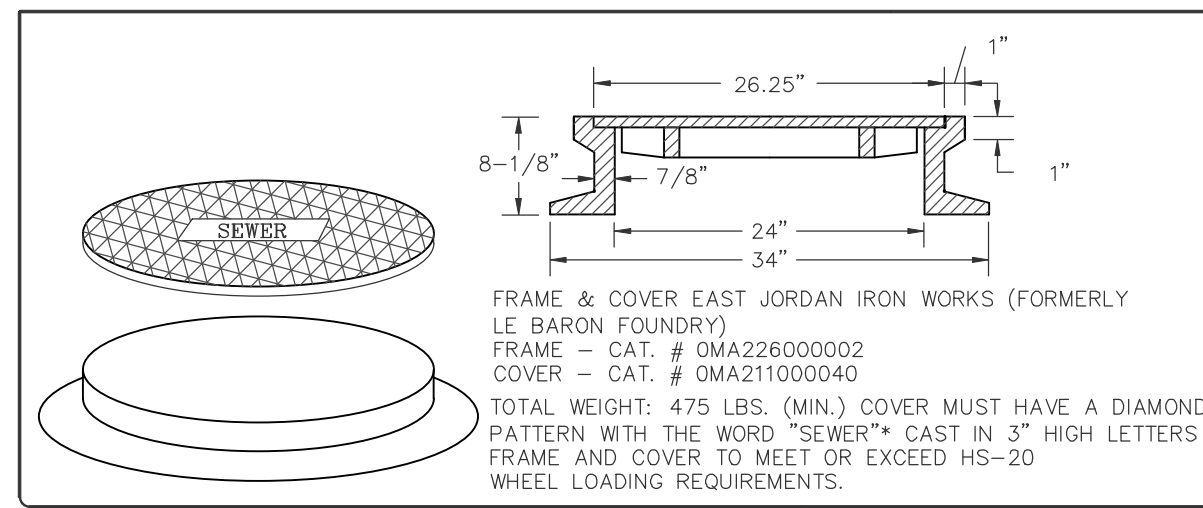


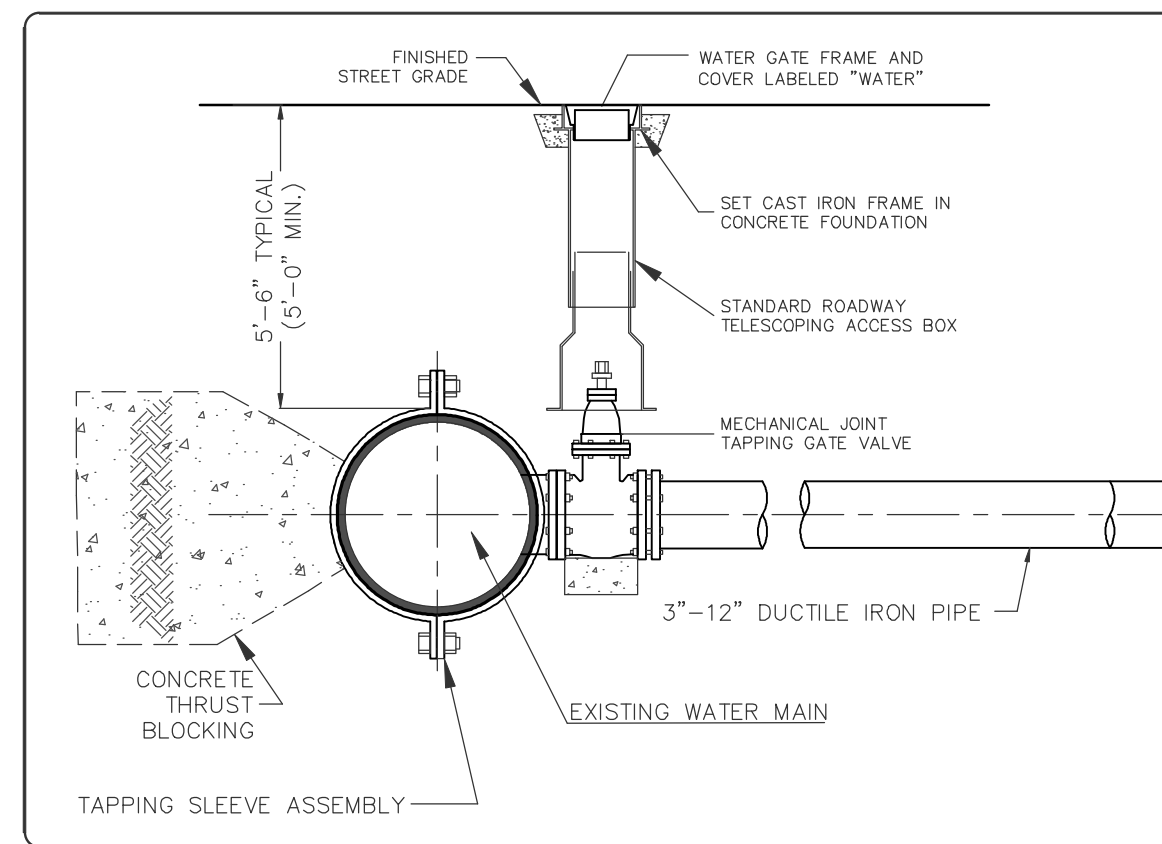
SEWER SYSTEM MATERIALS AND INSTALLATION

- 1) ALL MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH THE TOWN OF MENDON DEPARTMENT OF PUBLIC WORKS CONSTRUCTION STANDARDS.
- 2) ALL PIPE AND OTHER APPURTENANCES SHALL BE HANDLED CAREFULLY AND INSPECTED PRIOR TO INSTALLATION.
- 3) POLYVINYL CHLORIDE PIPE AND FITTINGS (P.V.C.) SHALL BE MINIMUM SDR 35 WITH DIAMETER DIMENSIONS CONFORMING TO SPECIFICATIONS FOR TYPE PSM P.V.C. SEWER PIPES AND FITTINGS, ASTM D-3034, LATEST REVISION.
- 4) ALL P.V.C. PIPE SHALL HAVE AN INTEGRAL WALL BELL AND SPIGOT PUSH-ON JOINT WITH ELASTOMERIC GASKETS SECURED IN THE BELL END OF THE PIPE. ELASTOMERIC GASKETS SHALL CONFORM TO ASTM D3212.
- 5) SPIGOT ENDS SHALL HAVE BEVELS FROM THE MANUFACTURER TO ENSURE PROPER INSERTION AND SHALL HAVE AN ASSEMBLY STRIP IMPRINTED THEREON TO WHICH THE BELL END OF THE MATED PIPE WILL EXTEND UPON JOINING THE PIPES.
- 6) ALL PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM DESIGNATION D478 AND SHALL BE MANUFACTURED WITH 4,000 P.S.I. (MINIMUM) COMPRESSIVE STRENGTH CONCRETE AND BE DESIGNED FOR HS-20 LOADING REQUIREMENTS.
- 7) PRECAST SECTIONS SHALL BE JOINED BY BUTYL RUBBER SEALANT.
- 8) MANHOLE FRAMES AND COVERS SHALL HAVE A MINIMUM CLEAR OPENING OF 24-INCHES AND BE A MINIMUM OF SIX-INCHES (6") IN HEIGHT.
- 9) MANHOLE FRAMES AND COVERS SHALL BE MANUFACTURED BY EAST JORDAN IRON WORKS (FORMERLY LEBARON FOUNDRY) AND CONSIST OF 2111Z FRAME AND 2111A SEWER COVER.
- 10) FRAMES SHALL BE ADJUSTED TO FINISH GRADE WITH MORTAR AND HARD RED BRICK; MINIMUM OF TWO COURSES AND MAXIMUM OF FIVE COURSES OF BRICK.
- 11) GRAVITY SERVICE CONNECTION SHALL BE A MINIMUM OF SIX-INCH DIAMETER SDR 35 SEWER PIPE AND SHALL HAVE A MINIMUM SLOPE OF ONE-PERCENT (1.0%).
- 12) ALL SERVICE CONNECTIONS TO THE SEWER MAIN SHALL BE MADE BY WYES, T-WYES OR SADDLE TYPE CONNECTIONS.
- 13) PIPE SHALL BE LAID ACCURATELY TO LINE AND GRADE IN APPROVED BEDDING OR 3/4" CRUSHED STONE. BEDDING SHALL EXTEND NO LESS THAN SIX-INCHES (6") AROUND THE PIPE IN ALL DIRECTIONS.
- 14) BEDDING MATERIAL SHALL BE COMPACTED BY HAND UNDER AND AROUND THE SEWER PIPE IN LAYERS NOT EXCEEDING SIX-INCHES (6").
- 14) SEWER PIPE SHALL BE LAID AT LEAST TEN-FOOT (10') FROM A WATER MAIN WHENEVER POSSIBLE.
- 15) ALL SEWER PIPES SHALL BE CUT FLUSH WITH THE INSIDE FACE OF MANHOLE STRUCTURES UNLESS NOTED OTHERWISE ON DRAWINGS.
- 16) THE CONTRACTOR SHALL PROVIDE TEMPORARY PLUGS AT ENDS OF SEWER LINES TO PREVENT THE ACCUMULATION OF DIRT OR SEDIMENT IN SEWER PIPES WHEN PIPE LAYING OPERATIONS ARE NOT IN PROGRESS.
- 17) ALL PIPE JOINTS SHALL BE MADE WATERTIGHT AND ALL JOINTING SHALL BE DONE IN CONFORMANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

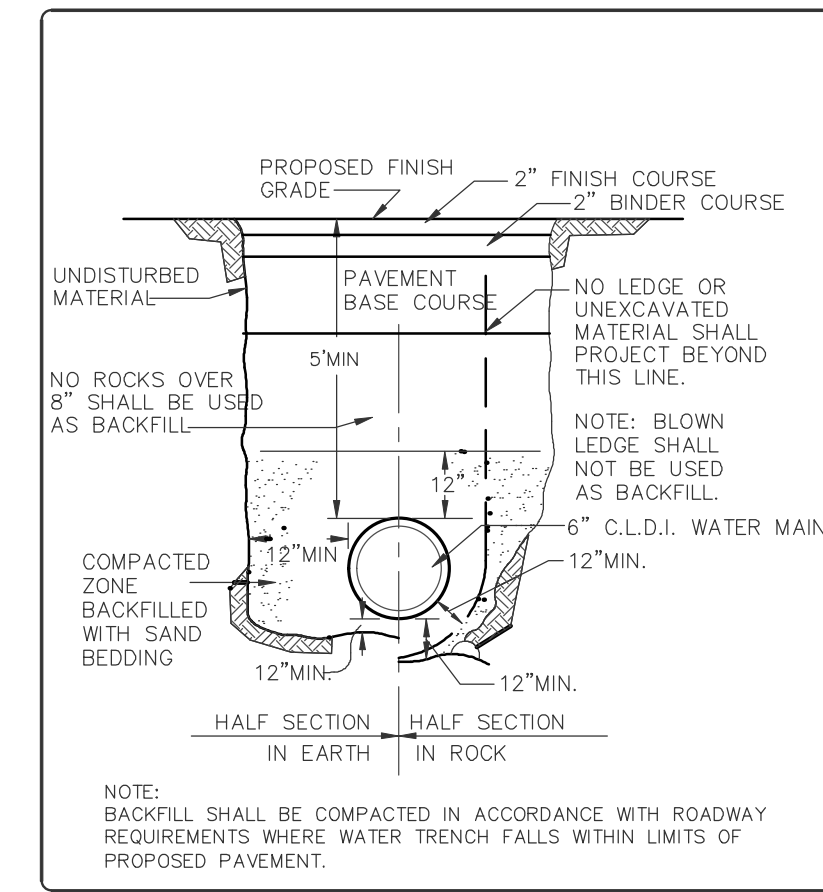
SEWER MANHOLE FRAME AND COVER
NOT TO SCALE



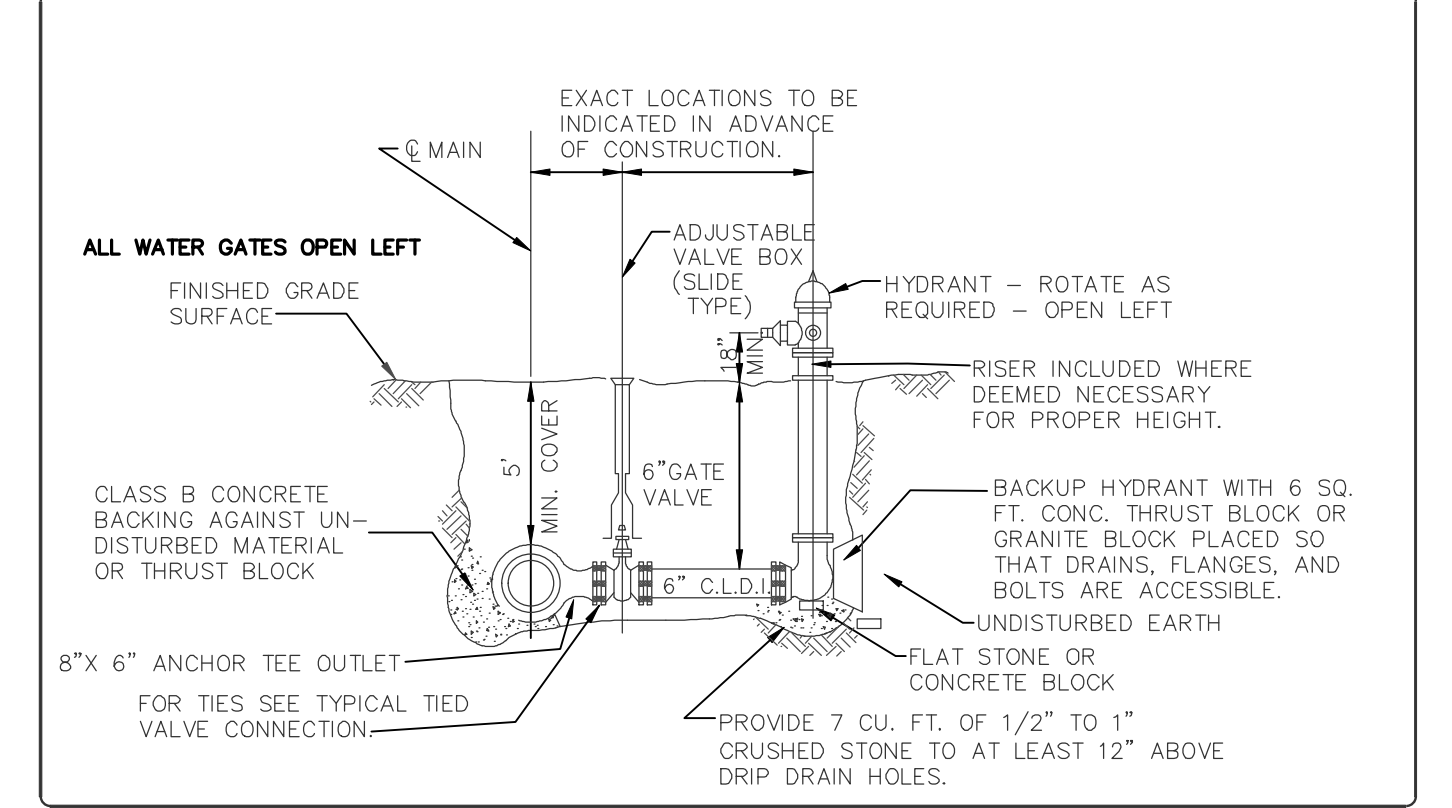
FIRE PROTECTION SERVICE CONNECTION
NOT TO SCALE



WATER MAIN TRENCH DETAIL
NOT TO SCALE



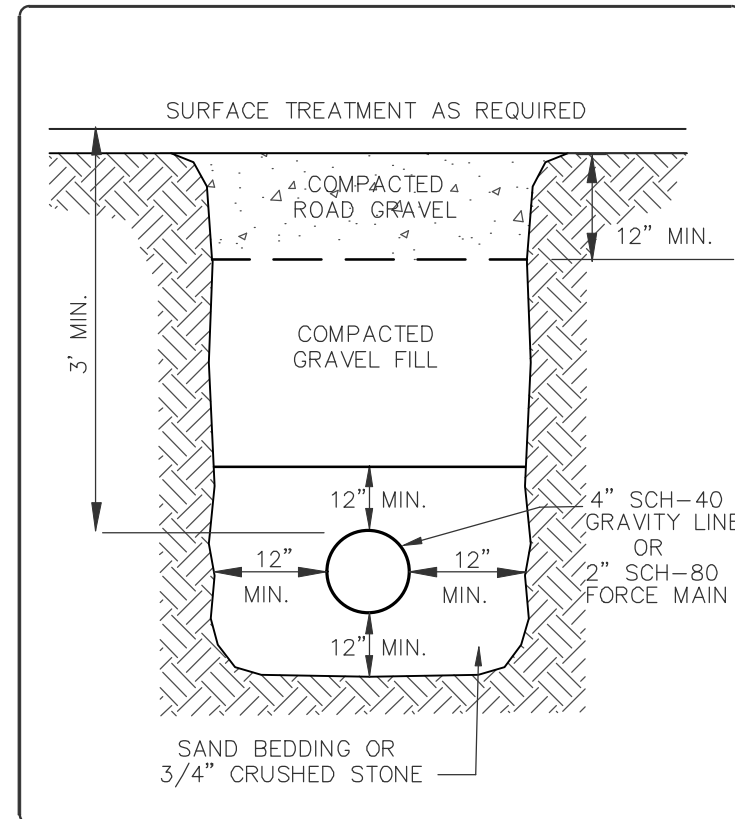
TYPICAL HYDRANT AND VALVE
NOT TO SCALE



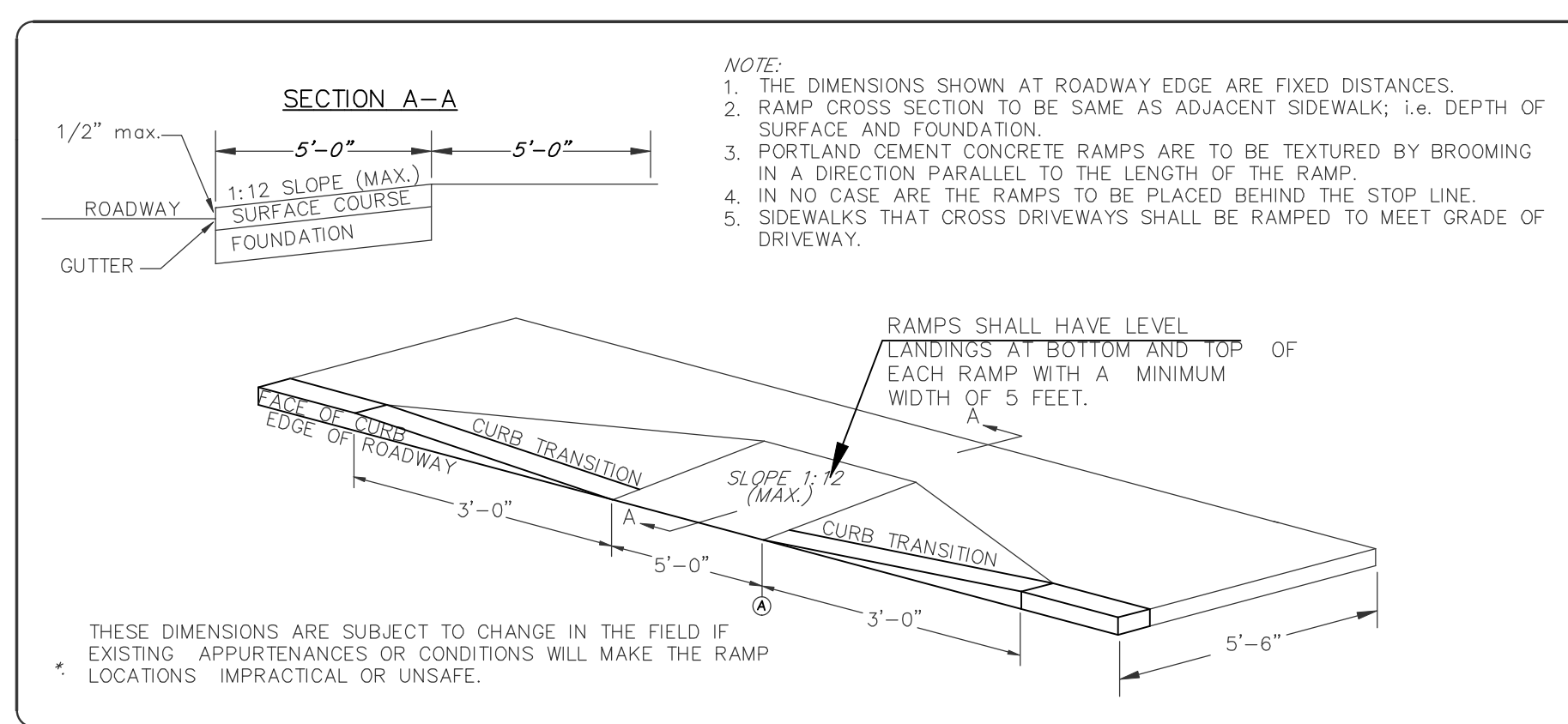
WATER SYSTEM MATERIALS AND INSTALLATION

- 1) ALL MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH THE TOWN OF MENDON DEPARTMENT OF PUBLIC WORKS CONSTRUCTION STANDARDS, MENDON WATER DISTRICT AND REQUIREMENTS OF THE MENDON FIRE DEPARTMENT.
- 2) ALL PIPE AND OTHER APPURTENANCES SHALL BE HANDLED CAREFULLY AND INSPECTED PRIOR TO INSTALLATION.
- 3) ALL MATERIALS INCLUDING PIPE AND FITTINGS SHALL BE LEAD FREE.
- 4) ALL WATER MAINS SHALL BE MINIMUM DUCTILE IRON CLASS 52, SINGLE GASKET, DOUBLE SEALING PIPE WITH CEMENT LINING. ALL DUCTILE IRON PIPE SHALL BE RATED FOR A MINIMUM OPERATING PRESSURE OF 350 P.S.I.
- 5) MECHANICAL JOINT RESTRAINTS SHALL CONSIST OF ACTUATED WEDGES THAT INCREASE RESISTANCE TO PULL OUT AS PRESSURE INCREASES.
- 6) USE SERIES 1100 MEGA-LUG RESTRAINTS OR APPROVED EQUAL FOR PIPE RESTRAINTS.
- 7) PIPE FITTINGS SHALL BE CEMENT LINED DUCTILE IRON AND RATED FOR 350 P.S.I.
- 8) PIPE FITTINGS SHALL BE FITTED WITH MECHANICAL JOINT RESTRAINTS WITH ALL NUTS AND BOLTS OF A SIMILAR TYPE DUCTILE IRON OR KOR-10 STEEL 1" BOLTS AND NUTS.
- 9) RESILIENT SEAT GATE VALVES SHALL BE MANUFACTURED OF DUCTILE IRON, OPEN LEFT (COUNTER CLOCKWISE) AND BE DESIGNED FOR A MINIMUM WORKING PRESSURE OF 250 P.S.I.
- 10) GATE VALVE BOXES SHALL BE ADJUSTABLE, BUFFALO STYLE, WITH THE LOWER PART MADE OF CAST IRON AND THE UPPER PART OF STEEL OR CAST IRON. THE VALVE BOX SHALL BE DESIGNED TO PREVENT DIRECT TRANSMISSION OF TRAFFIC LOADS TO THE VALVE OR PIPE.
- 11) HYDRANTS SHALL BE AMERICAN DARLING B-62B AS MANUFACTURED BY AMERICAN FLOW CONTROL INC.
- 12) HYDRANTS SHALL HAVE A 5 1/4-INCH VALVE OPENED BY TURNING THE OPERATING UNIT IN THE COUNTER CLOCKWISE DIRECTION. THE HYDRANT SHALL HAVE ONE 1/2-INCH STEAMER CONNECTION AND TWO 2 1/2-INCH HOSE CONNECTIONS. ALL CONNECTIONS SHALL HAVE NATIONAL STANDARD THREADS.
- 13) THE HYDRANT SHALL HAVE A BRONZE DRINK RING SECURELY HELD BETWEEN THE BARREL AND THE BASE FLANGE. IT SHALL PROVIDE BRONZE TO BRONZE THREADED CONNECTION FOR HYDRANT SEAL.
- 14) ALL WATER PIPING SHALL BE INSTALLED WITH A MINIMUM OF FIVE-FOOT (5') OF COVER. PIPE SHALL BE PROPERLY INSULATED WHEN THE PROPER COVER CAN NOT BE ACHIEVED.
- 15) PIPE SHALL BE LAID ACCURATELY TO LINE AND GRADE IN SAND BEDDING (MASSDOT SPEC. M1.04.0, SAND BORROW) IN ACCORDANCE WITH AWWA GUIDELINES.
- 16) PUSH-ON PIPE GASKETS SHALL BE CLEAN AND THOROUGHLY COATED WITH LUBRICANT SUPPLIED BY THE MANUFACTURER DURING INSTALLATION.
- 17) ALL PIPE LINES SHALL BE PRESSURE TESTED FOR STRENGTH AND LEAKAGE AT A PRESSURE OF 200 P.S.I. BY A QUALIFIED THIRD PARTY.
- 18) ALLOWABLE LEAKAGE AMOUNTS DURING TESTING SHALL CONFORM TO AWWA STANDARDS FOR PRESSURE TESTING DUCTILE IRON PIPE (AWWA C600).
- 19) ALL NEW HYDRANT LATERALS SHALL BE LEFT IN THE OPEN POSITION DURING TESTING.
- 20) CONTRACTOR SHALL REPAIR ANY LEAKS DISCOVERED UNDER ANY OF THE REQUIRED TESTS AND RETEST PIPES IF NECESSARY.
- 21) CONTRACTOR SHALL SUBMIT A DETAILED DISINFECTION PLAN TO THE AUBURN D.P.W. AND WATER SUPERINTENDENT AND SHALL NOT BEGIN DISINFECTION UNTIL THE PLAN HAS BEEN APPROVED BY THE MENDON D.P.W.
- 22) THE DISINFECTION PLAN SHALL INCLUDE THE INTENDED CHLORINE DOSAGE, METHOD FOR ESTABLISHING DOSAGE AND LOCATIONS FOR APPLICATION OF DOSAGE.
- 23) THE CONTACT PERIOD FOR DISINFECTION SHALL BE AT LEAST 24-HOURS.
- 24) THE PIPELINE SHALL BE ADEQUATELY FLUSHED WITH POTABLE WATER FOR THE DE-CHLORINATION OF RESIDUAL CHLORINATED WATER.

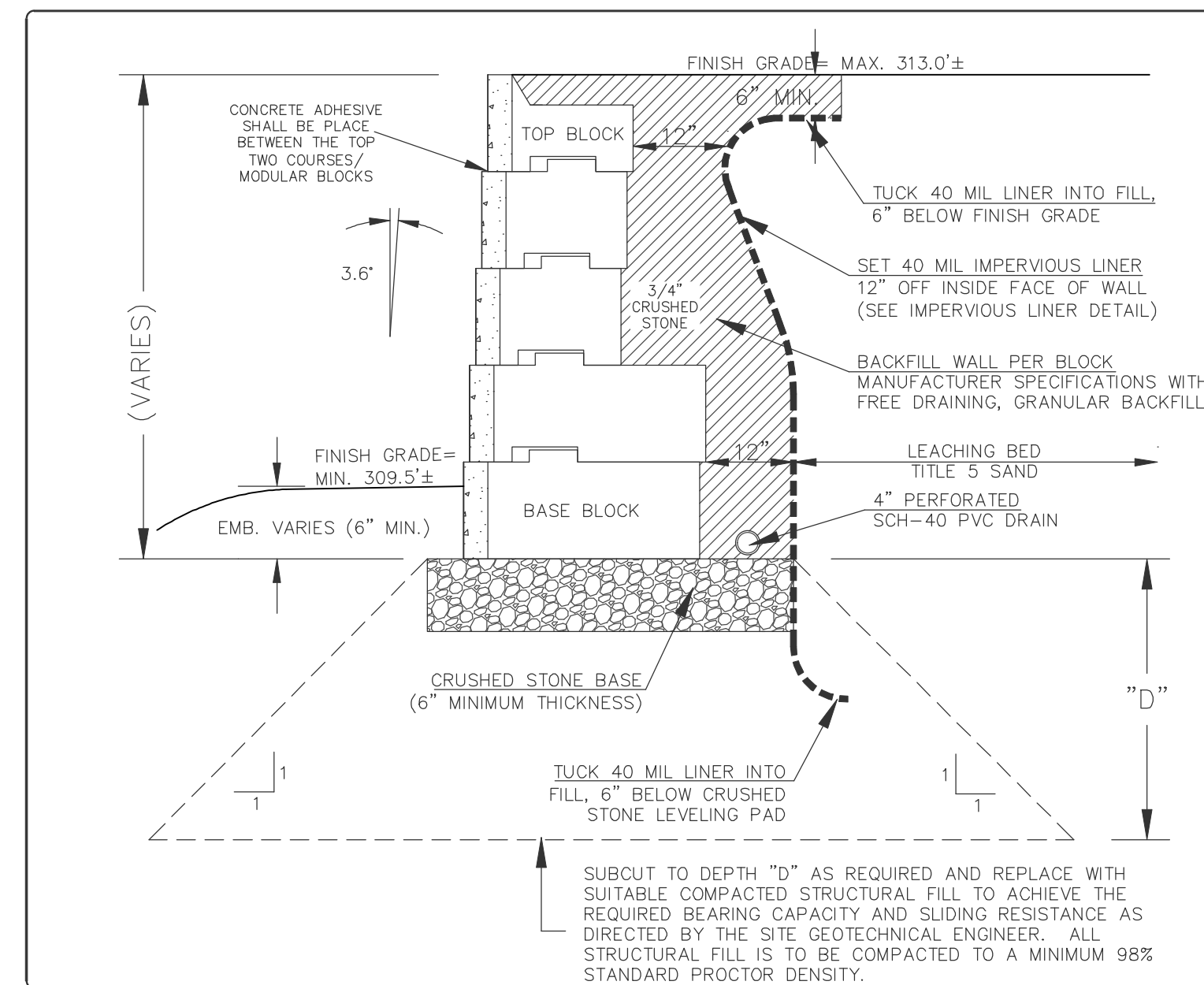
TYPICAL SEWER TRENCH
NOT TO SCALE



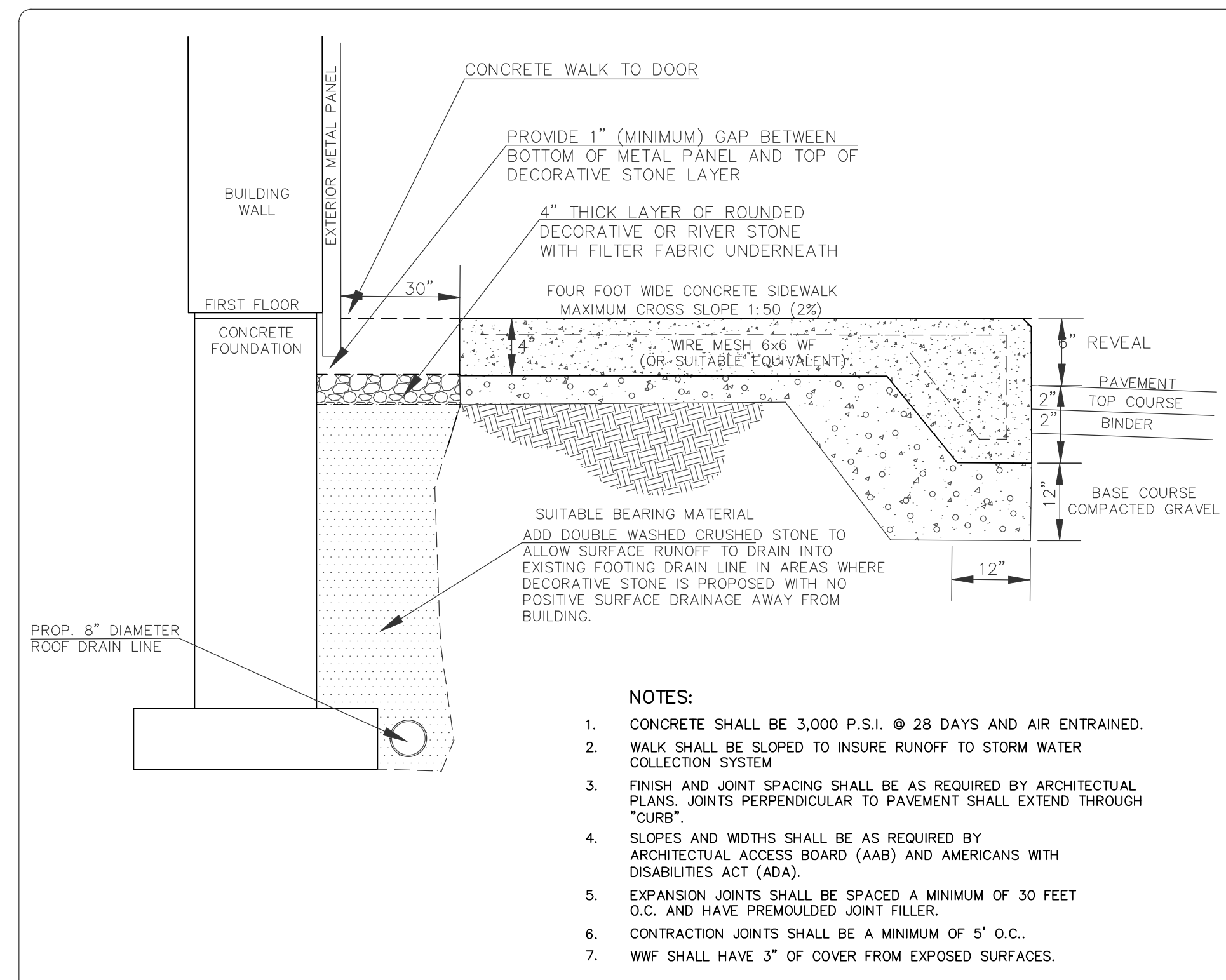
CONCRETE RAMP DETAIL
NOT TO SCALE



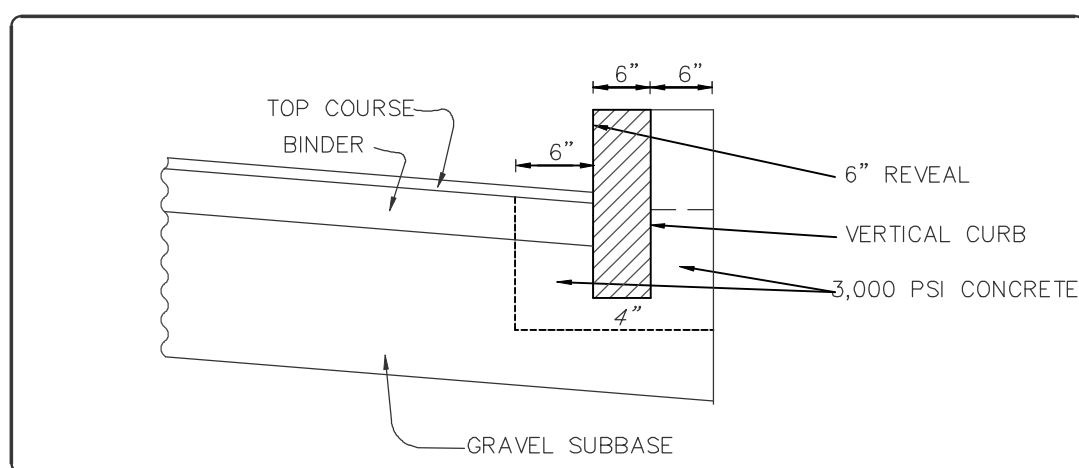
TYPICAL MODULAR BLOCK RETAINING WALL
NOT TO SCALE



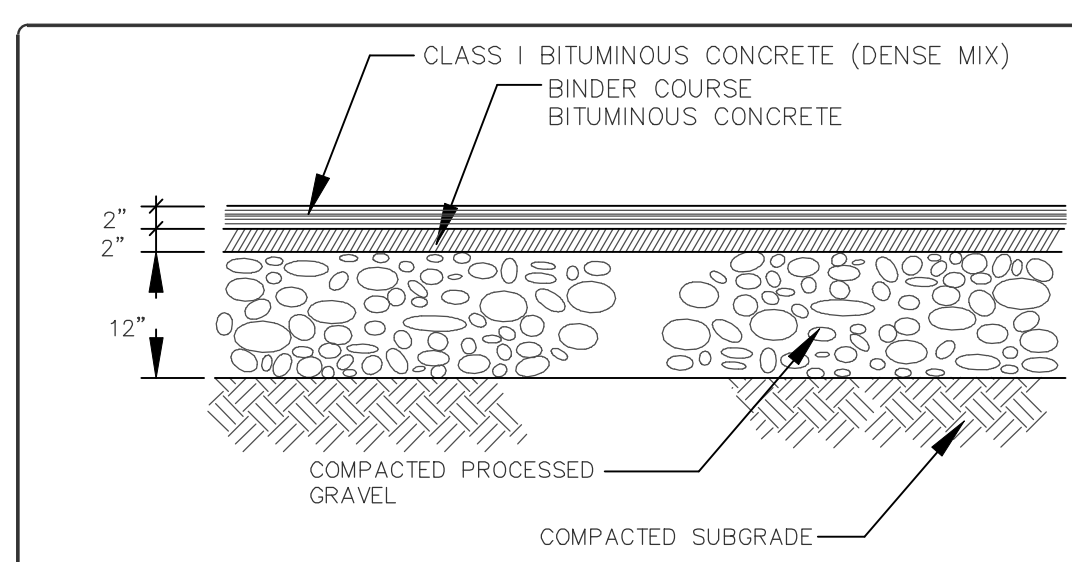
CONCRETE SIDEWALK AT BUILDING
NOT TO SCALE



VERTICAL GRANITE AND CONCRETE CURB
NOT TO SCALE



BITUMINOUS CONCRETE PAVEMENT
NOT TO SCALE



PAVEMENT AND BASE MATERIALS AND INSTALLATION

- 1) ALL MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH THE TOWN OF MENDON DEPARTMENT OF PUBLIC WORKS CONSTRUCTION STANDARDS.
 - 2) BITUMINOUS PAVING SHALL NOT BE PLACED WHEN AMBIENT TEMPERATURE IS BELOW 40-DEGREES FAHRENHEIT, OR WHEN THERE IS FROST IN THE BASE, OR WHEN WEATHER CONDITIONS ARE UNSUITABLE IN ANY WAY.
 - 3) CONTRACTOR SHALL SAWCUT ALL EXISTING TRENCHES AND EXCAVATIONS WHEN LOCATED WITHIN LIMITS OF EXISTING PAVEMENT. PAVEMENT BREAKER MAY BE USED FOR INITIAL EXCAVATION AND A SAWCUT MAY BE EMPLOYED TO PROVIDE NEATER CUT FOR TRENCH PRIOR TO PLACEMENT OF NEW PAVEMENT.
 - 4) SAWCUTS SHALL EXTEND COMPLETELY THROUGH BINDER AND TOP COURSE LAYERS.
 - 5) PAVEMENT EDGES SHALL BE TRIMMED AND CLEANED FOR A NEAT VERTICAL FACE FREE OF LOOSE MATERIALS AND DEBRIS.
 - 6) CONTRACTOR SHALL EXERCISE CARE TO PREVENT OR MINIMIZE DAMAGE TO EXISTING PAVEMENT SURROUNDING EXCAVATION WORK.
 - 7) BACKFILL IN TRENCHES SHALL BE IN ACCORDANCE WITH SPECIFIC UTILITY TRENCH REQUIREMENTS. BACKFILL MATERIAL IN TRENCHES SHALL CONSIST OF GRANULAR GRAVEL BORROW, PROCESSED GRAVEL, SAND OR CRUSHED STONE MATERIAL. BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 12-INCH LIFTS AND COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO DESIGNATION 199 COMPACTION TEST METHODS.
 - 8) BROKEN PAVEMENT, LARGE STONES, ROOTS AND OTHER DEBRIS SHALL NOT BE USED IN TRENCH BACKFILL.
 - 9) PERMANENT PAVEMENT SHALL CONSIST OF A TOP COURSE LAYER OF NOT LESS THAN TWO-INCHES (2") AND A BINDER COURSE LAYER OF NOT LESS THAN THREE-INCHES (3") AFTER COMPACTION. PAVEMENT SHALL BE MIXED IN ACCORDANCE WITH MASSDOT SPECIFICATION SECTION M3.11.03 (TABLE A).
 - 10) PAVEMENT SHALL BE COMPACTED AND ROLLED BY AN OSCILLATING ROLLER WITH A WEIGHT OF NOT LESS THAN 10-TONS. ROLLER SHALL MAKE AT LEAST FOUR PASSES OVER ALL NEWLY PLACED PAVEMENT.
 - 11) ROLLER SHALL NOT EXCEED A SPEED OF 3 MILES PER HOUR DURING ROLLING OPERATIONS TO ENSURE PROPER COMPACTION. ANY RIDGES, INDENTATIONS SHALL BE ROLLED ADDITIONALLY UNTIL THEY ARE REMOVED.
 - 12) GRAVEL BASE MATERIAL SHALL CONSIST OF A LAYER OF EITHER DENSE GRADE CRUSHED STONE COMPLYING WITH REQUIREMENTS OF MASSDOT SECTION M2.01.7 OR GRAVEL BORROW COMPLYING WITH REQUIREMENTS OF MASSDOT SECTION M1.03.0.
 - 13) BASE MATERIALS SHALL BE PLACED IN LIFTS NOT TO EXCEED EIGHT-INCHES (8") AND COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH AASHTO SPECIFICATION T99.
 - 14) SUITABLE SUBBASE MATERIALS SHALL BE COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH AASHTO SPECIFICATION T99.
 - 15) UNSUITABLE SUBBASE MATERIAL SHALL BE REMOVED AND REPLACED WITH MATERIAL IN CONFORMANCE WITH MASSDOT SPECIFICATION M1.02.0, SPECIAL BORROW OR SPECIFICATION M.2.03.0 FOR GRAVEL BORROW.
 - 16) IMPORTED SUBBASE MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING TWELVE-INCHES AND COMPACTED IN TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH AASHTO SPECIFICATION T99.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR ESTABLISHING EXISTING LOCATIONS OF ALL SUB-SURFACE UTILITIES AND REQUIREMENTS TO REPLACE, RELOCATE OR REPAIR EXISTING UTILITIES. MWE IS NOT RESPONSIBLE OR LIABLE FOR DELAYS OR COSTS ASSOCIATED WITH REMOVING/REPLACING/RELOCATING OF EXISTING UTILITIES.

FOR METROWEST ENGINEERING, INC. DATE
ROBERT A. GEMMA, P.E.(CIVIL) # 31967

DETAILS PLAN
#35 CAPE ROAD
IN
MENDON, MASS

PREPARED FOR:
ARES CONSTRUCTION
38 PHASANT LANE
MANCHESTER, NH 03109

PROPERTY OF:
WENCER REALTY, LLC
1040 SOUTH MAIN STREET
BELLINGHAM, MA 02019

ENGINEERS & SURVEYORS:
MWE METROWEST ENGINEERING, INC.
75 FRANKLIN STREET
FRAMINGHAM, MA 01702
TELE: (508)626-0063
EMAIL: INFO@MWEENGINEERING.COM

SHEET C700 DATE: JANUARY 4, 2021
CALC'D BY: BTN FIELD BK: 712 CAD FILE: ARES_P SITE PLAN3.dwg
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