4.18 Required Improvements:

A. Streets

1. Subgrades: All topsoil, stumps, brush, roots, boulders and like material shall be stripped or removed from the proposed subgrade area. The subgrade shall be shaped and compacted evenly at a depth of at least 24 inches for Class A streets and 18 inches for Class B and C streets below the finished surface of said streets as shown on the profile. All soft and spongy places shall be excavated to such depth as shall be necessary to stabilize the foundation of the road and refilled solidly with sub-base material as directed by the Engineer.

2. That before any clearing has started on the R.O.W., the centerline of the new road shall be stacked and sidestaked at 50-foot intervals. Sidestakes to be set back off the R.O.W. at right angles from the centerline so as to be cut of the construction area with stationing and distances to the centerline of the road.

3. Limits of clearing shall be marked by stakes or flagging. Distances from the centerline to be obtained from the cross-sections.

4. After clearing is done and before excavation is started, elevations shall be taken on the tops of sidestakes. Cuts and fills shall be marked on sidestakes.

5. Embankments: Embankments shall be formed of suitable material placed in successive layers of not more than twelve (12) inches in depth for the full width of the roadway cross-section and shall be completed uniformly and sufficiently to prevent settlement. Stumps, trees, rubbish, and other unsuitable materials of substance shall not be place din the fill. The fill shall be allowed to thoroughly settle before applying gravel base material.

B. Drainage

1. Underdrains: Underdrains shall be installed where the character and composition of the soil in the roadbed and other areas of the subdivision render such installation necessary in the opinion of the Engineer. These underdrains shall consist of perforated metal pipe or perforated fiber pipe of a minimum six (6) inches in diameter and laid in the bottom of a trench at such depth and width as may be necessary. The trench shall be filled with clean bank run gravel, or equivalent material approved by the Engineer.

2. Storm Drains, Culverts, Catch Basins: Storm drains, culverts and related installations, including catch basins and drop inlets, shall be installed within or without the subdivision as necessary to permit unimpeded flow of all natural watercourses, to

insure adequate drainage of all low points along streets, and to intercept storm water runoff along streets at intervals reasonably related to the extent and grade of the area drained. (Where required catch basins may be on both sides of the roadway on continuous grade at intervals of approximately three hundred (300) feet.) Drainage improvements shall meet the specifications of AASHO (American Association of State Highway Officials) in regard to material and strength requirements. Catch basins and drop inlets shall be equal to New Hampshire Standard Type A or acceptable to the Engineer. Storm sewer pipes and culverts shall have of twelve (12) inches and shall be of reinforced concrete, corrugated aluminum, bituminous coated corrugated steel, or equivalent and shall have a minimum two (2) foot cover over all pipes. Headwalls where required shall be either of concrete or rubble masonry. Storm drainage shall be carried to existing watercourses, or connect to existing storm drains. If the storm water drainage system creates any additional flow over any adjacent property, the subdivider shall obtain an easement therefore from the adjacent owner and shall hold the Town harmless from any claims for damage resulting therefrom.

3. Erosion Protection Ditches: Paving or stone shall be provided in ditches where soil or velocity conditions warrant protection from erosion as determined by the Engineer.

C. Topsoil Protection: Topsoil moved during the course of construction shall be redistributed to provide at least four (4) inches of cover to all areas of the subdivision and shall be stabilized by seeding and mulching or planting. No topsoil shall be removed from the subdivision site.

D. Debris and Waste: No cut trees, timber, debris, earth, rocks, stones, soil, junk, rubbish or other waste materials of any kind shall be buried in any land, or left or deposited in any lot or street. Nor shall any be left or deposited in any area of the subdivision at the time of expiration of the performance bond or dedication of public improvements, whichever is sooner.

E. Monuments: Permanent survey monuments shall be set in the boundary of rights-of-way at intersecting streets, point of curvature and point of tangency of curves, though the point of intersection of short curves may be used instead, where such is practical, at the discretion of the Town Engineer. Monuments shall be placed on one side of the street only and at only one corner of intersecting streets. Adjacent monumented points shall be inter-visible.

Monuments shall be tied into a public street intersection, U.S.G.S. bench mark or other recognized existing monument. Monument locations shall be shown and properly dismensioned on the final plat.

Monuments shall be of stone, concrete, or other material acceptable to the Town Engineer, and not less than four (4) inches in diameter or square, and not lot less than forty-two (42) inches long. Concrete monuments shall be reinforced with steel rods, and a plug, brass plate, or pin shall serve as the point of reference and a magnetic rod or other suitable metal shall be placed adjacent to the monument to allow for recovery.

F. Water and Sewer facilities.

1. Common Systems: Such systems proposed by a subdivider shall be of sufficient capacity to serve the subdivision and shall be designed and constructed for incorporation into future Town or precinct systems. All such facilities shall meet the requirements of and be approved by the State Water Supply and Pollution Control Commission, local and county health and public works agencies, and/or other public body having jurisdiction, and shall be accepted by the Engineer.

a. plans shall include

(1) Five (5) foot contour intervals.

(2) Well site with tow hundred (200) foot protective radius. NO subsurface disposal system permitted in this area.

(3) All lots numbered.

(4) Distribution system with water line sizes, pipe material, buried depth of piping, all valving and hydrant locations.

(5) Indicate type of establishment, mobile home park, apartment building, etc.

b. Complete quality analysis for the well water as conducted by the State Water Testing Laboratory within the past six (6) months.

c. Continuous 48-hour yield test log of the well showing water level and rate of pumping at one hour intervals.

d. Schematic drawing of pumphouse facilities.

e. Detailed elevation of pumphouse facilities.

f. Detailed elevations of well design.

g. Storage facilities to be provided.

h. Characteristic curve for all pumps - well and booster.

i. The proposed water system must meet all the requirements of the N.H. Water Supply Engineering Section at the date plans are presented to an accepted by the Town of Carroll Planning Board.

2. Individual Service: Individual wells and subsurface disposal facilities shall on all respects comply with all applicable local, county and/or state requirements including those of the State Water Supply and Pollution Control Commission. In areas not currently served by common sewer systems, it shall be the responsibility of the subdivider to provide adequate information to prove that the area of each lot is adequate to permit the installation and operation of an individual sewerage disposal system (septic tank and drain field). The subdivider shall be required to provide the necessary equipment and labor for the making of these tests required by local, county and/or state authorities having jurisdiction.

4.19 Performance and Maintenance Bonds: Except in the case of a subdivision in which each lot is an existing improved Town road, no subdivision plat filed with the Board shall be approved until the subdivider shall have filed with the Board an engineers estimate of costs of streets, public improvements, drainage structures and other utilities, together with an estimate of any damages to any existing public streets abutting the proposed subdivision, which may be caused by reason of work performed in said subdivision, and together with maps, plans and supporting data, accompanied by either:

A surety bond, issued by a surety company authorized to do business in New Hampshire, to be filed with the governing body in form and amount satisfactory to it;

Cash, or savings bank book properly endorsed to the Town, in amount to be determined by the governing body, and to be deposited with it;

The amount of performance bond to include fees for inspection of improvements by the appropriate Town agents.

Each approval of the Final Plat shall contain the stipulation that all streets and public improvements must be completed prior to the issuance of any building permits unless a bond has been posted to insure their completion. If development is to be phased in over a period of time, then the streets and public improvements must be completed before the next phase can be approved.

If a phase development is requested, each phase must be presented to the Board for approval, each phase must be completed before the next phase is approved and each phase must be bonded as a whole to insure its completion.

The performance guaranty shall not be released until the Board of Selectmen, Building Inspector, Town Engineer, or Road Agent has certified completion of the public utilities and improvements in substantial accordance with the requirements, and deeds covering land to be used for public purposes, easements and rights-of-way over property to remain in private ownership, and rights-to-drain onto or across private property are submitted in a form satisfactory to the Town Attorney. All recording fees shall be borne by the subdivider.

Upon completion of improvements and approval by the Engineer surety covering maintenance of roads and improvements for a period of two (2) years from the completion may be required or retained in an amount based on the replacement cost of such improvements, as established by the Engineer.

4.20 Parking: All subdivision development shall contain off-street parking to be provided at the rate of at least two (2) parking spaces per dwelling unit. In order to provide for the most efficient means of road maintenance, snow plowing and access by emergency, police and fire vehicles, no parking of vehicles within the streets shall be permitted.

4.21 Pedestrian Walks: Where necessary, in the judgment of the Board, rights-of-way for pedestrian travel and access may be required between subdivision and public property.

4.22 Utilities: All subdivisions shall make adequate provisions for water supply, sanitary sewage disposal, and required utilities and improvements. The Board may require the extension of public water and sewer to and within a proposed subdivision, without cost to the Town, where existing lines are, in the sole judgment of the Board within a reasonable distance of the proposed subdivision.

The subdivider shall install laterals from all utilities in the street right-of-way to ten (10) feet beyond the street property line of each building lot.

All such utility system installations shall be at the expense of the subdivider and shall be installed under the supervision of the appropriate Town agency.

The Board may require the installation of street lighting in any subdivision where it deems necessary.

Where underground utilities are to be furnished from a public source, all necessary mains, branch offsets to each lot, and fire hydrants shall be installed by the subdivider, as approved by the corporation or municipal department having jurisdiction, and to the satisfaction of the governing body, without expense to the Town.

4.23 · Sediment and Erosion Control:

a) General

The purpose of this section is to control soil erosion and the resulting sedimentation from occurring in subdivision areas by requiring proper provisions for water disposal and the protection of soil surfaces during and after construction in order to promote the public health, safety, convenience and general welfare of the community.

b) Standards

The following standards shall be observed by the subdivider in the design, layout and engineering of the proposed subdivision in both the Preliminary Layout Phase (Sections 4.10 & 4.11) and the Final Plat Phase (Section 4.12).

1. Stripping of vegetation, regarding, or other development shall be done in such a way that will minimize soil erosion.

2. Whenever practical, natural vegetation shall be retained, protected, and supplemented.

3. The disturbed area shall be kept to a minimum and the duration of exposure shall be under a maximum of six months.

4. Temporary seedings and/or mulching shall be used to protect exposed critical areas during development.

5. Provisions shall be made to accommodate the increased runoff caused by changed soil and surface conditions during and after development.

6. Sediment in the runoff water shall be trapped until the disturbed area is stabilized by the use of sediment basins or other acceptable methods.

7. Diversions, sediment basins, and so forth, shall be constructed prior to any on-site grading or disturbance of existing surface material.

Subdivision Design and Standards

4.24 Open Space on Town Master Plans: Where a proposed park, playground or other open space shown on the Master Plan is located in whole or in part in a proposed subdivision, the Board shall require substantial compliance with such Master Plan.

As a condition of approval of the Final Plat, the Board may require that the area shown thereon as open space be offered for dedication to the Town. The Board shall not require such

dedication in excess to 15 percent of the total area of the subdivision without reasonable compensation, and if the Town does not take steps within a period of one year from the date of approval of the subdivision plat to acquire the portion of the open space in excess of said 15 percent, the subdivider may submit to the Board a plan for subdivision of such portion, provided such additional subdivision does not exceed the total number of dwelling units permitted by the zoning regulations for the applicable district, and meets requirements of these subdivision regulations.

4.25 Other Open Space: If no such open space, park or playground is shown on the Town Master Plan within the boundaries of a proposed subdivision, the Board may, where it deems essential, require that the plat show one or more sites of character, size, shape and location suitable to be used as community open space or park, in an area not to exceed 15 percent of the total area of the subdivision. The subdivider may of his own volition exceed the above area requirements. In the case of cluster subdivision or planned unit development, open space shall not be less in area than as provided in the zoning regulations. Such areas of open space, whether privately or publicly owned, shall have a sufficient legal restriction recorded in the Town land records to assure permanence of use as open space. Open space land in private ownership shall be deeded in such a way that it will assure operation or maintenance of the land in an orderly manner suitable for the purpose intended.

4.26 Development of Open Space: On land to be used as active recreation open space, undesirable growth and debris shall be removed. Wooded and brook areas shall be left natural; active recreation open space shall be graded properly to dispose of surface water, and shall be seeded with lawn grass. There shall be no depositing, dumping, or storage of waste, or other natural or man-made material, supplies, or equipment, on any subdivision land designated as open space. No work, removal, or filling shall be done, nor shall the existing natural characteristics of open space land be altered from the original condition, until the subdivider's plans for recreational development of said open space have been reviewed and approved by the Board as part of the final plat submission.

4.27 Trees and Planting: Due regard shall be given to preservation of existing trees, shrubbery and other vegetation within the subdivision. The Board may require additional planting and other landscaping appropriate to the area being subdivided. The subdivider shall comply with the following requirements:

a) To the fullest extent possible, all existing trees and shrubbery shall be preserved by the subdivider. Special consideration shall be given to the arrangement and ultimate improvement or development of the lots to this end. Precautions

shall also be taken to protect existing trees, shrubbery and vegetation during the construction of roads and utilities.

b) Where any land other than that included in public rights-of-way is to be dedicated to the public use, the subdivider shall not remove any trees from the site without written permission from the Planning Board.

c) Topsoil moved during the course of construction shall be redistributed so as to provide at least four (4) inches of cover to all disturbed areas of the subdivision. At no time shall topsoil be removed from the site without written permission from the Planning Board.

d) All disturbed areas which are not covered by structures or paving shall be properly seeded or replanted by the subdivider.

4.28 Water Specifications:

Water Mains

a) Pipe - Pipe shall meet, or exceed, current AWWA C151 specifications for ductile iron pipe. Maximum length twenty (20) feet. Double cement lining, seal coating inside and bituminous outside coating shall meet or exceed AWWA C104. Push-on joints conforming to current AWWA 111. Pipe to be furnished complete with gaskets and lubricant. Certificate of compliance to above mentioned specifications must be supplied with shipment. Certificates must be notarized by notary public or justice of peace. Class 52 required for six (6) inch through twenty-four (24) inch diameters.

b) Valves - For size three (3) inch through ten (10) inch, gate valves shall be double disc with non-rising stem and conform to, or exceed current AWWA C500 specifications. Valves to be "metropolitan" pattern with accessories. Direction to open * "LEFT". Acceptable makes and models - MET (MJ X PE); M & H -MET (MJ) or MJ X PE; E-J*P Valve. Resilient seat valves, where specified and approved shall meet or exceed AWWA C509 specifications. Acceptable makes and models - U.S. Pipe Metroseal; American Darling #80-CRS. For size 12 inch and above, the butterfly valves shall conform to or exceed, current AWWA C504. Valve shall have M-J ends. Direction to open - LEFT

c) Fittings - Fittings shall be ductile iron with mechanical joints and accessories and shall conform to, or exceed current AWWA C110. Fittings to be new, unused and free from rust, coated and cement lined. Ductile Iron - Class 350. Mechanics joints and accessories shall meet AWWA C111 double cement lining. Inside seal coating and bituminous. Outside coating shall meet AWWA C104.

d) Valve Boxes -

Base: 48 inch
Top: 5 1/4" X 24" or 26" with top flange. (Screw type not acceptable).
Cover: Marked "Water" supplied.
Only two piece boxes acceptable.

Acceptable makes and models:
Buffalo Slip type B-5005
Caldwell No. 10 Buffalo
Tyler 6855
E-J-P Type or equal

e) Restrained Joints - Retainer glands shall be used to restrain joints as necessary. Thrust blocks are acceptable only behind hydrants. Anchor ties are acceptable for use on hydrant branches to retain the hydrant branch valve. All retaining glands shall be U.L. approved.

f) Water Service Lines - Copper Tubing: Class M - 60 or 100 foot rolls are acceptable. Plastic: Not Allowed. Brass: All brass fittings shall meet or exceed, AWWA C800 specifications.

g) 3/4", 1" and 1 1/4" Service Fittings - All corporation threads shall be "C-C" on the inlet and "New England" pattern on the outlet thread under the flare nute. All corporations shall be ball valves.

h) 1 1/2" and 2" Service Fittings - All corporation threads shall be "I.P.S." on the inlet and "C.P.P.J" on the outlet. All corporations and curb stops shall be ball valves.

i) Curb Boxes - 5 or 6 foot adjustable complete with 36" rod.

j) Hydrants - Acceptable Makes and Models:

Metropolitan Model L200 or Model H205
Waterous Model W-67 or WB-67

k) Features - Direction to open "LEFT"; breakable flange (traffic model); valve opening 5 1/4"; 2 - 2 1/2" NST hose nozzles; 1 - 4 1/2" SNT pumper nozzle; operating nut and nozzle caps - NS #7 Pentagon; depth of trench - 8'; six inch mechanical joint connection (with accessories).

Individual Dwellings

a) Cross Connection - Backflow Prevention

b) Backflow Preventor Valve - ASSE #1024 fits 1/2" and 3/4" Copper

c) Cross Connections - ASSE #1012; CSAB, 64.3 no. 90 series for 1/2 or 3/4" pipe.

For 6.90 O.C. ductile iron pipe

Drain Hole "Open"

The Water Department reserves the right to require a sample for evaluation of any supplied item. Alternate items shall receive prior approval of the Department.

In any case, the Carroll Water Department reserves the right to accept or reject any material to be used.