

APPENDIX J
SOLICITATION OF QUOTES:
WHOLE HOUSE WATER TREATMENT SYSTEM & DETAILED SPECIFICATIONS

SOLICITATION OF QUOTES

WHOLE HOUSE WATER

TREATMENT SYSTEM

AND DETAILED
SPECIFICATIONS

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A. Solicitation for Quotes

Notice is hereby given that quotations are being solicited by the NYS Department of Transportation for the following purposes:

1. Installation of lease/rental or purchased equipment for a Whole House Water Treatment System to remove petroleum products from a private well water supply.

2. Periodic replacement is required for filter cartridges, activated carbon material and servicing of the ultraviolet disinfecting unit.

1. Proposals for the Whole House Water Treatment System to be installed at _____, Town of _____, County of _____, N.Y. as described in the proposed documents will be received by the (Regional Director, Regional Oil Spill Engineer), _____, New York by _____, _____, 19 ____.

Proposal may be requested at the above address to provide quotations for the proposed water treatment system. Evaluation will be made on the basis of proven experience and competency.

Minority Business Enterprises will be afforded the full opportunity to submit bids and the New York State Department of Transportation hereby notifies all bidders that it will affirmatively insure that any contracts entered into pursuant to this advertisement will be catered into without discrimination on the basis of race, color, religion, national origin or sex.

B. Scope of Work

The contractor shall be required to furnish all additional manpower, materials, tools, and equipment necessary to provide a complete operating installation. In general, this will include, but is not limited to:

1. Contacting the individual installation customers to arrange for a -time when the necessary installation may be made;
2. Inform the individual installation customers of the size of the area which will be necessary for installing the required equipment;
3. Arrange for and obtain any and all required permits, licenses, and inspections;
4. Furnishing and installing the whole house water treatment system and necessary supports, adaptors, nipples, and copper pipe (3/4") required to provide a complete operations installation;
5. Providing replacement of cartridge and rebedding of activated carbon on a periodic basis;
6. Clean up after installation has been completed; and
7. Completing any electrical wiring as may be required or occasioned to provide a source of power for the Ultraviolet Disinfection Units.
8. Make repairs and changes as may be requested by the Engineer following an inspection of the individual installations.

NOTHING IN THIS SECTION SHALL BE CONSTRUED AS INDICATING THAT ANYTHING OTHER THAN A COMPLETE WORKING INSTALLATION IS REQUIRED.

C. Installation Consideration

The water treatment system shall be installed as shown on the schematic diagram. Adjustments may be allowed to provide easy access for sampling, periodic replacement of appropriate units, space limitations and resident's requests. It shall be the responsibility of the contractor to visit the project area and satisfy himself as to the type of construction employed and possible obstacles which may be encountered in completing the installations. The director shall not be held liable for claims by the contractor as a result of his failure to do so.

D. Time of Completion

Bidder must agree to begin work on or before a date specified in the written "Notice to Proceed" by the State and to fully complete the installation of all piping and units within _____ consecutive working days.

E. Equipment & Materials to be furnished by Contractor

The water treatment system supplied and installed consists of:

- 3/4" x 5/8" water meter
- 3/4" gate valves
- 3/4" check valves
- 3/4" Sampling taps
- 3/4" Pressure gauge
- Water Pre-filtration unit with cartridge
- Activated carbon exchange units with bedding
- Ultraviolet disinfection units

All materials furnished by the contractor shall be first class in every respect and subject to the approval of the engineer. All pipe and fittings furnished by the contractor shall be 3/4" copper unless otherwise approved by the engineer. All electrical wiring and fixtures shall be U. L. approved. Costs of these materials and services are to be included in the installation of each unit.

REQUIREMENT TO INSPECT

After installation each system is to be thoroughly flushed and inspected for leakage under normal house pressure by the contractor prior to acceptance by the engineer. The contractor shall notify the engineer upon completion of each installation to arrange for inspection of the units and subsequent approval.

F. Schematic Diagram

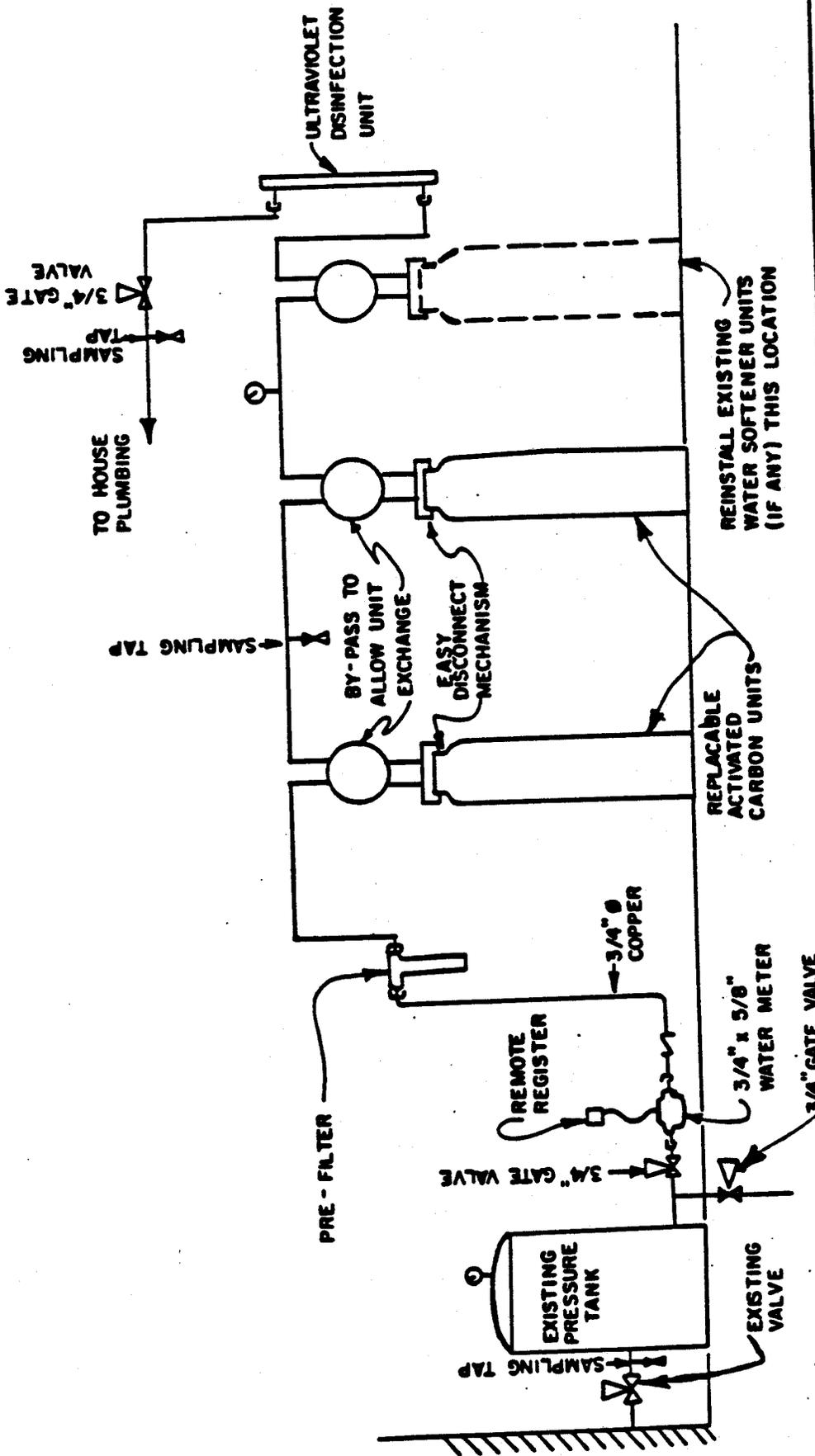


FIGURE 1
SCHEMATIC DIAGRAM
WHOLE HOUSE
WATER TREATMENT
SYSTEM

- LEGEND
-  PRESSURE GAGE
 -  3/4" GATE VALVE
 -  3/4" CHECK VALVE
 -  3/4" UNION
 -  ADAPTOR
 -  3/4" SAMPLING TAP

Contractor will be required to provide bid cost of installation, rental with purchase option or purchase for the following:

Description	Rental Rate/Month		Purchase Price		Installation or Service Charge		Total Cost
	Per Unit	Total	Per Unit	Total	Per Unit	Total	
1. _____ () Gate Valves	---	---	---	---	---	---	
2. One (1) 3/4" x 5/8" water meter and check valve	---	---	---	---	---	---	
3. _____ () 3/4" Sampling Tape.	---	---	---	---	---	---	
4. One (1) water pressure gauge	---	---	---	---	---	---	
5. _____ () Pre-water filtration unit.	---	---	---	---	---	---	
6. Replacement cartridges (including disposal or regeneration of carbon)	---	---	---	---	---	---	
7. _____ () Exchange units for activated carbon	---	---	---	---	---	---	
8. Activated carbon bedding for units.	---	---	---	---	---	---	
9. One (1) Ultraviolet Disinfection unit.	---	---	---	---	---	---	
10. Replacement Bulb	---	---	---	---	---	---	
11. Optional - Reinstallation of property owner's water softener unit in water treatment system.	---	---	---	---	---	---	
	Total		Total		Total		

Name of Firm: _____
 Address: _____
 Telephone: _____
 Signature: _____

H. METHOD OF PAYMENT

1. It is the intent that payment be made to the contractor within 45 days after receipt by the State of a correctly executed State of New York Standard Voucher Payment (AC 92).
2. The payment package will be submitted to the Regional Oil Spill Engineer and consist of:
 - State of New York Standard Voucher
 - Appendix A New York State required Standard Clauses (32-02-2) with payments over \$2,500.00
 - Invoices showing cost details as quoted.
 - Statement on letterhead detailing work performed, special problems on installation or operation, and authorizations for special work or subcontractors.
 - Contractor's certification or receipt for payment of materials or subcontractor's work.
3. Requests for payment of installation and equipment purchases may be submitted once the whole house water treatment system is operational. Rental rates start the first day of operation. **Replacement filter cartridges and/or activated charcoal bedding will be submitted with the request** for monthly rental payments.
4. The State will notify the contractor in writing and allow 30 calendar days for the removal of the rented portion of the Water Treatment System.

I. DETAIL SPECIFICATIONS

101.0 WATER METERS

The intent of this section is to call for the supply of approximately _____ () water meter(s) to be installed on individual privately owned potable water supply systems) in the Town of _____, County of _____, New York.

Water meters shall conform to standard 0700-77 of the American Water Works Association. The following additional information applies, including the reference Section of 0700-77:

1. Meter size shall be 5/8" x 3/4";
2. Meters are to be of frost-proof type;
3. Meters shall be furnished with coupling nuts and tailpieces;
4. Meter register shall read in U.S. gallons;
5. A rote register shall be provided;
6. Magnetic coupled drive shall be provided;
7. The Main meter casing may be of a polycarbonate (fiberglass reinforced) synthetic polymer.

102.0 GATE VALVES

The purpose of this section is to call for the supply of approximately _____ () gate valves. Bidders are requested to bid on both 3 4 inch union bonnet threaded end and solder ends.

Gate valves shall be 3/4 inch 125 pound bronze. They shall be rated for 200 psi non-shock cold water. Valves shall be non-rising stems and shall be Figure 606 or 607 as manufactured by the Hammond Valve Company or equivalent as approved by the Engineer.

103.0 CHECK VALVES

The intent of this section is to call for the supply of approximately 3/4" check valves. Bidders are requested to bid on both 3/4 inch bonnet threaded ends and solder ends.

Check valves shall be 3/4 inch, horizontal swing, Y type 125 pound bronze with renewable discs. They shall be rated for 250 PSI non-shock cold water. Seat disc shall be Teflon. Valves shall be No. T-413 or S-413 as manufactured by the Nibco Valve Company, or equivalent, as approved by the Engineer.

104.0 SAILING TAPS

The purpose of this section is to call for the supply of approximately _____ () 3/4" sampling taps. The taps shall consist of a 3/4" sill cock, Figure No: 63 as manufactured by Nibco, Inc., a 3/4" NPT tee, Figure No. 712 as manufactured by Nibco, Inc., and a one and one half inch copper nipple with 3/4" NPT male threaded connections on either end, or equal as approved by the Engineer. All fittings are to have a minimum pressure rating of 125 psi non-shock cold water.

105.0 PRESSURE GAUGES

The purpose of this section is to call for the supply of approximately _____ () pressure gauges. The gauges shall have a single faced 2 " dial with scale range of 0-100 psi. Gauges shall be constructed with a drawn steel casing, phosphor bronze Bourdon tube, brass movement, and Y" NPT male bottom connection. Accuracy shall be 2% of total scale range. The gauges shall be equivalent to the Ernest Gauge Co. No. 23, or the Ashcroft 1000, unless otherwise approved by the Engineer.

106.0 FACTORY WARRANTY

All items are to be furnished complete with a factory warranty covering defective parts or merchandise for a period of twelve (12) months from the date of installation or eighteen (18) months from the date of shipment. During the warranty period all defective parts or merchandise shall be repaired or replaced, at no cost to the Department of Transportation, upon return of same to the place or point of manufacture.

201.0 WATER FILTRATION UNITS

Water filtration units are to be purchased and installed on an individually owned potable water system. The unit is to be installed to pre-filter water before being processed in a water house treatment system. This unit will serve to remove both dirt and sediment and moderating high levels of iron and manganese found in the ground water.

The water filtration units shall conform to the following specifications:

- a. The Filtration Units shall be designed to employ replaceable filtration cartridges which may be alternately used for the removal of dirt and sediment or iron and manganese. Specifications for the filtration cartridges are included under part 202.0 of these specifications.
- b. Each filtration unit is to be equipped with a manually operated pressure venting, inlet and outlet shutoff which will permit the normal removal and replacement of the filter cartridge without auxiliary valves.

- c. Filtration housing shall be plastic, or stainless steel. unless otherwise approved.
- d. Units shall be approved by the National Sanitation Foundation (NSF) for potable water supply use.
- e. The maximum allowable headloss through the unit at a filtration rate of five (5) gallons per minute, and with a clean filtration cartridge installed, shall be three pounds per square inch (3 psi).
- f. All units shall have a minimum operating pressure rating of one hundred pounds per square inch (100 psi) and a minimum operating temperature rating of one hundred degrees fahrenheit (100°F).
- g. Units shall be furnished with three quarter inch (3/4") diameter threaded inlet and outlet connections. The fittings may be FPT or ?PT.
- h. Each unit shall be supplied with an installed filtration cartridge satisfying the requirements of Part 202 of these specifications.

202.0 REPLACEMENT FILTER CARTRIDGE

The intent of this section is to provide replacement cartridges compatible with the filtration unit supplied under Part 201.0 of these specifications. Filters are to be replaced upon a noticeable drop in water pressure. A replacement cartridge is to be left with the resident for emergency replacement.

The replacement cartridges shall satisfy the following requirements:

- a. Cartridges shall be constructed of a cellulose or Glass-Cellulose matrix with polypropylene supports and core.
- b. Cartridges shall have a progressive density structure to provide maximum solids retention.
- c. Cartridges shall,be supplied with all required O-Rings or gasket seals.
- d. Clean filter cartridges, when installed in a filter housing satisfying the requirements of Part 201.0 of these specifications, shall be capable of processing a flow rate of five (5) gallons per minute with a maximum pressure drop of three pounds per square inch (3 psi).
- e. Cartridges shall have a minimum operating pressure rating of one hundred pounds per square inch and a minimum operating temperature rating of one hundred degrees fahrenheit.
- f. Cartridges shall be designed to remove suspended matter with of size of 0.5u or greater. The unit shall also be impregnated with an oxidizing agent, as approved by the Engineer, to enable the filtration units to remove both dissolved and colloidal iron and manganese.
- g. All bidders will be expected to furnish with the units pressure curves relating flow to head loss through the cartridge and estimated removal efficiencies and cartridge life expectancy for the removal of dissolved iron and manganese.

203.0 FACTORY WARRANTY

All items are to be furnished complete with a factory warranty covering defective parts or merchandise for a period of twelve (12) months from the date of installation or eighteen months from the date of shipment. During the warranty period all defective parts or merchandise shall be repaired or replaced, at no cost to the Department of Transportation, upon return of same to the place or point of manufacture.

301.0 EXCHANGE UNITS FOR ACTIVATED CARBONS

Exchange units are to be purchased/rented monthly and installed on individually owned potable water supply system. Exchanges units for activated carbon shall be constructed to meet the following requirements:

- a. Units shall be of the downflow model with an exchange tank constructed of galvanized steel, nylon, or fiberglass wound ABS plastic.
- b. Each unit is to be equipped with a manually operated pressure venting, inlet and outlet shutoff which will permit the normal removal and replacement of the exchange unit without auxiliary valves.
- c. Tanks shall be supported in an upright position with a stand of approved construction, firmly affixed to the bottom of the exchange unit.
- d. All units are to be equipped with an inlet distribution and outlet collection device satisfying the requirements of this part.
- e. All tanks will be required to have a nominal inside diameter of no less than nine (9) inches with an effective bed depth of no less than thirty six (36) inches. For purposes of this part the effective bed depth will be measured from the bottom of the bottom-most outlet on the distribution device to the top of the uppermost outlet on the collection device, or from the top of the carbon bed to the top of the uppermost outlet on the collection device, whichever is the lesser. Only that depth having a corresponding nominal cross sectional dimension of nine (9) inches minimum may be included in the effective depth calculation.
- f. All exchange tanks are to be approved by the National Sanitation Foundation (NSF) and the United States Environmental Protection Agency (USEPA) unless otherwise approved by the Engineer.
- g. The clear water head loss through the exchange unit, with no carbon installed, shall not exceed two (2) pounds per square inch (2 psi) at a flow rate of five (5) gallons per minute.
- h. Units are to have a minimum working pressure rating of one hundred pounds per square inch (100 psi) and a minimum operating temperature rating of not less than one hundred degrees fahrenheit (100IF).
- i. All bidders must furnish with the bid documents a detailed drawing and specifications for the tank and appurtenant equipment.

301.0 (Cont'd)

- j. Units equipped with an integral threaded distribution/collection cap shall be secured to the exchange unit with a minimum of six No. 8 threads and an O-Rings rubber gasket to form a leak-tight seal.
- k. Inlet and outlet connections from the tank shall be threaded with an nominal diameter of three-quarters inch(3/4"). The connections may have either MPT or FPT.
- l. Regardless of type, the minimum accessible clear opening on the exchange tank shall be greater than 2 1/2 inches in diameter..
- m. Bolted caps shall be firmly affixed to the exchange unit with a minimum of eight bolts spaced at equal intervals and sealed with a one-quarter inch (1/4") form fitting rubber gasket or equivalent.
- n. Strainers supplied with the units shall have a maximum clear opening of 0.40 millimeters and may be manufactured of high impact plastic or stainless steel.
- o. Drop pipes extending from the head of the exchange unit to the collection strainer shall be manufactured of a high impact plastic or stainless steel and have a nominal diameter of at least one-half inch
- p. Although units are to be employed in a downflow fixed bed mode, units shall be designed to facilitate backwashing at a rate of 10 gpm/ft at a headloss not to exceed ten (10) pounds per square inch (psi). It is essential therefore that consideration be given to retention of the activated carbon in the units during the backwash mode.
- q. For the contractors information each exchange unit contains 1.5 cubic feet of volume and is expected to require 37.5 pounds of granular activated carbon.

302.0 FACTORY WARRANTY

All items are to be furnished complete with a factory warranty covering defective parts or merchandise for a period of twelve (12) months from the date of installation or eighteen months from the date of shipment. During the warranty period all defective parts or merchandise shall be repaired or replaced, at no cost to the Department of Transportation, upon return of same to the place or point of manufacture.

401.0 GRANULATED ACTIVATED CARBON

Bidder is to supply granular activated carbon for bedding material in the exchange units. The activated carbon is to remove petroleum product contamination from individually owned water supply. This carbon shall meet the specifications listed in Table I. Regenerated activated carbon must also meet the specifications listed in Table I.

TABLE 1

DETAIL SPECIFICATIONS

GRANULAR ACTIVATED CARBON

<u>Parameter</u>	<u>Allowable Range</u>
Parent Material (Virgin)	Bituminous Coal Coconut Shell, or Lignite
Nominal Mesh Size (US. Sieve Series)	8 x 30 - 12 x 40
Apparent Density (lb/ ft ³)	25 - 30
Surface Area (Nitrogen B.E.T. Method) (M ² /g)	950 min
Effective Size (mm)	0.55 - 0.75
Mean Particle Diameter (mm)	0.9 - 1.2
Abrasion Number (Ro-Tap)	70 min
Iodine Number (mg/adsorbed/gm carbon)	1050 min
Downflow pressure drop through backwashed segregated bed @ 10gpm/ft ² (ft/ft)	0.40 max

402.0 ULTRAVIOLET DISINFECTION UNITS

The purpose of this item is to call for the supply of approximately _____ () Ultraviolet Disinfection Units to be installed on individual privately owned water supply systems in the Town of _____, County of _____, New York. Bidders are requested to submit quotations for two alternates. The following specifications shall apply to Alternate No. 1, Ultraviolet Disinfection Units without intensity sensor:

- a) The Ultraviolet (UV) Disinfection Units shall consist of a UV lamp mounted in a totally enclosed steel housing.
- b) The unit shall come equipped with 3/4" MNPT inlet and outlet connections.
- c) With a new lamp installed the unit shall have a minimum dosage of 50,000 microwatts sec/cm² at a flow rate of 5 gpm.
- d) Units shall be designed with a maximum operating pressure rating of at least one hundred and twenty-five pounds per square inch (125 psi) and operating temperature range of forty to one hundred degrees Fahrenheit (40-100°F).
- e) Units shall be capable of processing 5 gpm with a maximum pressure drop of 2.0 psi.
- f) Each unit shall be designed to operate on 120V - 60Hz A.C. current and come supplied with an eight foot grounded electrical cord and plug. All electrical components shall be approved by the Underwriters laboratory or equivalent reviewing agency.
- g) Lamp casings shall be either stainless steel or PVC unless otherwise approved by the Engineer.
- h) Each unit shall come equipped with mounting brackets for mounting onto a fixed surface.
- i) Each unit shall be equipped with a filtered lens for inspection of the lamp operation.

or Alternate No. 2. ultraviolet Disinfection units with intensity sensor, all the requirements for Alternate No. 1 must be satisfied. Furthermore, the following additional requirements shall apply:

- a) Units shall be equipped with an integral sensing unit capable of monitoring the emission of ultraviolet radiation from the ultraviolet light source. .
- b) Each sensing unit shall be equipped with a visual warning alarm which shall be activated when the light source intensity falls below a prescribed minimum level. The units shall also be required to contain appropriate facilities for the future installation of an audible alarm.
- c) In addition to the above, each sensing unit shall have an adjustable, calibrated, control for manually adjusting the intensity below which the alarm units will be activated.

502.0 FACTORY WARRANTY

All items are to be furnished complete with a factory warranty covering defective parts or merchandise for a period of twelve (12) months from the date of installation or eighteen (18) months from the date of shipment. During the warranty period all defective parts or merchandise shall be repaired or replaced, at no cost to the Department of Transportation, upon return of same to the place or point of manufacture.