CRITERIA OF OSHA, AS WELL AS ANY OTHER ENTITY THAT HAS JURISDICTION FOR EXCAVATION AND/OR TRENCHING PROCEDURES AND CONSULTANT SHALL HAVE NO RESPONSIBILITY FOR OR AS RELATED TO OR AS RELATED TO EXCAVATION AND TRENCHING PROCEDURES.

13. PAVEMENT MUST BE SAW CUT IN STRAIGHT LINES, AND EXCEPT FOR EDGE OF BUTT JOINTS, MUST EXTEND TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS MUST BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPIILING OF DEBRIS WILL NOT BE PERMITTED.

14. THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS MUST BE ADJUSTED, AS NECESSARY, TO MATCH PROPOSED GRADES IN ACCORDANCE WITH ALL APPLICABLE STANDARDS, REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES.

15. DURING THE INSTALLATION OF SANITARY SEWER, STORM SEWER, AND ALL UTILITIES, THE CONTRACTOR MUST MAINTAIN A CONTEMPORANEOUS AND THOROUGH RECORD OF CONSTRUCTION TO LOCATE THE AS-INSTALLED LOCATIONS OF ALL UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR MUST CAREFULLY NOTE ANY INSTALLATIONS THAT DEVIATE FROM THE INFORMATION CONTAINED IN THE UTILITY PLAN. THIS RECORD MUST BE KEPT ON A CLEAN COPY OF THE DRAINAGE OR UTILITY PLAN, WHICH CONTRACTOR MUST PROMPTLY PROVIDE TO THE OWNER AT THE COMPLETION OF WORK.

16. WHEN THE SITE IMPROVEMENT PLANS INVOLVE MULTIPLE BUILDINGS, SOME OF WHICH MAY BE BUILT AT A LATER DATE, THE CONTRACTOR MUST EXTEND ALL LINES, INCLUDING BUT NOT LIMITED TO STORM SEWER, SANITARY SEWER, UTILITIES, AND IRRIGATION LINE, TO A POINT AT LEAST FIVE (5) FEET BEYOND THE PAVED AREAS FOR WHICH THE CONTRACTOR IS RESPONSIBLE. CONTRACTOR MUST CAP ENDS AS APPROPRIATE, MARK LOCATIONS WITH A 2x4, AND MUST NOTE THE LOCATION OF ALL OF THE ABOVE ON A CLEAN COPY OF THE DRAINAGE OR UTILITY PLAN, WHICH CONTRACTOR MUST PROMPTLY PROVIDE TO THE OWNER UPON COMPLETION OF THE WORK.

17. THE CONTRACTOR IS FULLY RESPONSIBLE FOR VERIFICATION OF EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCING ANY CONSTRUCTION. CONTRACTOR MUST CONFIRM AND ENSURE 0.75% MINIMUM SLOPE AGAINST ALL ISLANDS, CURBS, AND CURBS, 1.0% ON ALL CONCRETE SURFACES; AND 1.5% MINIMUM ON ASPHALT (EXCEPT WHERE ADA REQUIREMENTS OR EXISTING TOPOGRAPHY LIMIT GRADES), TO PREVENT POONDING. CONTRACTOR MUST IMMEDIATELY NOTIFY, IN WRITING TO THE ENGINEER, ANY DISCREPANCIES THAT MAY OR COULD AFFECT THE PUBLIC SAFETY, HEALTH OR GENERAL WELFARE, OR PROJECT COST. IF CONTRACTOR PROCEEDS WITH CONSTRUCTION WITHOUT PROVIDING PROPER NOTIFICATION, MUST BE AT THE CONTRACTOR'S OWN RISK AND, FURTHER, CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS THE DESIGN ENGINEER FOR ANY DAMAGES, COSTS, INJURIES, ATTORNEY'S FEES AND THE LIKE WHICH RESULT FROM SAME.

18. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 1/2" ABOVE EXISTING LOCAL ASPHALT GRADE UNLESS OTHERWISE NOTED. FIELD ADJUST TO CREATE A MINIMUM OF .07% GUTTER GRADE ALONG CURB FACE. IF IT CONTRACTOR'S OBLIGATION TO ENSURE THAT DESIGN ENGINEER APPROVES FINAL CURBING OUT SHEETS PRIOR TO INSTALLATION OF SAME.

19. REFER TO THIS SHEET FOR ADDITIONAL NOTES.

20. IN THE EVENT OF DISCREPANCIES AND/OR CONFLICTS BETWEEN PLANS OR RELATIVE TO OTHER PLANS, THE SITE PLAN WILL TAKE PRECEDENCE AND CONTROL. CONTRACTOR MUST IMMEDIATELY NOTIFY THE DESIGN ENGINEER, IN WRITING, OF ANY DISCREPANCIES AND/OR CONFLICTS.

21. CONTRACTOR IS REQUIRED TO SECURE ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS FOR ALL OFF SITE MATERIAL SOURCES AND DISPOSAL FACILITIES. CONTRACTOR MUST SUPPLY A COPY OF APPROVALS TO ENGINEER AND OWNER PRIOR TO INITIATING ANY WORK.

22. WHERE RETAINING WALLS (WHETHER OR NOT THEY MEET THE JURISDICTIONAL DEFINITION) ARE IDENTIFIED ON PLANS, ELEVATIONS IDENTIFIED ARE FOR THE EXPOSED PORTION OF THE WALL. WALL FOOTING FOUNDATION ELEVATIONS ARE NOT IDENTIFIED HEREIN AND ARE TO BE SET/TERMINATED BY THE CONTRACTOR BASED ON FINAL STRUCTURAL DESIGN SHOP DRAWINGS PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS.

23. STORM DRAINAGE PIPE UNLESS INDICATED OTHERWISE, ALL STORM SEWER PIPE MUST BE REINFORCED CONCRETE PIPE (RCP) CLASS III WITH SILT TIGHT JOINTS. WHEN HIGH-DENSITY POLYETHYLENE PIPE (HDPE) IS CALLED FOR ON THE PLANS, IT MUST CONFORM TO ASTM 1248 AND TYPE B (SMOOTH INTERIOR WITH ANGULAR CORRUGATIONS) WITH GASKET FOR SILT TIGHT JOINT. PVC PIPE FOR ROOF DRAIN CONNECTION MUST BE SDR 26 OR SCHEDULE 40 UNLESS INDICATED OTHERWISE.

24. UNLESS INDICATED OTHERWISE ON THE DRAWINGS, SANITARY SEWER PIPE SHALL BE AS FOLLOWS:

- FOR PIPES LESS THAN 12 FT. DEEP: POLYVINYL CHLORIDE (PVC) SDR 35 PER ASTM D3034
- FOR PIPES MORE THAN 12 FT. DEEP: POLYVINYL CHLORIDE (PVC) SDR 26 PER ASTM D3034
- FOR PIPE WITHIN 10 FT. OF BUILDING, PIPE MATERIAL SHALL COMPLY WITH APPLICABLE BUILDING AND PLUMBING CODES. CONTRACTOR TO VERIFY WITH LOCAL OFFICIALS.

25. STORM AND SANITARY SEWER PIPE LENGTHS INDICATED ARE NOMINAL AND MEASURED CENTER OF INLET AND/OR MANHOLES STRUCTURE TO CENTER OF STRUCTURE.

26. STORMWATER ROOF DRAIN LOCATIONS ARE BASED ON PRELIMINARY ARCHITECTURAL PLANS. CONTRACTOR IS RESPONSIBLE TO AND FOR VERIFYING LOCATIONS OF SAME BASED ON FINAL ARCHITECTURAL PLANS.

27. SEWERS CROSSING STREAMS AND/OR LOCATION WITHIN 10 FEET OF THE STREAM BANKMOUNT, OR WHERE SITE CONDITIONS SO INDICATE, MUST BE CONSTRUCTED OF STEEL, REINFORCED CONCRETE, DUCTILE IRON OR OTHER MATERIAL. SEWERS CONVEYING SANITARY FLOW COMBINED SANITARY AND STORMWATER FLOW OR INDUSTRIAL FLOW MUST BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST 12 FEET HORIZONTALLY. IF SUCH LATERAL SEPARATION IS NOT POSSIBLE, THE PIPES MUST BE IN SEPARATE TRENCHES WITH THE SEWER AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN, OR SUCH OTHER SEPARATION AS APPROVED BY THE GOVERNMENT AGENCY WITH JURISDICTION OVER SAME.

28. WHERE APPROPRIATE SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER MUST BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE CROSSING. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER MUST BE PROVIDED.

29. CONTRACTOR MUST ENSURE THAT ALL UTILITY TRENCHES LOCATED IN EXISTING PAVED ROADWAYS INCLUDING SEWER, WATER AND STORM SYSTEMS, MUST BE REPAIRED IN ACCORDANCE WITH REFERENCED MUNICIPAL COUNTY AND/OR DOT DETAILS AS APPLICABLE. CONTRACTOR MUST COORDINATE INSPECTION AND APPROVAL OF COMPLETED WORK WITH THE AGENCY WITH JURISDICTION OVER SAME.

30. LOCATION OF PROPOSED UTILITY POLE RELOCATION IS AT THE SOLE DISCRETION OF UTILITY COMPANY.

31. CONSULTANT IS NEITHER LIABLE NOR RESPONSIBLE FOR ANY SUBSURFACE CONDITIONS AND FURTHER, SHALL HAVE NO LIABILITY FOR ANY HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES, OR POLLUTANTS ON, ABOUT OR UNDER THE PROPERTY.

GENERAL DEMOLITION NOTES

1. THIS PLAN REFERENCES DOCUMENTS AND INFORMATION BY:

- "BOUNDARY & TOPOGRAPHIC SURVEY - MASSDEVELOPMENT," PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED 10/22/18, REVISED THROUGH 11/21/18 (7 SHEETS).

2. CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, (29 U.S.C. 651 et seq.), AS AMENDED AND ANY MODIFICATIONS, AMENDMENTS OR REVISIONS TO SAME.

3. BOHLER ENGINEERING HAS NO CONTRACTUAL, LEGAL, OR OTHER RESPONSIBILITY FOR JOB SITE SAFETY OR JOB SITE SUPERVISION, OR ANYTHING RELATED TO SAME.

4. THE DEMOLITION PLAN IS INTENDED TO PROVIDE GENERAL INFORMATION, ONLY. REGARDING ITEMS TO BE DEMOLISHED AND/OR REMOVED, THE CONTRACTOR MUST ALSO REVIEW THE OTHER SITE PLAN DRAWINGS AND INCLUDE IN DEMOLITION ACTIVITIES ALL INCIDENTAL WORK NECESSARY FOR THE CONSTRUCTION OF THE NEW SITE IMPROVEMENTS.

5. CONTRACTOR MUST RAISE ANY QUESTIONS CONCERNING THE ACCURACY OR INTENT OF THESE PLANS OR SPECIFICATIONS, CONCERNING REGARDING THE APPLICABLE SAFETY STANDARDS, OR THE SAFETY OF THE CONTRACTOR OR THIRD PARTIES IN PERFORMING THE WORK ON THIS PROJECT, WITH BOHLER ENGINEERING, IN WRITING, AND RESPONDED TO BY BOHLER, IN WRITING, PRIOR TO THE INITIATION OF ANY SITE ACTIVITY AND ANY DEMOLITION ACTIVITY. ALL DEMOLITION ACTIVITIES MUST BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, RULES, REQUIREMENTS, STATUTES, ORDINANCES AND CODES.

6. PRIOR TO STARTING ANY DEMOLITION, CONTRACTOR IS RESPONSIBLE FOR TO:

A. OBTAINING ALL REQUIRED PERMITS AND MAINTAINING THE SAME ON SITE FOR REVIEW BY THE ENGINEER AND OTHER PUBLIC AGENCIES WITH JURISDICTION THROUGHOUT THE DURATION OF THE PROJECT, SITE WORK, AND DEMOLITION WORK.

B. NOTIFYING, AT A MINIMUM, THE MUNICIPAL ENGINEER, DESIGN ENGINEER, AND LOCAL SOIL CONSERVATION DISTRICT, 72 HOURS PRIOR TO THE START OF WORK.

C. INSTALLING THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE DISTURBANCE.

D. IN ACCORDANCE WITH STATE LAW, THE CONTRACTOR MUST CALL THE STATE ONE-CALL DAMAGE PROTECTION SYSTEM FOR UTILITY MARKOUT, IN ADVANCE OF ANY EXCAVATION.

E. LOCATING AND PROTECTING ALL UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN AND ADJACENT TO THE LIMITS OF PROJECT ACTIVITIES. THE CONTRACTOR MUST USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES.

F. PROTECTING AND MAINTAINING IN OPERATION, ALL ACTIVE UTILITIES AND SYSTEMS THAT ARE NOT BEING REMOVED DURING ALL DEMOLITION ACTIVITIES.

G. ARRANGING FOR AND COORDINATING WITH THE APPLICABLE UTILITY SERVICE PROVIDER(S) FOR THE TEMPORARY OR PERMANENT TERMINATION OF SERVICE REQUIRED BY THE PROJECT PLANS AND SPECIFICATIONS. THE CONTRACTOR MUST PROVIDE THE UTILITY ENGINEER AND OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTIONAL AND UTILITY COMPANY REQUIREMENTS.

H. COORDINATION WITH UTILITY COMPANIES REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT ON THE AFFECTED PARTIES. WORK REQUIRED TO BE DONE "OFF-PEAK" IS TO BE DONE AT NO ADDITIONAL COST TO THE OWNER.

I. IN THE EVENT THE CONTRACTOR DISCOVERS ANY HAZARDOUS MATERIAL, THE REMOVAL OF WHICH IS NOT ADDRESSED IN THE PROJECT PLANS AND SPECIFICATIONS, THE CONTRACTOR MUST IMMEDIATELY CEASE ALL WORK AND IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF THE DISCOVERY OF SUCH MATERIALS.

7. THE FRM OR ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. CONTRACTOR MUST PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, FOLLOWING ALL THE OSHA REQUIREMENTS, TO ENSURE PUBLIC AND CONTRACTOR SAFETY.

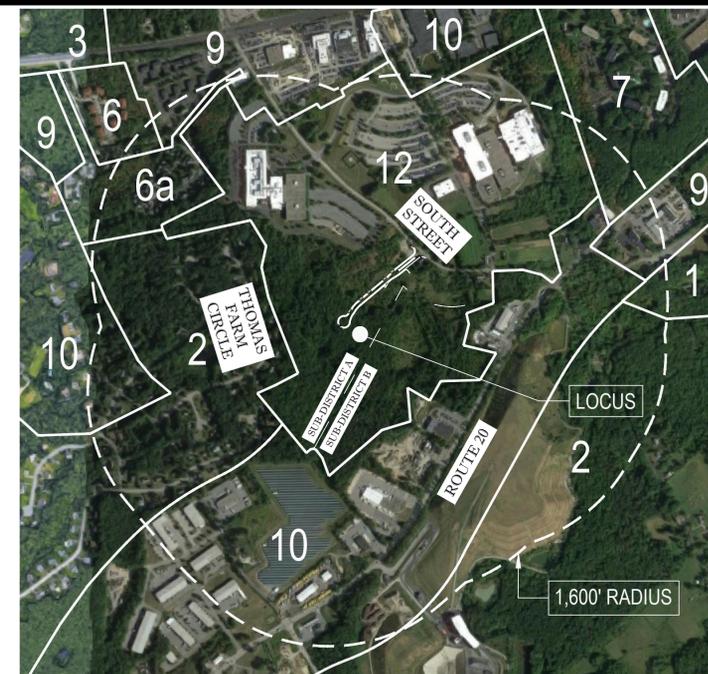
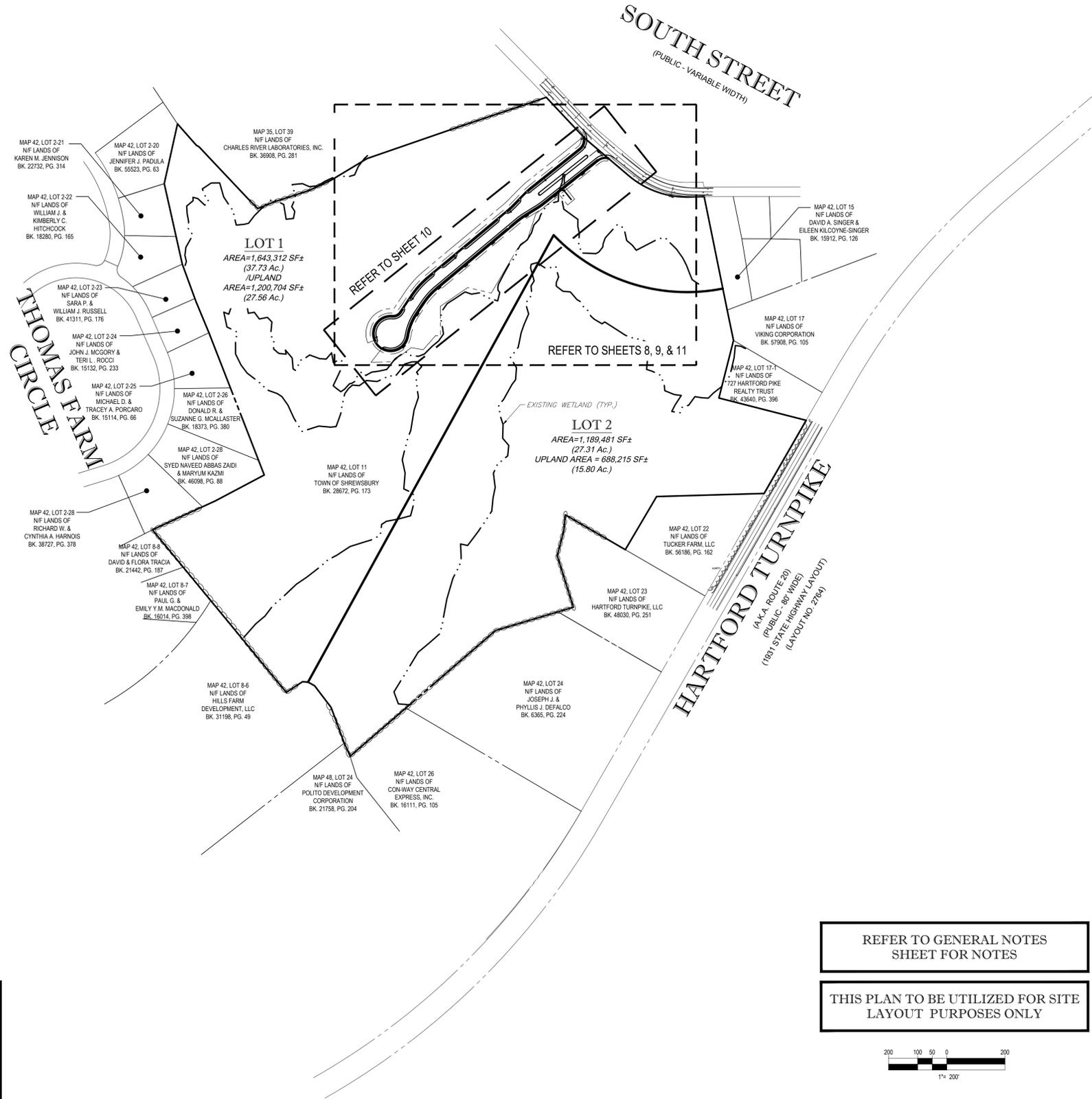
8. THE CONTRACTOR MUST PROVIDE ALL "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES, AND ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF SITE. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN. CONTRACTOR MUST USE QUALIFIED MATERIAL FOR ALL REPAIRS. CONTRACTOR IS RESPONSIBLE FOR THE RESTORATION OF ANY ITEMS REPAIRED TO THE PRE-DEMOLITION CONDITION, OR BETTER. CONTRACTOR SHALL PERFORM ALL REPAIRS AT THE CONTRACTOR'S SOLE EXPENSE.

9. THE CONTRACTOR MUST NOT PERFORM ANY EARTH MOVEMENT ACTIVITIES, DEMOLITION OR REMOVAL OF FOUNDATION WALLS, FOOTINGS, OR OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE UNLESS SAME IS IN STRICT ACCORDANCE AND CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS, AND/OR UNDER THE WRITTEN DIRECTION OF THE OWNER'S STRUCTURAL OR GEOTECHNICAL ENGINEER.

10. CONTRACTOR MUST BACKFILL ALL EXCAVATION RESULTING FROM, OR INCIDENTAL TO, DEMOLITION ACTIVITIES. BACKFILL MUST BE ACCOMPLISHED WITH APPROVED BACKFILL MATERIALS, AND MUST BE SUFFICIENTLY COMPACTED TO SUPPORT NEW IMPROVEMENTS AND PERFORMED IN COMPLIANCE WITH THE RECOMMENDATIONS AND GUIDANCE IN THE GEOTECHNICAL REPORT. BACKFILLING MUST OCCUR IMMEDIATELY AFTER DEMOLITION ACTIVITIES, AND MUST BE DONE SO AS TO PREVENT WATER ENTERING THE EXCAVATION. FINISHED SURFACES MUST BE GRADED TO PROMOTE POSITIVE DRAINAGE.

11. EXPLOSIVES MUST NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF BOTH THE OWNER AND ALL APPLICABLE GOVERNMENTAL AUTHORITIES. ALL THE REQUIRED PERMITS AND EXPLOSIVE CONTROL MEASURES THAT ARE REQUIRED BY THE FEDERAL, STATE, AND LOCAL GOVERNMENTS MUST BE IN PLACE PRIOR TO CONTRACTOR STARTING AN EXPLOSIVE PROGRAM AND/OR ANY DEMOLITION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL INSPECTION AND SEISMIC VIBRATION TESTING THAT IS REQUIRED TO MONITOR THE EFFECTS ON ALL LOCAL STRUCTURES.

12. CONTRACTOR MUST PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH THE CURRENT FHWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND THE FEDERAL, STATE, AND LOCAL REGULATIONS WHEN DEMOLITION RELATED ACTIVITIES IMPACT ROADWAYS AND/OR ROAD



LOCUS PLAN OF SUBDIVISION - ZONING

SCALE: 1"=800'

ZONING DISTRICTS

1	RURAL "A"
2	RURAL "B"
3	RESIDENCE "A"
6	MF-1 GARDEN-TYPE
6a	MF-2 TOWNHOUSE-TYPE
7	APARTMENT
9	COMMERCIAL - BUSINESS
10	LIMITED INDUSTRIAL
12	OFFICE - RESEARCH

SUBDIVISION ANALYSIS TABLE

DESIGN CRITERIA	REQUIRED	PROPOSED PUBLIC ROADWAY
DESIGN SPEED (SECTION IV.A.3.c)	30 MPH	25 MPH (W)
MIN. CENTERLINE RADI (SECTION IV.A.1.f)	200'	200'
MIN. ANGLE OF INTERSECTION OF 2 STREETS (SECTION IV.A.1.g)	60°	79°
MIN. CENTERLINE GRADE (SECTION IV.A.3.a)	1.0%	1.5%
MAX. CENTERLINE GRADE (SECTION V.L.5)	6%	2.0%
MAX. CUTFILL (SECTION IV.A.1.j)	8'	13' (W)
MIN. LENGTH OF LEVELING AREA (SECTION IV.A.3.b)	50'	>50'
MIN. RIGHT-OF-WAY WIDTH (SECTION IV.A.2)	50'	50'
MIN. PAVEMENT WIDTH (SECTION V.L.3)	30'	30'
MIN. PROPERTY LINE RADI AT INTERSECTIONS (SECTION IV.A.1.n)	30'	40'
MAX. DEAD END LENGTH (SECTION IV.A.4.a)	600'	1,019' (W)
MIN. CUL-DE-SAC PAVEMENT WIDTH (SECTION IV.A.4.b)	100'	100'
MIN. CUL-DE-SAC ROW DIAMETER (SECTION IV.A.4.b)	120'	120'
MIN. GRASSPLOTS WIDTH - ROADWAY / CUL-DE-SAC (SECTION IV.B.1)	6' / 8'	4' 5" (W)
STORM PIPE MATERIAL (SECTION V.H.2)	REINFORCED CONCRETE	HDPE (W)
SIDEWALK ON BOTH SIDE OF STREETS (SECTIONS IV.B.1 & V.L.1)	BOTH SIDES	ONE SIDE (W)
INDUSTRIAL ROAD DEAD ENDS (SECTION V.L.6)	NEED SECONDARY EXIT	CUL-DE-SAC (W)
MIN. SANITARY DEPTH (TYPICAL CROSS SECTION)	7'	6' (W)
MIN. DRAIN DEPTH (TYPICAL CROSS SECTION)	4"	3" (W)
DETECTION BASIN BERM (SECTION IV.H)	GRAVEL AROUND ENTIRE BERM	GRASS AROUND HALF BERM (W)

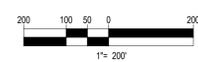
(W) - WAIVER REQUESTED, IN ADDITION TO THE FOLLOWING:

- PENCIL ON PAPER PLAN AT A SCALE OF 1" = 100' (SECTION III - B.2.)
- HYDRANT LOCATIONS AT ALL HIGH AND LOW POINTS IN ROAD (SECTION IV-K)
- APPLICATION FEES (SECTION III - D.1.c)

ZONING ANALYSIS TABLE

ZONING DISTRICT	12 - OFFICE/RESEARCH FLEXIBLE DEVELOPMENT OVERLAY DISTRICT	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA		80,000 SF	65.03 AC.	27.31 AC.
MINIMUM LOT WIDTH		N/S	N/A	N/A
MIN. FRONTAGE		150 FT	288 FT	187 FT
MIN. FRONT SETBACK		50 FT	2.8' (E)	N/A
MIN. SIDE SETBACK		50 FT*	109 FT	N/A
MIN. REAR SETBACK		50 FT*	1,173 FT	N/A
MAX. BUILDING HEIGHT		50 FT / 4 STORIES	<50 FT	N/A
IMPERVIOUS COVERAGE		75%	0.6%	N/A

*WHEN ABUTTING LAND ZONED FOR SINGLE FAMILY PURPOSES, SETBACKS TO INCREASE TO 200' FOR BUILDINGS, DRIVEWAYS, OR PARKING AREAS.
 (E) - EXISTING NONCONFORMITY
 N/S - NOT SPECIFIED
 N/A - NOT APPLICABLE



REFER TO GENERAL NOTES SHEET FOR NOTES

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING ARCHITECTURE
 LAND SURVEYING DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES
 SUSTAINABLE DESIGN URBAN DESIGN

CHARLOTTE, NC
 ATLANTA, GA
 BALTIMORE, MD
 BOSTON, MA
 CHICAGO, IL
 CINCINNATI, OH
 DENVER, CO
 DALLAS, TX
 HOUSTON, TX
 LOS ANGELES, CA
 MEMPHIS, TN
 MIAMI, FL
 MINNEAPOLIS, MN
 NEW YORK, NY
 PHILADELPHIA, PA
 RICHMOND, VA
 SAN ANTONIO, TX
 TAMPA, FL
 WASHINGTON, DC

REVISIONS

REV	DATE	COMMENT	BY
1	03/28/19	REVISED FOR DEFINITIVE SUBDIVISION	CMC/GJZ
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

PRELIMINARY

PROJECT No.: W181144
 DRAWN BY: GJZ/CMC
 CHECKED BY: MJD/JAK
 DATE: 12/22/18
 SCALE: AS NOTED
 CAD I.D.: W181144SS1

PROJECT: **SITE DEVELOPMENT PLANS FOR CENTECH PARK NORTH SUB-DISTRICT A**

LOCATION OF SITE
 MAP 42, LOT 11
 384-386 SOUTH STREET
 TOWN OF SHREWSBURY
 WORCESTER COUNTY,
 MASSACHUSETTS

BOHLER ENGINEERING

352 TURNPIKE ROAD
 SOUTHBOROUGH, MA 01772
 Phone: (508) 480-9900
 Fax: (508) 480-9080
www.BohlerEngineering.com



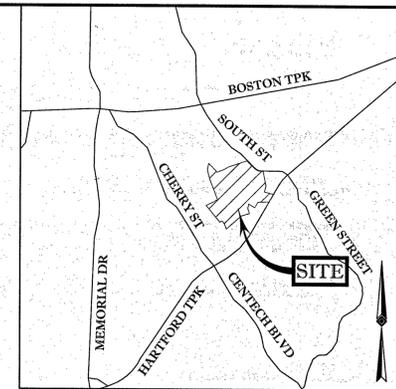
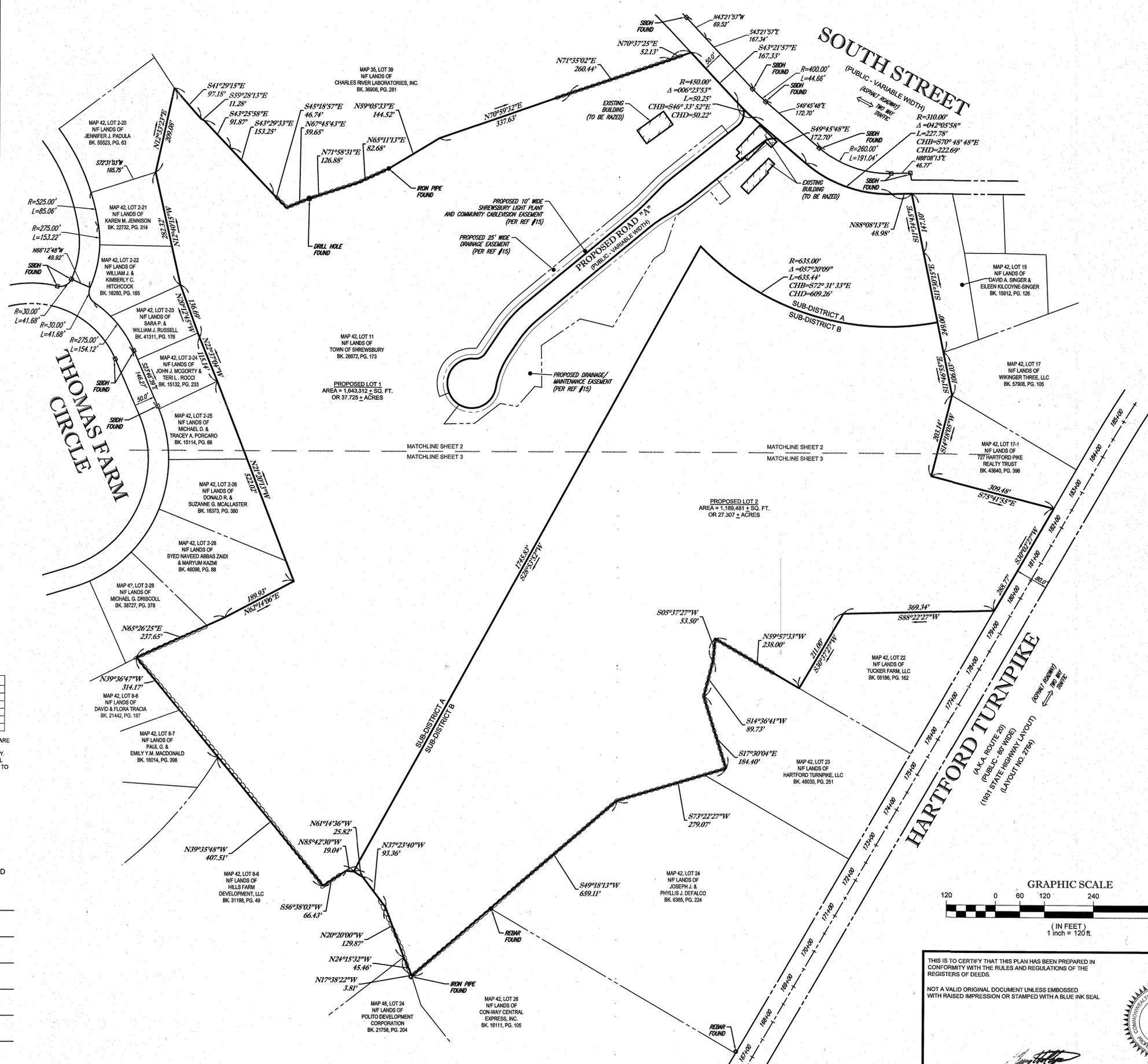
SHEET TITLE: **OVERALL SITE INDEX AND LOCUS PLANS**

SHEET NUMBER: **4**
 OF 15

REV 1 - 03/28/2019



FOR REGISTRY USE ONLY



- NOTES:
- PROPERTY KNOWN AS LOT 11 AS SHOWN ON THE TOWN OF SHREWSBURY, WORCESTER COUNTY, COMMONWEALTH OF MASSACHUSETTS MAP NO. 42.
 - EXISTING MAP 42, LOT 11 AREA = 2,895,896 SQUARE FEET OR 66.481 ACRES
PROPOSED LOT 1 AREA = 1,643,327 SQUARE FEET ± OR 37.726 ACRES ±
PROPOSED LOT 2 AREA = 1,189,483 SQUARE FEET ± OR 27.307 ACRES ±
TOTAL AREA = 2,895,896 SQUARE FEET ± OR 66.481 ACRES ±
 - THIS PLAN IS BASED ON INFORMATION PROVIDED BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
 - BY GRAPHIC PLOTTING ONLY PROPERTY IS LOCATED IN FLOOD HAZARD ZONE X-UNSHADED (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER REF. #2

- REFERENCES:
- THE TAX ASSESSOR'S MAP OF SHREWSBURY, WORCESTER COUNTY, MASSACHUSETTS, SHEET #42.
 - MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM FLOOD INSURANCE RATE MAP, WORCESTER COUNTY, MASSACHUSETTS (ALL JURISDICTIONS), PANEL 639 OF 1075, MAP NUMBER 25027C0639F, MAP REVISED: JULY 16, 2014.
 - MAP ENTITLED "PROPOSED LAYOUT PLAN FOR A PORTION OF SOUTH STREET FOR ACCEPTANCE AS A PUBLIC STREET, TOWN OF SHREWSBURY," PREPARED BY MOORE SURVEY & MAPPING CORP., DATED MARCH 20, 1991, RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS IN PLAN BOOK 649 AS PLAN 113.
 - MAP ENTITLED "PLAN OF LAND IN SHREWSBURY OWNED BY RUTH FRIARS," PREPARED BY MORAN SURVEY, DATED MARCH 28, 1975, RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS IN PLAN BOOK 411 AS PLAN 55.
 - MAP ENTITLED "LAND IN SHREWSBURY, MASSACHUSETTS OWNED BY HAMILTON CORPORATION OF CAMBRIDGE, INC.," PREPARED BY RENEY BROTHERS INC., DATED JUNE 20, 1975, RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS IN PLAN BOOK 417 AS PLAN 86.
 - MAP ENTITLED "PLAN OF LAND, SHREWSBURY, MASS AT 727 HARTFORD PIKE - ROUTE 20, OWNED BY JOSEPH J. DEFALCO ET UX," PREPARED BY EDWARD S. HOLLAND, DATED MARCH 1979, RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS IN PLAN BOOK 476 AS PLAN 6.
 - SUBDIVISION PLAN OF LAND IN SHREWSBURY, MASS. (WORCESTER COUNTY) * PREPARED BY MILLER & NYLANDER CO., DATED MAY 27, 1981, LAST REVISED JULY 24, 1981, RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS IN PLAN BOOK 488 AS PLAN 96.
 - PLAN SET ENTITLED "PRATT FARMS, PRATT FARMS ESTATES, DEFINITIVE PLAN OF LAND IN SHREWSBURY, MASSACHUSETTS, PREPARED FOR PRATT FARMS REALTY TRUST," PREPARED BY THOMPSON-LISTON ASSOCIATES, INC., DATED OCTOBER 21, 1987, LAST REVISED SEPTEMBER 18, 1989, RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS IN PLAN BOOK 638 AS PLAN 25.
 - MAP ENTITLED "PLAN OF LAND LOCATED IN SHREWSBURY, MASSACHUSETTS, JOYCE CIRCLE, LOTS 7A, 7B, 8A, & 8B," PREPARED BY S & W LANDTECH, DATED JULY 12, 1993, RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS IN PLAN BOOK 673 AS PLAN 6.
 - MAP ENTITLED "PLAN OF PROPERTY SURVEYED FOR EDWARD POUR, ROUTE 20 & CHERRY STREET, SHREWSBURY, MASSACHUSETTS," PREPARED BY JARVIS LAND SURVEY, DATED AUGUST 2, 1999, RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS IN PLAN BOOK 745 AS PLAN 8.
 - MAP ENTITLED "SHREWSBURY - 1931 STATE HIGHWAY LAYOUT," LAYOUT NO. 2764.
 - UNDERGROUND GAS FACILITY MAPPING PROVIDED BY EVERSOURCE.
 - MAP ENTITLED "RECORD PLAN OF SOUTH STREET SEWER, SHREWSBURY, MASSACHUSETTS," PREPARED BY THE TOWN OF SHREWSBURY ENGINEERING DEPARTMENT, DATED JANUARY 2015, SHEET 5 OF 6.
 - MAP ENTITLED "RECORD PLAN OF HARTFORD PIKE (ROUTE 20) SEWER, SHREWSBURY, MASSACHUSETTS," PREPARED BY THE TOWN OF SHREWSBURY ENGINEERING DEPARTMENT, DATED JANUARY 2015, SHEET 1 OF 6.
 - CAD FILE PROVIDED BY BOHLER ENGINEERING ON MARCH 8, 2019.

ZONING INFORMATION
OFFICE RESEARCH (OFF-RES) DISTRICT
FLEXIBLE DEVELOPMENT OVERLAY
SOURCE: TOWN OF SHREWSBURY
ZONING BY-LAWS

ITEMS	REQUIRED
MIN LOT AREA	80,000 SQ. FT.
MIN FRONTAGE	150'
MIN FRONT YARD	50'
MIN 1 SIDE YARD	50'
MIN REAR YARD	50'
MAX BUILDING HEIGHT	50'

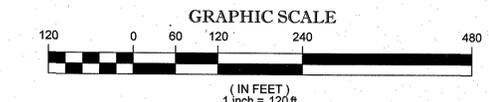
NOTE: ZONING CRITERIA IDENTIFIED HEREON ARE BASED UPON PRELIMINARY RESEARCH AND PRESENTED FOR REFERENCE ONLY. SAME MUST BE CONFIRMED WITH LOCAL ZONING OFFICIAL AND LEGAL COUNSEL TO CONFIRM VALIDITY.

APPROVAL UNDER THE SUBDIVISION CONTROL LAW REQUIRED

TOWN OF SHREWSBURY PLANNING BOARD

CHAIRMAN _____

DATE _____



OWNER OF RECORD:
TOWN OF SHREWSBURY
100 MAPLE AVENUE
SHREWSBURY, MA 01545

THIS IS TO CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

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GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE: 9-17-18
FIELD BOOK NO: 18-14 MA
FIELD BOOK PG: 4-15
FIELD CROW: T.M.T.O.
DRAWN: R.J.K.
REVIEWED: J.R.Z.
APPROVED: G.L.H.
DATE: 3-26-19

DEFINITIVE SUBDIVISION LOTTING PLAN
MASS DEVELOPMENT
384-386 SOUTH STREET
LOT 11, MAP 42
TOWN OF SHREWSBURY, WORCESTER COUNTY
COMMONWEALTH OF MASSACHUSETTS

CONTROL POINT ASSOCIATES, INC.
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
508.948.3000 - 508.948.3003 FAX

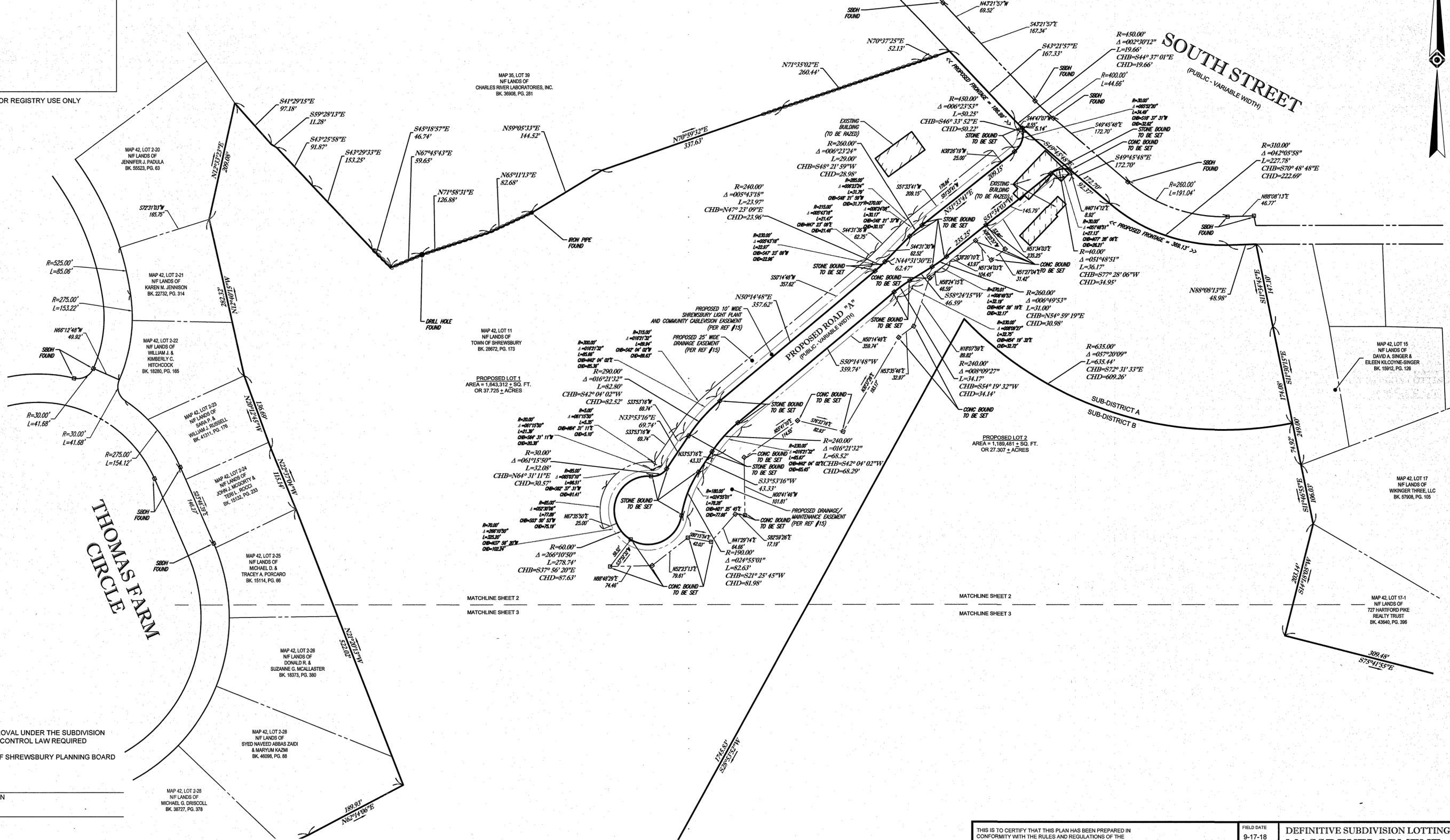
REGISTRY SHEET
1 OF 3

DWG. NO.
5 OF 15

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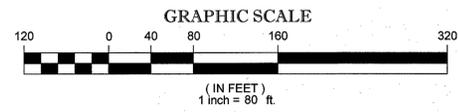


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APPROVAL UNDER THE SUBDIVISION CONTROL LAW REQUIRED
TOWN OF SHREWSBURY PLANNING BOARD

CHAIRMAN _____
DATE _____



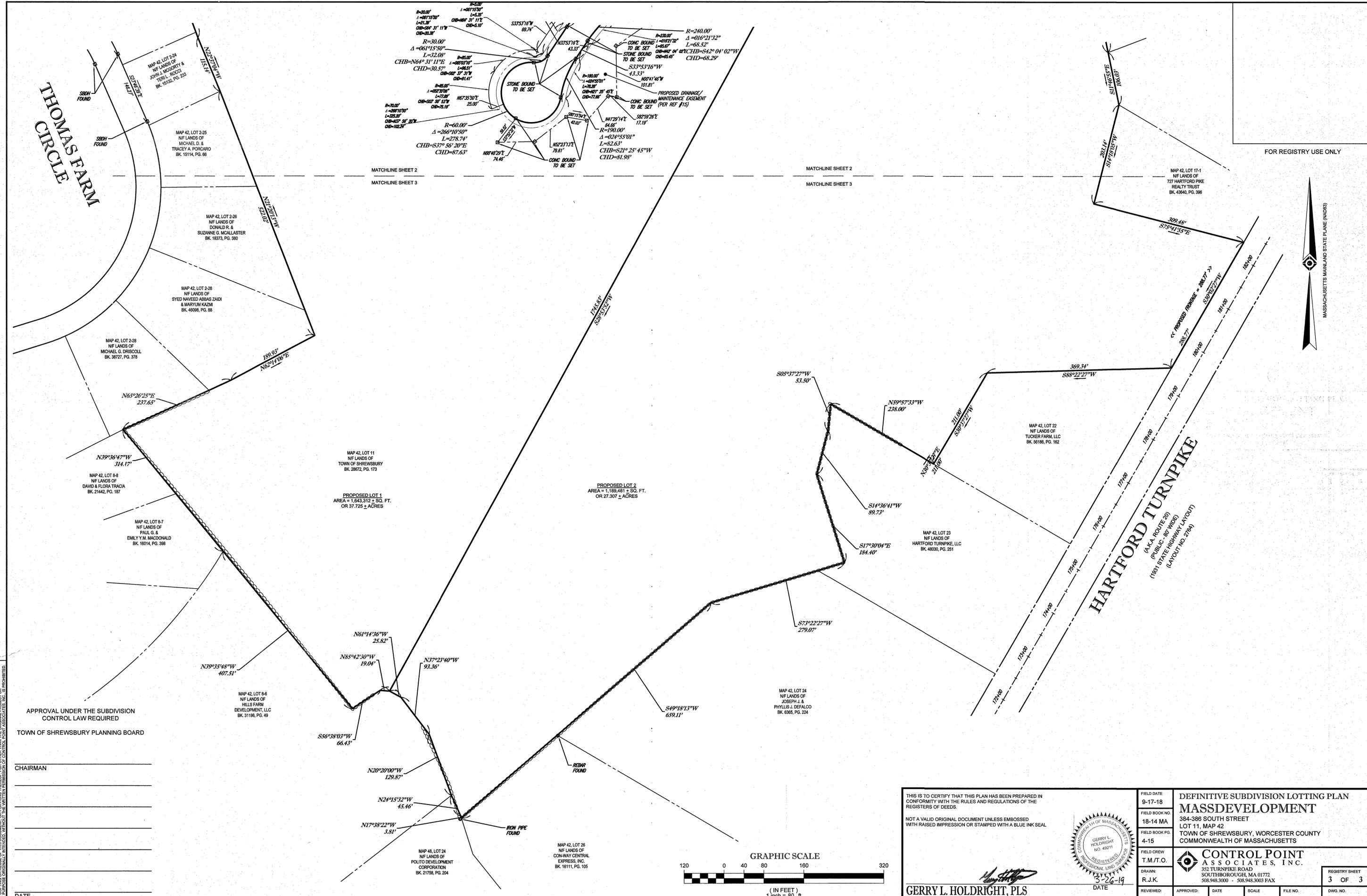
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FIELD DATE	9-17-18	DEFINITIVE SUBDIVISION LOTTING PLAN	
FIELD BOOK NO.	18-14 MA	384-386 SOUTH STREET	
FIELD BOOK PG.	4-15	LOT 11, MAP 42	
FIELD CREW	T.M./T.O.	TOWN OF SHREWSBURY, WORCESTER COUNTY	
DRAWN	R.J.K.	COMMONWEALTH OF MASSACHUSETTS	
REVIEWED	J.R.Z.	DATE	3-26-19
APPROVED	G.L.H.	SCALE	1"=80'
FILE NO.	03-160198	DWS. NO.	6 OF 15
REGISTRY SHEET	2 OF 3		

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

THOMAS FARM
CIRCLE



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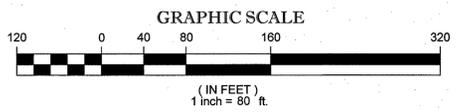
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APPROVAL UNDER THE SUBDIVISION CONTROL LAW REQUIRED

TOWN OF SHREWSBURY PLANNING BOARD

CHAIRMAN

 DATE



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FIELD BOOK NO. 18-14 MA		FIELD BOOK NO. 4-15		384-386 SOUTH STREET LOT 11, MAP 42 TOWN OF SHREWSBURY, WORCESTER COUNTY COMMONWEALTH OF MASSACHUSETTS	
FIELD CREW T.M./T.O.		FIELD CREW R.J.K.		CONTROL POINT ASSOCIATES, INC. 352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772 508.948.3000 - 508.948.3003 FAX	
DRAWN R.J.K.		DATE 3-26-19		REGISTRY SHEET 3 OF 3	
REVIEWED: J.R.Z.	APPROVED: G.L.H.	DATE 3-26-19	SCALE 1"=80'	FILE NO. 03-160198	DWS. NO. 7 OF 15

GERRY L. HOLDRIGHT, PLS
 MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211





LOT 1
 AREA=1,643,312 SF±
 (37.73 Ac.)
 UPLAND AREA=1,200,704 SF±
 (27.56 Ac.)

LOT 2
 AREA=1,189,481 SF±
 (27.31 Ac.)
 UPLAND AREA = 688,215 SF±
 (15.80 Ac.)

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING ARCHITECTURE
 LAND SURVEYING DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES
 SUSTAINABLE DESIGN

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 LOS ANGELES, CA
 MEMPHIS, TN
 MIAMI, FL
 MINNEAPOLIS, MN
 NEW YORK, NY
 OMAHA, NE
 PHOENIX, AZ
 RICHMOND, VA
 SAN ANTONIO, TX
 TAMPA, FL
 WASHINGTON, DC

REVISIONS		
REV	DATE	COMMENT
1	03/28/19	REVISED FOR DEFINITIVE SUBDIVISION
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PRELIMINARY

PROJECT No.: W181144
 DRAWN BY: GJZ/CMC
 CHECKED BY: MJD/JAK
 DATE: 12/12/2018
 SCALE: AS NOTED
 CAD I.D.: W181144S1 - GRAD

SITE DEVELOPMENT PLANS
 FOR
CENTECH PARK NORTH SUB-DISTRICT A

LOCATION OF SITE
 MAP 42, LOT 11
 384-386 SOUTH STREET
 TOWN OF SHIREWSBURY
 WORCESTER COUNTY,
 MASSACHUSETTS

BOHLER ENGINEERING

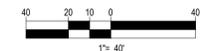
352 TURNPIKE ROAD
 SOUTHBOROUGH, MA 01772
 Phone: (508) 480-9900
 Fax: (508) 480-9080
www.BohlerEngineering.com



REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE DRAINAGE INFRASTRUCTURE DETAILS

REFER TO GENERAL NOTES SHEET FOR NOTES

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY



SHEET TITLE:
GRADING & DRAINAGE PLAN

SHEET NUMBER:
9
 OF 15

REV 1 - 03/28/2019

P:\181144\Drawings\Plan_Subs\811\W181144S1 - GRAD.dwg, 09-Cad, 10/02/2014, 4:28:59 PM, colak, None, Ldrbr (8.50 x 11.00 inches), 13, 4628

EROSION & SEDIMENT CONTROL NOTES

- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE AS SET FORTH IN THE MOST CURRENT STATE SEDIMENT AND EROSION CONTROL MANUAL.
- THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 100 FEET OF A STREAM OR POND, THE AREA SHALL BE STABILIZED WITHIN 7 DAYS OR PRIOR TO ANY STORM EVENT (THIS WOULD INCLUDE WETLANDS).
- SEDIMENT BARRIERS (SILT FENCE, STRAW BARRIERS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- INSTALL SILTATION BARRIER AT TOE OF SLOPE TO FILTER SILT FROM RUNOFF. SEE SILTATION BARRIER DETAILS FOR PROPER INSTALLATION. SILTATION BARRIER WILL REMAIN IN PLACE PER NOTE #5.
- ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF.
- NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO TO ONE (2:1).
- IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED AS DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCH (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
- TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT FROM SPRING RUNOFF PROBLEMS.
- DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS.
- REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
 - SIX INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
 - APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 LB PER ACRE OR 18.4 LB PER 1,000 SF USING 10-20-20 OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SF).
 - FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS. SEEDING RATE IS 1.03 LBS PER 1,000 SF LAWN QUALITY SOO MAY BE SUBSTITUTED FOR SEED.
 - STRAW MULCH AT THE RATE OF 70-90 LBS PER 1,000 SF. A HYDRO-APPLICATION OF WOOD OR PAPER FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS WILL BE USED ON STRAW MULCH FOR WIND CONTROL.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
- WETLANDS WILL BE PROTECTED WITH STRAW BALES AND/OR SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
- ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL HAVE AN EXPOSURE WINDOW OF NOT MORE THAN 7 DAYS.
- ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IF NOT BEING ACTIVELY WORKED.

MULCH

LOCATION	MULCH	RATE (1000 SF)
PROTECT AREA	STRAW	100 POUNDS
WINDY AREA	SHREDDED OR CHOPPED CORNSTALKS (ANCHORED)	185-275 POUNDS 100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES GREATER THAN 3:1	JUTE MESH OR EXCELSIOR MAT	AS REQUIRED
GREATER THAN 3:1	(REFER TO GEOTECHNICAL REPORT FOR FINAL DESIGN REQUIREMENT)	

*A HYDRO-APPLICATION OF WOOD, OR PAPER FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS SHALL BE USED ON STRAW MULCH FOR WIND CONTROL.

MULCH ANCHORING
ANCHOR MULCH WITH PEG AND TWINE (1" SQ. YODBLOCK), MULCH NETTING (AS PER MANUFACTURER), WOOD CELLULOSE FIBER (750 LBS/ACRE), CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS), USE OF A SERRATED STRAIGHT DISK, NETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

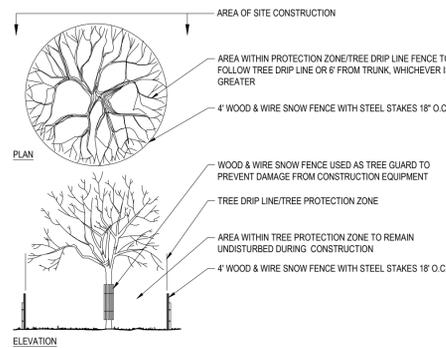
EROSION CONTROL NOTES DURING WINTER CONSTRUCTION

- WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.
- WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
- CONTINUATION OF EARTHWORK OPERATION ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
- AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR PAPER AT A RATE OF 100 LB PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDING, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE.
- BETWEEN THE DATES OF OCTOBER 15 AND APRIL 15, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDING AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOADED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEEDING AT A RATE OF 200 - 300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE CONTINUOUSLY GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT UNEXPOSED OVER THE WINTER OR ON ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF STRAW OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
- MULCHING REQUIREMENTS:
 - BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING OR WOOD CELLULOSE FIBER.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPE EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY DORMANT SEEDING OR MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
- DURING THE WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.
- STOCKPILING OF MATERIALS (DIRT, WOOD, CONSTRUCTION MATERIALS, ETC.) MUST REMAIN COVERED AT ALL TIMES TO MINIMIZE ANY DUST PROBLEMS THAT MAY OCCUR WITH ADJACENT PROPERTIES AND TO PROVIDE MAXIMUM PROTECTION AGAINST EROSION RUNOFF.
- EXISTING CATCH BASIN STRUCTURES SHALL BE PROTECTED UNTIL SUCH TIME AS THEY ARE REMOVED.

CONSTRUCTION SEQUENCE

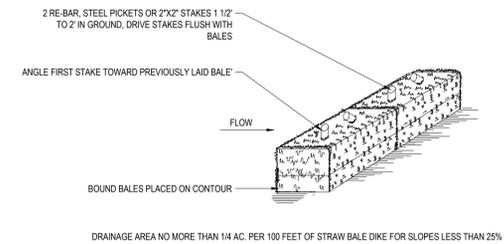
- THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:
- INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCE/EXIT (AS SHOWN)
 - INSTALLATION OF EROSION CONTROL BARRIER (STRAW BALES AND SILT FENCE) (AS SHOWN)
 - INSTALLATION OF INLET PROTECTION IN STREET (AS SHOWN)
 - DEMOLITION OF EXISTING SITE STRUCTURES (SEE DEMOLITION PLAN)
 - DEMOLITION OF EXISTING SITE PAVEMENT AND AMENITIES (SEE DEMOLITION PLAN)
 - CLEARING AND GRUBBING
 - INSTALLATION OF TEMPORARY SWALES AND SEDIMENT BASINS
 - EARTHWORK AND EXCAVATION/FILLING AS NECESSARY
 - CONSTRUCTION OF UTILITIES
 - STABILIZE PERMANENT LAWN AREAS AND SLOPES WITH TEMPORARY SEEDING
 - INSTALLATION OF INLET PROTECTION OF ON-SITE UTILITIES (AS SHOWN)
 - CONSTRUCTION OF BUILDINGS
 - CONSTRUCTION OF ALL CURBING AND LANDSCAPE ISLANDS AS INDICATED ON THE PLANS
 - SPREAD TOPSOIL ON SLOPED AREAS AND SEED AND MULCH
 - FINAL GRADING OF ALL SLOPED AREAS
 - PLACE 6" TOPSOIL ON SLOPES AFTER FINAL GRADING COMPLETED. FERTILIZE, SEED, AND MULCH SEED MIXTURE TO BE INSTALLED AS REQUIRED.
 - REMOVAL OF THE TEMPORARY SEDIMENT BASINS
 - PAVE PARKING LOT
 - LANDSCAPING PER LANDSCAPING PLAN
 - REMOVE EROSION CONTROLS AS DISTURBED AREAS BECOME STABILIZED TO 70% STABILIZATION OR GREATER.

TREE PROTECTION DURING CONSTRUCTION



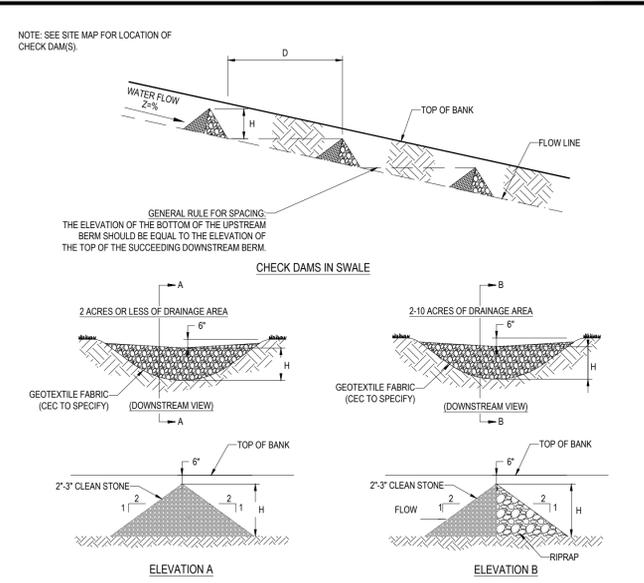
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STRAW BALE DETAIL



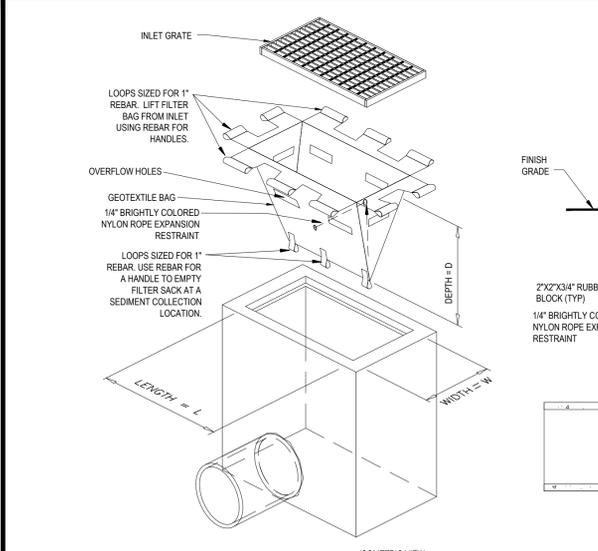
- DRAINAGE AREA NO MORE THAN 1/4 AC. PER 100 FEET OF STRAW BALE DIKE FOR SLOPES LESS THAN 25%.
- NOTES:
- BALES SHALL BE PLACED AT THE TOP OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
 - EACH BALE SHALL BE PLACED SO THE BINDINGS ARE HORIZONTAL.
 - BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
 - INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE PROMPTLY AS NEEDED.
 - BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

N.T.S.



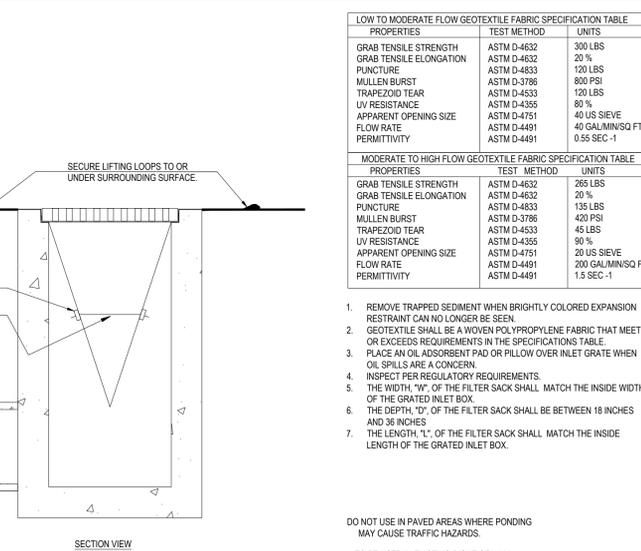
N.T.S.

TEMPORARY STOCKPILE DETAIL



N.T.S.

TYP. SILTATION FENCE DETAIL



N.T.S.

ROCK CHECK DAM

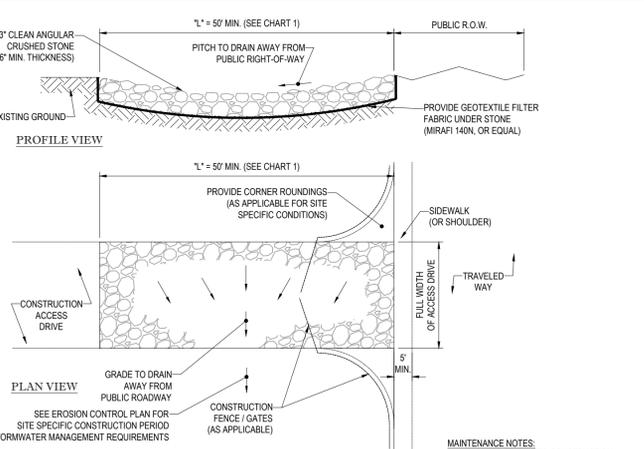


CHART 1

PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT	100 FT
2% TO 5%	100 FT	200 FT
>5%	ENTIRE ENTRANCE STABILIZED WITH FABC BASE COURSE (1)	

(1) AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

MAINTENANCE NOTES:

- INSPECT STABILIZED CONSTRUCTION ENTRANCE / ANTI-TRACKING PAD AND SEDIMENT DISPOSAL AREA WEEKLY OR AFTER EVERY MAJOR RAIN STORM EVENT. WASH WATER (IF USED) SHALL BE DIRECTED TOWARD A SEDIMENT TRAP. SUFFICIENTLY SIZED FOR SPECIFIC SITE CONDITIONS.
- EXCESSIVELY MUD-CLOGGED STONE SHALL BE REMOVED AND REPLACED, AS NEEDED.

STABILIZED CONSTRUCTION EXIT

N.T.S.

FILTER SACKS (GRADED INLETS)

N.T.S.

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REVISIONS

REV.	DATE	COMMENT	BY
1	03/28/19	REVISED FOR DEFINITIVE SUBDIVISION	CMC/GJZ
2			
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PRELIMINARY

PROJECT No.: W181144
DRAWN BY: GJZ/CMC
CHECKED BY: MJD/JAK
DATE: 12/22/2018
SCALE: AS NOTED
CAD I.D.: W181144S1 - EROS

SITE DEVELOPMENT PLANS FOR CENTECH PARK NORTH SUB-DISTRICT A

LOCATION OF SITE
MAP 42, LOT 11
384-386 SOUTH STREET
TOWN OF SHREWSBURY
WORCESTER COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING

352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
www.BohlerEngineering.com

JA... JOHN A. ...

PROFESSIONAL ENGINEER
MASSACHUSETTS
LICENSE NO. 11630
EXPIRES 12/31/2021

SOIL EROSION CONTROL NOTES & DETAILS SHEET

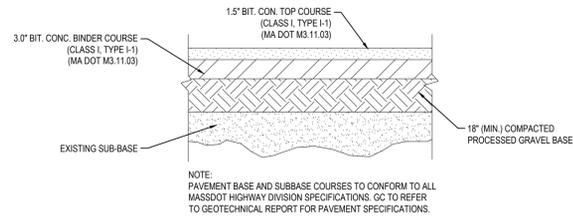
SHEET NUMBER: 12 OF 15

REV 1 - 03/28/2019

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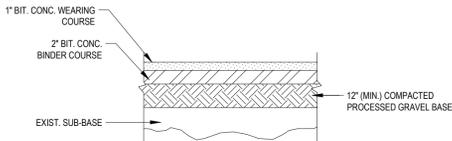
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Know what's below.
Call before you dig.



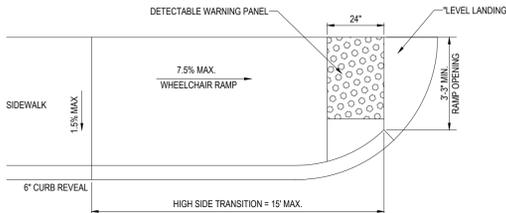
TYPICAL PAVEMENT SECTION

N.T.S.



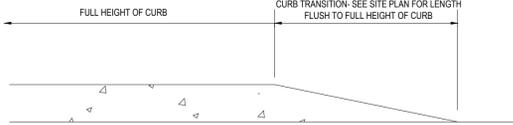
TYPICAL BITUMINOUS ASPHALT SIDEWALK SECTION

N.T.S.



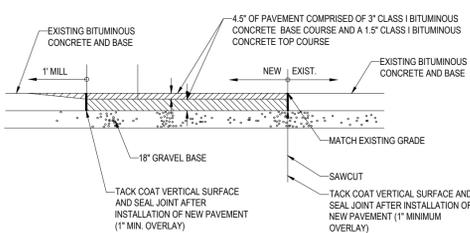
TYPICAL WHEELCHAIR RAMP

N.T.S.



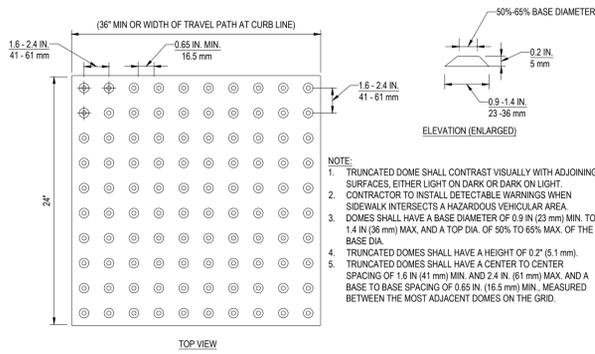
TRANSITION CURB DETAIL

N.T.S.



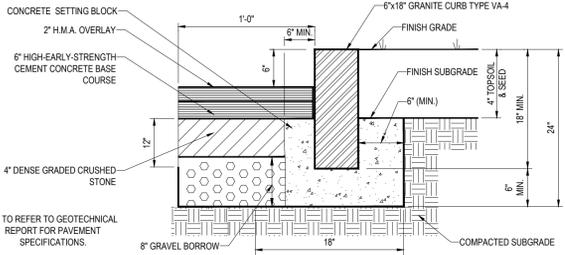
ROADWAY PATCHING DETAIL

N.T.S.



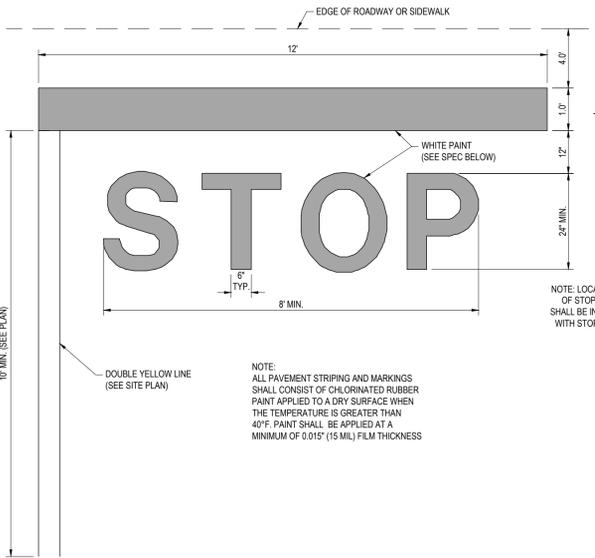
TRUNCATED DOME PATTERN

N.T.S.



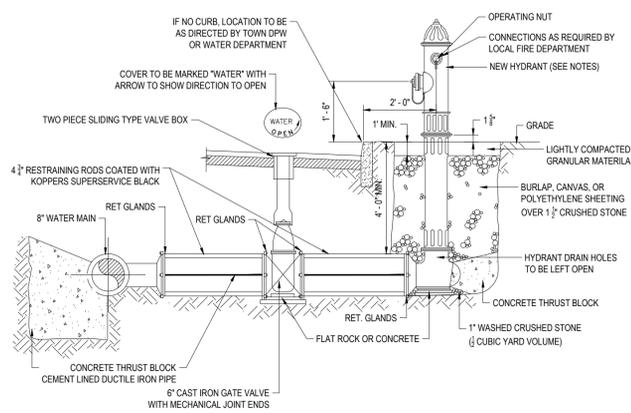
VERTICAL GRANITE CURB DETAIL

N.T.S.



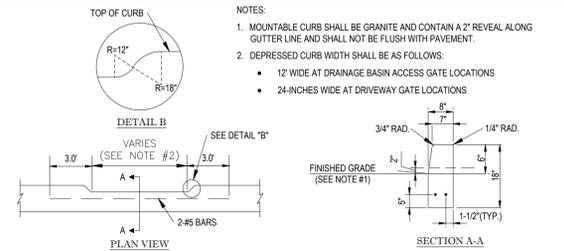
'STOP' BAR DETAIL

N.T.S.



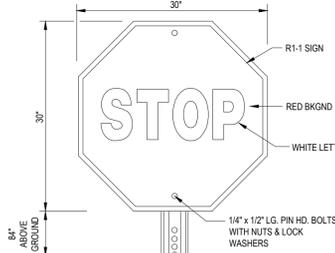
HYDRANT & VALVE INSTALLATION

N.T.S.



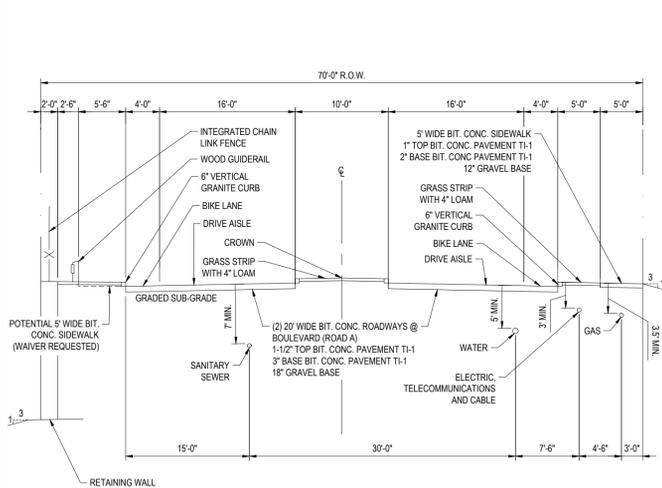
MOUNTABLE/DEPRESSED CURB DETAIL

N.T.S.



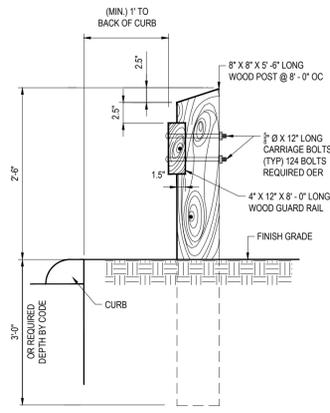
'STOP' SIGN

N.T.S.



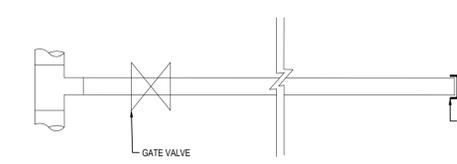
TYPICAL BOULEVARD CROSS SECTION STATION 2+25 (50' WIDE ROADWAY)

1"=10'



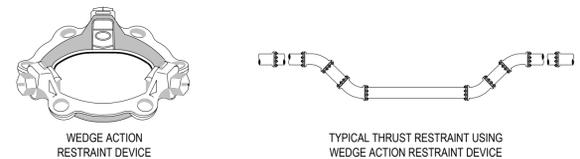
WOOD GUIDERAIL

N.T.S.



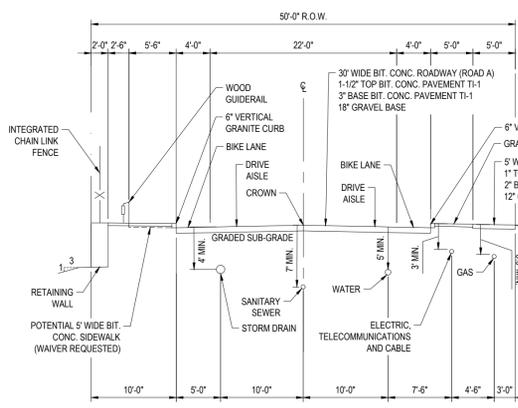
WATER SERVICE STUB/CAP DETAIL

N.T.S.



TYPICAL WATER LINE JOINT RESTRAINT "MEGALUG" DETAIL

N.T.S.



TYPICAL CROSS SECTION STATION 5+75 (30' WIDE ROADWAY)

1"=10'

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 RICHMOND, VA
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 WASHINGTON, DC

REVISIONS			
REV	DATE	COMMENT	BY
1	03/28/19	REVISED FOR DEFINITIVE SUBDIVISION	CMC/GJZ
2			
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PRELIMINARY

PROJECT No.:	W181144
DRAWN BY:	GJZ/CMC
CHECKED BY:	MJD/JAK
DATE:	12/12/2018
SCALE:	AS NOTED
CAD I.D.:	W181144SS1 - DET

PROJECT: **SITE DEVELOPMENT PLANS** FOR **CENTECH PARK NORTH SUB-DISTRICT A**

LOCATION OF SITE
 MAP 42, LOT 11
 384-386 SOUTH STREET
 TOWN OF SHREWSBURY
 WORCESTER COUNTY,
 MASSACHUSETTS

BOHLER ENGINEERING

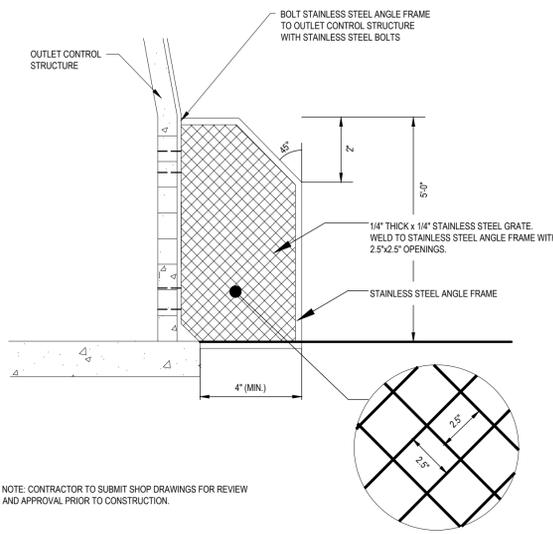
352 TURNPIKE ROAD
 SOUTHBOROUGH, MA 01772
 Phone: (508) 480-9900
 Fax: (508) 480-9080
www.BohlerEngineering.com

JAMES M. BOHLER
 JOHN A. KUCZYNSKI
 PROFESSIONAL ENGINEER
 LICENSE NO. 11630
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF MASSACHUSETTS
 EXPIRES 12/31/2021

SHEET TITLE:
CONSTRUCTION DETAIL SHEET & ROADWAY CROSS-SECTIONS

SHEET NUMBER:
13
 OF 15

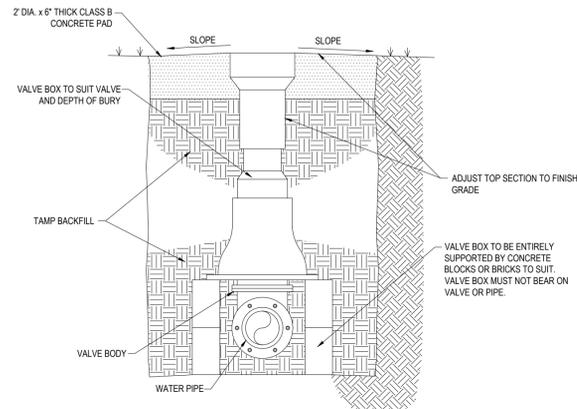
REV 1 - 03/28/2019



NOTE: CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

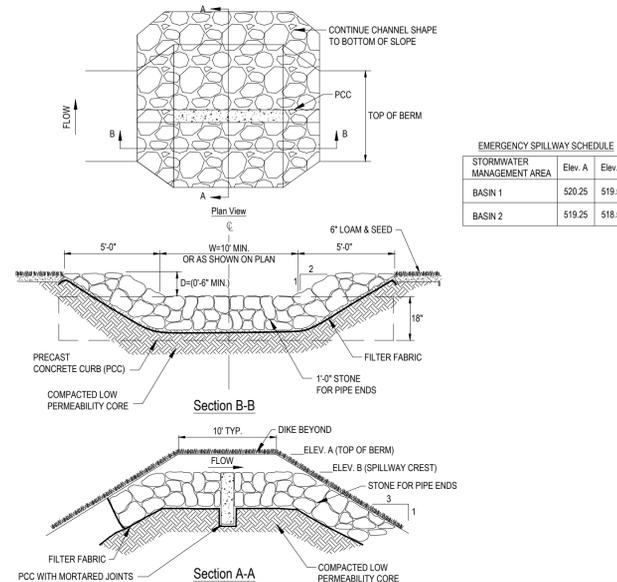
TRASH RACK DETAIL

N.T.S.



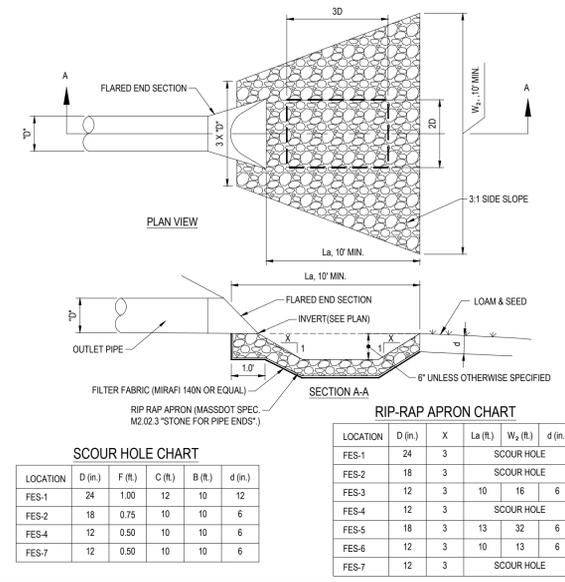
GATE VALVE DETAIL

N.T.S.



OVERFLOW SPILLWAY

N.T.S.



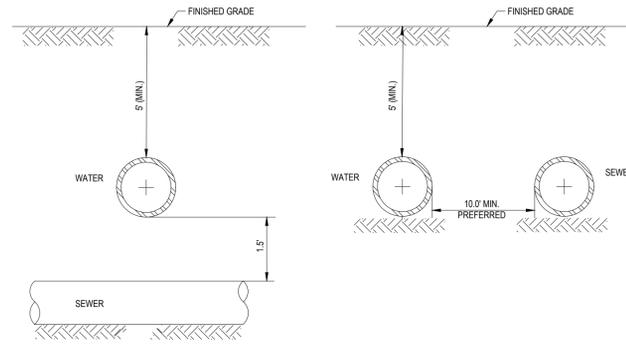
FLARED END SECTION WITH RIP RAP APRON

REVISIONS

REV	DATE	COMMENT	BY
1	03/28/19	REVISED FOR DEFINITIVE SUBDIVISION	CMC/GUZ
2			
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PRELIMINARY

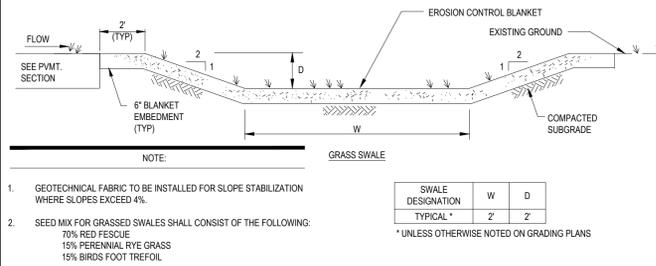
PROJECT No.:	W181144
DRAWN BY:	GJZ/CMC
CHECKED BY:	MJD/JAK
DATE:	12/12/2018
SCALE:	AS NOTED
CAD I.D.:	W181144SS1-DET



NOTE: 10' HORIZONTAL SEPARATION AND 1.5' VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN WATER AND SEWER AS DEPICTED IN THIS DETAIL OR SEWER SHALL BE ENCASED IN CONCRETE (SEE "CONCRETE ENCASEMENT DETAIL AT UTILITY CROSSING" DETAIL THIS SHEET) IN SECTIONS WHERE SEPARATIONS SHALL NOT BE ACHIEVED.

WATER/SEWER CROSSING DETAIL

N.T.S.

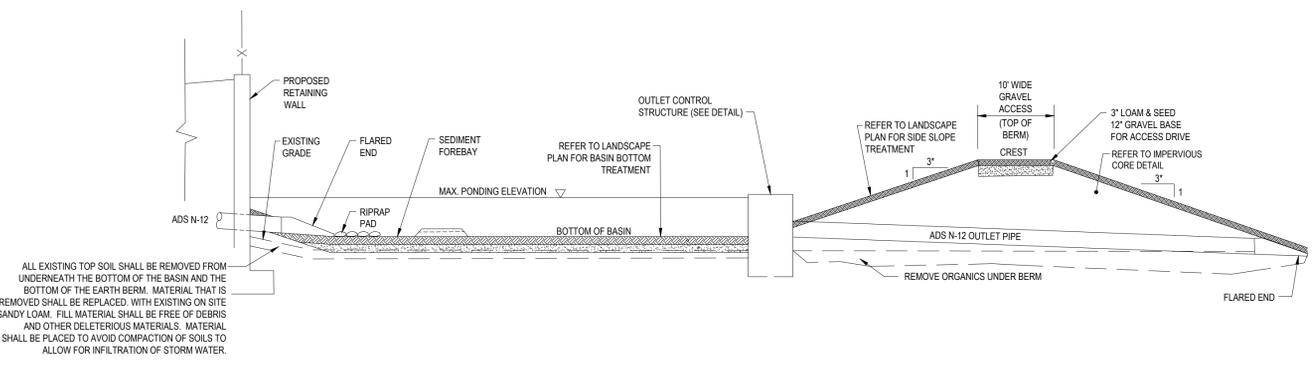


- GEOTECHNICAL FABRIC TO BE INSTALLED FOR SLOPE STABILIZATION WHERE SLOPES EXCEED 4%.
- SEED MIX FOR GRASSED SWALES SHALL CONSIST OF THE FOLLOWING:
70% RED FESCUE
15% PERENNIAL RYE GRASS
15% BERG'S FOOT TREFOL.

* UNLESS OTHERWISE NOTED ON GRADING PLANS

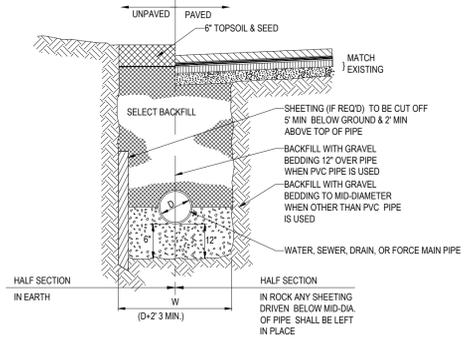
GRASSED SWALE

N.T.S.



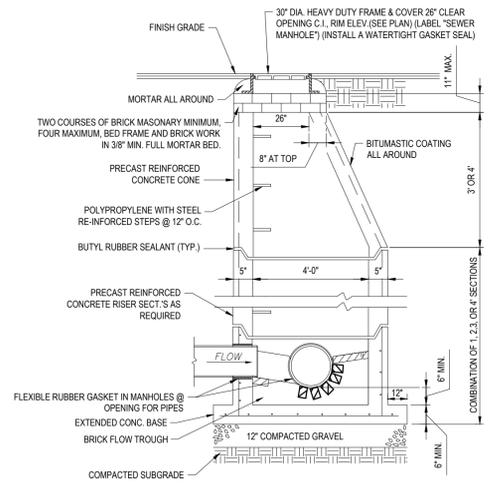
TYPICAL BASIN CROSS SECTION DETAIL

N.T.S.



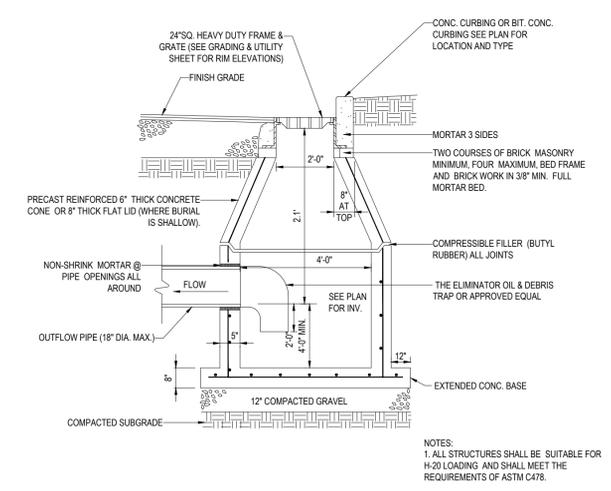
TYPICAL UTILITY TRENCH

N.T.S.



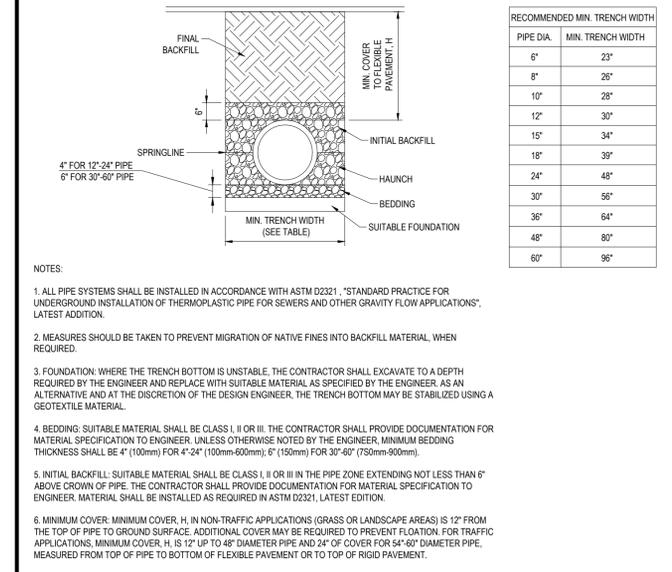
TYP. PRECAST CONCRETE SANITARY MANHOLE

N.T.S.



PRECAST CONCRETE DEEP SUMP CATCH BASIN DETAIL

N.T.S.



HDPE STORM DRAINAGE TRENCH

N.T.S.

PROJECT: SITE DEVELOPMENT PLANS FOR CENTECH PARK NORTH SUB-DISTRICT A

LOCATION OF SITE
MAP 42, LOT 11
384-386 SOUTH STREET
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352 TURNPIKE ROAD
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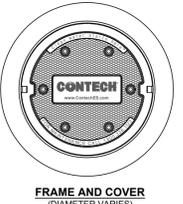
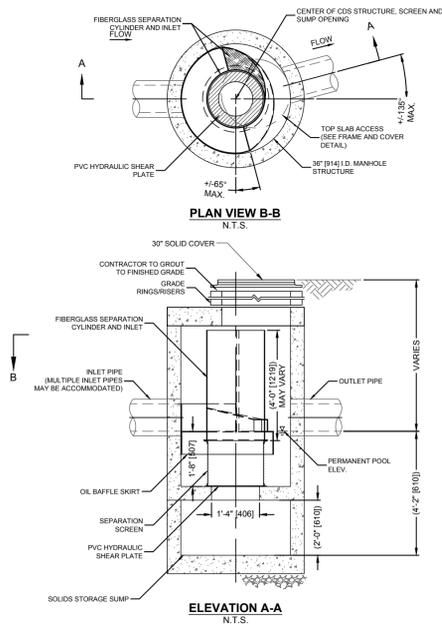
JAMES M. BOHLER
JOHN A. KUCZYNSKI
PROFESSIONAL ENGINEERS
LICENSE NO. 11630
MASSACHUSETTS
REGISTERED PROFESSIONAL ENGINEER
LICENSE NO. 11630
MASSACHUSETTS

SHEET TITLE: CONSTRUCTION DETAIL SHEET
SHEET NUMBER: 14 OF 15
REV 1 - 03/28/2019

P:\181144\Drawings\Plan_Sett\B01\Utility\W181144-01 - DET.dwg, 14:28:00 PM, c:\ak, None, Letter (8.50 x 11.00 inches), 13, 4/23

CDS1515-3-C DESIGN NOTES

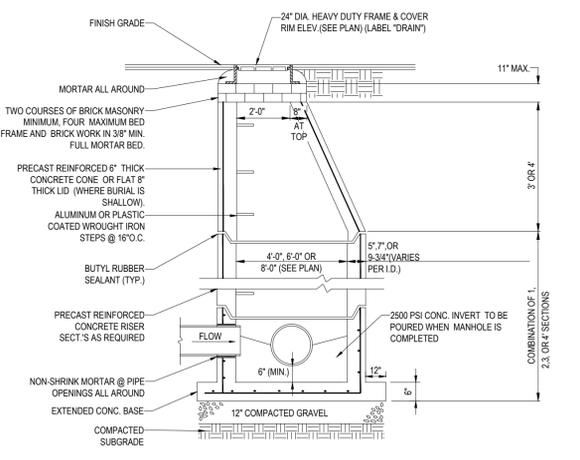
CDS1515-3-C RATED TREATMENT CAPACITY IS 1.0 CFS, OR PER LOCAL REGULATIONS THE STANDARD CDS-1515-3-C IS SHOWN



- GENERAL NOTES**
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
 - FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT. PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
 - CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
 - STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING EARTH COVER OF 0'-0" AND GROUNDWATER ELEVATION AT OR BELOW THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M506 AND BE CAST WITH THE CONTECH LOGO.
 - IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
 - CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
 - ANTI FLOTATION IS NOT REQUIRED PER MANUFACTURER. CONTRACTOR TO CONFIRM WITH MANUFACTURER PRIOR TO ORDERING OF MATERIALS.
- INSTALLATION NOTES**
- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
 - CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
 - CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
 - CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

WATER QUALITY UNIT - CONTECH CDS1515-3-C INLINE CDS STANDARD DETAIL

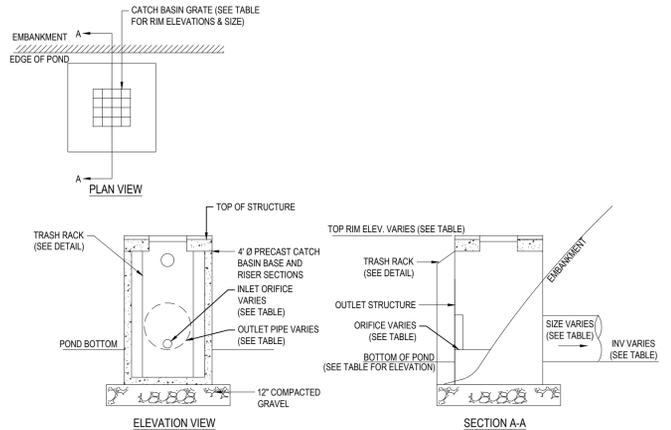
N.T.S.



- NOTES**
- ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.
 - CONTRACTOR SHALL SIZE MANHOLE AS NECESSARY TO ACCOMMODATE THE PROPOSED PIPE SIZES AND PENETRATIONS USING GEOMETRY SHOWN ON THE GRADING AND DRAINAGE PLANS AS WELL AS INFORMATION PROVIDED IN THE ROADWAY PROFILES.

TYP. PRECAST CONCRETE MANHOLE STORM DRAIN

N.T.S.

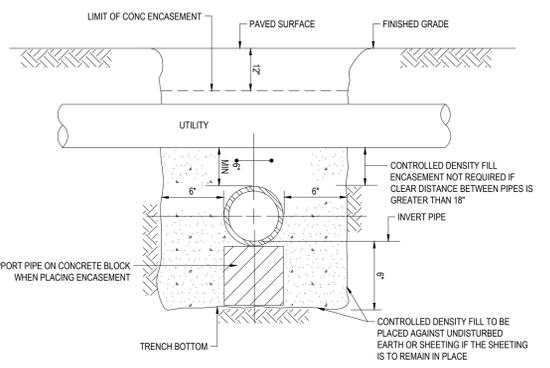


BASIN #	OCS #	RIM	GRATE SIZE (IN.)	ORIFICE SIZE (IN.)	ORIFICE INV.	OUTLET PIPE SIZE (IN.)	OUTLET INV.
B1	500	519.25	24x24	3"Ø	518.70	12	515.25
B2	501	518.20	24x24	--	--	12	515.00

- NOTES:**
- CONTRACTOR SHALL SIZE STRUCTURE AS NECESSARY TO ACCOMMODATE THE PROPOSED PIPE SIZES AND PENETRATIONS USING GEOMETRY SHOWN ON THE GRADING AND DRAINAGE PLANS AS WELL AS INFORMATION PROVIDED IN THIS DETAIL.
 - STRUCTURES SHALL BE SUITABLE FOR H20 LOADING.

OUTLET CONTROL STRUCTURE DETAIL (OCS500 & OCS501)

N.T.S.



- NOTES:**
- PIPE MUST BE BRACED VERTICALLY & HORIZONTALLY TO PREVENT FLOTATION DURING PLACEMENT OF CONCRETE
 - ALL CONTROLLED DENSITY FILL ENCASEMENT SHALL BE KEPT 12" BELOW THE BOTTOM OF ASPHALT PAVEMENT

CONCRETE ENCASEMENT AT UTILITY CROSSING

N.T.S.

SUPERVISION:
ALL WORK RELATED TO SOIL AERATION AND SEEDING IN THE WETLAND REPLICATION AREA SHALL BE SUPERVISED BY A QUALIFIED WETLAND SCIENTIST AND SHREWSBURY CONSERVATION COMMISSION AGENT AT ALL TIMES. THE SUPERVISOR SHALL SUBMIT MONITORING REPORTS TO THE CONSERVATION COMMISSION AS DESCRIBED BELOW. REPORTS SHALL CONTAIN DETAILS OF ALL WORK PERFORMED AND PHOTOGRAPHS OF COMPLETED CONDITIONS.

EROSION CONTROL MATERIALS:
BIO-DEGRADABLE EROSION CONTROLS MATS & WATTLES THAT ARE SEED FREE SHALL BE ON SITE IN SUFFICIENT QUANTITY TO PROVIDE EROSION CONTROL FOR DISTURBED AREAS. WETLAND SCIENTIST AND SHREWSBURY CONSERVATION COMMISSION AGENT HAS DISCRETION TO ADD ADDITIONAL OR SHIFT EROSION MEASURES WHERE NEEDED TO PROTECT UNDISTURBED AREAS.

STEP 1: EROSION MEASURES ABOVE SOIL AERATION OF WETLAND REPLICATION AREA
EROSION CONTROLS SHALL BE INSTALLED ALONG THE PERIMETER OF THE WETLAND REPLICATION AREA. INVASIVE & PLASTIC FREE, BIODEGRADABLE EROSION CONTROL MATS SHALL BE PLACED ON DISTURBED SLOPES THAT ARE GREATER THAN 1V:2H.

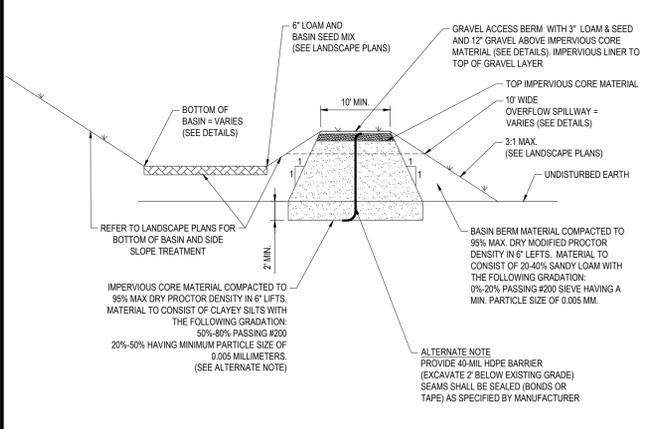
STEP 2: STRIP VEGETATION OF WETLAND REPLICATION AREA
THE AREA LABELED AS 'APPROXIMATE PROP. WETLAND REPLICATION AREA' SHALL BE STRIPPED OF EXISTING VEGETATION.

STEP 3: SOIL AERATION OF WETLAND REPLICATION AREA
THE WETLAND REPLICATION AREA SHALL BE AERATED BY EQUIPMENT TO ENSURE EXISTING SOIL IS LOOSENEED TO A DEPTH OF 6 INCHES. AFTER AERATION, NO EQUIPMENT SHALL BE ALLOWED TO DRIVE OVER AREAS OF AERATION TO PREVENT COMPACTION OF TOP SOIL.

STEP 4: WETLAND REPLICATION AREA SEEDING
THE WETLAND REPLICATION AREA AFTER BEING AERATED WILL BE SEED BY HAND WITH THE NEW ENGLAND WETMIX BY NEW ENGLAND WETLAND PLANTS INC. AT TWICE THE APPLICATION RATE SPECIFIED BY THE MANUFACTURER. WEED FREE MULCHING WITH A HYDRO MULCHING MACHINE MAY BE APPLIED IF NO NUTRIENTS OR FERTILIZERS ARE USED. WETLAND SCIENTIST AND SHREWSBURY CONSERVATION COMMISSION AGENT SHALL SUPERVISE ALL SEEDING AND MULCHING TO CONFIRM IT COMPLES AS SPECIFIED ABOVE. SEED MIX MAY BE SUBSTITUTED OR AMENDED UPON CONSERVATION COMMISSION APPROVAL.

- STEP 5: PROPOSED WETLAND REPLICATION PLANTINGS**
THE FOLLOWING PLANTING SCHEDULE SHALL BE FOLLOWED FOR THE WETLAND REPLICATION AREA. ALL PLANTINGS AND SEEDING TO BE SUPERVISED BY A QUALIFIED WETLAND SCIENTIST AND SHREWSBURY CONSERVATION COMMISSION AGENT AT ALL TIMES.
- NEW ENGLAND WETMIX (WETLAND SEED MIX)
 - FOR USE IN WETLAND AND STREAM (DOUBLE MANUFACTORY APPLICATION RATE)
 - NO HYDROSEEDING WITH NUTRIENTS OR FERTILIZERS
 - NATIVE FERN PLANTINGS
 - CINNAMON FERN, (OSMUNDA CINNAMOMEA), FACW
 - SENSITIVE FERN (ONOCLEA SENSIBILIS), FACW

PLANTINGS MONITORING
a. SEASONAL MONITORING REPORTS SHALL BE PREPARED FOR THE STREAM RESTORATION PLANTINGS BY A QUALIFIED WETLAND SCIENTIST FOR A PERIOD OF 2 ADDITIONAL YEARS AFTER INSTALLATION. THIS MONITORING PROGRAM WILL CONSIST OF EARLY SUMMER AND EARLY FALL INSPECTIONS AND WILL INCLUDE PHOTOGRAPHS AND DETAILS ABOUT THE VITALITY OF THE PLANTINGS. MONITORING REPORTS SHALL BE SUBMITTED TO THE COMMISSION BY JUNE 30TH & OCTOBER 30TH OF EACH YEAR.
b. AT LEAST 75% SURVIVAL OF THE PLANTINGS BY THE END OF THE SECOND GROWING SEASON AFTER INSTALLATION. IF 75% SURVIVAL OF PLANTINGS IS NOT ACHIEVED THE APPLICANT SHALL SUBMIT A REMEDIATION PLAN TO THE COMMISSION FOR APPROVAL THAT WILL ACHIEVE, UNDER THE SUPERVISION OF A WETLAND SPECIALIST, RESTORATION GOALS.



NOTE: FOUNDATION FOR BERM CONSTRUCTION SHALL BE CLEARED OF ALL TOP SOIL, ROCKS, STUMPS, OR OTHER DELETERIOUS MATERIAL TO A FIRM SURFACE.

BASIN IMPERVIOUS CORE DETAIL

N.T.S.

(NOT USED)

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SUSTAINABLE DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	BY
1	03/28/19	REVISED FOR DEFINITIVE SUBDIVISION	CMC/GJZ
2			
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PRELIMINARY

PROJECT No.: W181144
DRAWN BY: GJZ/CMC
CHECKED BY: MJD/JAK
DATE: 12/12/2018
SCALE: AS NOTED
CAD I.D.: W181144SS1 - DET

SITE DEVELOPMENT PLANS FOR CENTECH PARK NORTH SUB-DISTRICT A

LOCATION OF SITE
MAP 42, LOT 11
384-386 SOUTH STREET
TOWN OF SHREWSBURY
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BOHLER ENGINEERING

352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
www.BohlerEngineering.com

JA... JOHN A. ...

PROF. NO. 11630
REGISTERED PROFESSIONAL ENGINEER
MASSACHUSETTS

SHEET TITLE:
CONSTRUCTION DETAIL SHEET

SHEET NUMBER:
15
OF 15

REV 1 - 03/28/2019

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GENERAL NOTES AND DESIGN PARAMETERS

SECTION 1: MATERIALS/DEFINITIONS

- 1.1 ENGINEER - WHITESTONE ASSOCIATES, INC.
- 1.2 CRUSHED STONE - ¾" CRUSHED STONE MEETING THE FOLLOWING GRADATION AS DETERMINED IN ACCORDANCE WITH ASTM D422.

SIEVE SIZE	PERCENT PASSING BY WEIGHT
1 INCH	100
3/4 INCH	20-90
1/2 INCH	0-20
- 1.3 LOW PERMEABLE TOPSOIL - SHALL CONTAIN A MINIMUM 3% ORGANIC MATERIAL BY WEIGHT. MAXIMUM PARTICLE SIZE 1". 80% BY WEIGHT PASSING THE #4 SIEVE AND 30% BY WEIGHT PASSING THE #200 SIEVE.
- 1.4 GEOTEXTILE
 - A. NONWOVEN GEOTEXTILE SEPARATION FABRIC WITH HIGH FILTRATION AND PERMEABILITY CHARACTERISTICS SHALL BE MIRAFI 140N OR EQUIVALENT.
 - B. THE MANUFACTURER SHALL FURNISH THE ENGINEER WITH WRITTEN CERTIFICATION THAT ALL GEOTEXTILE USED FOR CONSTRUCTION MEETS OR EXCEEDS THE MINIMUM PROPERTIES REQUIRED.
- 1.5 SUBDRAIN - A COMBINED SYSTEM OF SLOTTED PIPE, SOLID PIPE, GEOTEXTILE FABRIC, AND CRUSHED STONE, PROVIDED FOR INTERNAL DRAINAGE BEHIND OR BELOW THE RETAINING WALL. DRAIN PIPE SHALL BE 4-INCH DIAMETER SCHEDULE-40 SLOTTED PVC OR HDPE.
- 1.6 CONCRETE
 - A. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI AND AN ENTRAINED AIR CONTENT OF 5% ±1.5%.
 - B. FOLLOW "HOT WEATHER CONCRETING" ACI 305R AND "COLD WEATHER CONCRETING" ACI 306R (LATEST EDITION), AS REQUIRED.
 - C. USE OF ADDITIVES SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER. USE OF ADDITIVES CONTAINING CALCIUM CHLORIDE SHALL NOT BE PERMITTED.
- 1.7 REINFORCING STEEL - ASTM A615, GRADE 60.
- 1.8 WEEP HOLE - SHALL BE SLEEVED WITH 3-INCH DIAMETER PVC PIPE.

SECTION 2: EXECUTION

- 2.1 CONSTRUCTION
 - A. ALL EXCAVATIONS SHALL BE CONDUCTED IN ACCORDANCE WITH OSHA STANDARDS.
 - B. EXCAVATIONS SHALL BE MADE IN A MANNER THAT WILL NOT DISTURB THE EXISTING CONSTRUCTION ON THE SITE OR NEIGHBORING PROPERTIES. CONTRACTOR SHALL PROVIDE PROTECTION AND CONSTRUCT THE WALLS IN SUCH A MANNER TO MAINTAIN THE INTEGRITY OF ANY IMPROVEMENTS DURING CONSTRUCTION.
 - C. IN-SITU MATERIALS EXCAVATED FROM THE LOCATION OF THE RETAINING WALLS SHALL BE STOCKPILED ON-SITE AT LOCATIONS DESIGNATED BY THE OWNER AND IN LOCATIONS THAT WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK. STOCKPILE MUST BE AT LEAST TWO TIMES THE WALL HEIGHT AWAY FROM THE FACE OF THE WALL.
- 2.2 SUBGRADE PREPARATION

- A. SUBGRADE SHALL BE EXCAVATED AS REQUIRED FOR PLACEMENT OF THE WALLS AND FREE DRAINING BACKFILL.
 - B. SUBGRADE SHALL BE REVIEWED BY THE ENGINEER TO CONFIRM THAT THE ACTUAL FOUNDATION CONDITIONS MEET OR EXCEED ASSUMED DESIGN ASSUMPTIONS.
 - C. FOUNDATION SUBGRADES ARE EXPECTED TO BE IN EITHER SOIL, COMPETENT BEDROCK, OR CRUSHED STONE PLACED OVER EXCAVATED BEDROCK.
 - D. PROOF-COMPACT SOIL SUBGRADE WITH MULTIPLE PASSES OF A VIBRATORY PLATE COMPACTOR PRIOR TO PLACING FORMWORK AND REINFORCING STEEL.
- 2.3 FOOTING DRAIN CONSTRUCTION
- A. THE FOOTING DRAIN SHALL BE PLACED WITHIN THE CRUSHED STONE THAT IS ENCAPSULATED IN A GEOTEXTILE SEPARATION FABRIC AT THE INSIDE BOTTOM OF WALL STEM ABOVE FOOTING (AS SHOWN ON DETAIL ON SHEET 6) AND PITCHED TO DRAIN TO THE END OF THE WALL.
 - B. DRAIN PIPE SHALL BE PITCHED FOR POSITIVE WATER FLOW.
 - C. DRAIN PIPE SHALL BE DIRECTED TO DETENTION POND OR CONNECTED TO A SUITABLE CATCH BASIN OR MANHOLE, PER LOCAL CODE.
- 2.4 BACKFILL
- A. ALL BACKFILL MATERIALS, WHETHER ON SITE OR IMPORTED, SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
 - B. TEST RESULTS OF ALL PROPOSED BACKFILL MATERIALS, WHETHER ON SITE OR IMPORTED, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
 - C. BACKFILL SHALL BE PLACED IN 8-INCH THICK LIFTS MEASURED LOOSE AND COMPACTED WITH MULTIPLE PASSES OF A SMALL VIBRATORY PLATE COMPACTOR.
 - D. BACKFILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MODIFIED PROCTOR MAXIMUM LABORATORY DENSITY (ASTM D1557) WITH A VIBRATORY PLATE COMPACTOR.
- 2.5 SITE DRAINAGE
- A. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF BACKFILL AWAY FROM THE WALL TO RAPIDLY DIRECT RUNOFF AWAY FROM THE WALL.
 - B. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.
 - C. FINISHED GRADING AT THE TOP OF THE WALL SHALL PROVIDE DRAINAGE AWAY FROM THE RETAINING WALL TO PREVENT INFILTRATION OF WATER INTO RETAINED SOILS WHICH MAY INCREASE LATERAL PRESSURES ON THE STRUCTURE.
- 2.6 REINFORCING STEEL
- A. REINFORCING STEEL TO BE PLACED IN ACCORDANCE WITH CRSI AND LOCAL REGULATIONS.
- 2.7 CAST-IN-PLACE CONCRETE
- A. ALL CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ACI 304 RECOMMENDATIONS.
 - B. FORMWORK SHALL REMAIN IN PLACE FOR AT LEAST 24 HOURS AFTER PLACEMENT.
 - C. 1-INCH DEEP RIGHT-ANGLED VERTICAL CHAMFER SHALL BE CREATED

FOR FULL WALL HEIGHT ON BACK AND FRONT FACES OF WALL AT LOCATION OF EACH WEEP HOLE. AS SHOWN ON DETAIL ON SHEET 3. CONCRETE SHALL BE SAW CUT FOR DEPTH OF 1.25 INCHES FROM BASE OF CHAMFER ON FRONT OF WALL ONLY.

SECTION 3: DESIGN PARAMETERS

3.1 DESIGN OF THE RETAINING WALLS IS BASED ON THE 9TH EDITION 780 CMR MASSACHUSETTS BUILDING CODE AND THE FOLLOWING PARAMETERS:

WALL SEGMENT	FRICTION ANGLE	COHESION	UNIT WT
RETAINED SOIL	34°	0 PSF	135 PCF (WET)

STABILITY OF WALLS

- A. MINIMUM FACTOR OF SAFETY AGAINST BASE SLIDING: 1.5
- B. MINIMUM FACTOR OF SAFETY AGAINST OVERTURNING: 1.5
- C. MINIMUM FACTOR OF SAFETY GLOBAL STABILITY: 1.5
- D. ALLOWABLE BEARING PRESSURE: 4,000 PSF (TO BE FIELD CONFIRMED BY ENGINEER DURING CONSTRUCTION)

SECTION 4: QA/QC

- 4.1 WALL CONSTRUCTION, ALIGNMENT, FILLING, AND PLACEMENT OF MATERIALS TO BE REVIEWED BY ENGINEER DURING CONSTRUCTION TO CONFIRM DESIGN ASSUMPTIONS.
- 4.2 SUBGRADE SHALL BE REVIEWED BY THE ENGINEER TO CONFIRM THAT THE ACTUAL FOUNDATION CONDITIONS MEET OR EXCEED ASSUMED DESIGN ASSUMPTIONS.
- 4.3 CONTRACTOR SHALL SUBMIT MIX DESIGNS ACCOMPANIED BY APPROPRIATE GRAPHS AND BACKGROUND DATA FOR APPROVAL. MIX DESIGN SHALL INDICATE 7-DAY AND 28-DAY STRENGTHS. CEMENT CONTENT, AIR CONTENT, WATER-CEMENT RATIO, AMOUNT OF FINE AND COARSE AGGREGATES AND ADMIXTURES.
- 4.4 ENGINEER TO REVIEW REINFORCING STEEL PRIOR TO CONCRETE PLACEMENT.
- 4.5 CONCRETE COMPRESSIVE TEST SPECIMENS WILL BE MADE BY ENGINEER, IN ACCORDANCE WITH THE ASTM SPECIFICATION FOR "COMPRESSION TESTS OF CONCRETE". A SET OF TEST SPECIMENS WILL BE MADE FOR EACH 50 CUBIC YARDS, OR FRACTION THEREOF, EACH DAY.
- 4.6 ENGINEER WILL BE RESPONSIBLE FOR OBTAINING SAMPLES OF SOILS AND CONCRETE, AS APPROPRIATE.
- 4.7 ENGINEER WILL BE RESPONSIBLE FOR PERFORMING DENSITY TESTING ON EACH LIFT OF FREE DRAINING BACKFILL TO CONFIRM THE REQUIRED DENSITY IS ACHIEVED.

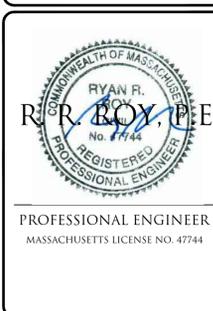


REVISIONS:			
REV.	DATE	COMMENTS	BY:

JOB NO.:	GM1815882.001
DRAWN BY:	JL
CHECKED BY:	RR
DATE:	03/26/19
SCALE:	AS SHOWN

PROJECT:
 PROPOSED CAST-IN-PLACE RETAINING WALL
 FOR
 CENTECH PARK NORTH SUB-DISTRICT A
 384-386 SOUTH STREET
 SHREWSBURY, WORCESTER COUNTY, MASSACHUSETTS

THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM WHITESTONE ASSOCIATES, INC. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES.



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 NOTES
 SHEET NUMBER:
 1 OF 5
 REVISIONS - 0

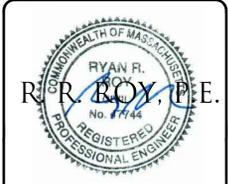
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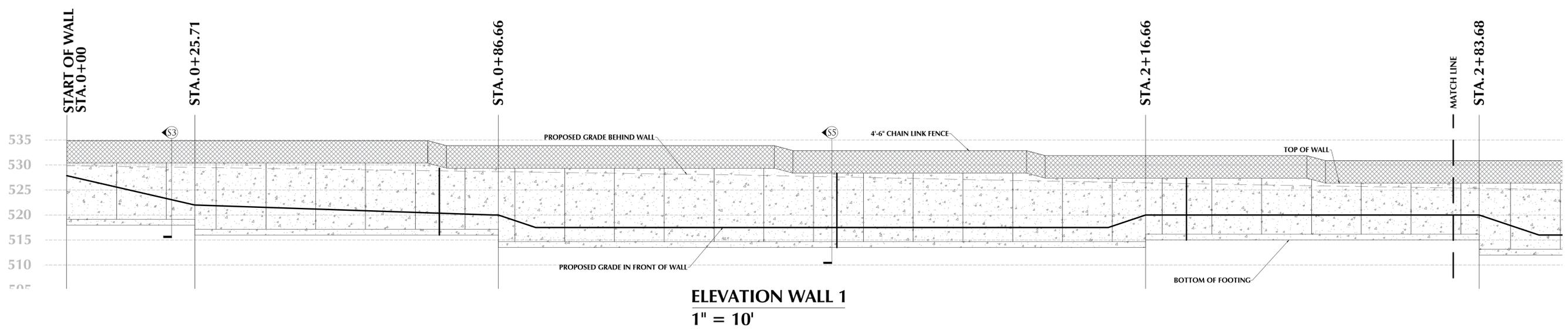
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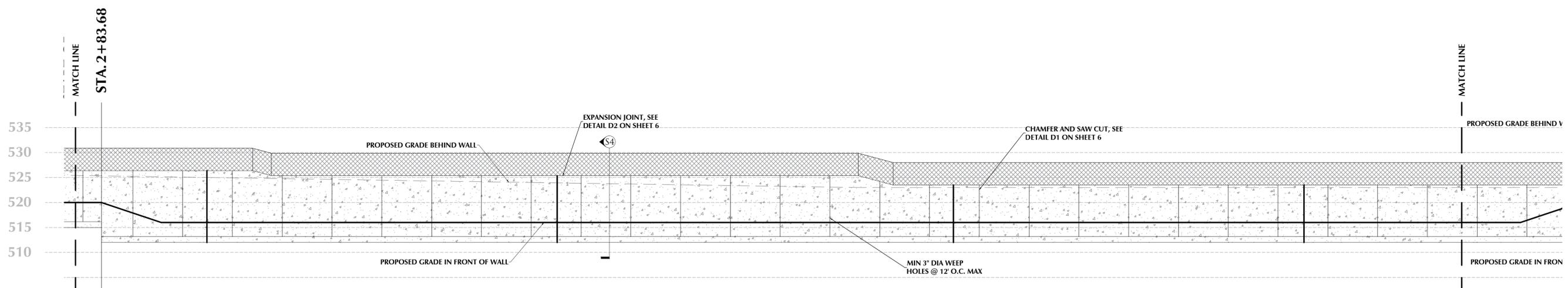
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 MASSACHUSETTS LICENSE NO. 47744

SHEET TITLE:
WALL 1 ELEVATION
 SHEET NUMBER:
3 OF 5

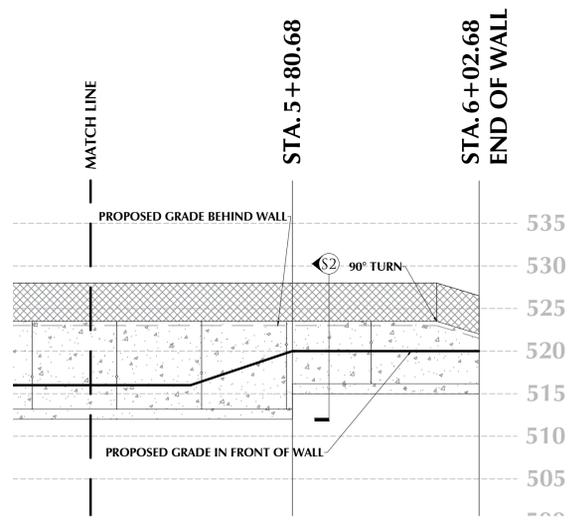
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ELEVATION WALL 1
 1" = 10'



ELEVATION WALL 1
 1" = 10'



ELEVATION WALL 1
 1" = 10'

MATCH WALL SECTION DETAIL ON SHEET 6 TO WALL HEIGHT

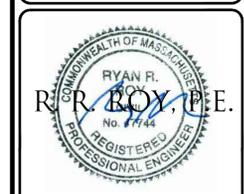
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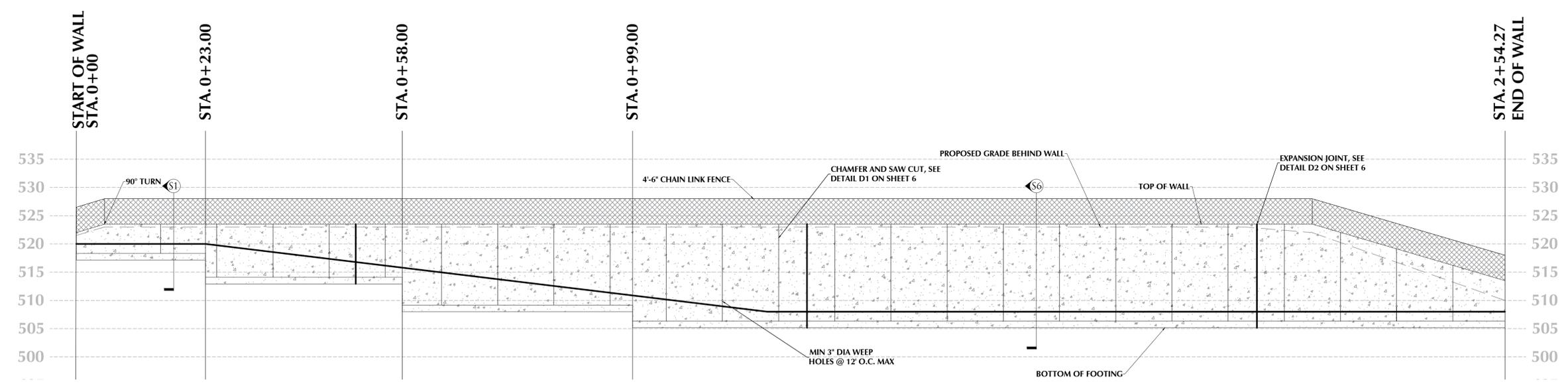
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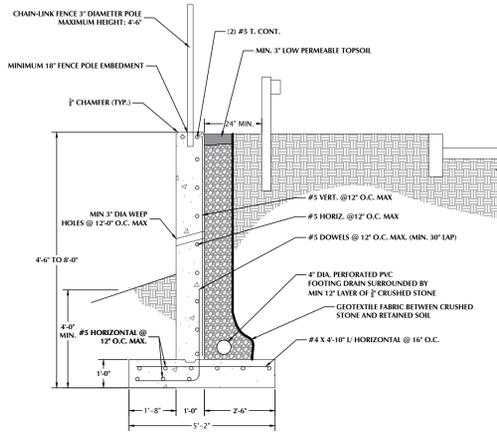
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 SHEET NUMBER:
 4 OF 5

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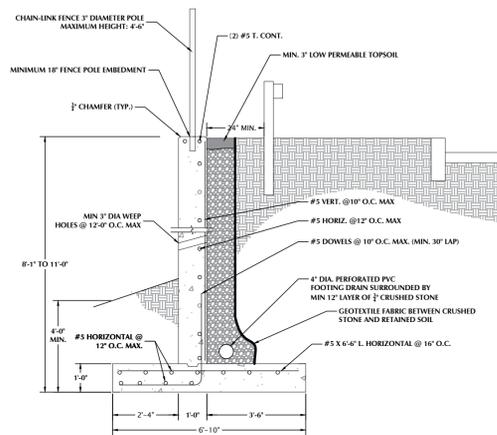


ELEVATION WALL 2
 1" = 10'

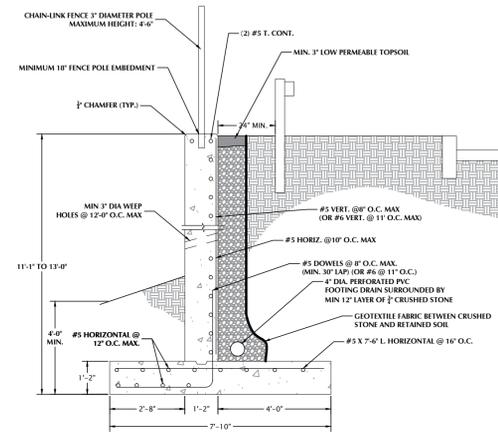
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 SHEET 6 TO WALL HEIGHT



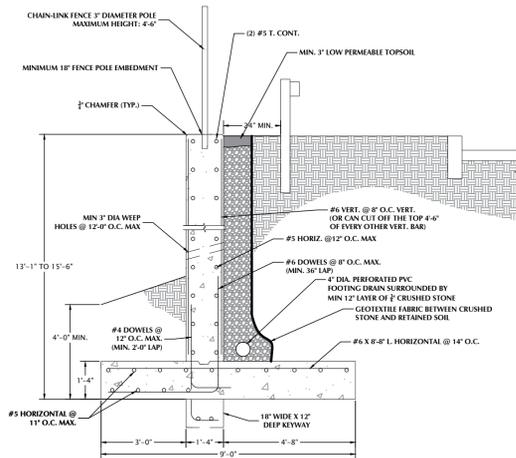
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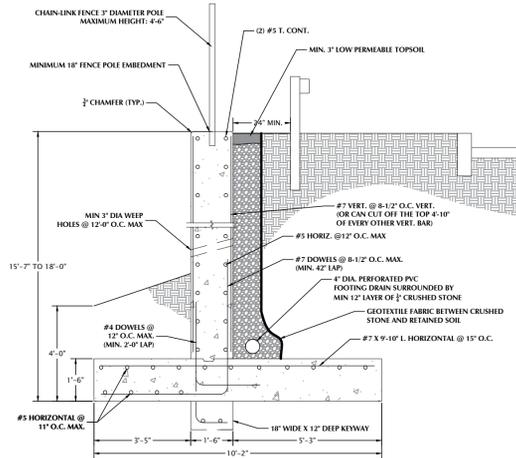
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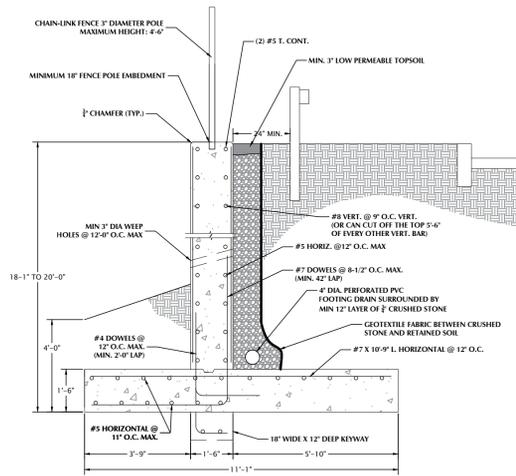
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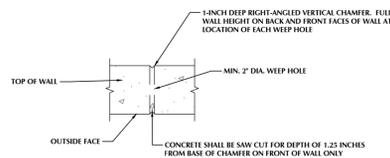
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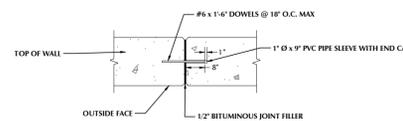
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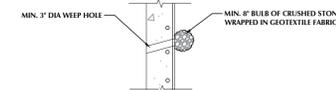
S6 WALL SECTION
NOT TO SCALE



D1 CHAMFER AND SAW CUT DETAIL
1" = 3'



D2 EXPANSION JOINT DETAIL
1" = 3'



D3 WEEP HOLE DETAIL
1" = 3'

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SHEET TITLE:
DETAILS
SHEET NUMBER:
5 OF 5

REVISIONS - 0