

GENERAL ALL SUITABLE TREES THAT MUST BE CUT WILL BE USED AS FUELWOOD OR TIMBER.. THE STUMPS, AND EXCESS UNSUITABLE EARTH WILL BE DISPOSED OF AT THE LOCATION DESIGNATED BY THE ENGINEER AS STUMP DISPOSAL AREA WELL ABOVE THE SEASONAL HIGH GROUNDWATER OR HAULED OFF—SITE TO A STATE—APPROVED LANDFILL. IF ON—SITE STUMP DISPOSAL IS IMPLEMENTED, THE FOLLOWING GUIDELINES SHALL BE MET: HEALTHY EXISTING TREES ON AND ADJACENT TO THE SITE SHALL BE SAVED AND PROTECTED AS ORDERED BY THE ENGINEER. UTILITIES INFORMATION SHOWN HEREON WERE OBTAINED FROM BEST AVAILABLE SOURCE AND MAY OR MAY NOT BE EITHER ACCURATE OR COMPLETE. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY, PUBLIC OR PRIVATE, SHOWN OR NOT SHOWN HEREON. CONTRACTOR SHALL CONNECT OR RECONNECT ALL UTILITIES TO THE NEAREST SOURCE THROUGH COORDINATION WITH UTILITY OWNER THE SILT FENCES, DITCHES, AND OTHER EROSION CONTROL DEVICES, SHALL BE INSPECTED, MAINTAINED AND REPAIRED BY THE CONTRACTOR AFTER EVERY RAINFALL OR AS ORDERED BY THE ENGINEER UNTIL ALL DISTURBED AREAS HAVE BEEN GRASSED AND APPROVED BY THE ENGINEER. THE MAINTENANCE OF THE EROSION CONTROL DEVICES WILL INCLUDE REMOVAL OF ANY ACCUMULATED SEDIMENTATION. ALL WORK SHALL CONFORM TO THE VILLAGE OF ESSEX JUNCTION LAND DEVELOPMENT CODE. ALL FILL SHALL BE PLACED IN 6 INCH LIFTS AND THOROUGHLY COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698 STANDARD PROCTOR, UNLESS OTHERWISE SPECIFIED. FINISH SLOPES, DITCHES AND DISTURBED AREAS SHALL RECEIVE A MINIMUM OF 4 INCHES OF TOPSOIL AND BE FERTILIZED, SEEDED, LIMED, AND MULCHED. TURF ESTABLISHMENT SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 OF THE VERMONT HIGHWAY DEPARTMENT SPECIFICATIONS INCLUDED ON THESE PLANS. AT COMPLETION OF GRADING, SLOPES, DITCHES, AND ALL DISTURBED AREAS SHALL BE SMOOTH AND FREE OF POCKETS WITH SUFFICIENT SLOPE TO ENSURE DRAINAGE. OPEN CUT AREAS SHALL BE MULCHED OUTSIDE OF ACTUAL WORK AREAS, AND BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED TO CONFINE SHEET WASH AND RUNOFF TO THE IMMEDIATE OPEN AREA AS ORDERED BY THE ENGINEER. THE CONTRACTOR SHALL REFERENCE ALL STORMWATER BMP'S PROVIDED BY THE STATE OF VERMONT TOPSOIL SHALL BE STOCKPILED, SEEDED, AND MULCHED UNTIL REUSED. SILT FENCES SHALL BE PLACED AND STAKED CONTINUOUSLY AROUND THE BOTTOM OF THE TOPSOIL PILES. THE HORIZONTAL AND VERTICAL SEPARATION FOR SEWER, WATER AND STORM LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE VILLAGE LAND DEVELOPMENT CODE. TO ENSURE COMPLIANCE WITH THE PLAN(S), THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE VILLAGE OF ESSEX JUNCTION PUBLIC WORKS DEPARMENT 48 HOURS IN ADVANCE OF STARTING ANY WORK, CUTTING THE PAVEMENT, BEGINNING THE INSTALLATION OF ANY UTILITIES, BRINGING IN ANY NEW GRAVEL FOR THE NEW BASE, PAVING, AND FINAL INSPECTION. THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ENSURING THAT THE DUST CREATED AS A RESULT OF CONSTRUCTION DOES NOT CREATE A NUISANCE OR A SAFETY HAZARD. WHERE AND WHEN DEEMED NECESSARY BY THE ENGINEER, THE CONTRACTOR SHALL BE REQUIRED TO WET SECTIONS OF THE CONSTRUCTION AREA WITH WATER, APPLY CALCIUM CHLORIDE OR SWEEP ASPHALT ROADS WITH A POWER BROOM AS DUST CONTROL. THE CONTRACTOR SHALL CONTACT ALL UTILITIES BEFORE EXCAVATION TO VERIFY THE LOCATION OF ANY UNDERGROUND LINES. THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-888-344-7233 AND THE VILLAGE OF ESSEX JUNCTION PUBLIC WORKS DEPARTMENT 48 HOURS PRIOR TO ANY EXCAVATION ALL WORK AND MATERIALS SHALL BE APPROVED BY AND IN ACCORDANCE WITH THE LATEST VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE VILLAGE OF ESSEX JUNCTION LAND DEVELOPMENT CODE, THE WRITTEN TECHNICAL SPECIFICATIONS, AND THESE PLANS. PRIOR TO CONSTRUCTION, ALL MATERIALS SHALL BE APPROVED BY THE ENGINEER. ALL MATERIALS TO BE TAKEN OVER BY THE VILLAGE OF ESSEX JUNCTION SHALL BE APPROVED BY THE PUBLIC WORKS DEPARTMENT. FOR ANY WORK WITHIN THE HIGHWAY RIGHT—OF—WAY A MINIMUM OF ONE—WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. CONTINUOUS TWO—WAY TRAFFIC WILL BE REQUIRED AT NIGHT, DURING PEAK—HOURS, AND WHENEVER POSSIBLE DURING ACTUAL CONSTRUCTION ACTIVITIES. UNIFORMED TRAFFIC CONTROL OFFICERS SHALL DIRECT TRAFFIC DURING PEAK HOURS WHEN THERE IS ONE—WAY TRAFFIC OR WHEN DEEMED NECESSARY BY THE VILLAGE OF ESSEX JUNCTION OR STATE. TEMPORARY CONSTRUCTION SIGNS AND TRAFFIC CONTROL SIGNS SHALL BE ERECTED BY THE CONTRACTOR IN ACCORDANCE WITH STATE AND THE VILLAGE OF ESSEX JUNCTION LAND DEVELOPMENT CODE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REMOVAL OF ALL EXISTING VEGETATION, PAVEMENT AND STRUCTURES NECESSARY TO CONSTRUCT THIS PROJECT UNLESS OTHERWISE NOTED ON THESE PLANS. THE CONTRACTOR SHALL REMOVE ALL EXCESS MATERIAL, DEBRIS AND TRASH FROM THE SITE UPON COMPLETION OF CONSTRUCTION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. DRAINAGE COURSES AND STREAMS SHALL BE CONTROLLED IN DISTURBED CONSTRUCTION AREAS BY THE FOLLOWING METHODS: THE DESIGN ON THESE PLANS SHALL BE INSPECTED BY O'LEARY—BURKE CIVIL ASSOCIATES, ESSEX JUNCTION, VERMONT, TO ENSURE COMPLIANCE WITH THE PLANS AND REQUIREMENTS. O'LEARY— BURKE WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS THAT MAY ARISE FROM THE FAILURE OF THE CONTRACTOR TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THAT THE PLANS CONVEY, AND FROM FAILURE TO HAVE BEEN NOTIFIED TO INSPECT THE WORKS AND TESTS IN PROGRESS. ANY SURFACES, LINES, OR STRUCTURES WHICH HAVE BEEN DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THE CONDITION AT LEAST EQUAL TO THAT IN WHICH THEY WERE FOUND IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS. STUMP PRESERVING NATURAL VEGETATION WHENEVER POSSIBLE; AVOIDING UNECESSARY DISTURBANCE OF SOILS; EARLY INSTALLATION OF STORM PIPES AND DITCHES; SEEDING AND MULCHING DIRECTLY UPON COMPLETION OF CONSTRUCTION; CONSTRUCTION OF EROSION CONTROL DEVICES AS DIRECTED BY THE ENGINEER. WHENEVER POSSIBLE, STUMP DISPOSAL SITES SHOULD BE LOCATED ON NEARLY LEVEL TO MODERATELY SLOPING LANDS (SLOPES LESS THAN 12%). STUMPS WILL BE PLACED ON THE SITE IN A SINGLE LIFT PRIOR TO BACKFILLING. WHEN ADDITIONAL STUMPS ARE TO BE DEPOSITED ON THE SAME SITE, EACH SUCCESSIVE LAYER OR LIFT OF STUMPS WILL BE BACKFILLED. DISPOSAL SITES WILL NOT BE LOCATED IN OR WITHIN 100 FEET OF FLOWING WATERCOURSES OR STREAMS OR IN ACTIVELY ERODING GULLIES. DISPOSAL SITES SHALL NOT BE LOCATED IN FLOODED OR FLOOD-PRONE LAN OR OTHER AQUIFER RECHARGE AREAS. STUMPS DEPOSITED IN DRAINAGEWAYS OR DEPRESSIONS SHALL BE BACKFILLED AND BERMED SO AS TO DIVERT OVERLAND FLOWS FROM THE DISPOSAL AREA. A MINIMUM OF TWO FEET (2') OF OVERBURDEN WILL BE PLACED OVER ALL DISPOSAL SITES. THE TWO FEET OF OVERBURDEN WILL BE COVERED WITH A MINIMUM OF FOUR INCHES (4") OF TOPSOIL, GRADED, SEEDED, AND MULCHED IN ACCORDANCE WITH THE SPECIFICATIONS. VAN -CONSTRUCTION DISPOSAL ACCESSIBL NTS SPECIFICATIONS SPECIFICATIONS PARKING -PRONE LANDS, MARSHES HANDICAP NO₁S 1'-0" X 1'-6" X .080" ALUMINUM MUTCD R7-8 SIGN, DOUBLR FACED IF APPLICABLE, SEE SITE PLAN. IDENTIFICATION SYMBOL BOLT TO STEEL TUBE WITH 3/8" CADMIUM PLATED BOLTS, NUTS & WASHERS DENSE GRADED (VT SPEC 704.06 GRAVEL FOR 704.04 GRADATION CRUSHED GRAVEL FOR VT SPEC 704.05 6" X 12" X .080" ALUMINUM SEE ASSEMBLY ABOVE FLANGED CHANNEL STEEL POST SECTION SIDEWA REQUIREMENTS VT SPEC -Typical Cast Iro. Detectable Warr Sidewalk ramps textured surface N.T.S. VT. SECTION B-B Textured (µ > .8) sidewalk ramp 5'-6" min. width 3,500 PSI CONCRETE END AREA = 0.94 S.F. SHT. C-3A X RAMP 3 1/2" 3" 2" 1" 1/2" #4 2" 1 1/2" 1/2" #4 #100 NOTES 2" 1 1/2" #4 #100 #4 #100 #200 SIZE SIEVE 1) CURBING SHALL BE CONSTRUCTED IN 10' SECTIONS WITH 1/8" JOINT BETWEEN SECTIONS. 8.3% max. CURBING EXPANSION JOINTS SHALL BE CONSTRUCTED EVERY 20' AND SHALL BE CONSTRUCTED OF MATERIAL CONFORMING TO AASHTO DESIGNATION M-153 (1/2" SPONGE RUBBER OR CORK.) ALL EXPOSED SURFACES TO RECEIVE 2 COATS OF AN ANTI-SPALLING COMPOUND. ONCRETE SECTION C-C PERCENT (%) PASSING 100 % 90-100 % 70-100 % 60-100 % 0-20 % 1/2" RADIUS 100 % 90-100 % 30-60 % 0-12 % 0-6 % 100 % 90-100% 75-100% 50-80% 30-60% 15-40% 20-60 % 0-12 % 0-6% CURB 12" SAND BASE (VT. SPEC. 703.03) 2" THICK DOW STYROFOAM SMOR EQUAL INSULATION BOARD 24" SAND BASE (VT. SPEC. 703.03) TYPICAL TYPICAL SIDEWALK SECTION ADJACENT TO BUILDING ALL EXPOSED SURFACES TO RECEIVE 2 COATS OF AN ANTI-SPALLING COMPOUND. CAR SIDEWALK 3/4" TO 1-1/2" CRUSHE STONE BEDDING FOR PE PIPE APPROVED ROCK FREE BACKFILL THOROUGHLY COMPACTED IN 6" LIFTS (NO STONES LARGER THAN 1 1/2" DIAMETER) BACKFILL WITH APPROVED EXCAVATED MATERIAL THOROUGHLY COMPACTED IN 6" LIFTS - VARIES -SEE PLAN STN PARKING/ROADWAY ALL EXPOSED SURFACES TO RECEIVE 2 COATS OF AN ANTI-SPALLING COMPOUND. SHOULDER ⁴92" DENSE GRADED CRUSHED STONE 12" THICK SAND BORROW PER VAOT SPEC. #703.03 CONTRACTOR SHALL NOTIFY ENGINEER TO INSPECT SUBGRADE SOILS BEFORE PLACING ANY GRAVEL **STORM** D/2 + SECTION 5" THICK 3500 - P.S.I. CONCRETE WALK 5" THICK 3500 P.S.I. CONCRETE OR OTHER APPROVED TREATMENT SEE SITE PLAN FOR GRADING DRAIN MIN. 4' COVER NTS (OR EXIST. SAND IF #200 SIEVE < 20%) STATE SPEQ 704.06 TRENCH AREA THE CONTRACTOR SHALL AT ALL TIMES KEEP THE TRENCHES ENTIRELY FREE OF WATER UNTIL ALL WORK IS FINISHED AND READY FOR BACKFILLING ('D' IS OUTSIDE DIAMETER OF PIPE) PIPE BEDDING 6" ABOVE PIPE IN VILLAGE ROW DETAIL 018.0114132 018.0114132 SOIL GROUT FRAME TO CONCRETE — THE FRAME OPENING SHALL MATCH THE CATCH BASIN TOP WITH NO OVERHANG. ALL BACKFILLTHOROUGHLY COMPACTED IN 6" LIFTS-4000 P.S.I. CONCRETE NTS SIDEWALL THICKNESS FRAME & GRATE LEBARON LK 121 (OR EQUAL) OR LK120A IF SLOPE EXCEEDS 5% ORIGINAL GROUND PRECAST CONCRETE COVER THICKNESS O'LEARY-BURKE CIVIL ASSOCIATES, PLC MAINTAIN SWALE INVERT-SLOPE TO DRAIN WITH MIN. OF 0.002 FT./FT. GRASSED CATCH BASINS SHALL BE SIZED SUCH THAT: A ... AT ANY ELEVATION, A MINIMUM OF 60% OF THE CIRCUMFERENCE SHALL THE MINIMUM DISTANCE, AS MEASURED ALONG THE CIRCUMFERENCE, BETWEEN TWO OPENINGS SHALL BE 6". THE BASINS SHALL ALSO MEET THE FOLLOWING MINIMUM REQUIREMENTS: တ္ MECHANI CRUSHED STONE BEDDING PROVIDE 4" TOPSOIL AND GRASS COVER (CONSERVATION MIX) CATCH SEE ☐ PRELI 6, PLUG POURED IN PLACE 3500 PSI CONCRETE OR A PRECAST CONCRETE RING BETWEEN THE C.B. TOP AND BOTTOM OF CAST IRON FRAME. MAXIMUM HEIGHT SHALL BE 8 INCHES. (BRICK SHALL NOT BE USED). DRAINAGE FINISH GRADE POI#1=5' POI#2=2' MIN. 12" POI#1=18" POI#2=12" BASIN Roadway & ALL STRUCTURES SHALL BE DESIGNED BY A STRUCTURAL ENGINEER TO WITHSTAND AN H20 LOADING REQUIREMENT ALL PIPE OPENING SHALL HAVE A WATERTIGHT FLEXIBLE PIPE SLEEVE OR GASKET. Riverside in the Village 108801F Building D - Essex Junction, VT ON ALL OUTLET PIPES EXTEND BEDDING TO LIMITS OF EXCAVATION SWALE Details RBED SOIL Stormwater

5

* ATE R SPECIFICATIONS

This item shall consist of the labor, equipment, and material required for the complete construction of the watermains and services which shall include excavation, backfilling, pipe, valves, tees, hydrants, elbows, reducers, and all other appurtenances necessary for a complete watermain system as indicated on the accepted drawings. materials and installations shall be approved by the local municipal water authority. 1.2 WATER PIPE MATERIALS:

DUCTILE IRON PIPE
Pipe shall be a minimum diameter of eight inches (8") and conform to current C110 or ANSI Specification A21.10. Push—on joint pipe shall be minimum thickness Class 52. Push—on joint accessories shall conform to applicable requirements of AWWA C111 or ANSI Specification A21.11.

Pipe shall be cement mortar—lined on the inside in accordance with AWWA C104 ANSI Specification A21.4 except that the cement—lining thickness shall not be less an three—sixteenths inch (3/16"). A plus tolerance of one—eighths inch (1/8") will syrmitted. FITTINGS

Ductile iron fittings shall be double cement motar lined, have 350 pounds working pressure, and be in accordance with AWWA C-104, C-111, and C-110 or C-153 for compact fittings. Mechanical joint nuts and bolts shall be high strength, low alloy steel per ANSI A-21.11. Ductile iron fittings larger than twelve inches (12") shall have a standard body length equal to Class 250 cast iron fittings. Cast iron Class 250 fittings will be allowed in lieu of ductile iron fittings in sizes larger than twelve inches (12").

Megalug retainer glands shown on the plans. .4 GATE VALVE RESILIENT SEAT: 윽 Ωn oved equal shall be all fittings and

VALVES SHALL BE MANUFACTURED IN NORTH AMERICA TO MEET ALL REQUIREMENTS OF AWWA SPECIFICATIONS C-509. VALVES TWELVE INCHES (12") AND SMALLER SHALL BE BUBBLE-TIGHT, ZERO LEAKAGE AT 250 PSI WORKING PRESSURE. VALVES SHALL HAVE NON-RISING STEMS, OPEN COUNTERCLOCKWISE, ADN BE PROVIDED WITH A TWO INCH (2") SQUARE OPERATING NUT WITH ARROW CAST IN METAL TO INDICATE DIRECTION OF OPENING.

Each valve shall have maker's name, pressure rating, and year cast on the body. Prior to shipment from the factory, each valve hydrostatic pressure equal to twice the specified working pressure. be installed with a valve box. VALVE BOXES: r in which manufactus shall be tested by Buried valves shall

Cast iron three-piece slide-type; ch depth. Cast iron cover marked "WATER" and indicating fourths inch (5 1/4") of

FIELD TESTING

SD (Squ 148,000

At all times, when the pipe laying is not actually in progress, the open ends of the pipe shall be closed by temporary watertight plugs or by other approved means. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe has passed. The pipe shall be installed in trenches and at the line and grade shown on the Contract Drawings.

All pipes showing cracks shall be rejected. If cracks occur in the pipe, the Contractor may, at his own expense and with the approval of the Engineer, cut off the cracked portions at a point at least twelve inches (12") from the visible limits of the crack and use the sound portion of the pipe. All pipes and fittings shall be cleared of all foreign matter and debris prior to installation and shall be kept clean until the time of acceptance by the Owner.

Pipes, fittings, and accessories shall be carefully handled to the date of acceptance of the project work by the Owner, any new pipe or accessory found to be defective at any time, at no expense to the Owner. All installation and testing shall with AWWA Standard C-600 and ANSI Specification A21.11.

d to avoid damage. Prior, the Contractor shall replace, including after installation, all be done in accordance

INSTALLATION

All pipe and fittings shall be inspected and tested in accordance with the manufacturer's specifications and the aforementioned AWWA Specifications. The Contractor shall furnish for approval certification from the pipe manufacturer that all tests have been performed with satisfactory results. Pipe shall not be installed without the Engineer's or Water Authority's approval.

The Contractor shall install six inch on the Contract Drawings or as directed 6 inch (6") gate valve located at the pro

th (6") ductile iron by the Engineer. roperty line.

water Each

WATER SERVICE CONNECTION:

GENERAL REQUIREMENTS

CONSTRUCTION METHODS

INSPECTION AND TESTING

Chlorination of the watermain shall be conducted only after the main has been flushed and a clear stream is obtained as determined by the Engineer.

The Contractor shall furnish all labor, equipment, materials, and tools necessary to disinfect the pipe and appurtenances in accordance with the AWWA Standard for Disinfecting Watermains, C—651, with the exception of the tablet method.

The pipeline and appurtenances shall be maintained in an un until final acceptance. Disinfection shall be repeated when and whexpense to the Owner until final acceptance by the Owner. FROST PROTECTION OF SHALLOW WATERLINES contaminated condition here required at no

Waterlines with less than 6 feet of cover over the crown, or where indicated on the plans, shall be protected against freezing by installation of four inch (4") thick Styrofoam SM insulating sheets with a total width of four feet (4") or twice the pipe diameter, whichever is greater. The sheets shall be placed six inches (6") above the crown of the main after compaction of the six inch (6") lift immediately above the crown. Care shall be exercised by the Contractor during backfill and compaction over the styrofoam sheets to prevent damage to the sheets. Styrofoam SM sheets shall meet the compressive strength requirements of ASTM D1621-73 and shall be as manufactured by Dow Chemical Company, Midland, Michigan, or equivalent. In no case shall the waterlines have less than 6 feet of cover unless specifically approved by the Village of Essex Junction.

Any deflection joints shall be within the limits specified by the manufacturer. All piping and appurtenances connected to the equipment shall be supported so that no strain will be imposed on the equipment. If the equipment manufacturer's specifications include that piping loads are not to be transferred, the Contractor shall submit certification of compliance. Concrete thrust blocks shall be installed on all plugs, tees, and bends deflecting 11/4 degrees or more. Care shall be taken to ensure that concrete will not come in contact with flanges, joints, or bolts. The required area of thrust blocks are indicated on the plans or shall be as approved by the Engineer.

Whenever sewers cross under watermains, the watermain shall be laid at such an elevation that the bottom of the watermain is at least 18 inches above the top of the sewer. This vertical separation shall be maintained for that portion of the watermain ocated within ten feet (10') horizontally of any sewer it crosses. BASED ON 100 PSI WORKING PRESSURE PLUS 100 PSI SURGE ALLOWANCE AND BEARING CAPACITY OF 2000 LBS/SQ FT

There shall be no physical connection between the distribution system and any pipes, pumps, hydrants, or tanks which are supplied or may be supplied with a water that is, or may be, contaminated. In instances where the use of different types of pipe require joining, the Contractor shall furnish and install all necessary adapters. all applicable State and

All trenching safety standards shall be in conformance Federal Guidelines and as specified on the Plans. with

The Contractor shall, at all times, keep the trenches entirely free of water until all work is finished and ready for backfilling. After the various pipelines have been installed, the trenches and other areas to be filled shall be backfilled to subgrade with, wherever possible, material excavated from the trench. No backfilling will be allowed until any concrete masonry has set sufficiently, as determined by the Engineer.

All material for backfilling shall be free of roots, stumps, and frost. Materials used for backfilling trenches shall be free of stones weighing over 30 pounds. No stones measuring over one and one—half inches (1 1/2") in the longest dimension shall be placed within one foot (1") of the pipeline being backfilled.

Backfill for all pipelines shall be placed in six inch (6") layers thoroughly compacted to not less than 95 percent of maximum dra determined by the AASHTO-T-99 Standard Proctor. Particular pretaken in the placement and compaction of the backfill material in the pipe or structure. The backfill shall be brought up evenly. All installed with a minimum cover depth of six (6'). rs, each layer being dry density as recautions shall be n order not to damage All watermains shall be

Surplus excavated materials not used for backfill shall be disposed of in a manner satisfactory to the Engineer. All surplus material or spoil shall be removed promptly and disposed of so as not to be objectionable to abutters or to the general public.

Valve boxes are to be installed on all buried valves. The boxes shall be cast iron with a minimum five and one—fourths inch (5 1/4") diameter and long enough to extend from the valve to finished grade. The boxes shall enclose the operating nut and stuffing box of the valve. Valve boxes shall not transfer loads into the valve. Covers shall be close fitting and dirt—tight with the top of the cover flush with the top of the box rim. Covers shall be marked "Water" with an arrow indicating the direction of opening. Valve boxes shall be three piece slip—type.

The contractor shall provide a stable, temporary PVC marker approved by the Engineer at all gate valves, curb stops, and at the end of waterlines to a point six inches (6") above finish grade. The marker shall be seated securely into the ground.

Except as otherwise directed, all pipelines shall be tested. Piexcavation or bedded in concrete shall be tested prior to backfilling concrete, and any exposed piping shall be tested prior to field pain shall furnish all gauges, testing plugs, caps, and all other necessar to perform leakage and pressure test in sections of an approved lessection or a maximum of one thousand feet (1,000') of the pipe s water required for testing shall be potabe. All testing shall be corpresence of the Engineer. Pipelines laid in ng or the placing of sinting. The Contractor ary equipment and labor length. Each valved shall be tested. All onducted in the

For the pressure test, the Contractor shall develop and maintain 200 pounds per square inch for two hours. Failure to hold the designated pressure for the two—hour period constitutes a failure of the section tested. The leakage test shall be performed concurrently with the pressure test. During the test, the Contractor shall measure the quantity of water required to maintain the test pressure. Leakage shall not exceed the quantity given by:

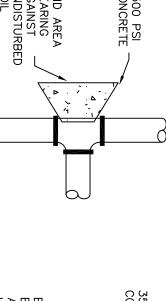
Leakage in gallons/hour Length of pipeline tested Diameter of pipe in inches Average test pressure in psi

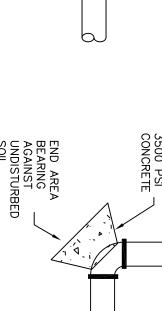
All testing shall be conducted in accordance with AWWA C-600 latest revision. Should any section of the pipe fail either the pressure or leakage tests, the Contractor shall do everything necessary to locate and repair or replace the defective pipe, fittings, or joints at no expense to the Owner.

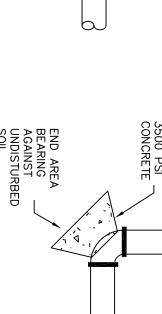
The method of disinfection shall be by the continuous feed method unless otherwise approved by the Engineer. After filling, flushing, and the addition of chlorine solution, the free chlorine concentration within the pipe shall be at least 25 mg/l. The chlorinated water shall remain in the main for a period of at least 24 hours. At the end of this period, the treated water in all portions of the main shall not have a residual of less than 10 mg/l of free chlorine. The dechlorination process of waterline flushing shall be done until the cholorine concentration is <1 mg/L. If a sample <1 mg/L cannot be obtained check another nearby public water system for comparative results. All disinfection shall be performed under the supervision of the Engineer. The contractor shall coordinate with the Village of Essex Junction Wastewater Treatment Facility on the dechlorination and disposal of heavily chlorinated water flushed from the water main following disinfection. The disinfection process shall be deemed acceptable only after (2) samples of water, collected 24 hours apart, from the flushed, disinfected main taken by the Engineer and tested at an approved laboratory show no evidence of bacteriological contamination. Disinfection shall conform to the latest AWWA C-651 revision.

3500 PSI CONCRETE

SIZE FITTING SIZE 111/4 & 221/2







TYPICAL TEES-DEADENDS-CAPS BETWEEN FITTING TYPICAL BENDS
G AND THRUST BLOCK

WATER

5' MINIMUM SEPARATION DISTANCE

SANITARY SEWER

STORM SEWER

I O' MINIMUM PARATION DISTA

CENTER ONE LENGTH OF PIPE OVER THE SEWER

WATER

PARALLEL

INSTALLATION

CROSSINGS

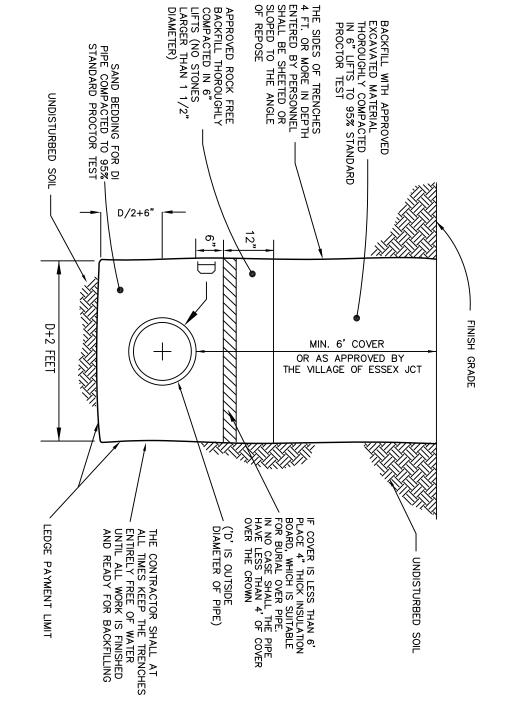
SEWER

SEWER

WATER

SEPARATION NOTES

THRUST **BLOCK** END AREA



WATER TRENCH

4) WHERE WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.

SEWER,

WATER

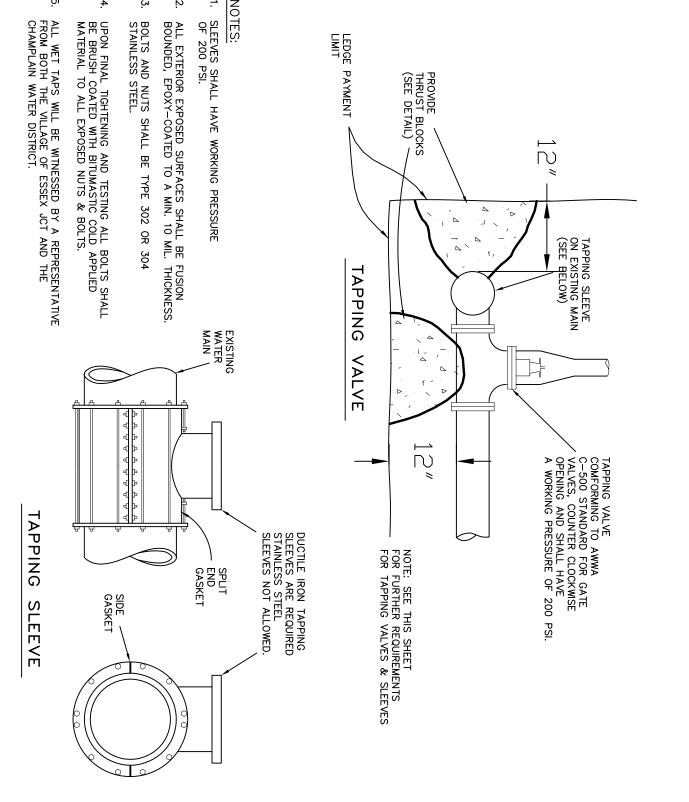
3) THE SECTION CONSTRUCTED TO WATER MAIN STANDARDS MUST BE PRESSURE TESTED TO MAINTAIN 50 PSI FOR IS MINUTES WITHOUT LEAKAGE PRIOR TO BACKFILLING BEYOND ONE FOOT ABOVE THE PIPE TO ASSURE WATER TIGHTNESS;

2) THE SANITARY SEWER PIPE MUST BE CONSTRUCTED TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 20 FEET EITHER SIDE OF THE CROSSING OR A TOTAL OF THREE PIPE LENGTHS, WHICHEVER IS GREATER;

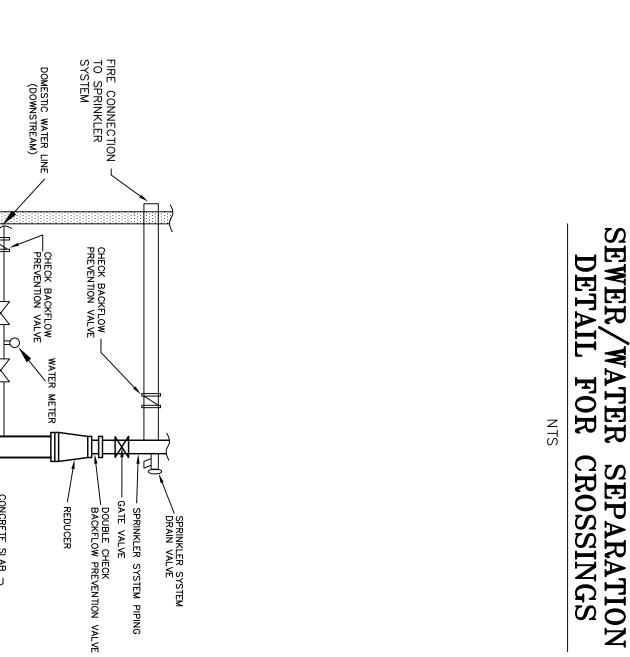
I) THE CROSSING SHALL BE ARRANGED SO THAT ONE FULL LENGTH OF SEWER IS CENTERED ABOVE OR BELOW THE WATER LINE WITH SEWER JOINTS AS FAR AS POSSIBLE FROM WATER JOINTS;

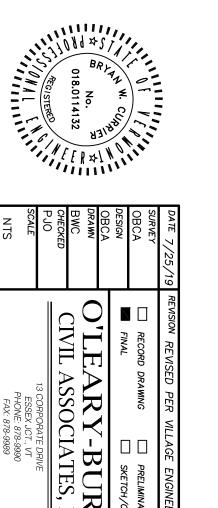
SEWER CROSSING WATER MAINS SHALL BE LAID BENEATH THE WATER MAIN WITH AT LEAST 18" VERTICAL CLEARANCE BETWEEN THE TOP OF THE SEWER AND THE BOTTOM OF THE WATER MAIN. WHEN IT IS IMPOSSIBLE TO MAINTAIN THE 18" VERTICAL SEPARATION OR WHERE THE SEWER MUST BE LAID ABOVE THE WATER MAIN;

SANITARY SEWERS SHALL BE LAID AT LEAST TEN FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THIS DISTANCE CAN BE REDUCED TO FIVE FEET FOR STORM SEWERS. THE DISTANCE SHALL BE MEASURED EDGE OF PIPE TO EDGE OF PIPE. WHERE IMPRACTICAL DUE TO LEDGE, BOULDERS OR OTHER UNUSUAL CONDITIONS, TO MAINTAIN HORIZONTAL SEPARATION BETWEEN SEWER AND WATER LINES, THE WATER LINE MAY BE IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF IN THE SEWER TRENCH PROVIDED THAT THE BOTTOM OF THE WATER UNE IS A LEAST 18" ABOVE THE TOP OF THE SEWER. WHEREVER IMPOSSIBLE OR IMPRACTICAL TO MAINTAIN 18" VERTICAL SEPARATION, THE SANITARY SEWER LINE SHALL BE CONSTRUCTED TO NORMAL WATERLINE STANDARDS AND PRESSURE TESTED TO 50 PSI FOR 15 MINUTES PRIOR TO BACKFILLING. NO LEAKAGE SHALL BE ALLOWED FOR THIS TEST.



TAPPING VALVE NTS and SLEEVE DETAIL





WATER

SPR INKL

ER R

ONNEC

TION

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ENERAL S EWER P **ECIFICATION**

FINAL ACCEPTANCE OF THE SEWER SHALL DEPEND UPON THE SATISFACTORY PERFORMANCE OF THE SEWER UNDER TEST CONDITIONS. THE TEST SHALL BE PERFORMED ON PIPE BETWEEN ADJACENT MANHOLES AFTER BACKFILLING HAS BEEN COMPLETED AND COMPACTED. SEWERS WITH LESS THAN FIVE AND ONE—HALF FEET (5 1/2') OF COVER OVER THE CROWN OR WHERE INDICATED ON THE PLANS SHALL BE PROTECTED AGAINST FREEZING BY INSTALLATION OF TWO, 2" THICK (4" TOTAL) STYROFOAM SM INSULATING SHEETS WITH A TOTAL WDTH OF FOUR FEET (4') OR TWICE THE PIPE DIAMETER, WHICHEVER IS GREATER. THE SHEETS SHALL BE PLACED SIX INCHES (6") ABOVE THE CROWN OF THE SEWER AFTER COMPACTION OF THE SIX INCH LIFT IMMEDIATELY ABOVE THE CROWN. CARE SHALL BE EXERCISED BY THE CONTRACTOR DURING BACKFILL, AND COMPACTION OVER THE STYROFOAM SM SHEETS SHALL MEET THE COMPRESSIVE STRENGTH REQUIREMENTS OF ASTM D1621—73 AND SHALL BE AS MANUFACTURED BY DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN, OR EQUAL. IN NO CASE SHALL THE SEWER LINES HAVE LESS THAN FOUR (4') FEET OF COVER OVER THE TOP OF THE PIPE. THE LOW PRESSURE AIR TEST WILL BE USED TO SIMULATE INFILTRATION OR EXFILTRATION RATES INTO OR OUT OF GRAVITY SEWERS. THE CONTRACTOR WILL FURNISH ALL FACILITIES AND PERSONNEL FOR CONDUCTING THE TEST.

THE PIPELINE SHALL BE CONSIDERED ACCEPTABLE WHEN TESTED AT AN AVERAGE PRESSURE OF THREE POUNDS PER SQUARE INCH (3.0 PSI) GREATER THAN THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY SUBMERGE THE PIPE IF: PRIOR TO TESTING FOR ACCEPTANCE, THE PIPE SHOULD BE CLEANED BY PASSING THROUGH THE PIPE A FULL GAUGE SQUEEGEE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THE PIPE CLEANED.

IMMEDIATELY FOLLOWING THE PIPE CLEANING, THE PIPE INSTALLATION SHALL BE TESTED WITH LOW-PRESSURE AIR. 2. THE SECTION UNDER TEST DOES NOT LOSE AIR AT A RATE GREATER THAN 0.0030 CUBIC FEET PER MINUTE PER SQUARE FOOT OF INTERNAL PIPE SURFACE. 1. THE TOTAL RATE OF AIR LOSS FROM ANY SECTION TESTED IN ITS ENTIRETY BETWEEN MANHOLE AND CLEANOUT STRUCTURES DOES NOT EXCEED 2.0 CUBIC FEET PER MINUTE; OR AIR SHALL BE SLOWLY SUPPLIED TO THE PLUGGED AIR INSTALLATION UNTIL THE INTERNAL AIR PRESSURE REACHES FOUR POUNDS PER SQUARE INCH (4.0 PSI) GREATER THAN THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY SUBMERGE THE PIPE. AT LEAST TWO MINUTES SHALL BE ALLOWED FOR TEMPERATURE STABILIZATION BEFORE PROCEEDING FURTHER.

THE REQUIREMENTS OF THIS SPECIFICATION SHALL BE CONSIDERED SATISFIED IF THE TIME REQUIRED IN SECONDS FOR THE PRESSURE TO DECREASE FROM 3.5 OR 2.5 PSI GREATER THAN THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY SUBMERGE THE PIPE IS NOT LESS THAN THAT COMPUTED ACCORDING TO THE FOLLOWING TABLE:

RAISE FRAME & COVER
TO FINISH ELEVATION
WITH CONCRETE GRADE RINGS
NO BRICK SHALL BE ALLOWED

GROUT FRAME TO RISER/GRADE RING

FINISH GRADE

MANHOLE FRAME & COVER NEENAH R1642, LEBARON LC266 OR EQUAL.

A.S.T.M. C478
PRECAST REINFORCED
CONC. MANHOLE
CONE AND RISER

3'-0"

SEE SPECIFICATIONS FOR MH TESTING REQUIREMENTS

WATER

STORM SEWER

- COAT EXTERIOR OF CONCRETE AND BRICK WITH TWO (2) COATS OF WATERPROOF SEALANT

COPOLYMER POLYPROPYLENE PLASTIC RUNGS WITH 1/2" GRADE 60 STEEL REINFORCEMENT OR EQUAL. 12" O.C. MAX. 6" O.C. MIN.

DIAMETER (INCHES)

EXTRA CARE IS REQUIRED WHEN HANDLING PVC PIPE DURING COLD WEATHER. PVC PIPE SHALL NOT BE STORED OUTSIDE AND EXPOSED TO PROLONGED PERIODS OF SUNLIGHT AS PIPE DISCOLORATION AND REDUCTION IN PIPE IMPACT STRENGTH WILL OCCUR. CANVAS OR OTHER OPAQUE MATERIAL SHALL BE USED TO COVER PVC PIPE STORED ONSITE.

COMPACTED BEDDING MATERIAL IS TO BE INSTALLED 6" ABOVE THE TOP OF THE PIPE FOR THE FULL WIDTH THE EXCAVATED TRENCH.

PVC PIPE SHALL NOT BE INSTALLED WHEN THE TEMPERATURE DROPS BELOW 32 DEGREES FAHRENHEIT OR GOES ABOVE 100 DEGREES FAHRENHEIT. DURING COLD WEATHER, THE FLEXIBILITY AND IMPACT RESISTANCE OF PVC PIPE IS REDUCED.

THE MANHOLE WATER STOP GASKET AND STAINLESS STEEL CLAMP ASSEMBLY MUST BE APPROVED BY THE ENGINEER PRIOR TO THE INSTALLATION OF ANY PIPE.

THE CONTRACTOR WILL SUBMIT CERTIFICATION THAT THE MATERIALS OF CONSTRUCTION HAVE BEEN SAMPLED, ESTED, AND INSPECTED, AND THAT THEY MEET ALL THE REQUIREMENTS——INCLUDING WALL THICKNESS——IN CCORDANCE WITH ASTM C—3034 OR ASTM F679 FOR ALL PIPE AND FITTINGS TO BE INCLUDED IN THE ROJECT WORK.

THE PIPE INSTALLED UNDER THIS SPECIFICATION SHALL BE INSTALLED SO THAT THE INITIAL DEFLECTION, MEASURED AS DESCRIBED BELOW, SHALL BE LESS THAN FIVE PERCENT (5%).

DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE PIPE AFTER THE FINAL BACKFILL HAS BEEN IN AT LEAST 30 DAYS. THE DEFLECTION TEST SHALL BE RUN USING A RIGID BALL OR MANDREL HAVING A AMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE. NO MECHANICAL PULLING DEVICES HALL BE USED DURING THE DEFLECTION TESTS. ALL PIPE NOT MEETING THE DEFLECTION TEST SHALL BE EXCAVATED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

ANY PIPE OR FITTING HAVING A CRACK OR OTHER DEFECT OR WHICH HAS RECEIVED A SEVERE BLOW SHALL MARKED REJECTED AND REMOVED AT ONCE FROM THE WORK SITE. ALL FIELD CUTS ARE TO BE MADE WITH SAW AND 90 DEGREE MITRE BOX. BEVEL THE CUT END TO THE SAME AS THE FACTORY BEVEL AND REMOVE ALL INTERIOR BURRS. MEASURE AND PLACE A HOMING MARK ON THE PIPE BEFORE ASSEMBLING.

THE PIPE SHALL BE FURNISHED IN NOMINAL 13 FOOT LENGTHS. SUFFICIENT NUMBERS OF SHORT LENGTHS AND FULL MACHINE FITTINGS SHALL BE PROVIDED FOR USE AT MANHOLES, CHIMNEYS, AND CONNECTIONS. ALL CONNECTIONS WILL REQUIRE THE USE OF MANUFACTURED FITTINGS. FIELD FABRICATED, SADDLE—TYPE CONNECTIONS WILL NOT BE CONSIDERED ACCEPTABLE.

JOINTS SHALL BE PUSH-ON TYPE USING ELASTOMERIC GASKETS AND SHALL CONFORM TO ASTM D-3212. THE GASKETS SHALL BE FACTORY INSTALLED.

MANUFACTURER'S NAME AND TRADEMARK NOMINAL PIPE SIZE MATERIAL DESIGNATION 12454C PVC LEGEND "TYPE PSM SDR35 PVC SEWER PIPE" "PS 46 PVC SEWER PIPE" DESIGNATION ASTM D-3034 OR F679

ALL WYES, TEES, LATERALS, OR END-OF-SIDE SEWER STUBS SHALL BE PLUGGED WITH FLEXIBLE-JOINT CAPS, OR AN ACCEPTABLE ALTERNATE, SECURELY FASTENED TO WITHSTAND THE INTERNAL TEST PRESSURE. SUCH PLUGS OR CAPS SHALL BE READILY REMOVABLE, AND THEIR REMOVAL SHALL PROVIDE A SOCKET SUITABLE FOR MAKING A FLEXIBLE-JOINTED LATERAL CONNECTION OR EXTENSION.

PVC SEWER PIPE SHALL CONFORM IN ALL RESPECTS TO THE LATEST REVISION OF ASTM SPECIFICATIONS D-3034 OR F679, TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, SDR35. WALL THICKNESS OF ALL PVC SHALL MEET ASTM SPECIFICATIONS FOR SDR35 PIPE. ALL PIPE AND FITTINGS SHALL BE CLEARLY MARKED AS FOLLOWS:

TYPES OF PIPE WHICH SHALL BE USED FOR THE VARIOUS PARTS OF WORK ARE AS FOLLOWS: GRAVITY SEWERS SHALL BE PVC SOLID WALL PIPE MEETING ASTM SPECIFICATIONS D-3034 OR F679

THIS ITEM SHALL CONSIST OF THE EXCAVATION AND BACKFILLING REQUIRED FOR THE COMPLETE CONSTRUCTION GRAVITY SANITARY SEWERS, FORCE MAINS, AND ALL APPURTENANT CONSTRUCTION RELATED THERETO, INCLUDING IIMNEYS, SERVICE CONNECTIONS, THRUST BLOCKS, AND OTHER ITEMS NECESSARY FOR A COMPLETE SANITARY WER SYSTEM AS INDICATED ON THE DRAWINGS.

THE TABLE GIVES THE REQUIRED TEST TIME IN SECONDS PER 100 FOOT LENGTHS OF PIPE FOR A GIVEN DIAMETER. IF THERE IS MORE THAN ONE PIPE SIZE IN THE SECTION OF LINE BEING TESTED, COMPUTE THE TIME FOR EACH DIAMETER; AND SUM THE TIMES TO FIND THE TOTAL REQUIRED TEST TIME. IF THE PIPE INSTALLATION FAILS TO MEET THESE REQUIREMENTS, THE CONTRACTOR SHALL DETERMINE AT HIS OR ROWN EXPENSE THE SOURCE OR SOURCES OF LEAKAGE AND SHALL REPAIR (IF THE EXTENT AND TYPE OF REPAIRS OPOSED BY THE CONTRACTOR APPEAR REASONABLE TO THE ENGINEER) OR REPLACE ALL DEFECTIVE MATERIALS WORKMANSHIP. THE COMPLETED PIPE INSTALLATION SHALL MEET THE REQUIREMENTS OF THIS TEST BEFORE ING CONSIDERED ACCEPTABLE.

SINCE THIS TEST DOES NOT DETERMINE THE TIGHTNESS OF MANHOLES, THEY SHALL BE TESTED SEPARATELY. THE EXFILTRATION LEAKAGE ALLOWANCE OUT OF MANHOLES SHALL BE NO GREATER THAN ONE GALLON PER DAY PER VERTICAL FOOT TO DEPTH. THE MANHOLE SHALL BE FILLED WITH WATER TO A POINT ONE FOOT (1') ABOVE THE HIGHEST POINT BETWEEN MANHOLE SECTIONS. IN AREAS OF HIGH GROUNDWATER, THERE SHALL BE NO VISIBLE LEAKAGE DUE TO INFILTRATION. IF A VACUUM TEST IS DESIRED, THE FOLLOWING PROCEDURE SHALL BE FOLLOWED: (THIS PREFERRED METHOD OF TESTING MANHOLES FOR LEAKAGE INVOLVES THE USE OF A DEVICE FOR SEALING THE TOP OF THE MANHOLE CONE SECTION AND PUMPING AIR OUT OF THE MANHOLE, CREATING A VACUUM AND HOLDING THIS VACUUM FOR A PRESCRIBED PERIOD OF TIME.) 1. ALL LIFTING HOLES AND EXTERIOR JOINTS SHALL BE FILLED AND POINTED WITH AN APPROVED NON—SHRINKING MORTAR. THE COMPLETED MANHOLE SHALL NOT BE BACKFILLED PRIOR TO TESTING. MANHOLES WHICH HAVE BEEN BACKFILLED SHALL BE EXCAVATED TO EXPOSE THE ENTIRE EXTERIOR PRIOR TO VACUUM TESTING OR THE MANHOLE SHALL BE TESTED FOR LEAKAGE BY MEANS OF A HYDROSTATIC TEST. REPAIRS SHALL ONLY BE MADE TO THE EXTERIOR OF THE MANHOLE. GED IN A MANNER TO

INVERT SHALL BE CONSTRUCTED WITH HARDENED SEWER BRICK (PRECAST CONCRETE ACCEPTABLE)

CAST IN PLACE
RUBBER GASKET FOR
WATERTIGHT M.H.
CONST. (TYP. ALL PIPES

PRECAST 48" -MANHOLE OR APPROVED EQUAL

WELDED STEEL WIRE FABRIC

48,

O RING RUBBER
GASKET IN ACCORDANCE
WITH A.S.T.M. C-443 AND
A.S.T.M. C-361 OR
BUTYL ROPE

ARALLEL

INSTALLA:

SUITABLE -BACKFILL

2" RISE (MAX.)

CHANNEL

D/2 MAX

3'-0" MAX

- PLUG

LEDGE
PAVEMENT
LIMIT ——

ALL CONSTRUCTION OF SEWER MANHOLES MUST BE CARRIED OUT TO ENSURE WATERTIGHT WORK. ANY LEAKS IN MANHOLES SHALL BE CAULKED AND COMPLETELY REPAIRED TO THE SATISFACTION OF THE ENGINEER OR THE ENTIRE STRUCTURE SHALL BE REMOVED AND REBUILT. REPAIRS SHALL ONLY BE ALLOWED TO THE EXTERIOR OF THI MANHOLE.

INVERTS SHALL HAVE THE EXACT SHAPE OF THE SEWER TO WHICH THEY ARE CONNECTED, AND ANY CHANGE IN SIZE OR DIRECTION SHALL BE GRADUAL AND EVEN

SHELVES SHALL BE CONSTRUCTED WITH HARDENED RED SEWER BRICK. ALL BRICK SHALL BE TYPE SS MEETING STANDARDS IN ASTM C32. INVERTS FOR SEWER MANHOLES SHALL BE AS SHOWN ON THE PLANS AND DETAILS.

THE CONTRACTOR SHALL CONSTRUCT REINFORCED CONCRETE MANHOLES AND DROP MANHOLES TO THE DIMENSIONS AT THE LOCATIONS SHOWN ON THE CONTRACT DRAWINGS. ALL PRECAST REINFORCED CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST VERSION OF THE ASTM SPECIFICATIONS C478. THE EXTERIOR OF THE MANHOLE SHALL BE COATED WITH A WATERPROOF SEALANT.

5. THE VACUUM MUST NOT DROP TO BELOW NINE INCHES (9") OF PERIOD. IF MORE THAN A ONE INCH (1") DROP IN VACUUM OCCURS V MANHOLE HAS FAILED AND SHALL BE REPAIRED OR RECONSTRUCTED A 4. AIR SHALL THEN BE PUMPED OUT OF THE MANHOLE THROUGH AN OPENING IN THE PLATE UNTIL A VACUUM IS CREATED INSIDE OF THE MANHOLE EQUAL TO TEN INCHES (10") OF MERCURY ON AN APPROVED VACUUM GAUGE. THE REMOVAL OF AIR SHALL THEN BE STOPPED AND THE TEST TIME BEGUN. 3. A PLATE WITH AN INFLATABLE RUBBER RING THE SIZE OF THE INFLATING THE RING WITH AIR TO PRESSURE ADEQUATE TO PREVENT LAND MANHOLE WALL. 6. FOLLOWING SATISFACTORY TEST RESULTS, F MERCURY WITH A TWO MINUTE TEST WITHIN THE TWO MINUTE TEST PERIOD, THE AND THEN RETESTED. TOP OF THE MANHOLE SHALL BE INSTALLED BY EAKAGE OF AIR BETWEEN THE RUBBER RING

PRECAST MONOLITHIC --CONCRETE BASE MIN. 2' HEIGHT.

ALL PIPELINES SHALL BE TESTED IN ACCORDANCE WITH THE VERMONT DEPARTMENT OF WATER RESOURCES ENVIRONMENTAL PROTECTION RULES, LATEST EDITION. A LEAKAGE AND PRESSURE TEST SHALL BE PERFORMED CONCURRENTLY. IT IS NOTED THAT ALL EXISTING SANITARY SEWERS SHALL BE KEPT OPERATIONAL UNTIL NEW WORK HAS BEEN TESTED AND APPROVED BY THE ENGINEER. AT SUCH TIME, EXISTING SEWERS AND SEWER SERVICES SHALL BE CONNECTED TO THE NEW SEWERS. LEAKAGE AND PRESSURE TESTING FOR FORCE MAIN

TYPICAL

PRECAST

SANITARY

MANHOLE

STN

GRADE

LEDGE PAYMENT LIMIT SHALL
BE 3' OUTSIDE OF THE MANHOLE
STRUCTURE TO A DEPTH OF 24" BELOW
THE INVERT.

EXTEND BEDDING TO LIMITS OF EXCAVATION

3/4" TO 1 1/2" CRUSHED STONE BEDDING DO NOT USE LIMESTONE

12"

Φ.

-#4 @ 6" O.C. EACH WAY

THE BRICK FOR ORDINARY BRICKWORK SHALL BE COMMON HARD-BURNED CLAY BRICK. ALL BRICK SHALL REGULAR AND UNIFORM IN SHAPE AND SIZE WITH PLANE, PARALLEL BEDS, AND FACES. ORDINARY BRICK SHALL CONFORM TO ASTM SPECIFICATION C-32, LATEST VERSION, AND SHALL BE GRADE SS.

EACH BRICK SHALL BE WETTED AND COMPLETELY BEDDED IN MORTAR AT ITS BOTTOM, SIDES, AND ENDS IN NE OPERATION WITH CARE BEING TAKEN TO FILL EVERY JOINT. BRICKWORK SHALL BE WELL-BONDED, AND JOINTS HALL BE AS CLOSE AS PRACTICABLE. NO BRICK MASONRY SHALL BE LAID IN WATER NOR SHALL ANY WATER BE LLOWED TO RISE ON OR AROUND ANY BRICK MASONRY UNTIL IT HAS SET AT LEAST 24 HOURS. NO MASONRY HALL BE LAID IN FREEZING WEATHER.

MANHOLES SHALL BE PLACED AT ALL INE, AND AT LEAST EVERY 300 FEET.

Z

THE MANHOLE COVER FRAMES SHALL BE SET TO FINAL GRADE ONLY AFTER THE BASE COURSE PAVING HAS BEEN COMPLETED. MANHOLES SHALL BE CONSTRUCTED TO GRADE WITH PRE-CAST OR CAST-IN-PLACE CONCRETE RISERS. WITH THE EXCEPTION OF INVERTS, ALL SURFACES OF MANHOLE BRICKWORK SHALL BE PLASTERED WITH CEMENT MORTAR, THE PLASTER BEING CARRIED UP AS THE BRICKWORK PROGRESSES, AND ALL MANHOLE LIFT HOLES SHALL BE GROUTED INSIDE AND OUT WITH EXPANDABLE GROUT.

PRECAST RISERS AND BASES FOR MANHOLES SHALL CONFORM TO ASTM SPECIFICATIONS C-361. THE PIPE OPENING IN THE PRECAST MANHOLE RISER SHALL HAVE A CAST-IN-PLACE FLEXIBLE GASKET OR AN EQUIVALENT SYSTEM FOR PIPE INSTALLATION AS APPROVED BY THE ENGINEER. JOINTS BETWEEN MANHOLE RISERS SHALL BE RUBBER "O" RING SEALS OR SOFT BUTYL JOINT SEALER (ROPE FORM).

ALL MANHOLES ARE TO BE PROVIDED WITH COPOLYMER POLYPROPYLENE PLASTIC RUNGS WITH STEEL NFORCEMENT TWELVE INCHES (12") ON CENTER. ALL MANHOLES SHALL BE PROVIDED WITH TOUGH, GRAY, ST IRON MANHOLE FRAMES AND COVERS. ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANED AND THEN ATED WITH HOT TAR BEFORE BEING DELIVERED. FRAMES AND COVERS SHALL BE LEBARON LC 266 TYPE C, AN APPROVED EQUAL, AND HAVE A MINIMUM WEIGHT OF 400 POUNDS. MANHOLE COVERS SHALL HAVE THE RD SEWER PRINTED ON THEM.

BRICK MASONRY SHALL BE LAID IN PORTLAND CEMENT MORTAR COMPOSED OF ONE PART PORTLAND CEMENT AND TWO PARTS OF SAND, MEASURED BY VOLUME, TO WHICH NOT MORE THAN 10 POUNDS OF LIME SHALL BE ADDED FOR EACH BAG OF CEMENT. WATER FOR MORTAR SHALL BE CLEAN AND ONLY AN AMOUNT SUFFICIENT TO PRODUCE A WORKABLE MORTAR SHALL BE USED. MORTAR SHALL BE USED WITHIN ONE HOUR FROM THE TIME THE CEMENT WAS ADDED TO THE MIX.

THE SAND FOR MORTAR FOR BRICK MASONRY SHALL BE UNIFORMLY GRADED, CLEAN, SHARP, AND ADES LARGER THAN WILL PASS A ONE-EIGHTH INCH (1/8") MESH SCREEN.

THE HYDROSTATIC TEST PRESSURE SHALL BE A MINIMUM OF 50 SECTION AND SHALL NOT VARY BY MORE THAN FIVE PSI DURING THE DURING THE TEST THE PRESSURE DROPS BY FIVE PSI, THE QUANTITY PRESSURE SHALL BE MEASURED. UPON COMPLETION OF CONSTRUCTION, ALL DIRT AND OTHER FOREIGN MATERIAL SHALL BE REMOVED FROM PIPELINES AND THEIR APPURTENANT CONSTRUCTIONS. NO MATERIALS SHALL BE LEFT IN THE PIPELINES TO IMPEDE NORMAL FLOW THROUGH THEM. AT THE END OF THE TWO HOUR TEST, THE PRESSURE SHALL BE RETURNED TO THE TEST PRESSURE AND THE ADDITIONAL VOLUME OF WATER MEASURED. THE TOTAL AMOUNT OF WATER USED DURING AND AT THE END OF THE TEST SHALL CONSTITUTE THE ACTUAL LEAKAGE. THE MAXIMUM ALLOWABLE LEAKAGE SHALL BE DETERMINED BY THE FOLLOWING FORMULA: RMULA:

L = ND(P) 5 /7,400

L = LEAKAGE IN GALLONS PER HOUR

D = DIAMETER OF PIPE IN INCHES

P = AVERAGE TEST PRESSURE IN PSI

N = NUMBER OF JOINTS IN THE LENGTH OF P PSI AT THE HIGHEST POINT ALONG THE TEST ENTIRE TWO HOUR TEST. IF AND WHEN OF WATER REQUIRED TO RESTORE THE TEST

BACKFILL WITH APPROVED EXCAVATED MATERIAL THOROUGHLY COMPACTED - IN 6" LIFTS TO 95% STAND PROCTOR TEST

HE SIDES OF TRENCHES
FT. OR MORE IN DEPTH
NITERED BY PERSONNEL HALL BE SHEETED OR
LOPED TO THE ANGLE
F REPOSE

SEE NOTE

APPROVED ROCK FREE BACKFILL THOROUGHLY COMPACTED IN 6" LIFTS (NO STONES LARGER THAN 1 1/2" DIAMETER)

OPEN ENDS OF PIPES SHALL BE PROPERLY SEALED TO PREVENT DAMAGE AND INTRUSION OF FOREIGN MATTER HERE HOOKUP TO THE BUILDING SEWER IS NOT COINCIDENT WITH SEWER MAIN CONSTRUCTION. ADDITIONALLY, 1E CONTRACTOR WILL PROVIDE A PVC PIPE TEMPORARY MARKER APPROVED BY THE ENGINEER FROM THE EWER SERVICE INVERT UP TO TWENTY-FOUR INCHES (24") ABOVE THE FINISHED GRADE. THE MARKER SHALL BE EATED SECURELY INTO THE GROUND FOR EASE IN RELOCATING THE END OF SEWER SERVICE CONNECTION FOR DOKING UP THE BUILDING SEWER. WHERE REQUIRED ON THE PLANS, SEWER SERVICE CONNECTIONS X INCH (6") PIPE UNLESS OTHERWISE NOTED ON THE PLANS OF THE ECTION. THE PIPE SHALL BE LAID AND ITS JOINTS MADE AS REQUIR PECIFICATION.

THE BELL END OF THE PIPE SHALL FACE UPGRADE AT ALL TIMES AND BE PLACED IN SUCH A POSITION AS TO MAKE THE INVERT EVEN WHEN THE SUCCEEDING SECTION IS INSERTED. WHERE REQUIRED BY ADVERSE GRADING CONDITIONS, THE CONTRACTOR SHALL FILL ANY GULLY TO MAKE A SUITABLE BEDDING FOR THE SEWER PIPE. THE FILL SHALL BE PNEUMATICALLY COMPACTED TO A 95 PERCENT DRY DENSITY BY THE AASHTO—T—99, METHOD A (STANDARD PROCTOR) TEST, UPON WHICH THE BEDDING MATERIAL SHALL BE PLACED. THE COMPACTED BEDDING A (STANDARD PROCTOR) TEST, UPON WHICH THE BEDDING MATERIAL SHALL BE PLACED.

ANY PIPE WHICH IS NOT LAID TO GRADE AND ALIGNMENT SHALL BE RELAID TO THE SATISFACTION OF THE VIGINEER. THE BEDDING MATERIAL SHALL BE PLACED AND COMPACTED ON EACH SIDE OF THE PIPE TO A EIGHT 6" ABOVE THE TOP OF THE PIPE AND FOR THE FULL WIDTH OF THE EXCAVATED TRENCH AND AS HOWN ON THE ACCEPTED PLANS.

EXCAVATIONS SHALL BE MADE TO A POINT AT LEAST SIX INCHES (6") BELOW THE PIPE INVERT TO ACCOMMODATE THE BEDDING MATERIAL. ALL EXCAVATIONS ARE TO BE KEPT DRY WHILE PIPE IS BEING LAID AND UNTIL EACH JOINT AND PIPE HAS BEEN INSPECTED BY THE ENGINEER AND APPROVAL GIVEN TO COMMENCE BACKFILLING OPERATIONS.

CONSTRUCTION METHODS

FOR ONE HOUSE SHALL BE CONSTRUCTED OF TYPE MATERIAL SPECIFIED UNDER THIS FOR SEWER CONSTRUCTION IN THIS

IN THE CASE OF RECONNECTION OF EXISTING SERVICES, SUCH RECONNECTIONS WILL BE MADE ONLY AFTER THE NEW SEWER MAIN HAS BEEN COMPLETED, TESTED, AND ACCEPTED. THE EXCAVATION, BEDDING MATERIAL, INSTALLATION, AND BACKFILL FOR SERVICE CONNECTIONS SHALL BE THE SAME AS FOR SEWER MAINS.

CLEANOUTS FOR SEWERS

BACKFILL SHALL CONSIST OF APPROVED MATERIAL PLACED IN SIX INCH (6") LAYERS WITH EACH LAYER BEING THOROUGHLY COMPACTED TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY THE AASHTO—T—99 STANDARD PROCTOR BY MEANS APPROVED BY THE ENGINEER.

THE BACKFILL SHALL BE BROUGHT UP EVENLY ON BOTH SIDES OF THE PIPE FOR ITS FULL LENGTH. WALKING RING ON THE COMPLETED PIPELINE, EXCEPT AS MAY BE NECESSARY IN TAMPING OR BACKFILLING, SHALL NOT PERMITTED UNTIL THE TRENCH HAS BEEN BACKFILLED TO A HEIGHT OF AT LEAST TWO FEET (2') ON THE TOP OF PIPES. DURING CONSTRUCTION, ALL OPENINGS TO THE PIPELINES SHALL BE PROTECTED FROM THE ENTERING EARTH OR OTHER MATERIALS.

CONCRETE CRADLE AND ENCASEMENT FOR

REQUIRED ON THE PLANS OR AS DIRECTED BY THE ENGINEER, A CONCRETE CRADLE SHALL BE USED TO STRENGTHEN PIPE. WHERE REQUIRED ON THE PLANS OR AS DIRECTED BY THE ENGINEER, CONCRETE OR SEWER WILL BE MADE TO PROTECT NEARBY WELLS OR WATERLINES FOR STREAM CROSSINGS OR PURPOSES. ALL CONCRETE WILL BE CLASS B AS DEFINED IN THE VERMONT STANDARD PURPOSES. ALL CONCRETE WILL BE CLASS B AS DEFINED IN THE VERMONT STANDARD ON THAT SECTION.

CLEANOUTS FOR GRAVITY SEWERS AND FORCE MAINS SHALL BE SUM OF BENDS = 45 DEGREES. CLEANOUT FRAMES AND COVERS SHACK OASTINGS SHALL BE TRUE TO PATTERN AND FREE FROM FLAWS. THE COVERS AGAINST EACH OTHER SHALL BE MACHINED TO GIVE CONTINUICURCUMFERENCE. ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANE BEFORE BEING DELIVERED.

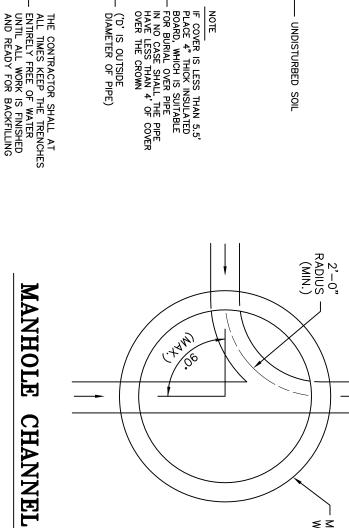
3/4" CRUSHED STONE FOR PVC PIPE, DO NOT USE LIMES:
COMPACTED TO 95% —
STANDARD PROCTOR TEST

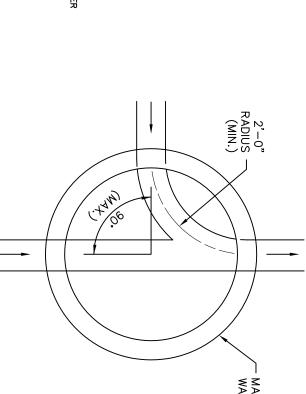
PROVIDED EVERY 100 FT OR WHERE THE ALL BE OF TOUGH GRAY CAST IRON.
BEARING SURFACE OF CLEANOUT FRAMES AND OUS CONTACT THROUGHOUT THEIR AND THEN COATED WITH HOT COAL TAR



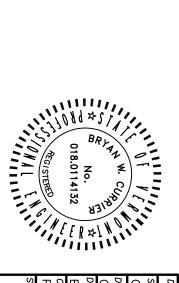
SEWER TRENCH

NTS









PJO SCALE 1"=20'	CHECKED	<i>DRAWN</i> BWC	OBCA	DESIGN	SURVEY OBCA	DATE 7/25/19
13 CORPORATE DRIVE ESSEX JCT., VT PHONE: 878-9990 FAX: 878-9989 E-MAIL: obca@olearyburke.com	CIVIL ASSOCIATES, PLC	O'LEARY-BURKE		FINAL SKETCH/CONCEPT	RECORD DRAWING PRELIMINARY	DATE 7/25/19 REVISION REVISED PER VILLAGE ENGINEER COMMENTS
Sewer Details		Building D - Essex Junction, VI	7 7 7	_	Riverside in the Village	ITS
7	PLAN SHE	FILE BLDG	1094	#BOL	DATE 5-21-	вү ви

AS NOTED ON PLANS SHORT LENGTH OF PIPE IRON CLEANOUT FRAME & COVER DETAIL 6" SDR35 PVC

CAST

FOR SANITARY LINES, IF COVER IS LESS THAN 5 1/2', PLACE 2" THICK INSULATION BOARD WHICH IS SUITABLE FOR BURIAL OVER PIPE. IN NO CASE SHALL THE COVER BE LESS THAN 4' OVER THE CROWN.

USE 4" DIA. PVC PIPE
TO MARK LOCATION AND DE
OF SERVICE CONNECTION
EXTEND FROM PLUG TO 2'
ABOVE FINAL GRADE

NEW WYE FITTINGS SHALL BE CONNECTED TO THE EXISTING SEWER MAIN WITH RIGID, SASKETED COUPLINGS

6" MINIMUM SERVICE SDR 35 PVI CONNECTION

ERNCO STYLE SERVICE SADDLES AND COUPLINGS WILL NOT BE

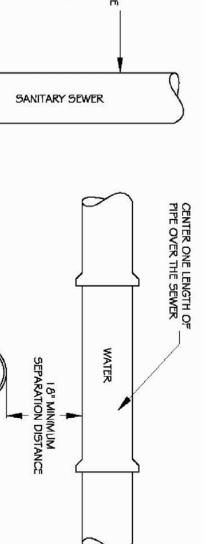
CLEANOUT

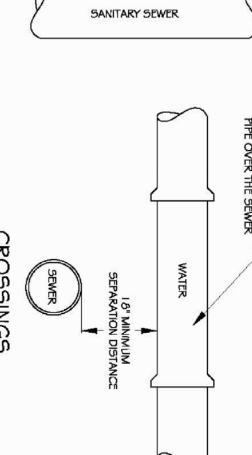
NO PARGING OF INTERIOR JOINTS WITH MORTAR SHALL BE ALLOWED



SEE SEWER TRENCH DETAIL FOR SEWER MAIN AND SERVICE BEDDING DETAILS

- 30°SDR 35 PVC SWEEP FITTING - SDR 35 PVC WYE





	2	SANITAR	/ SEWER	
CROSSINGS	SEWER	SEPARATION DISTANCE	WATER	

Ö	SANITAR	Y SEWER
<u>CROSSINGS</u>	SEPARATION DISTANCE	WATER

WYATER O	SANITARY SEWER
WATER SERARATION NOTES	WATER 18" MINIMUM SEPARATION DISTANCE SEWER CROSSINGS

E LAID AT LEAST TEN FEET HORIZONTALLY FROM ANY EXISTING OR PROP.	EWER - WATER SEPARATION NOTES
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MORIZONTAL SEPARATION

SANITARY SEWERS SHALL BE LAID AT LEAST TEN FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THIS DISTANCE CAN BE REDUCED TO FIVE FEET FOR STORM SEWERS. THE DISTANCE SHALL BE MEASURED EDGE OF PIPE TO EDGE OF PIPE. WHERE IMPRACTICAL DUE TO LEDGE, BOULDERS OR OTHER UNUSUAL CONDITIONS, TO MAINTAIN HORIZONTAL SEPARATION BETWEEN SEWER AND WATER LINES, THE WATER LINE MAY BE IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF IN THE SEWER TRENCH PROVIDED THAT THE BOTTOM OF THE WATER LINE IS A LEAST 18" ABOVE THE TOP OF THE SEWER. WHEREVER IMPOSSIBLE OR IMPRACTICAL TO MAINTAIN 18" VERTICAL SEPARATION, THE SANITARY SEWER LINE SHALL BE CONSTRUCTED TO NORMAL WATERLINE STANDARDS AND PRESSURE TESTED TO 50 PSI FOR 15 MINUTES PRIOR TO BACKFILLING. NO LEAKAGE SHALL BE ALLOWED FOR THIS TEST.

CROSSING SEWER CROSSING WATER MAINS SHALL BE LAID BENEATH THE WATER MAIN WITH AT LEAST 18" VERTICAL CLEARANCE BETWEEN THE TOP OF THE SEWER AND THE BOTTOM OF THE WATER MAIN. WHEN IT IS IMPOSSIBLE TO MAINTAIN THE 18" VERTICAL SEPARATION OR WHERE THE SEWER MUST BE LAID ABOVE THE WATER MAIN;

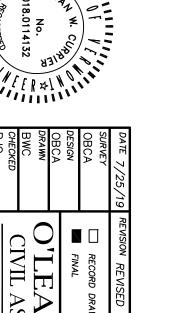
I) THE CROSSING SHALL BE ARRANGED SO THAT ONE FULL LENGTH OF SEWER IS CENTERED ABOVE OR BELOW THE WATER LINE WITH SEWER JOINTS AS FAR AS POSSIBLE FROM WATER JOINTS;

2) THE SANITARY SEWER PIPE MUST BE CONSTRUCTED TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 20 FEET EITHER SIDE OF THE CROSSING OR A TOTAL OF THREE PIPE LENGTHS, WHICHEVER IS GREATER;

3) THE SECTION CONSTRUCTED TO WATER MAIN STANDARDS MUST BE PRESSURE TESTED TO MAINTAIN 50 PSI FOR 15 MINUTES WITHOUT LEAKAGE PRIOR TO BACKFILLING BEYOND ONE FOOT ABOVE THE PIPE TO ASSURE WATER TIGHTNESS;

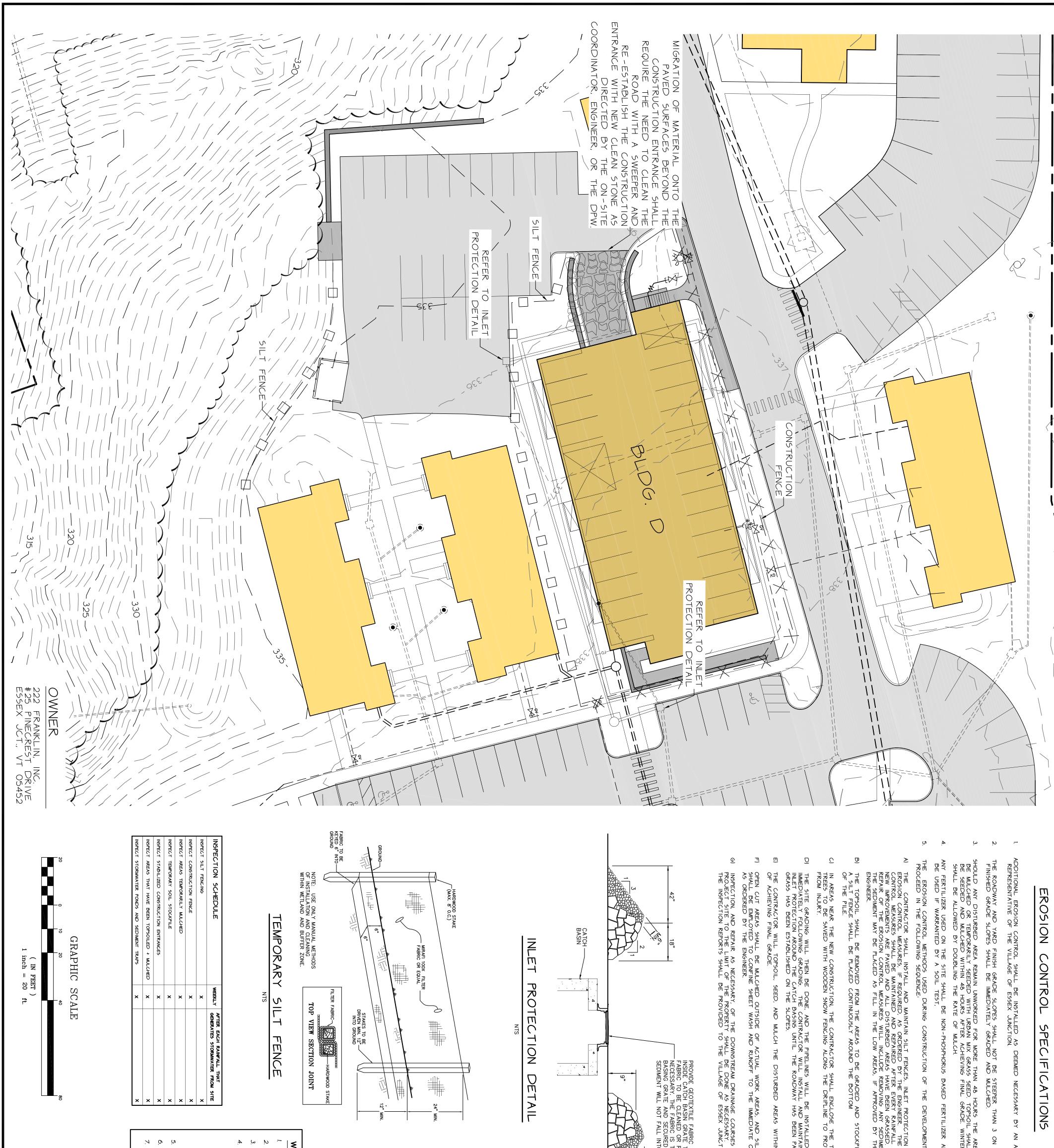
4) WHERE WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.

SEWER/W DETAIL WATER FOR SEPARATION CROSSINGS



MANHOLE

CHANNEL



CATCH BASIN

EROSION CONTROL SPECIFICATIONS

- DDITIONAL EROSION CONTROL SHALL BE INSTALLED AS DEEMED NECESSARY BY REPRESENTATIVE OF THE VILLAGE OF ESSEX JUNCTION. UTHORIZED
- 'HE ROADWAY AND YARD FINISH GRADE SLOPES SHALL NOT BE STEEPER THAN FINISHED GRADE SLOPES SHALL BE IMMEDIATELY GRADED AND MULCHED.
- REA SHALL LL BE PLACED, ER EARTHWORK
- FERTILIZER USED ON THE SITE SHALL USED IF WARRANTED BY A SOIL TEST BE NON-PHOSPHORUS BASED FERTILIZER AND SHALL ONLY

 $\times \square$

 $\times \Box$

EDGE OF PAVEMENT
EXISTING CONTOURS
FINISHED GRADE CONTOURS
SILT FENCE
CONSTRUCTION TAPE

LEGEND

EXISTING ROADWAY

PROJECT BOUNDARY

TREELINE

- EED IN THE FOLL
- SHALL

- N AREAS NEAR THE NEW CONSTRUCTION, THE CONTRACTOR TREES TO BE SAVED WITH WOODEN SNOW FENCING ALONG FROM INJURY.

- E EROSION
 L UNTIL THE
 THE
 THE
 NENTATION.
 HE

- THE SITE GRADING WILL THEN BE DONE, AND THE PIPELINES WMEDIATELY FOLLOWING GRADING. THE CONTRACTOR WILL INJURY OF THE PROTECTION AROUND THE CATCH BASINS UNTIL THE ROPRASS HAS BEEN ESTABLISHED ON THE SLOPES. JES WILL BE INSTALLED L INSTALL AND MAINTAIN ROADWAY HAS BEEN PAVED AND SHALL ENCLOSE THE TRUNKS OF THE DRIPLINE TO PROTECT THE % BY WEIGHT

AND MULCH THE DISTURBED AREAS WITHIN 48 HOURS

AND SILT FENCE DIATE OPEN AREA

FROM THE COPIES OF

E FABRIC (MIRAFI 140N OR EQUAL)
N GRATE TO TRAP ANY ESCAPED SEDIMENT
ANED OR REPLACED AFTER ANY STORM AS
ABRIC IS TO WRAPPED AROUND THE CATCH
SECURED SO THE FABIC AND TRAPPED
FALL INTO BASIN ONCE FABRIC IS REMOVED

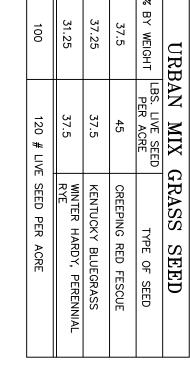
EXISTING GROUND

PROFILE

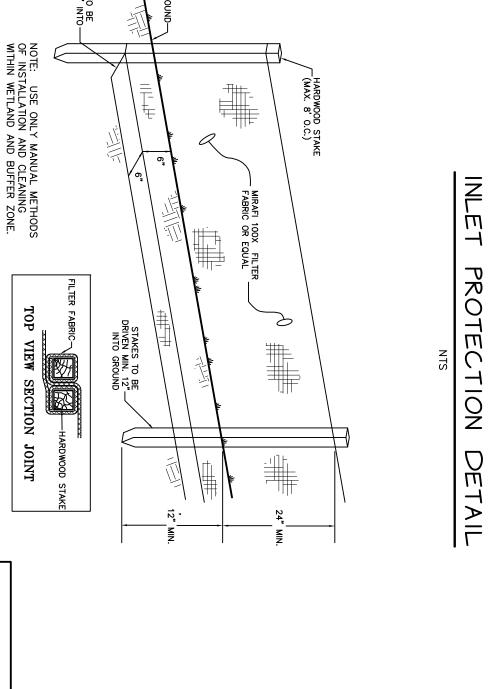
1-1/2" TO 2"
DIA. STONE
(8" THICK)

50 MIN-

1' MIN.
SEDIMENTATION
POOL



SEED



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS - OF - WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

ALL SEDIMENT TRACKED, SPILLED, OR WASHED ONTO PUBLIC RIGHTS - OF - WAY SHALL BE REMOVED IMMEDIATELY BY CONTRACTOR.

2. THE USE OF CALCIUM CHLORIDE OR WATER MAY BE NECSSARY TO CONTROL DUST DURING THE SUMMER.

3. PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC RIGHT - OF - WAY.

PLAN

50 MIN.

ROADWAY

STABILIZED

CONSTRUCTION

ENTRANCE

TION SCHEDULE	WEEKLY	AFTER EACH RAINFALL THAT GENERATES STORMWATER FROM SITE		
SILT FENCING	×	×		
CONSTRUCTION FENCE	×	×		
NREAS TEMPORARILY MULCHED	×	×		1
TEMPORARY SOIL STOCKPILE	×	×		'n
STABILIZED CONSTRUCTION ENTRANCES	×	×		<i>'</i> 0
REAS THAT HAVE BEEN TOPSOILED + MULCHED	×	×		.7
STORMWATER PONDS AND SEDIMENT TRAPS	×	×		
			ſ	

ALL	INTE
ALL DRAINAGE STRUCTURES MUST BE KEPT OPEN AND FREE OF SNOW AND ICE DA	INTER GUIDELINES FOR EROSION PREVENTION + SEDIMENT CONTROL
TURES	FOR
MUST BE K	EROSION
EPT OPEN	PREVEN
AND I	TION
FREE	+ 5
OF SNOW	EDIMENT
AND	CO
ICE DA	NTROL
MS.	OCTOBER
	15 - APRIL

<u>ज</u>

TEMPORARY

FENCE

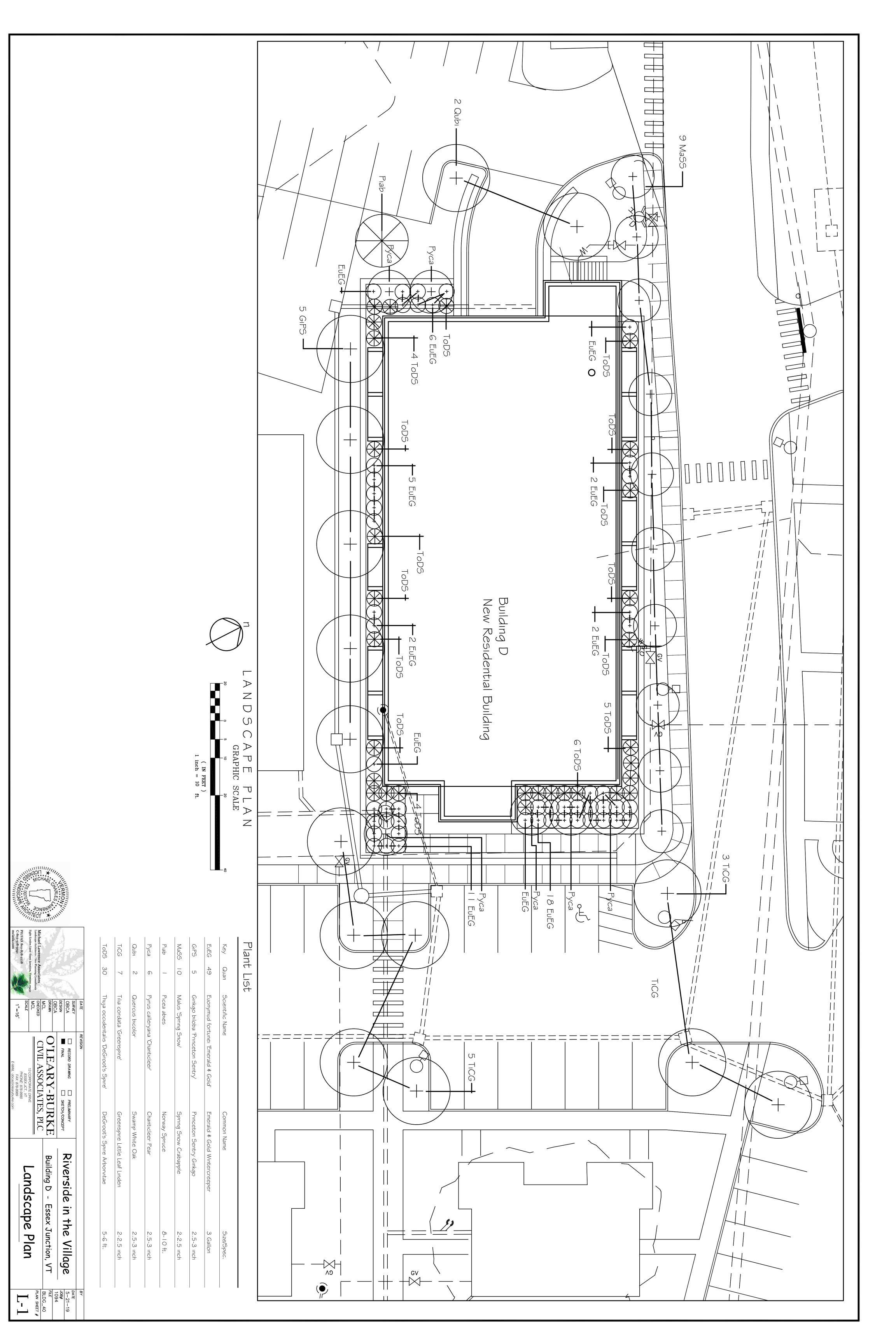
- ALL SILT FENCE OR OTHER PRACTICES REQUIRING EARTH DISTURBANCE SHALL BE IN PLACE PRIOR WHEN MULCH IS REQUIRED FOR STABILIZATION DOUBLE THE STANDARD RATE SHALL BE APPLIED. TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT, AREAS OF DISTURBED SOITHE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS: 70 GROUND
- A. IF NO PRECIPIATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN HOURS, DAILY STABILIZATION IS NOT NECESSARY. STABILIZED
- B. DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS HOUSE FOUNDATIONS OR PERFORMING DRILLING AND BLASTING WHERE SITE IS IN A DEPRESSION AND STORMWATER IS OPEN UTILITY TRAPPED. TRENCHES
- PRIOR TO STABILIZATION SNOW AND ICE MUST BE REMOVED TO DEPTH OF ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED WITHIN 48 HOURS 8 LESS THAN 1 IN. BEING BROUGHT TO FINISH
- DURING WINTER EROSION, MULCH SHALL BE APPLIED TO PREVENT REMOVAL BY WIND. AT DOUBLE THE RATE R NETTING OR OTHER APPROACH SHALL
- BR NO. 27 NO. 27

GRAPHIC

SCALE

(IN FEET) inch = 20 ft.

	DATE 7/25/19	DATE 7/25/19 REVISION REVISED PER VILLAGE ENGINEER COMMENTS	VTS	BY BWC	
	SURVEY OBCA	RECORD DRAWING PRELIMINARY	Riverside in the Village	DATE 5-21-19	
	DESIGN	FINAL SKETCH/CONCEPT		JOB#	
-	OBCA			1094	
	DRAWN BWC	O LEAKY-BUKKE	Building D - Essex Junction, VI	FILE BLDG D	
•	CHECKED	_CIVIL ASSOCIATES, PLC_		PLAN SHEET #	
	PJO	13 CORPORATE DRIVE	コフィン		
	SCALE	ESSEX JCT., VT	に アンク ア ス ハ	∞	
	1"=20'	PHONE: 878-9990 FAX: 878-9989		0	
		E-MAIL: obca@olearyburke.com			





CIVIL ENGINEERING | REGULATORY AND PERMIT PREPARATION | LAND SURVEYING | CONSTRUCTION SERVICES | LAND USE PLANNING

July 1, 2019

Robin Pierce Community Development Director Village of Essex Junction 2 Lincoln Street

RE:

Riverside in the Village

Site Plan Application – Building D / 11 Franklin St

Essex Junction, VT

Dear Robin:

We are writing on behalf of 222 Franklin, Inc. c/o Al Bartlett to apply for site plan review of a proposed 4 story apartment building with a 8,465 SF footprint in the residential planned unit development 'Riverside in the Village'. The proposed building will have 40 1-bedroom units and 4 studio units. The building will be very similar to Building B that was approved in 2016 and constructed in 2017-2018. The site is located at 6 Franklin Street, Essex Jct. within the 28.1 acre 'Riverside in the Village' development (Tax Map 21, Lots 46,47) in the Mixed Commercial Use (MCU) zoning district.

In order to make room for the new building the last of original NECI apartment buildings needs to be removed (Buildings B / 11 Franklin St). The original buildings are constructed on concrete slabs and have had a variety of maintenance issues in the past. Buildings D currently has 4 2-bedroom units. In addition, the northern half of an existing parking lot will also be removed as part of the project. The project will result in a net increase of 40 units in the development.

Water & Sewer

The proposed building will have access to municipal water and sewer connections. The proposed building will have 40 1-bedroom units and 4 studio units that will require 6,160 gpd of sewer allocation and 5,940 gpd of potable water allocation (140 gpd per unit for sewer and water allocation). The current development is permitted for 63,779 gpd of sewer allocation and 70,470 gpd of water allocation based on the state permit WW-4-0953-8.

The project will take credit for the apartment units being removed, which include 4 2-bedroom units. These units have 840 gpd of sewer allocation and 1,080 gpd of water allocation. The new building will need 5,320 gpd of additional sewer allocation and 5,080 gpd

of additional water allocation. This will increase the total allocation for the Riverside in the Village development to 69,099 gpd of sewer allocation and 75,550 gpd of water allocation. A revised state WW permit will be needed with additional Village allocation letters if approval is granted.

Traffic

Please refer to the traffic report completed by Roger Dickinson of Lamoureux & Dickinson Consulting Engineers dated June 27, 2019 for the proposed project. The new 44 unit apartment building will increase the estimated AM peak hour trips and PM peak hour trips by 12 trips and 15 trips respectively. This will increase the total existing AM peak hour trips in the development from 129 trips to 141 trips. It will also increase the total existing PM peak hour trips from 162 to 177 trips.

The traffic report summaries the levels of service for the Park St / Iroquois Ave / Franklin St intersection in the full buildout scenario for the proposed project. The results are in the table below:

		2020 PM Peak Hour (DHV) Riverside Approved Full Buildout					
Approach & Lane Group		lidout					
	LOS	Delay	V/C	Max Q			
Iroquois Ave EB LT/TH/RT	D	49.3	0.68	162′			
Franklin St WB LT/TH/RT	С	24.8	0.29	55'			
Park St NB LT/TH/RT	В	17.3	0.71	871'			
Park St SB LT/TH/RT	В	11.7	0.49	525'			
Overall	В	18.0					

The traffic report concludes the intersection capacity analysis at the Park St / Iroquois Ave / Franklin St intersection will remain at an acceptable level of service with the proposed project.

Parking

The required parking space calculations for the 'Riverside in the Village' development are based on 1.5 spaces/1-bedroom unit, 2 spaces/2-bedroom unit, and 1 guest space/10 units. The proposed 44 unit building and the removal of a 4 2-bedroom building will bring the total required spaces of the development to 722 spaces. The development currently has 644 constructed parking spaces and is approved to add an additional 5 spaces along the entrance to River Street for a total of 649. The project proposes to eliminate 30 parking spaces adjacent to Building D / 11 Franklin St and add 24 underground spaces as part of the proposed Building D. The development will have a total of 643 spaces.

A parking count was completed in order to observe the current parking availability within the development. The count was performed on a weekday at 5:00 AM during a "no vacancy" period when the parking lots would be at maximum use. The count revealed a total of 487 parked cars when all 370 units in the development were occupied. The analysis shows 1.32 spaces per unit were necessary during the parking count. In the full buildout and "no vacancy" scenario (410 units), the development would use approximately 542 spaces based on the parking count. The development is being proposed at 643 spaces, 101 more spaces than the parking count indicated are necessary. In order to only add needed impervious surfaces within the development, the applicant is requesting a parking waiver to be granted.

Stormwater

The project will contribute 9,950 SF of redeveloped impervious and 150 SF of new impervious for a total of 10,100 SF (0.23 acres) of overall coverage. Riverside has had a number of stormwater amendments over the years, one of them being stormwater discharge permit #4125-INDS where the project used site balancing to bring a portion of grandfathered impervious up to current standards in exchange for the construction of 3 parking lot expansions and a new building at 44 Park Street. All of the approved elements in #4125-INDS were constructed with the exception of 1 of the parking expansions along the developments entrance on River Street. In addition, another one of the parking lot expansions was amended under #4125-INDS.A and designed with its own "disconnected" stormwater treatment system. Since 2 of the parking expansion no longer utilize the impervious coverage approved using the site balancing stormwater improvements, the proposed project will connect to the existing stormwater system along Franklin Street. In order to do so, the applicant has agreed to amend the #4125-INDS permit to reduce the approved, but not constructed, parking expansion along the developments entrance to River Street from 24 spaces to 5 spaces. In doing so, all of the impervious surfaces associated with the proposed project will be offset by the stormwater improvements constructed as part of the #4125-INDS authorization. The applicants engineer emailed the State Stormwater Program in June 2019 and the Stormwater Program agreed with this approach taken by the applicant and commented that the 2017 redevelopment water quality standard would be a reduction in treatment from the 2002 water quality standard. A confirmation email from the Stormwater Program and a more detailed description of the projects stormwater discharge permit history has been included as an attachment.

Please find the following information attached. If you have any question or need additional information, please let me know.

- 1) Residential Site Plan Review Fee: \$4,410
 - a. 44 units x 100 per unit= \$4,400
 - b. \$10 recording fee
- 2) Two (2) full size sets of plans
 - a. Two (2) full size and eight (8) 18"x24" copes will be provided once the application is deemed complete
- 3) Water and Sewer Allocation Calculations
- 4) Signed Planning and Zoning Application
- 5) Completed Site Plan Checklist
- 6) Required Parking Calculations
- 7) Landscaping Schedule/Budget Michael Lawrence, ASLA
- 8) State Stormwater Program Email
- 9) Traffic Study Roger Dickinson, PE

Sincerely,

Bryan Currier, PE

Development Application

SP#

Planned Development:	Minor	Minimal _		Major	
	Preliminary		Final		
Site Plan: Minor	Major_		Conc	eptual	Final 🔽
Subdivision: Sketch	_ Preliminar	y Fin	al	Variance:	Conditional Use:
Property description (addr	ess) for applicat	ion 11 Frankli	n Street,	Essex Jct., VT 054	52 (Building D)
General Information					
Applicant 222 Franklin,				Day Phone	#
Address 44 Park Street,					
Owner of Record (attach a	ffidavit if not a	oplicant)			
Name 222 Franklin, Inc.				Day Phone	#
Address 44 Park Street,	Essex Jct., VT 0545	2			
Applicant's agents					
Name Bryan Currier - O'L				Day Phone	#_802-878-9990
Address 13 Corporate Dr	rive, Essex Jct., VT (05452			11-
Property information	G				
Zoning District MCU	_ Current Use	Apartments	Tax	Map# <u>21</u> L	ot#_46,47 Lot size sf _28.11
Other Information	an muirrata) 275	£4	D	4l	
Street frontage (public			_		stories & height 4 stories
Estimated completion of Proposed Parking Space		1		cape cost \$32,	
Lot coverage (include all s				red spaces 716	
				s 445 OF total a	q .ft. divided by 1,224,471 lot s.f.
equals 36.4% percen		(sq .1t.) 130	cquan	8 445,01+ total 8	4 .1t. divided by 1,224,471 lot S.1.
The increase in the amount of e		coverage is an	prox. 150	SF. as the projec	t is mostly redevelopment.
					ntation required by the Code
and the appropriate com	_				
					24" copies of your proposal,
forty-five (45) days prior					
accepted for review.		J			£
Briefly describe your prope	osal (attach sepa	arate sheet if	necessa	ry) 222 Franklir	, Inc. is applying for site plan
review of a proposed 4 story (w	ith underground p	arking) apartm	ent build	ing (8,465 SF foot	print) in the residential
planned unit development 'Rive	erside in the Village	e'. In order to	construct	the proposed bu	ilding, the existing apartment
building at 11 Franklin St (Build	ing D) will be remo	ved. The prop	osed buil	ding will have 40	1-bedroom units and 4 studio
units. The building will be very	similar to Building	B that was app	roved in	2016 and constru	cted in 2017-2018. The site is
located at 6 Franklin Street, Ess	ex Jct. within the 2	8.1 acre 'River	side in th	e Village' develop	ment in the MCU zoning district.
Describe all waiver request	ts (if applicable)				
Parking waiver as described in c	over letter				
I certify that the information of	on this application	is true and co	rrect. La	agree to abide by	all the rules and regulations as
specified in the land developme	ent code and any	conditions pla	ced upon	approval of this	application. In accordance with
the Essex Junction Trustees Po	licy for Funding E	Engineer Plan	Review at	nd Inspections, th	ne applicant by signing this form
agrees to pay for the actual cos	st of engineering p	lan review an	a constru	iction inspection	s by the Village Engineer.
Annligant			Dot-	-	
Applicant			Date		
Land Owner (if different)			Date		*

Staff Action

Date received		Meeting date: _	
Commission /Board Action Approve	d Denied	Date:	
Other approvals /conditions			
** Fee based on s.f. of improved area	per current Fee Schedul	e	
Staff Signature	Date		
	Fee An	mount	Fee Verified

Riverside in the Village' Development Flows - Building D / 11 Franklin St

Existing Building B Proposed Building D Existing Building K Existing Building 1			(000)			
ixisting Building B roposed Building D ixisting Building K ixisting Building 1			(Aba)	(pdb)	Wastewater (gpd)	Wastewater (gpd)
roposed Building D Xisting Building K Xisting Building 1	(40) 1 bedroom apts.	(40) 1 bedroom apts.	5,400	5,400	S.	2,600
roposed Building D Xisting Building K Xisting Building 1	4 studio apts.	4 studio apts.	540	540	260	260
xisting Building K Xisting Building 1	(4) 2 bedroom apts.	(40) I bedroom apts.	1,080	009'5	840	5,600
xisting Building 1	4-Bedroom Single Family Home	4-Bedroom Single Family Home	540		210	200
	24 1-Bedroom Units	24 1-Bedroom Units	3 240	m	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	098 8
Existing Building 2	36 1-Bedroom Units	36 1-Bedroom Units	4,860			5 040
Existing Building 3	(6) 2 bedroom apts.	(6) 2 bedroom apts.	1,620			1260
Existing Building 4	(6) 2 bedroom apts.	(6) 2 bedroom apts.	1,620			1,260
Existing Building 5	(6) 2 bedroom apts.	(6) 2 bedroom apts.	1,620	1,620		1,260
Existing Building 6	(3) 2 bedroom apts.	(3) 2 bedroom apts.	810			630
Foieting Building 7	(5) 2 bedroom &	(5) 2 bedroom &	1,350	1,350	1,050	1,050
sisting bounding /	(2) 1 bedroom apts.	(2) 1 bedroom apts.	270	270	280	280
Existing Building &	(4) 2 bedroom &	(4) 2 bedroom &	1,080	1,080	840	840
0 10 10 10 10 10 10 10 10 10 10 10 10 10	(4) 1 bedroom apts.	(4) 1 bedroom apts.	540	540	560	260
Existing Building 9	(6) 2 bedroom apts.	(6) 2 bedroom apts.	1,620	1,620	1,260	1,260
Existing Building 10	(4) 2 bedroom apts.	(4) 2 bedroom apts.	1,080	1,080	840	840
Existing Building 11	(6) 2 bedroom apts.	(6) 2 bedroom apts.	1,620	1,620	1,260	1,260
Existing Building 12	(6) 2 bedroom apts.	(6) 2 bedroom apts.	1,620	1,620	1,260	1,260
Existing Building 14	(6) 2 bedroom apts.	(6) 2 bedroom apts.	1,620	1,620	1,260	1,260
Existing Building 15	(24) 1 bedroom apts.	(24) 1 bedroom apts.	3,240	3,240	3,360	3,360
Foieting Building 16	(6) 2 bedroom apts.	(6) 2 bedroom apts,	1,620	1,620	1,260	1,260
or familia forms	(30) 1 bedroom apts.	(30) 1 bedroom apts.	4,050	4,050	4,200	4,200
Fylsting Building 17	(18) 2 bedroom apts.	(18) 2 bedroom apts.	4,860	4,860	3,780	
ing building 17	(12) 1 bedroom apts.	(12) 1 bedroom apts.	1,620	1,620	1,680	1,680
Existing Building 19	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620	1,260	1,260
Existing Building 20	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620	1,260	1,260
Existing Building 21	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620	1,260	1,260
Existing Building 22	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620	1,260	1,260
Existing Building 23	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620	1,260	1,260
Éxisting Building 24	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620	1,260	1,260
Existing Building 25	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620		1,260
Existing Building 26	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620	1,260	1,260
Existing Building 27	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620	1,260	1,260
Existing Building 28	(6) 2 bedroom units	(6) 2 bedroom units	1,620	1,620	1,260	1,260
40 Park Street	(48) 1 bedroom apts.	(48) 1 bedroom apts.	6,480	6,480	6,720	6,720
132 IC N 15 IC	20 Employees Office/Storage	20 Employees Office/Storage	270	270	240	240
Infiltration					1,309	1,309
Total Development Allocation			70,470	75,550	63,779	660'69
Total Development Allocation Increase	ase			5,080		5,320

		Parking Calcu	lations – Bu	ilding D / 11 F	ranklin St		
			Riverside in	the Village			
Building			Proposed Use	Spaces	per Units	Calc. Required	Total Required
Building #1	24	1-Bedroom	Apartments	1.5	Spaces/Unit	36	39
			L		Guest (1 Space/10 Units)	2,4	
Building #2	36	1-Bedroom	Apartments	1,5	Spaces/Unit	54	58
					Guest (1 Space/10 Units)	3.6	
Buildings #3 - #14	6	1-Bedroom	Apartments	1,5	Spaces/Unit	T 9	132
	58	2-Bedroom	Apartments		Spaces/Unit	116	
			İ		Guest (1 Space/10 Units)	6.4	
Building #15	24	1-Bedroom	Senior Housing	0.5	Spaces/Unit	12	12
Building #17	12	1-Bedroom	Apartments	1.5	Spaces/Unit	18	57
	18	2-Bedroom	Apartments	2	Spaces/Unit	36	
					Guest (1 Space/10 Units)	3.0	
Building #16	36	1-Bedroom	Apartments	1,5	Spaces/Unit	54	58
		National States	hevore le un.		Guest (1 Space/10 Units)	3.6	
Building #19 - #28	60	2-Bedroom	Condominiums	2	Spaces/Unit	120	126
					Guest (1 Space/10 Units)	6.0	
Building B	44	1-Bedroom (4 studio units)	New Apartments	1.5	Spaces/Unit	66	71
					Guest (1 Space/10 Units)	4.4	
Proposed Building D	44	1-Bedroom (4 studio units)	New Apartments	1,5	Spaces/Unit	66	71
					Guest (1 Space/10 Units)	4.4	
40 Park Street	48	1-Bedroom Units	Apartments	1.5	Spaces/Unit	72	98
		6000 SF	Office Space		Guest (1 Space/10 Units)	4.8	
				3,5	Spaces/1,000 SF	21	

Total Units 410

Total Regired Spaces 722

Total Existing Spaces* 649

Total Proposed Spaces 643

*Includes 5 approved spaces that have not yet been constructed



June 24, 2019

222 Franklin, Inc.25 Pinecrest DriveEssex Junction, VT 05452

Via email—bcurrier@olearyburke.com

Re: Cost Estimate Landscaping for Building D—Riverside in the Village, Essex Junction, Vermont

PLANT LIST AND ESTIMATE

Key	Qu	Scientific Name	Common Name	Size/Spec	Unit	Semi-Tot
<u>EuEG</u>	49	Euonymus fortune 'Emerald & Gold	E&G Wintercreeper	3 gal.	62.50	3,062
<u>GiPS</u>	5	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	2.5-3 in.	925	4,625
<u>MaSS</u>	10	Malus 'Spring Snow'	Spring Snow Crabapple	2-2.5 in.	542	5,420
<u>Piab</u>	I	Picea abies	White Spruce	8-10 ft.	725	725
<u>Pyca</u>	6	Pyrus calleryana 'Chanticleer'	Chanticleer Pear	2.5-3 in.	660	3,960
<u>Qubi</u>	2	Quercus bicolor	Swamp White Oak	2.5-3 in.	775	1,550
<u>TïCG</u>	7	Tilia cordata 'Greenspire'	Greenspire Linden	2-2.5 in.	625	4,375
<u>ToDS</u>	30	Thuja occidentalis 'DeGroot's Spire	DeGroot's Spire Arborvitae	e 5-6 ft.	290	8,700

Bryan Currier

From:

Wilson, William < William. Wilson@vermont.gov>

Sent:

Thursday, June 13, 2019 3:23 PM

To:

Bryan Currier

Subject:

RE: Building D - Riverside in the Village (4125-INDS.A)

As long as the expansion area would fall under the area permitted in excess, it could move forward with a plan amendment and not a change to the treatment system. This wouldn't work if for example a pond was oversized but the additional impervious runoff was not previously permitted. Since the redevelopment area already meets the 2002 water quality standard, the 2017 redevelopment standard would be a reduction in treatment so the existing permitted system would stay in place for this area as well.

Let me know if you have any questions or clarification is needed.

Thanks, Winn

Winn Wilson, Environmental Analyst Vermont DEC- Stormwater Program

P: 802-490-8019 Email : william.wilson@vermont.gov New Website: http://dec.vermont.gov/watershed/stormwater

From: Bryan Currier < bcurrier@olearyburke.com>

Sent: Thursday, June 13, 2019 1:58 PM

To: Wilson, William < William. Wilson@vermont.gov>

Subject: RE: Building D - Riverside in the Village (4125-INDS.A)

Hey Winn

Nice presentation yesterday!

I forwarded this email to Karl to see if it made sense to him and he had the same question as you. We think the 700 SF is already incorporated into the INDS.A.

Thanks Bryan

From: Wilson, William [mailto:William.Wilson@vermont.gov]

Sent: Thursday, June 13, 2019 1:55 PM

To: Bryan Currier

Subject: RE: Building D - Riverside in the Village (4125-INDS.A)

Bryan,

I read through your e-mail and looked through the application material, it's unclear to me if the 700 sf would need to be added as new impervious or if there is existing "room" for this expansion due to what is permitted, site balanced and not built. In other words, change in layout aside, could this 700 sf expansion have been built under the current INDS.A permitted total, or would it need to be added as an increase in total permitted impervious area?

Thanks, Winn

Winn Wilson, Environmental Analyst Vermont DEC- Stormwater Program

P: 802-490-8019 Email: william.wilson@vermont.gov New Website: http://dec.vermont.gov/watershed/stormwater

From: Bryan Currier <bcurrier@olearyburke.com>

Sent: Thursday, June 6, 2019 3:33 PM

To: Wilson, William < <u>William.Wilson@vermont.gov</u>>
Subject: Building D - Riverside in the Village (4125-INDS.A)

Good Afternoon Winn

I am working on a project in the Riverside in the Village development in Essex Junction. The project includes the demolition of Building D and part of the adjacent parking lot to construct a new apartment building. I have attached an existing conditions SH 1 – Overall Site Plan 5-30-18 and a Site Plan SKETCH of the proposed layout. The project would contribute about 9,200 SF of redeveloped impervious and 700 SF of new impervious for a total of 9,900 SF (0.23 acres) of impervious. Please bear with me as I go through some background info as I get to the point in the end... ©

Riverside has had a number of stormwater amendments over the years, one of them being the original 4125-INDS application where we used site balancing to bring a section of grandfathered impervious up to current standards in exchange for the construction of 3 parking lots around the development and a new building at the corner of Park St and Franklin St (44 Park Street). These improvements allowed the new impervious to be connected to the "old" stormwater system approved under the original 4125-9010.R. Please see the attached Sheet 11 — Additional Parking Plan - REV for the location of the 3 parking lots. Only the building and parking expansion II & III have been constructed to date, while all of the stormwater improvements have been made.

The last application we had was 4125-INDS.A, submitted in May 2017. In this application we changed parking expansion III, originally approved under 4125-INDS using site balancing, to being treated by its own grassed channel/detention basin stormwater practice. This is shown on the approved (and attached) SH ST2 – Proposed Storm Conditions 7-11-17 as POI #7. By disconnecting parking expansion III, we requested the 0.16 acres (6,950 SF) of impervious associated with the parking lot expansion to be put into a "bank" and used on another future project since all of the storm site balancing improvements had been made. I attached our cover letter (Attachment 1 – Narrative) from the 4125-INDS.A application detailing this further under the Project Description section.

As stated above, parking expansion I was approved under 4125-INDS, but has not been constructed. The location of the parking spaces isn't ideal because to construct the spaces a fair amount of site work needs to happen including; relocating a storm pond, re-routing catch basins, relocating light poles, see attached Sheet 11 – Additional Parking Plan – REV. Instead of constructing the parking expansion as approved, the applicant would like to eliminate all of the parking spaces except for 6 spaces in between the existing pond and pump station. This would add another 2,950 SF to the "bank" of impervious area approved through site balancing as part of 4125-INDS, but not constructed.

The "bank" of future impervious would now total 9,900 SF; with the disconnect of parking expansion II (6,950 SF) and the reduction in parking expansion I (2,950 SF). We would like to proposed the Building D project (9,900 SF impervious) to be covered under 4125-INDS. A through an amendment by making a withdrawal from the impervious area in the "bank". We would be proposing to connect the new Building D and associated drive/sidewalk to the existing stormwater system shown on SH ST2 — Proposed Storm Conditions 7-11-17 as POI#2, without additional treatment (the existing building is connected to POI #2). Again, this is due to the site balancing improvements already installed as part of the 4125-INDS approval.

Does this seem like an approach that could be approved by the Stormwater Program? As you know, the stormwater design is being reviewed more and more at the local level and I wanted to provide an email response from the Stormwater Program in support of the proposed stormwater design. Once the local approval is obtained, we will file an amendment application to validate the proposed revisions as I described above, and add the 700 SF of new impervious to the project._

Obviously there is a lot of history for this project, so if you have any questions or need additional information please let me know.

Thanks,

Bryan Currier, PE
O'Leary-Burke Civil Associates
13 Corporate Drive | Essex Jct., VT 05452
p: (802)878-9990
bcurrier@olearyburke.com

CHECKLIST - SITE PLAN/CONDITIONAL USE APPLICATION

The Land Development Code specifies procedures for Minor and Major Site Plan Amendments as well as new site plans. Please schedule an appointment with Staff to determine if you meet the amendment criteria prior to preparing your application. Staff will be able to determine if your proposal qualifies as an amendment. In addition, Staff can then advise you regarding the number of site plan drawings that will need to be submitted for review purposes. Generally, a new site plan and a major amendment will require a submittal of three (3) full size copies and eight (8) 18" x 24" copies of the proposed site plan. Please call 878-6950 if you have any questions.

Applicant	Staff	
\checkmark		Site plan, drawn to scale including a north arrow, certified by licensed Vermont professional.
\checkmark	8	Vicinity map. Specify adjoining land use/zoning.
\checkmark	·——	Name, address, phone # of developer and all professionals working on the project
✓		Survey prepared by certified land surveyor showing existing or proposed rights of way and easements.
\checkmark	:	Total land area and location. Size, height, and number of stories of existing and proposed structures and distance to property lines
\checkmark	·	Location and dimensions of existing and proposed easements, streets, driveways and infrastructure.
V		Description of proposed use and floor areas of all structures, and parking and loading calculations. All parking spaces shall be clearly indicated on the plan (See section 703).
\checkmark		Location and specifications for a bike path.
V		Topographic map with final ground contours at 2' intervals as if staff determined that such information is necessary.
\checkmark	-	Existing natural features including wetlands, rock outcroppings, excessive slope and tree groupings.
\checkmark	 .	Professional landscape plan including the type, size, quantify, and location of plant materials, existing and proposed (see Sections 719 and 708).
\checkmark		Lighting plan with specifications (See section 704).
\checkmark	7	Impact analysis including traffic generation and impact on public and/or private infrastructure.

✓		Engineering design standards for all improvements. Include a description of the methodology proposed to control drainage, and construction plans as applicable.
\checkmark	_	Traffic study as deemed necessary by the Commission (or staff)
\checkmark	0	Written request for waivers of any requirements of this Code.
\checkmark	-	Location of proposed water/sewer service connections.
\checkmark		Proposed development schedule and phasing request.
/	-	Location and type of proposed screening or buffering.
√	=	Elevation of existing/proposed structures and proposed change to height of existing structures.
\checkmark		Location of fire lanes.
V		Percent of lot coverage of all structures and impervious surfaces.

This checklist is designed to assist the applicant with the preparation of the Site Plan. The applicant is solely responsible for meeting all of the requirements of the Land Development Code. Please contract staff at 878-6950 if you have any questions.

Building D - Riverside in the Village

Franklin Street, Essex Junction, VT

Traffic Impact Assessment

June 27, 2019

Project Introduction

This Project proposes to redevelop a portion of the Riverside in the Village development by demolishing existing Building D containing 4 apartment units, and constructing a new 44 unit apartment building (new Building D). The net increase resulting from this Project will be 40 new apartment units.

The primary point of access to the Project is the Park Street, Iroquois Avenue and Franklin Street signalized intersection. The Riverside in the Village development also has a second access through the 38 Park St parcel to the north and a third access onto Robinson Parkway, but those are not expected to be utilized to a significant degree by the new apartment units. Park Street is a Class 1 town highway (VT Route 2A) within the Village limits. Off-street parking will be provided within the Project.

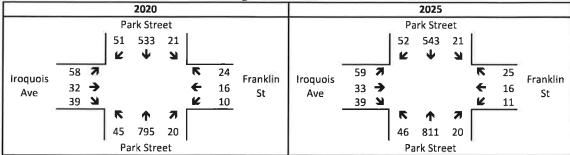
Background Traffic

Background traffic volumes were obtained from a weekday afternoon peak period turning movement count that was performed by this office at the Park Street/Iroquois Avenue/Franklin Street intersection from 4:00 - 6:00 pm on June 26, 2019. The peak one-hour period occurred between 4:45-5:45 pm. A copy of this count is enclosed as **Appendix A**.

The results of local traffic counts indicate that Essex Junction experiences its highest traffic volumes during the afternoon peak hour period. Similarly, data from continuous count stations (CTC) maintained by the Vermont Agency of Transportation (VTrans) in Chittenden County reinforce this. Thus, the pm peak hour is the time period during which the design hour volume (DHV) generally occurs. The DHV is the 30th highest hourly traffic volume that occurs in a given year, and is used in the design of highways and intersections to determine existing and future traffic congestion conditions. To adjust the observed peak hour volumes to a design hour (DHV) condition, 2013 DHV's at CTC D530 (VT 289 in Essex), D040 (US 7 in Colchester) and D129 (VT 2A in Williston) were compared to pm peak hour volumes on the corresponding day (June 27) in 2018. This comparison yielded an average DHV adjustment factor of 1.036.

Current VTrans traffic data and projections indicate a 1% growth rate in urban area traffic volumes from 2019 to 2020 (anticipated construction year), and predict a 3% growth rate in traffic volumes from 2019 to 2025 (a 5-year projection from 2020). Therefore, the observed pm peak hour volumes in the above turning movement count were increased by 4.6% and 6.7% to estimate year 2020 and 2025, respectively, no-build design hour volumes. Figure 1 presents the estimated 2020 and 2025 Base DHV turning movements at the Park St/Iroquois Ave/Franklin St intersection.

Figure 1 - Base DHV's



To the above must also be added traffic resulting from nearby other developments that have been permitted but not yet completed. There are several such developments that we are aware of in the immediate vicinity of this Project. They include a) Handy's senior apartments at 11 Park St; b) Milot Real Estate's proposed redevelopment of 9-11 Park St, and d) the Chittenden Crossing development. Additional pm peak hour Park St trips resulting from the latter two other developments were obtained from traffic impact assessments performed by this office for those developments. PM peak hour Park St trips were also estimated for Handy's senior apartments. The resulting other development traffic volumes are shown in Figure 2. Adding those to the Base DHV's provides the 2020 and 2025 No-Build DHV turning movements shown in Figure 3

Figure 2 - Other Development PM Peak Hour Trips

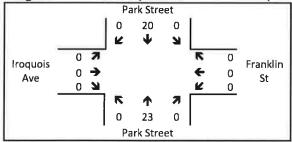
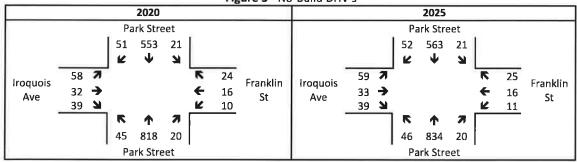


Figure 3 - No-Build DHV's



Project-Generated Trips

The weekday peak hour vehicular trip generation of the additional 40 apartments was estimated using published Institute of Transportation Engineers (ITE) trip generation rates¹ based on the number of units and the multifamily building type (low-rise or mid-rise). The ITE defines a low-rise multifamily residential units as being located in a building having 1-2 floors. A mid-rise multifamily residential unit is defined as being located in a building having 3-10 floors. With existing Building D having only two stories, the four units in that building are low-rise multifamily units. The new Building D, having additional floors, will provide mid-rise multifamily units similar to the other Riverside in the Village buildings.

Table 1 presents the resulting existing and proposed weekday peak hour trips.

Table 1 - Project-Generated Peak Hour Trips

		ΑN	1 Peak Ho	our	PN	PM Peak Hour			
ITE Land-Use Category	Determinant	Enter	Exit	Total	Enter	Exit	Total		
Existing Uses									
#210 - Single Family Detached Housing	1 unit	0	1	1	1	0	1		
#220 - Multifamily Housing (Low-Rise)	4 units	0	2	2	2	1	3		
#221 - Multifamily Housing (Mid-Rise)	341 units	30	84	114	88	56	144		
#251 - Senior Housing - Attached	24 units	2	3	5	3	3	6		
#710 - General Office Building (40 Park)	6,000 sf	<u>6</u>	_1	<u> 7</u>	<u>1</u>	<u> 7</u>	_8		
Subtotal		38	91	129	95	67	162		
Proposed Uses									
#210 - Single Family Detached Housing	1 unit	0	1	1	1	0	1		
#220 - Multifamily Housing (Low-Rise)	0 units	0	0	0	0	0	0		
#221 - Multifamily Housing (Mid-Rise)	385 units	33	95	128	99	63	162		
#251 - Senior Housing - Attached	24 units	2	3	5	3	3	6		
#710 - General Office Building (40 Park)	6,000 sf	<u>6</u>	<u>1</u>	<u> 7</u>	<u>1</u>	<u> 7</u>	<u>8</u>		
Subtotal		41	100	141	104	73	177		
Net Additional Peak Hour Tr	ips	3	9	12	9	6	15		

The distribution of the additional new Building D generated pm peak hour trips shown in Figure 4 was estimated based on existing pm peak hour traffic patterns. Figure 5 presents the resulting 2020 and 2025 Build DHV's.

Trip Generation, Institute of Transportation Engineers, 10th Edition

Figure 4 - Project PM Peak Hour Trip Distribution

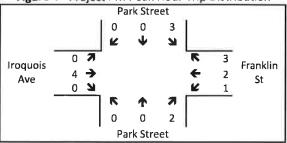
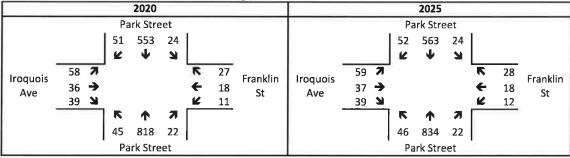


Figure 5 - Build DHV's



Traffic Congestion

Levels of service (LOS) at intersections are determined by average control delay; measured in seconds per vehicle. The methodology for analyzing LOS is established by the *Highway Capacity Manual (HCM)*. The following analyses were performed using *Synchro v10*. Table 2 summarizes the delay thresholds for each LOS at signalized intersections.

Table 2 - Signalized Intersection Level of Service Criteria

LOS	Avg. Delay*	LOS	Avg. Delay*
Α	≤10	D	≤55
В	≤20	E	≤80
С	≤35	F	>80

^{*} seconds per vehicle

In Vermont, LOS C represents the desired design standard for roadways and signalized intersections.³ Reduced levels of service are acceptable on a case by case basis in densely settled areas where volume/capacity ratios remain below 1.0 and/or the improvements required to achieve LOS C would create adverse environmental and

Highway Capacity Manual, Transportation Research Board, 2010

Vermont Agency of Transportation Highway Design "Level of Service" Policy, May 31, 2007

cultural impacts. Transportation demand management (TDM) strategies can also be used to help mitigate levels of service at locations not meeting the above standards.

This Project's impact on future levels of service and average delays was analyzed by performing both no-build and build capacity analyses, and comparing the results of the two sets of analyses. All analyses were performed using existing geometric conditions and signal phasing/cycle lengths. Additionally, the pedestrian phase was estimated to be used 12 times per hour (±5 minute intervals). The results of those analyses, which are summarized in Table 3, indicate that this Project will have a negligible effect on existing and future traffic congestion conditions. Detailed analysis worksheets are enclosed in **Appendix B**.

Table 3 - Park St/Iroquois Ave/Franklin St Levels of Service

		No-	Build		Build					
Approach & Lane Group	LOS	Delay	V/C	Max Q	LOS	Delay	V/C	Max Q		
20	20 PN	1 Peak I	Hour (DHV)						
Iroquois Ave EB LT/TH/RT	D	46.8	0.65	154'	D	49.3	0.68	162'		
Franklin St WB LT/TH/RT	c	24.6	0.26	51'	С	24.8	0.29	55'		
Park St NB LT/TH/RT	В	17.3	0.71	869'	В	17.3	0.71	871'		
Park St SB LT/TH/RT	В	11.5	0.49	518'	В	11.7	0.49	525'		
Overall	В	17.6			В	18.0				
20	25 PN	1 Peak I	lour (DHV)						
Iroquois Ave EB LT/TH/RT	D	48.3	0.66	158'	D	51.0	0.69	166'		
Franklin St WB LT/TH/RT	c	24.6	0.27	52'	С	24.8	0.29	56'		
Park St NB LT/TH/RT	В	17.7	0.72	891'	В	17.8	0.73	894		
Park St SB LT/TH/RT	В	11.7	0.50	532'	В	11.9	0.50	539'		
Overall	В	18.0			В	18.4				

Safety

The posted speed limit on Park St equals 25 mph. It is a two-lane highway with sufficient width to provide onstreet parking in front of adjacent businesses and residences in the vicinity of the Project.

VTrans identifies high crash intersections and high crash segments on major highways based on their five-year crash history. The most recent high crash report⁴ identifies two consecutive 0.3 mile long segments of VT Route 2A (Park St and Lincoln St) extending from mile marker (mm) 0.278 (just south of the South St/River St intersection) to mm 0.878 (north of the Five Corners) as high crash segments. Notably, both segments include intersections (including the Five Corners). Intersection crashes were included in segment tabulations, but none of the intersections themselves were identified as a high crash location.

Over the 2012-2016 five-year period, a total of 139 crashes occurred in above two segments, 130 of which resulted in property damage only. The remaining 9 crashes caused a total of 10 injuries. The majority of the crashes (86) were rear-end crashes, followed by broadside angle crashes (19) and same direction sideswipes (18).

Notwithstanding the above, it is our professional opinion that the additional traffic generated by this Project will not materially affect existing or future traffic safety conditions.

Vermont Agency of Transportation 2012-2016 High Crash Location Report, August 2017

Multi-Modal Facilities

Sidewalks are provided on both sides of Park St and on the south side of Iroquois Ave. Riverside in the Village (Franklin St) already includes existing internal sidewalks connecting to the Village's existing sidewalk network. The Park St/Iroquois Ave/Franklin St intersection has existing pedestrian signals (providing a protected pedestrian phase) and crosswalks on the east, west and north approaches. Green Mountain Transit provides local transit service at 15-minute headways along Park St during peak periods. There are bus stops on both sides of Park St in the immediate vicinity of this Project.

Transportation Impact Fees

Figure 4 shows 6 of the Project's 15 pm peak hour trips as traveling to/from the Five Corners and the proposed Crescent Connector, which has an established Act 145 transportation impact fee of \$2,788 per pm peak hour trip. That can be reduced by 15%, to \$2,370 per pm peak hour trip, because of this Project's sidewalk connections and pedestrian facilities (the Project paid for the installation of the traffic and pedestrian signals at the Park St/Iroquois Ave intersection). Thus, this Project would be responsible for contributing \$14,220 towards the cost of the Crescent Connector.

Conclusions

From the foregoing analyses, we have formed the following conclusions and recommendations regarding the potential traffic congestion and safety impacts of this Project:

- Intersection capacity analyses at the Park St/Iroquois Ave/Franklin St intersection indicate that acceptable levels of service will be maintained with this Project.
- Although the most recent five-year crash listing on Park St in the vicinity of this Project shows numerous crashes, they are predominantly minor in nature and largely associated with queuing on the approaches to the three major intersections that exist on Park St. The presence of on-street parking also has contributed to Park Street's crash experience. We have no reason to anticipate that the small volume of additional traffic resulting from this Project would adversely impact existing or future traffic safety conditions.



APPENDIX A

Park St/Iroquois Ave/Franklin St Turning Movement Count

Lamoureux & Dickinson

14 Morse Drive, Essex, VT 05452 พพพา.LDengineering.com

Intersection: Park & Iroquois

City/Town: Essex Jct. By: R. Dickinson

Weather: sunny then rain

File Name: Park-Iroquois PM TMC

Site Code : 16024A Start Date : 6/26/2019

Page No : 1

Groups Printed- Cars & Lt. Trucks - Trucks & Buses

			Park S uthbo			Riverside Westbound						Park St					Iroquois Ave				
0								esmo									ına				
Start Time	Left	Thru	Right	Peds	Ann Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App Total	Int. Total
04:00 PM	0	117	6	0	123	2	0	5	0	7	12	174	4	0	190	16	5	10	0	31	351
04:15 PM	1	122	5	0	128	4	0	4	0	8	10	204	2	0	216	10	3	7	0	20	372
04:30 PM	2	134	9	0	145	3	4	4	0	11	7	169	5	0	181	9	2	15	0	26	363
04:45 PM	2	135	14	0	151	5	3	. 5	0	13	7	200	4	0	211	10	4	10	Ō	24	399
Total	5	508	34	0	547	14	7	18	0	39	36	747	15	0	798	45	14	42	0	101	1485
05:00 PM	4	121	8	0	133	1	5	5	0	11	14	187	10	0	211	13	9	5	0	27	382
05:15 PM	5	139	16	0	160	2	4	4	0	10	10	185	2	ō	197	21	8	8	0	37	404
05:30 PM	9	114	11	0	134	- 2	3	9	0	14	12	188	3	Ō	203	11	10	14	0	35	386
05:45 PM	6	95	10	0	111	1	2	2	0	5	13	190	8	0	211	13	7	6	0	26	353
Total	24	469	45	0	538	6	14	20	0	40	49	750	23	0	822	58	34	33	0	125	1525
Grand Total	29	977	79	0	1085	20	21	38	0	79	85	1497	38	0	1620	103	48	75	0	226	3010
Apprch %	2.7	90	7.3	0		25.3	26.6	48.1	0		5.2	92.4	2.3	0		45.6	21.2	33.2	0		
Total %	1	32.5	2.6	0	36	0.7	0.7	1.3	0	2.6	2.8	49.7	1.3	0	53.8	3.4	1.6	2.5	0	7.5	
Cars & Lt. Trucks												1480									
% Cars & t.l. Truples	100	95.9	100	0	96.3	100	100	100	0	100	98.8	98.9	100	0	98.9	100	100	100	0	100	98,1
Trucks & Buses	0	4.1	0	0	3.7	0	0	0	0	0	1.2	1.1	0	0	1.1	0	0	0	0	0	1.9

Lamoureux & Dickinson

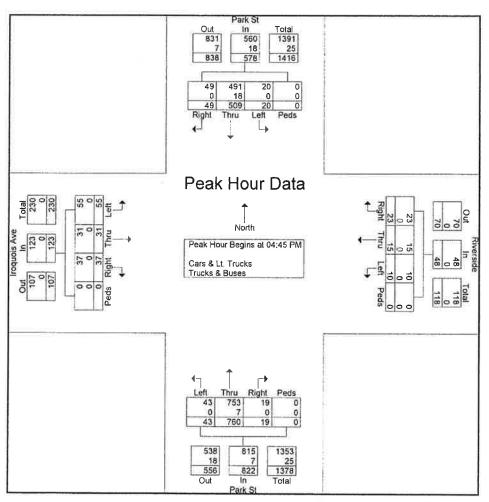
14 Morse Drive, Essex, VT 05452 www.LDengineering.com

File Name: Park-Iroquois PM TMC

Site Code : 16024A Start Date : 6/26/2019

Page No : 2

	Park St Southbound					Riverside Westbound					Park St Northbound										
Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	Apo Telal	Int. Total
Peak Hour A	nalysi	s Fron	n 04:0	0 PM t	0 05:45	PM -	Peak 1	1 of 1	•												
Peak Hour fo	or Enti	re Inte	rsection	n Beg	ins at 0	4:45 P	M														
04:45 PM	2	135	14	0	151	5	3	5	0	13	7	200	4	0	211	10	4	10	0	24	399
05:00 PM	4	121	8	0	133	1	5	5	0	11	14	187	10	0	211	13	9	5	0	27	382
05:15 PM	5	139	16	0	160	2	4	4	0	10	10	185	2	0	197	21	8	8	0	37	404
05:30 PM	9	114	11	0	134	2	3	9	0	14	12	188	3	0	203	11	10	14	0	35	386
Total Volume	20	509	49	0	578	10	15	23	0	48	43	760	19	0	822	55	31	37	0	123	1571
% App. Total	3.5	88,1	8.5	0		20.8	31.2	47.9	0		5.2	92.5	2.3	0		44.7	25.2	30.1	0		713-25K-114
PHF	.556	.915	.766	.000	.903	.500	.750	.639	.000	.857	.768	.950	.475	.000	.974	.655	.775	.661	.000	.831	.972
Cars & Ll. Trucks				2 (0 - C 1																	
% Cars & Li Trucks	100	96.5	100	0	96.9	100	100	100	0	100	100	99.1	100	0	99.1	100	100	100	0	100	98.4
Trucks & Buses																					
% Trucks & Buses	0	3.5	0	0	3.1	0	0	0	0	0	0	0.9	0	0	0.9	0	0	0	0	0	1.6



APPENDIX B

Intersection Capacity Analysis Worksheets

	×	-	*	•	4	*	4	†	-	1	1	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	58	32	39	10	16	24	45	818	20	21	553	51
Future Volume (vph)	58	32	39	10	16	24	45	818	20	21	553	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	15	12
Grade (%)		0%			0%			2%			-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.935			0.997			0.989	
Flt Protected		0.978			0.990			0.997			0.998	
Satd. Flow (prot)	0	1782	0	0	1759	0	0	1966	0	0	1995	0
Flt Permitted		0.978			0.990			0.949			0.962	
Satd. Flow (perm)	0	1782	0	0	1759	0	0	1871	0	0	1923	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			24			2			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		566			413			514			448	
Travel Time (s)		12.9			9.4			11.7			10.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%
Adj. Flow (vph)	58	32	39	10	16	24	45	818	20	21	553	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	129	0	0	50	0	0	883	0	0	625	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		0			0			0	Ü		0	•
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1,00	1.00	1,01	0.89	1.01	0.99	0.87	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		CI+Ex	Cl+Ex		Cl+Ex	Cl+Ex		CI+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA	
Protected Phases	4	4		8	8		*****	2			6	
Permitted Phases	,	•		-	-		2	_		6	=-	
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase	•	•		-	_		_	_		-	-	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Total Split (s)	12.0	12.0		12.0	12.0		38.0	38.0		38.0	38.0	
. Com opine (o)	22.0	22.0			22.0		20.0	20.0		-0.0	20.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft) Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	r.o.
Minimum Initial (s)	5.0
Minimum Split (s)	18.0
Total Split (s)	18.0

1: Park St & Iroquois Ave/Franklin St

	٠	→	7	1	+	1	4	†	1	1	ļ	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	15.0%	15.0%		15.0%	15.0%		47.5%	47.5%		47.5%	47.5%	
Maximum Green (s)	6.0	6.0		6.0	6.0		32.0	32.0		32.0	32.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		8.0			7.8			53.2			53.2	
Actuated g/C Ratio		0.10			0.10			0.66			0.66	
v/c Ratio		0.65			0.26			0.71			0.49	
Control Delay		46.8			24.6			17.3			11.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		46.8			24.6			17.3			11.5	
LOS		D			C			В			В	
Approach Delay		46.8			24.6			17.3			11.5	
Approach LOS		D			C			В			В	
Queue Length 50th (ft)		52			12			255			139	
Queue Length 95th (ft)		#154			51			#869			#518	
Internal Link Dist (ft)		486			333			434			368	
Turn Bay Length (ft)												
Base Capacity (vph)		198			197			1244			1281	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.65			0.25			0.71			0.49	
Intersection Cummary												

Intersection Summary

Other

Area Type: Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

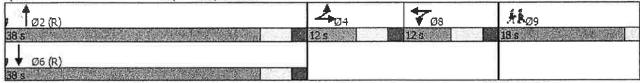
Maximum v/c Ratio: 0.71 Intersection Signal Delay: 17.6 Intersection Capacity Utilization 83.7%

Intersection LOS: B ICU Level of Service E

Analysis Period (min) 60

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 1: Park St & Iroquois Ave/Franklin St



Lane Group	Ø9		·	 	
Total Split (%)	23%				
Maximum Green (s)	16.0				
Yellow Time (s)	2.0				
All-Red Time (s)	0.0				
Lost Time Adjust (s)					
Total Lost Time (s)		3			
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0				
Recall Mode	None				
Walk Time (s)	5.0				
Flash Dont Walk (s)	11.0				
Pedestrian Calls (#/hr)	12				
Act Effct Green (s)					
Actuated g/C Ratio					
v/c Ratio					
Control Delay					
Queue Delay					
Total Delay					
LOS					
Approach Delay					
Approach LOS					
Queue Length 50th (ft)					
Queue Length 95th (ft)					
Internal Link Dist (ft)					
Turn Bay Length (ft)					
Base Capacity (vph)					
Starvation Cap Reductn					
Spillback Cap Reductn					
Storage Cap Reductn					
Reduced v/c Ratio					
Intersection Summary		werning on the section of the sectio		 	

1. Park St & Iroquois Av	e/rialik	iiii St										Dana
	<i>></i>	-	\rightarrow	•		*		†	1	-	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	58	36	39	11	18	27	45	818	22	24	553	51
Future Volume (vph)	58	36	39	11	18	27	45	818	22	24	553	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	15	12
Grade (%)		0%			0%			2%			-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.960			0.935			0.997			0.989	
Flt Protected		0.979			0.990			0.997			0.998	
Satd. Flow (prot)	0	1786	0	0	1759	0	0	1966	0	0	1996	0
Flt Permitted		0.979			0.990			0.949			0.955	_
Satd. Flow (perm)	0	1786	0	0	1759	0	0	1871	0	0	1910	0
Right Turn on Red			Yes			Yes			Yes		_	Yes
Satd. Flow (RTOR)		21			27			2			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		566			413			514			448	
Travel Time (s)		12.9			9.4			11.7	4.00		10.2	4.00
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%
Adj. Flow (vph)	58	36	39	11	18	27	45	818	22	24	553	51
Shared Lane Traffic (%)	_		_	_		_	_				62.0	
Lane Group Flow (vph)	0	133	0	0	56	0	0	885	0	0	628	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0 0	
Link Offset(ft)		0			0			0			16	
Crosswalk Width(ft)		16			16			16			10	
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.01	0.89	1.01	0.99	0.87	0.99
Headway Factor	1.00	1.00	9	1.00	1.00	9	1.01	0.65	9	15	0.67	9
Turning Speed (mph) Number of Detectors	13	2	9	1	2	5	1	2	9	1	2	3
Detector Template	Left	Z Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		CI+Ex	Cl+Ex		Cl+Ex	Cl+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	CITEX	CITEX		OI, EX	CITEA		CI. CA	01.27		Or Ex	Q1. 2.11	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	9,10	94		0.0	94			94		17.7	94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA	
Protected Phases	4	4		8	8			2		. 2	6	
Permitted Phases	r			-	Ū		2	-		6	-	
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase	-1	7		Ü			-	-				
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Total Split (s)	12.0	12.0		12.0	12.0		38.0	38.0		38.0	38.0	

Ø9 Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Ideal Flow (vphpl) Lane Width (ft) Grade (%) Lane Util. Factor Frt Flt Protected Satd. Flow (prot) Flt Permitted Satd. Flow (perm) Right Turn on Red Satd. Flow (RTOR) Link Speed (mph) Link Distance (ft) Travel Time (s) Peak Hour Factor Heavy Vehicles (%) Adj. Flow (vph) Shared Lane Traffic (%) Lane Group Flow (vph) Enter Blocked Intersection Lane Alignment Median Width(ft) Link Offset(ft) Crosswalk Width(ft) Two way Left Turn Lane Headway Factor Turning Speed (mph) Number of Detectors Detector Template Leading Detector (ft) Trailing Detector (ft) Detector 1 Position(ft) Detector 1 Size(ft) Detector 1 Type Detector 1 Channel Detector 1 Extend (s) Detector 1 Queue (s) Detector 1 Delay (s) Detector 2 Position(ft) Detector 2 Size(ft) Detector 2 Type Detector 2 Channel Detector 2 Extend (s) Turn Type **Protected Phases** 9 Permitted Phases **Detector Phase** Switch Phase Minimum Initial (s) 5.0

Minimum Split (s) Total Split (s) 18.0

18.0

	*	-	7	•	←	*	1	†	1	-	1	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	15.0%	15.0%		15.0%	15.0%		47.5%	47.5%		47.5%	47.5%	
Maximum Green (s)	6.0	6.0		6.0	6.0		32.0	32.0		32.0	32.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2,0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		8.0			7.8			53.2			53.2	
Actuated g/C Ratio		0.10			0.10			0.66			0.66	
v/c Ratio		0.68			0.29			0.71			0.49	
Control Delay		49.3			24.8			17.3			11.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		49.3			24.8			17.3			11.7	
LOS		D			С			В			В	
Approach Delay		49.3			24.8			17.3			11.7	
Approach LOS		D			С			В			В	
Queue Length 50th (ft)		55			14			256			141	
Queue Length 95th (ft)		#162			55			#871		4	#525	
Internal Link Dist (ft)		486			333			434			368	
Turn Bay Length (ft)												
Base Capacity (vph)		197			200			1244			1272	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.68			0.28			0.71			0.49	
Intersection Summary												

Intersection Summary
Area Type:

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Other

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71 Intersection Signal Delay: 18.0 Intersection Capacity Utilization 82.9%

Intersection LOS: B
ICU Level of Service E

Analysis Period (min) 60

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lane Group	Ø9	
Total Split (%)	23%	
Maximum Green (s)	16.0	
Yellow Time (s)	2.0	
All-Red Time (s)	0.0	
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	5.0	
Flash Dont Walk (s)	11.0	
Pedestrian Calls (#/hr)	12	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	

1: Park St &	Iroquois Ave,	/Franklin St
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1. Park St & froquois Av		nii Jt										
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	59	33	39	11	16	25	46	834	20	21	563	52
Future Volume (vph)	59	33	39	11	16	25	46	834	20	21	563	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	15	12
Grade (%)		0%			0%			2%			-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.960			0.935			0.997			0.989	
Flt Protected		0.978			0.990			0.997		_	0.998	
Satd, Flow (prot)	0	1784	0	0	1759	0	0	1966	0	0	1995	0
Flt Permitted	_	0.978	_	_	0.990	_	_	0.948	_		0.962	
Satd. Flow (perm)	0	1784	0	0	1759	0	0	1869	0	0	1923	0
Right Turn on Red			Yes			Yes			Yes		7	Yes
Satd. Flow (RTOR)		21			25			2			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		566			413			514			448	
Travel Time (s)	4.00	12.9	1.00	1.00	9.4	1.00	1.00	11.7	1.00	1.00	10.2	1.00
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00 0%	1.00	1.00 0%	1.00 5%	1.00 0%	1.00 0%	1.00 5%	1.00 0%
Heavy Vehicles (%)	0% 59	0%	0%	0%		0% 25	0% 46	5% 834	20	21	563	52
Adj. Flow (vph)	59	33	39	11	16	25	40	834	20	21	303	32
Shared Lane Traffic (%)	0	131	0	0	52	0	0	900	0	0	636	0
Lane Group Flow (vph) Enter Blocked Intersection	No	No No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Rìght	Left	Left	Rìght	Left	Left	Right	Left	Left	Right
Median Width(ft)	Leit	0	Mgm	Leit	0	WEIK	Leve	0	MBILL	LCIT	0	Marie
Link Offset(ft)		0			0			0			Ö	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					10							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.01	0.89	1.01	0.99	0.87	0.99
Turning Speed (mph)	15	1.00	9	15	2.00	9	15	0.00	9	15		9
Number of Detectors	1	2	,	1	2		1	2	_	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA	
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Total Split (s)	12.0	12.0		12.0	12.0		38.0	38.0		38.0	38.0	

Ø9

Lane Group

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
• • •	
Turn Type Protected Phases	9
Protected Phases Permitted Phases	9
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	18.0
Total Split (s)	18.0

1: Park St & Iroquois Ave/Franklin St

	*	-	7	1	←	*	4	†	1	1	1	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	15.0%	15.0%		15.0%	15.0%		47.5%	47.5%		47.5%	47.5%	
Maximum Green (s)	6.0	6.0		6,0	6.0		32.0	32.0		32.0	32.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		8.0			7.8			53.2			53.2	
Actuated g/C Ratio		0.10			0.10			0.66			0.66	
v/c Ratio		0.66			0.27			0.72			0.50	
Control Delay		48.3			24.6			17.7			11.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		48.3			24.6			17.7			11.7	
LOS		D			С			В			В	
Approach Delay		48.3			24.6			17.7			11.7	
Approach LOS		D			С			В			В	
Queue Length 50th (ft)		54			13			265			143	
Queue Length 95th (ft)		#158			52			#891			#532	
Internal Link Dist (ft)		486			333			434			368	
Turn Bay Length (ft)												
Base Capacity (vph)		197			198			1243			1281	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.66			0.26			0.72			0.50	
Intersection Cummons												

Intersection Summary
Area Type:

Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72 Intersection Signal Delay: 18.0

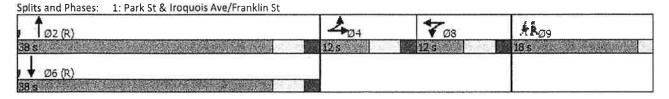
Intersection Capacity Utilization 85.3%

Intersection LOS: B ICU Level of Service E

Analysis Period (min) 60

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



Lane Group	Ø9	
Total Split (%)	23%	
Maximum Green (s)	16.0	
Yellow Time (s)	2.0	
All-Red Time (s)	0.0	
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	5.0	
Flash Dont Walk (s)	11.0	
Pedestrian Calls (#/hr)	12	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
1: Park St & Iroquois Ave/Franklin St

Ł NBT EBL **EBT EBR** WBL **WBT WBR** NBL NBR SBL SBT SBR Lane Group 4 Lane Configurations 4 4 4 Traffic Volume (vph) 59 37 39 12 18 28 46 834 22 24 563 52 563 52 834 22 24 Future Volume (vph) 59 37 39 12 18 28 46 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 Ideal Flow (vphpl) 12 15 12 12 15 12 Lane Width (ft) 12 12 12 12 12 12 -2% 0% 0% 2% Grade (%) 1.00 1.00 1.00 1.00 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.935 0.997 0.989 Frt 0.961 Flt Protected 0.979 0.990 0.997 0.998 0 Satd. Flow (prot) 0 1788 0 0 1759 0 0 1966 0 0 1996 0.955 Flt Permitted 0.979 0.990 0.948 0 0 0 Ω 1910 0 0 1759 0 1869 Satd. Flow (perm) 0 1788 Yes Yes Right Turn on Red Yes Yes 2 7 20 28 Satd. Flow (RTOR) 30 30 30 30 Link Speed (mph) 448 413 514 566 Link Distance (ft) 9.4 11,7 10.2 12.9 Travel Time (s) Peak Hour Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0% 0% 5% 0% Heavy Vehicles (%) 0% 0% 0% 0% 0% 0% 0% 5% 46 834 22 24 563 52 Adj. Flow (vph) 59 37 39 12 18 28 Shared Lane Traffic (%) 0 0 639 Lane Group Flow (vph) 0 135 0 0 58 0 0 902 0 Nο No No No No No **Enter Blocked Intersection** No No No No No No Left Left Left Right Right Left Left Left Lane Alignment Left Left Right Right 0 0 0 Median Width(ft) 0 0 Link Offset(ft) 0 0 0 16 16 16 Crosswalk Width(ft) 16 Two way Left Turn Lane 1.00 1.00 1.00 1.01 0.89 1.01 0.99 0.87 0.99 1.00 1.00 1.00 Headway Factor Turning Speed (mph) 15 15 15 15 9 2 2 2 1 Number of Detectors 1 2 1 1 Thru Thru Left Thru Left Thru Left **Detector Template** Left 20 100 20 100 20 100 20 100 Leading Detector (ft) Trailing Detector (ft) 0 0 0 0 0 0 0 n 0 0 Detector 1 Position(ft) 0 0 0 0 0 Ω 20 6 6 Detector 1 Size(ft) 20 6 20 6 20 CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex Cl+Ex CI+Ex CI+Ex Detector 1 Type Detector 1 Channel 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 94 94 Detector 2 Size(ft) 6 6 6 6 CI+Ex Detector 2 Type CI+Ex CI+Ex CI+Ex Detector 2 Channel 0.0 0.0 0.0 Detector 2 Extend (s) 0.0 Turn Type Split NA Split NA Perm NA Perm NΑ 6 **Protected Phases** 4 4 8 8 2 2 6 Permitted Phases 6 4 8 8 2 2 6 **Detector Phase** 4 Switch Phase 4.0 4.0 4.0 4.0 Minimum Initial (s) 4.0 4.0 4.0 4.0

12.0

12.0

12.0

12.0

12.0

12.0

12.0

12.0

12.0

38.0

12.0

38.0

Minimum Split (s)

Total Split (s)

12.0 38.0

12.0

38.0

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft) Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	18.0
Total Split (s)	18.0

1: Park St & Iroquois Ave/Franklin St

	•	→	*	1	-	4	4	†	1	1	ļ	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	15.0%	15.0%		15.0%	15.0%		47.5%	47.5%		47.5%	47.5%	
Maximum Green (s)	6.0	6.0		6.0	6.0		32.0	32.0		32.0	32.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		8.0			7.8			53.2			53.2	
Actuated g/C Ratio		0.10			0.10			0.66			0.66	
v/c Ratio		0.69			0.29			0.73			0.50	
Control Delay		51.0			24.8			17.8			11.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		51.0			24.8			17.8			11.9	
LOS		D			С			В			В	
Approach Delay		51.0			24.8			17.8			11.9	
Approach LOS		D			C			В			В	
Queue Length 50th (ft)		56			14			266			145	
Queue Length 95th (ft)		#166			56			#894			#539	
Internal Link Dist (ft)		486			333			434			368	
Turn Bay Length (ft)												
Base Capacity (vph)		196			201			1243			1272	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.69			0.29			0.73			0.50	
Intersection Summary												

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73 Intersection Signal Delay: 18.4 Intersection Capacity Utilization 84.4%

Intersection LOS: B ICU Level of Service E

Analysis Period (min) 60

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

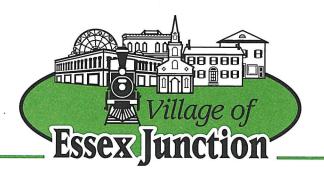
Splits and Phases: 1: Park St & Iroquois Ave/Franklin St

Ø2 (R)

Ø3 12 s

#**R**Ø9

	Valley	
Lane Group	Ø9	A CONTRACTOR OF THE CONTRACTOR
Total Split (%)	23%	
Maximum Green (s)	16.0	
Yellow Time (s)	2.0	
All-Red Time (s)	0.0	
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	5.0	
Flash Dont Walk (s)	11.0	
Pedestrian Calls (#/hr)	12	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		



2 Lincoln Street Essex Junction, VT 05452-3154 www.essexjunction.org

F: 802-878-6946 E: admin@essexjunction.org

P: 802-878-6944

Staff Report

To: Planning Commission

From: Robin Pierce, Community Development Director

Date: October 17, 2019

Re: Riverside in the Village Building D/11 Franklin Street by O'Leary-Burke Civil

Associates PLC, agent for 222 Franklin, Inc., owners

EXISTING CONDITIONS AND GENERAL INFORMATION:

Project Location: 11 Franklin Street

Parcel Size: 27.87 acres

Lot Frontage: 275 feet

Existing Land Use: Residential and Commercial

Surrounding Land-Use: Residential and Commercial

Existing Zoning: Mixed Commercial Use

Review Procedure: Major Site Plan Amendment Review to a Planned Unit Development

Project Description: Demolition of an existing apartment building which is the last of the original NECI apartment buildings, and construction of a four storey apartment building with underground parking in an existing residential development. The proposed building will have 24 1-bedroom units and 20 studio units for a total of 44 apartments. This is a change of apartment type from the original proposal but it does not alter the wastewater requirements or invalidate the traffic count data. Adding more studio apartments is in line with market demands. This building design is consistent with the pattern language of the other structures on the site. The new building is in the center of the site and accessed off the main development road with 23 surface parking and 25 underground parking spaces for total of 48 proposed spaces. No bicycle racks are visible on the drawings. The existing site plan shows 43 surface parking, two of which are accessible there is no underground parking, this is modified and surface spaces are lost with this development

proposal.. There is no landscaping Plan there is a plant list sheet. A landscaping Plan should be brought to the Planning Commission meeting.

Plans reviewed for this application consisted of the following. O'Leary Burke Civil Associates, and Architectural Plans by Michael Dugan, Architect.:-

Sheet #	Sheet Name	Dated	Last Revised
Prepared By: O'Leary-Burke Civil Associates, PLC			
1	Overall Site Plan	05-21-19	7/25/19
2	Existing Conditions	05-21-19	7/25/19
3	Site Plan	05-21-19	9/24/19
4	Lighting Plan	05-21-19	9/24/19
5	Roadway & Stormwater Details	05-21-19	7/25/19
6	Water Details	05-21-19	9/24/19
7	Sewer Details	05-21-19	7/25/19
8	EPSC Plan	05-21-19	7/25/19
Prepared By: Michael Dugan, Architect.			
A1	Garage Plan	06/14/19	
A2	First Floor Plan	06/14/19	
A3	Elevations	06/14/19	

Section 615: Mixed Commercial Use District

A. <u>Purpose</u>. To provide areas for mixed use development in locations that have adequate public and compatible surrounding land uses. A mix of residential, retail and office use is encouraged.

B. <u>Lot Size/Lot Coverage</u>.

- 1. The minimum lot size shall be fifteen thousand (15,000) square feet. The Mixed Commercial Use District shall not have a maximum allowable density. The maximum number of dwelling units shall be determined by the ability to meet the standards of the Land Development Code including, but not limited to, parking, setbacks lot coverage and building height.
- 2. The maximum total lot coverage shall be sixty-five (65) percent; the sixty-five (65) percent lot coverage may be increased up to eighty (80) percent through a waiver process granted by the Planning Commission using the same criteria outlined in Section 601.G.

C. <u>Setback Requirements</u>.

- 1. The minimum front yard setback shall be twenty (20) feet.
- 2. The minimum side yard setback shall be ten (10) feet.
- 3. The minimum rear yard setback shall be ten (10) feet.
- F. <u>Building Height</u>. Building Heights shall not exceed four stories or fifty-eight (58) feet, whichever is less.

- G. <u>Planned Unit Development</u>. The Planning Commission may approve a Planned Unit Development for use as a Commercial or Multi-Family Residential Development. In connection with such PUD approval, the Planning Commission may authorize the construction of structures and facilities to accommodate any of the uses allowed in the Mixed Commercial District. Any application for proposed development in the Mixed Commercial District may, at the applicant's request, be reviewed as a Planned Unit Development. Any application for proposed development in the Mixed Commercial District which contains more than two thousand five hundred (2,500) square feet of commercial space shall be reviewed as a Planned Unit Development or Multi-Family Residential Development unless this requirement is specifically waived by the Commission. Review standards and waiver requirements for a PUD are set forth in Section 511.B.1-3.
- B. Review Requirements and Review Standards.
 - 1. General Review Standards.
 - (a) Physical characteristics of the site and relation to surrounding properties.
 - (b) Relationship to major transportation facilities, including mass transit, walkways and bike paths.
 - (c) Design characteristics of the proposal and compatibility to adjoining developed land.
 - (d) Unique design or land planning characteristics.
 - (e) Methods used to provide a transition between adjoining uses and proposed uses including, but not limited to, setbacks, screening, fencing, building design and parking design.
 - (f) The preservation of unique natural physical characteristics.
 - (g) Building design compatibility with adjoining structures.
 - (h) Other criteria, as deemed necessary by the Commission to evaluate the merits of a specific proposal.
 - 2. Specific Review Standards
 - (a) Proposed traffic flow and circulation design.
 - (b) Structural design and compatibility with adjoining developed properties.
 - (c) Scale and design of proposed structures.
 - (d) Location and setbacks of all proposed structures.
 - (e) Unique physical characteristics of the proposed use.
 - (f) Unique characteristics of the proposed use.
 - 3. Waivers. The Commission may waive requirements for setbacks, parking and lot coverage, based upon the merits of the specific proposal. Waivers shall be based upon the following criteria and may include specific conditions.
 - (a) Unique physical characteristics of the site proposed for development.
 - (b) Superior building design, lot layout and landscaping design.
 - (c) Provision of public open spaces or superior bicycle and pedestrian access.
 - (d) Joint or combined vehicular access with adjoining properties.

Section 703: Parking

Multifamily developments require two parking spaces per dwelling unit plus one guest space for each ten (10) units. A parking waiver is required. Accessible spaces per Village Code should be provided.

In accordance with Section 703.K.11 bike racks shall be shown on the plans. No bike racks are visible on the Plans. They should be provided.

Section 704: Lighting

A lighting plan has not been submitted. All proposed lighting shall meet the Village LDC requirements.

Section 719: Landscaping

1. No landscaping Plan has been submitted with this application, simply a sheet listing type and number of species. In lieu of landscaping not being equal to 2% of the buildings construction costs the PC might consider that the applicant provide funds for hard and soft landscaping in the Village Center District.

Staff Comments.

General

- 1) We note that the Development Application form included in this submission was not signed by the applicant.
 - > The applicant has indicated that the hard copy of the Development Application form submitted to the Village was signed by the applicant. We defer to the Village Planning staff regarding this comment.
- 2) The applicant will be required to request and obtain additional water and sewer allocation approvals from the Village for this project.
 - ✓ The applicant indicated that "An allocation letter will [be] requested from the Village following Site Plan approval." We find this acceptable.
- 3) The cover letter provided by the applicant's engineer indicates an estimated water demand of 5,940 gallons per day and an estimated sewer demand of 6,160 gallons per day for this new building. However, the water and sewer demand computations contained in the submittal documents indicate both a water and sewer demand of 6,160 gallons per day for this new building. The application documents should be revised to resolve this conflicting information. (We believe the 6,160 gallons per day is the correct water and sewer demand estimate for this proposed building, based on the most recent State Wastewater System and Potable Water Supply Rules.)
 - ✓ The applicant has indicated that "The cover letter has been revised to state the estimated water and sewer demands for the project will be 6,160 gpd." We find this acceptable.
- 4) The Water Quality Superintendent requests that the DIGSAFE notification banner presented on Sheets #2 and #3 be revised to also require notification to the Village of Essex Junction prior to any excavation.
 - ✓ This comment has been addressed.
- 5) General Construction Specifications Note #10 presented on Sheet #5 should be revised to reference the requirements of the LDC for horizontal and vertical separation of water and sewer/storm utilities.

- ✓ This comment has been addressed.
- 6) We recommend a condition of any approval of this project to require the submission of record drawings for site utilities to the Village of Essex Junction upon completion of construction, in both AutoCAD and PDF format. The Village would also like to request this information be provided in shapefile format in Vermont State Plane Meters, NAD83.
 - > The applicant has indicated "Understood." We recommend that this be included as a condition of any approval of this project.

<u>Site Layout – Roadways, Drives, and Walkways</u>

- 1) Sheet #2 shows existing sidewalks on the east side of Buildings #4 and #5. These existing sidewalks are not shown on Sheet #3. The applicant should provide clarification as to whether these existing sidewalks are proposed for removal.
 - ✓ This comment has been addressed. These existing sidewalks are now shown on Sheet #3.
- 2) The applicant provided parking computations for the entire project development. These computations indicate that a total of 722 parking spaces are required by the LDC for the entire project development; with a total of 643 parking spaces provided throughout the project development with completion of this proposed building. The applicant performed a parking count during full occupancy of the current project development and calculated that using the actual parking ratio of spaces per unit, the full build-out scenario that includes this proposed project would require 542 spaces (with a total of 643 spaces being provided). The applicant is requesting a parking waiver in order to minimize impervious area coverage. We defer to the Village Planning staff and Planning Commission regarding this parking waiver request.
 - > The applicant has indicated "Understood." We continue to defer to the Village Planning staff and Planning Commission regarding this parking waiver request.
- 3) On Sheet #3, the access drive from Franklin Street serving the parking area and parking beneath the proposed Building D is shown as approximately 22 feet wide. The LDC requires a minimum of 24' for 2-way traffic. We recommend that the width of this access drive be increased to 24 feet.
 - > The applicant has indicated that "The 24' wide standard for 2-way traffic seems to be specific to commercial/industrial drives and 2-way parking lots according to the LDCs. As the proposed drive is neither and private, the applicant is comfortable moving forward with the underground parking ramp as proposed." Our comment did not pertain to the underground parking ramp, but instead the 2-way access from Franklin Street. We continue to recommend a 24 foot wide access drive from Franklin Street serving the surface parking area and parking beneath the proposed building.
- 4) We note for the record that the sidewalk and curb details presented on Sheet #5 are not acceptable for use within the Village of Essex Junction right-of-way.
 - ✓ The applicant has indicated "Understood. The sidewalk and curbing details proposed will not be within a Village right-of-way." No further comment necessary.

Grading & Drainage

- 1) Sheet #3 depicts a new dumpster pad on the south end of the parking located to the west of Building #5. This new pad appears to conflict with a portion of the existing retaining wall. The applicant should provide clarification regarding the proposed grading for this pad and its relationship to the existing retaining wall.
 - The applicant has indicated that "The dumpster pad is being proposed at the end of the retaining wall. The slab will be poured at the same elevation as the edge of pavement (Elev=334.37') and will be tipped slightly towards the existing stormwater treatment swale. The dumpster pad will not conflict with the existing retaining wall." The grading for this proposed dumpster pad and its relationship to the existing topography is unclear from the plans. The plans should be revised to present the proposed grading for this dumpster pad and its tie-in to the existing topography.

The Water Quality Superintendent requested that the applicant be reminded of Section 706.J.2 of the LDC requiring that dumpsters be covered and have drain plugs installed.

- 2) The applicant is proposing to exchange previously approved but not yet constructed impervious area for the impervious area associated with this project. While we do not specifically object to this concept, which has support from the State Stormwater Program, we note that in consideration of the MS4 requirements applicable to the Village of Essex Junction, applicants are encouraged to provide on-site treatment and control of stormwater runoff to the maximum extent practicable; thereby decreasing the potential for additional improvements being required by the Village in the future as part of the MS4 permit and Flow Restoration Planning requirements. No changes to the proposed project design are required at this time.
 - ✓ No response necessary.
- 3) The applicant should be required to submit copies of the stormwater system annual inspection reports to the Village of Essex Junction as a condition of approval.
 - > The applicant has indicated "Understood." We recommend this be a condition of any approval of this project.

Water

- 1) The plans should be revised to depict the size of the proposed water service for the building.
 - ✓ This comment has been addressed. The new water service has been labeled as 6" ductile iron pipe.
- 2) Water Specifications Note 1.2 should be revised to require water pipe materials and fittings to be <u>double</u> cement mortar lined. In addition, Note 1.2 Fittings should be revised to require retainer glands for all fittings, not just vertical bends as currently shown.
 - > The plans have been revised to require fittings to be double cement lined; and to require retainer glands for all fittings. This note needs further revision to require water pipe material to be double cement lined.

In addition, as the new building service is proposed to be 6" ductile iron pipe, this note should be revised to reflect a minimum size for ductile iron pipe to be 6" instead of 8" as currently shown.

3) Water Specifications Note 1.7E should be revised to require 6 feet of minimum cover for waterlines.

✓ This comment has been addressed.

4) The Water Trench detail presented on Sheet #6 should be revised to require 6 feet of minimum cover. In addition, this detail should be revised to include compaction requirements for pipe bedding and backfill materials.

✓ This comment has been addressed.

5) The Sewer/Water Separation Detail for Crossings presented on Sheet #6 and also on Sheet #7 should be revised to reflect the requirements of page D-15 of the LDC for separation between water and storm sewer utilities, in addition to sanitary sewer utilities.

✓ This comment has been addressed.

6) Sheet #3 calls for the abandonment of the existing water service for the existing Building D. The plans should be revised to require the abandonment to include a requirement to close the corporation stop at the water main and to disconnect the water service piping from the corporation stop.

✓ This comment has been addressed.

Sanitary Sewer

1) Sheet #3 calls for the abandonment of the existing sewer service for the existing Building D. The plans should be revised to require the abandonment to include the capping of the existing service line with a rigid, gasketed cap fitting.

✓ This comment has been addressed.

2) The plans should be revised to present the proposed building invert elevation for the proposed building sewer service.

✓ This comment has been addressed.

3) The plans should be revised to provide a 0.1' drop in the existing sewer manhole between the new building sewer service and the existing outlet invert in this structure.

✓ This comment has been addressed.

4) The plans should be revised to require that the connection of the new building sewer to the existing sewer manhole be inspected by an authorized representative of the Village of Essex Junction prior to backfilling.

✓ This comment has been addressed.

5) The Sewer Trench detail presented on Sheet #7 should be revised to include compaction requirements for pipe bedding and backfill materials.

✓ This comment has been addressed.

Erosion Prevention and Sediment Control

- 1) The EPSC Plan (Sheet #8) should be revised to include silt fence on the south end of the parking area located to the west of existing Building #5.
 - ✓ This comment has been addressed.
- 2) The plans should be revised to require the use of non-Phosphorus based fertilizer unless otherwise warranted by soil testing. In addition, the plans should be revised to specify the seed mix(es) proposed for this project.
 - ✓ This comment has been addressed.
- 3) The plans reference requirements for topsoil stockpiles surrounded by silt fence. The plans should be revised to depict the location(s) of proposed topsoil stockpiles.
 - ✓ The applicant has indicated that "It is likely that topsoil and other fill will be trucked off site due to the limited open space within the development." We find this acceptable.

Lighting

- 1) The plans should be revised to provide lighting for the new walk on the east side of the proposed building.
 - > The plans have been revised in response to this comment. The illumination levels at the parking lot end of this sidewalk, in the vicinity of the accessible parking space, are below the minimum 0.2 footcandles required by the LDC. We note that it appears as though the existing lighting in the area of the accessible parking space have not been included in the analysis. The applicant should provide clarification and revisions as necessary.
- 2) The LDC requires new light fixtures to be LED fixtures with a maximum CCT of 4300K. The plans shall be revised to specify fixtures with a CCT not exceeding 4300K.
 - ✓ This comment has been addressed.

Traffic

- 1) The applicant provided a Traffic Impact Assessment prepared by Lamoureux & Dickinson Consulting Engineers, Inc. This assessment included intersection capacity analyses for the Park St/Iroquois Ave/Franklin St intersection both with and without this proposed project. The signal timings used in the analysis are indicated to be existing signal timings according to the applicant's engineer. We note that the signal timings used in the analyses differ from what we have in our files as the existing timings. The applicant should provide clarification as to the source of the existing signal timing information used in their analyses.
 - ✓ This comment has been addressed. The analyses have been updated to utilize signal timing information obtained from the Village of Essex Junction.
- 2) The Traffic Impact Assessment concluded that "Intersection capacity analyses at the Park St/Iroquois Ave/Franklin St intersection indicate that acceptable levels of service will be maintained with this Project." This document also included a discussion regarding safety and accidents along this section of Park Street, and concluded that "We have no reason to

anticipate that the small volume of additional traffic resulting from this Project would adversely impact existing or future traffic safety conditions."

We recognize the urban nature of this area and the existing traffic congestion that exists along this section of Park Street. We also note that several modifications to the traffic flow, roadways, and intersections in this vicinity will be forthcoming with the anticipated construction of the Crescent Connector and associated changes to the Five Corners intersection. While the assessment includes estimated trips associated with the Crescent Connector and recently approved/proposed development projects not yet constructed, the assessment did not include a detailed analysis of the surrounding roadway network and its anticipated modifications. Without a detailed analysis, it is unclear as to what impacts these modifications will have relative to this project. We recommend that the Village require the applicant to perform a follow-up traffic study within 6 months of 50% occupancy of the proposed building in order to confirm the trip generation rate and to determine if traffic improvements are necessary.

> The applicant has indicated "Understood." We recommend that this be a condition of any approval of this project.

Recommendations:

Staff recommends the Planning Commission approve this application with the following Conditions.

- 1. Require the submission of record drawings for site utilities to the Village of Essex Junction upon completion of construction, in both AutoCAD and PDF format. The Village would also like to request this information be provided in shapefile format in Vermont State Plane Meters, NAD83.
- 2. A total of 722 parking spaces are required by the LDC for the entire project development; there will be a total of 643 parking spaces provided throughout the project development with completion of this proposed building. Staff recommend a parking waiver as the parking spaces are rarely near full occupancy.
- 3. Accessible parking spaces should be added within the underground parking or in the surface parking lot to meet Village Code.
- 4. Dumpsters shall be covered and have drain plugs installed.
- 5. The applicant shall submit copies of the stormwater system annual inspection reports to the Village of Essex Junction as a condition of approval.
- 6. A follow-up traffic study within 6 months of 50% occupancy of the proposed building in order to confirm the trip generation rate and to determine if traffic improvements are necessary will be performed by the applicant.
- 7. No CO will be issued until all necessary approved State Permits including but not limited to; ACT 250, and Stormwater are submitted to the Village.

- 8. The applicant shall complete (to Staff's satisfaction) and sign a Sewer Capacity Voluntary Permit Revocation form prior to the Village releasing a Letter of Capacity to the State of Vermont.
- 9. All work shall comply with the Village of Essex Junction Land Development Code as amended December 13, 2016.
- 10. All Village Staff recommendations shall be complied with.
- 11. In lieu of landscaping for the project not equaling 2% of construction costs the difference shall be given to the Village for hard and soft landscaping in the Village Center District.
- 12. Bike racks shall be provided as part of this development proposal.