GENERAL SPECIFICATIONS

The Standard Specifications shall refer to the Vermont Agency of Transportation Standard Specifications for Construction (2001 Edition). All site work shall also be completed in accordance with the Town of Colchester's Public Works standards. Any discrepancies with the plans or specifications shall be reported to the Engineer prior to beginning that work.

A. Earthwork

1. The site shall be cleared of all debris and vegetation, and all topsoil shall be stripped prior to placing any fill material. Debris and vegetation shall be disposed of at an approved location.

2. The excavated material from on site shall not be used within five feet (5') of the building or under parking lots, roads or sidewalks. General imported fill material shall not be larger than two inches (2") or have more than 20% passing the NO. 200 sieve. All excess excavated material shall be disposed of at an approved location.

3. Grading

a. Perform all rough grading, including excavation, formation of embankments, shaping, sloping, composition, construction of ditches, disposal of surplus or unsuitable material, and any work necessary to prepare the subgrades of all roadways, walks and parking areas. Grading shall be brought to the bottom of the base course under paved or surfaced areas and to within a minimum of 24 inches of finished grade under side slopes and/or embankment areas to receive loam along roadways, walks or parking areas.

b. Accomplish all excavation and fill within the slope and grade lines as indicated on the Drawings unless otherwise authorized in writing by the Owner. Parking lots shall be graded to full cross section width at sub-grade before placing any type of sub-base or pavement except that partial width construction is permissible where necessary for the maintenance of traffic.

c. Do not use frozen material in the material in the construction of embankments areas.

d. Place all material being placed in embankments in horizontal layers of uniform thickness across the full width of embankment, except when it is impractical to construct full width of the embankment and partial width layers are authorized by the Owner. Do not allow or place stumps, trees, rubbish or other unsuitable material in embankments. Begin layers of embankment at the deepest part of the fill.

e. Areas of soft, yielding or otherwise unsuitable material that will not meet compaction requirements shall be removed, replaced with suitable material and properly compacted at no cost to the Owner.

f. Place embankments for paved or surface areas in horizontal layers of depths which will result in layers of compacted material not exceeding 8 inches. Compact each layer as specified before placing each new layer. Use effective spreading equipment on each layer to obtain uniform thickness prior to compacting. Each layer shall be kept crowned to shed water to the outside edges of embankment and continuous leveling and manipulating will be required to assure uniform density. Construction equipment shall be routed over the entire surface of each layer.

g. If, during the construction of the embankments, there is any indication that serious bulging, cracking, or unsafe movement may occur, the placing of fill shall be stopped or retarded to allow the material to stabilize.

h. All ditches and drains shall be constructed so they will effectively drain the roadway or parking lot before any sub-base or surface course material is placed. In handling materials, tools and equipment, the Contractor shall protect the subgrade from damage. In no case shall vehicles be allowed to travel in a single track and form ruts. If ruts are formed, the subgrade shall be reshaped and compacted and any pockets of clay, sand or soft material that may have been left in the subgrade shall be removed, replaced with approved material and properly compacted at the Contractor's expense. The subgrade shall be kept in such condition that it will drain. Sub-base, base or surface material shall not be deposited on the sub-grade until the sub-grade has been checked and approved by the Owner. After the sub-grade has been approved, hauling shall not be done nor equipment moved over the sub-grade which will distort the cross section. A tolerance of 1/2 inch above or below the finished sub-grade will be allowed provided that this 1/2 inch above or below sub-grade is not maintained for a distance longer than 50 feet, and that the required cross section is maintained.

4. Compaction:

a. General: Control soil compaction during construction providing minimum percentage of density specified for each area classification.

b. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well defined moisture-density relationship determined in accordance with ASTM D 2049, for soils which will not exhibit a well-defined moisture-density relationship.

1. Lawn or unpaved areas: Compact top 8" of sub-grade and each layer of backfill or fill material to 90% maximum dry density.

2. Compaction under paved and surfaced areas: The entire area of each layer shall be uniformly compacted to at least the required minimum density by use compact equipment consisting of rollers, compactors or a combination thereof. Earth-moving and other equipment not specifically manufactured for compaction purposes will not be considered as compaction equipment. Each layer for its full width shall be compacted to not less than 90 percent of the maximum dry density as determined by the Standard Method of Test for Moisture-Density Relations of Soils, ASTM-D698, Method C, except that the material in the top two feet of any embankment, immediately below the sub- grade shall be compacted to not less than 95 percent of the maximum dry density. The field density determination will be made by a qualified testing laboratory using a nuclear density gauge.

3. Concrete Slabs: Compact each layer of backfill or material to 95% maximum dry density.

c. Moisture Control: Where sub-grades or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of sub- grade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

B. Paved Access Drive, Parking Lot, and Yard Area

1. The sub-grade shall be prepared in accordance with Section 203.12 of the Standard Specifications.

2. Gravel for sub-base shall meet the following grading requirements (Section 704.04):

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
No. 4	20 – 60
No. 100	0 – 12
No. 200	0 – 5

The gravel shall be uniformly graded from coarse to fine and the maximum size stone particle shall not exceed 2/3 of the thickness of the layer being placed. The gravel sub-base shall be compacted to 95% of the maximum dry density as determined by AASHTO-T99.

3. Crushed Gravel for Sub-base: All materials shall be secured from approved sources. This gravel shall consist of angular and round fragments of hard durable rock of uniform quality throughout, necessarily free from thin elongated pieces, soft or disintegrated stone, dirt, organic or other objectionable matter. The grading requirements shall conform to the following table (Section 704.05 – Fine):

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
2"	100
1 1/2"	90 – 100
4	30 – 60
No. 100	0 – 12
No. 200	0 – 5

The crushed gravel shall be compacted to 95% of the maximum dry density as determined by AASHTO-T99.

4. Dense Graded Crushed Stone for Sub-base: Dense graded crushed stone for sub-base shall consist of clean, hard, uniformly graded, crushed stone. It shall be reasonably free from dirt, deleterious material and pieces which are structurally weak and shall meet the following requirements: (Section 704.06):

a. Source: This material shall be obtained from approved sources and the area from which this material is obtained shall be stripped and cleaned before blasting.

b. Grading: This material shall meet the requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
3 1/2"	100
2"	90 – 100
1"	75 – 100
1/2"	50 – 80
No. 4	30 – 60
No. 200	15 – 40
	0 – 8

5. Bituminous Concrete Pavement: The materials, grading and composition, placement, and finishing for bituminous concrete pavement (Type B, BI, and IV) shall meet the requirements of the Vermont Agency of Transportation Standard Specifications Sections 406, 702, and 704.10. Other requirements are as follows: Application of bituminous concrete pavement shall meet all the requirements of the Vermont Standard Specifications for Construction, Section 406, or as periodically amended, but not limited to, the following:

a. Weather Limitations: Bituminous material shall not be placed between November 1, and May 1. Material shall not be placed when the air temperature at the paving site in the shade and away from artificial heat is 40 degrees Fahrenheit or below.

b. Composition: Immediately after the bituminous mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling to 95% compaction. Rolling shall begin as soon after the material has been spread as possible to the rollers, the mixture shall be thoroughly compacted with hot or lightly oiled hand tampers, smoothing irons, or mechanical tampers. On depressed areas, a trench roller may be used, or dented compression strips may be used under the roller to transmit compression to the depressed

c. Surface Tolerances: The surface will be tested by the Engineer using a 10-foot straightedge at selected locations parallel with the centerline. Any variations exceeding 3/16 of an inch between any two contacts shall be satisfactorily eliminated. A 10-foot straightedge may be used on a vertical curve. The straightedge shall be provided by the Contractor.

d. Matching Surfaces: When a new pavement is to match an existing bituminous pavement for a roadway or trench, the Contractor shall vertically smooth cut the existing pavement along a straight line a minimum of one foot (1') into the existing pavement, over the existing gravel base. The smooth cut shall be thoroughly cleaned and coated with Emulsified Asphalt, RS-1, just prior to paving.

6. Stabilization Fabric: Stabilization fabric where required by the Engineer shall be Mirafi 500X or equal. The fabric shall be installed in accordance with manufacturer's requirements.

C. Drainage Systems

1. All culverts and storm drains shall meet the requirements of Section 601 of the Standard Specifications.

2. The following materials may be used for the storm drainage:

a. Polyvinyl Chloride pipe conforming to ASTM Specification D3034 or F679, (PVC) sewer pipe and fittings SDR 35.

b. Reinforced concrete pipe meeting the requirements of Section 710.01.

c. Corrugated Polyethylene pipe meeting the requirements of Section 710.03.

d. Corrugated aluminum alloy pipe meeting the requirements of Section 711.02.

D. Concrete Sidewalk

Site concrete sidewalks shall be placed to the lines and grades established in the plans in accordance with Section 618.03 of the Standard Specifications. Wheelchair ramps shall be constructed in accordance with AOT Standard Drawing C-3. Use Class B Concrete (AOT 501.03).

E. Water Supply

This project will be served by Colchester Fire District #3. The new line will tap off the existing 8 inch water main which runs along Route 7. During construction, if subsurface conditions warrant, the Engineer shall direct the contractor to install underdrains and curbin drains in accordance with details 8 & 9 on sheet C-8.

1. All water line and related work to be performed in accordance with the specifications and details for the installation of water lines and appurtenances for all water systems owned by the Champlain Water District, the City of South Burlington, Colchester Fire District #3 and the Village of Jericho, henceforth the CWD specification.

2. All domestic services and fire sprinkler systems that are connected to the public water system shall be protected with a testable backflow prevention assembly, and an appropriate thermal expansion system in compliance with the rules and regulations for the control of cross connections within the Champlain Water District's owned water systems.

This item shall consist of the excavation and backfilling required for the complete construction of the water services. This shall include valves, fittings, and all other appurtenances necessary to complete the water main system as located on the drawings. All materials and installation shall be in accordance with Colchester Fire District #3 standards, Champlain Water District Specifications, and Chapter 21 of the Environmental Protection Rules (Water Supply Rules – Part 8).

2. Installation

a. 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 Colchester Fire District #3 approval.

b. Pipe, fittings, and accessories shall be carefully handled to avoid damage. Prior to the date of acceptance of the project work by the Owner, the Contractor shall replace any new pipe or accessory found to be defective at any time, including after installation, at no expense to the Owner. All installation and testing shall be done in accordance with AWWA Standard C600 and ANSI Specification A21.11.

c. All pipe 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 12 inches from the visible limits of the crack and use the sound portion of the pipe. Conductivity wedges shall be installed at all joints. Three per joint (min.)

d. All pipe 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.

e. 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. Any deflection at joints shall be within the limits specified by the manufacturer.

f. 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).

g. Concrete thrust blocks shall be installed on all plugs, tees, and bends deflecting 11 1/4 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.

h. A minimum 18 inch vertical separation between the outside pipe surfaces shall be maintained where sewer services cross water services. Sewer services shall cross water services at or near right angles with one full length of water pipe centered on the sewer service so both and joints are at maximum separation from the sewer service. Special structural support for the water service and the sewer service may be required.

i. 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.

j. All trenching safety standards shall be in conformance with all applicable State and Federal guidelines and as specified on the plans.

k. The Contractor shall, at all times, keep the trenches entirely free of water until all work is finished and ready for backfilling.

l. Valve boxes are to be installed on all buried valves. The boxes shall be cast iron with a minimum 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 valves. Valve boxes shall not transfer loads onto 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 direction of opening.

Mechanical Joint restraints with twist off nuts shall be EBAA or Sigma, or a Colchester Fire District #3 approved equivalent grip ring.

No underground utility shall be installed within four feet from the water main on either side, from the top of the main to the finish grade. Trees shall not be placed over any water main or service line, nor placed within 20' of any appurtenance.

m. Chlorination of the water service shall be conducted only after the service has been successfully pressure tested and flushed and a clear stream is obtained as determined by the Engineer. All chlorination testing shall be done by an independent third party approved by the Engineer and Colchester Fire District #3.

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 Water Mains C651-86 (tablet method not acceptable).

The method of disinfection shall be by the continuous feed method unless otherwise approved by the Engineer. After filling, flushing, and addition of chlorine solution, the chlorine concentration within the pipe shall be at least 10 mg/l. All disinfection shall be performed under the supervision of the Engineer. The disinfection process shall be deemed acceptable only after two samples of water from the flushed disinfected main show no evidence of bacteriological contamination.

n. The Contractor shall furnish all gauges, testing plugs, caps, and all other necessary equipment and labor to perform a pressure test. All pressure testing shall be done by an independent third party approved by the Engineer and Colchester Fire District #3. The Contractor shall develop and maintain for two hours, 150 percent (150%) of the working pressure measured in pounds per square inch (200 psi – minimum). Failure to hold the designated pressure for the two hour period constitutes a failure of the section tested. No pipe installation shall be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{SD\,P^{1/2}}{7{,}400}$$

Whichever is Less

$$L = \frac{ND\,P^{1/2}}{133{,}200}$$

S = Length of Pipe Testing
L = Allow Leakage in Gals/Hr
D = Nominal Diameter of Pipe (")
P = Average Test Pressure (psi)
N = Number of Joints in the Pipeline Tested

All testing shall be conducted in accordance with AWWA C600 latest revision.

o. If there is an area where a cover of five feet six inches (5'6") cannot be maintained over the water line, the Contractor shall notify the Engineer and Colchester Fire District #3 (in writing) for a revised design.

p. All revisions affecting the water line must be approved by the Department of Environmental Conservation – Wastewater Management Division and Colchester Fire District #3. As-built plans shall be provided to the Colchester Fire District #3.

G. Sanitary Sewer

1. Description

This item shall consist of the excavation and backfilling required for the installation of the gravity sanitary sewer main, modifications to the existing facilities, and installation of service connections. This work shall include all pipe, manholes, structures and other appurtenances necessary to complete the system indicated in the drawings. All sanitary sewer materials and construction of same shall be as shown on the contract drawings and shall meet the requirements of the Colchester Public Works Department.

2. Materials

a. PVC Sewer Pipe: 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, SDR 35. Wall thickness of all PVC pipe shall meet ASTM Specifications for SDR 35 pipe. All pipe and fittings shall be clearly marked as follows:

– Manufacturer's Name and Trademark
– Nominal Pipe Size
– Material Designation 12454C PVC
– Legend "Type PSM SDR 35 PVC Sewer Pipe" or "PS 46 PVC Sewer Pipe"
– Designation ASTM D-3034 or F679

Joints shall be push-on type using elastomeric gaskets and shall conform to ASTM D-3212. The gaskets shall be factory installed. 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 and connections. All connections will require the use of manufactured fittings. Field fabricated, saddle-type connections will not be considered acceptable.

3. Installation

a. Excavations shall be made at a point at least six inches (12" where trench is in ledge) 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 have been inspected by the Engineer and approval given to commence backfilling operations.

b. 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 fit any pulty to make a suitable bedding for the sewer pipe. The fill shall be compacted to a 90 percent dry density (95% in roads) as determined by the AASHTO-T-99, Method A (Standard Proctor) test, upon which the six inches (6") of bedding material shall be placed. Any pipe which is not laid to grade and alignment shall be re-laid to the satisfaction of the Engineer. The bedding material shall be placed and compacted on each side of the pipe to a height of one-half the pipe diameter for the full width of the excavated trench and as shown on the accepted plans.

c. Backfill shall consist of approved material placed in six-inch (6") layers with each layer being thoroughly compacted to not less than 90 percent of maximum dry density as determined by the ASTM-T-99 Standard Proctor by means approved by the Engineer.

No stones in excess of one and one-half inch (1 1/2") diameter shall be placed within two feet (2') of the outside of the pipe. Particular precautions shall be taken in placement and compaction of the backfill material in order not to damage and/or break the pipe. The backfill shall be brought up evenly on both sides of the pipe for its full length. Walking or working on the completed pipeline except as may be necessary in tamping or backfilling shall not be permitted until the trench has been backfilled to a height of at least two feet (2') on the top of the pipe. During construction, all openings to the pipe lines shall be protected from the entering of earth or other materials.

d. Leakage Tests and Allowances for Gravity Sewers: 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. Air shall be slowly supplied to the plugged air installation until the internal air pressure reaches 4.0 pounds per square inch 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 pipeline shall be considered acceptable when tested at an average pressure of 3.0 pounds per square inch greater than the average back pressure of any groundwater that may submerge the pipe if:

i. the total rate of air loss from any section tested is its entirety between manhole cleanout structures does not exceed 2.0 cubic feet per minute; or

ii. 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.

The requirements of this specification shall be considered satisfied if the time required in seconds for the pressure to decrease from 3.5 to 2.5 pounds per square inch 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:

MINIMUM TEST TIME FOR VARIOUS PIPE SIZES

Diameter (inches)	Time (Seconds/100 Feet)
4	18
6	40
8	70

e. The Contractor shall be responsible for verifying the location and maintaining the integrity of all utilities shown on the plan.

f. The Contractor shall coordinate all construction with the Town of Colchester.

g. The Contractor shall take measures to ensure no groundwater enters the existing gravity sewer system during construction. These measures shall include capping the open end of the new sanitary pipe wherever there is no active work on the pipe. Also, sanitary sewer pipe shall never be laid on a wet trench. A plug shall be installed at the connection to the existing sanitary manhole as soon as this connection is made. The plug shall only be removed at the direction of the Engineer once the sanitary line has been completed and successfully passed all required performance tests.

H. Underground Utilities

For underground electrical and telephone (cable) services, the Contractor shall trench, place bedding, place conduit, and backfill in accordance with the utility company's requirements.

I. DEMOLITION CONTROL

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. The Conditions of the Contract and General Requirements of the Contract Documents apply to the General Contractor, Subcontractors, materials supplier and all other persons furnishing labor and materials under this Section.

1.02 DESCRIPTION OF WORK

A. Work Included: Provide all labor, materials, equipment and incidentals indicated on the necessary to accomplish the required site demolition as Contract Documents.

B. Responsibility: Demolition – Remove: All work as indicated on the Contract Documents.

C. Maintain dust-free atmosphere during demolition and construction phases of this work. It will be the responsibility of the Contractor to devise methods and construct proper barriers to maintain such conditions. Method of execution shall be reviewed and approved by the Engineer.

D. Adequate precautions shall be taken to protect all personnel and the Owner's property during the progress of the Work.

E. Methods and scheduling of work shall be approved by the Engineer and client before execution. Coordinate all work with other Contractors.

F. Any items of value scheduled for removal shall not leave the premises until the Owner has directed for their storage or been apprised of their salvage value and has accepted such value to be credited to the Contract between Owner and General Contractor.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 DISPOSAL AND DEMOLITION

A. Debris accumulation from demolition work shall be removed at the end of each working day and be disposed of or recycled in a legally acceptable manner.

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Submit Shop Drawings, Product Data, and Samples required by the Contract Documents.

1.02 RELATED DOCUMENTS

A. The Conditions of the Contract and General Requirements of the Contract Documents apply to the General Contractor, Subcontractors, materials supplier and all other persons furnishing labor and materials under this Section.

1.03 SHOP DRAWINGS

A. Drawings shall be presented in a clear and thorough manner.

1. Details shall be identified by reference to sheet and detail, schedule, or room numbers shown on Contract Drawings.

1.04 PRODUCT DATA

A. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.

B. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the Work.
2. Supplement standard information to provide information specifically applicable to the Work.

1.05 SAMPLES

A. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integrally related parts and attachment devices.
2. Full range of color, texture and pattern.

1.06 CONTRACTOR RESPONSIBILITIES

A. Review Shop Drawings, Product Data, and Samples prior to submission.

B. Determine and verify:

1. Field measurements.
2. Field construction criteria.
3. Catalog numbers and similar data.
4. Conformance with specifications.

C. Coordinate each submittal with requirements of the Work and of the Contract Documents.

D. Notify the Engineer in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.

E. Begin no fabrication or work which requires submittals until return of submittals with Engineer approval.

1.07 SUBMISSION REQUIREMENTS

A. Make submittals promptly in accordance with the approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other contractor.

B. Number of submittals required:

1. Shop Drawings: Submit the number of opaque reproductions which the Contractor requires, plus three copies, which will be retained by the Engineer.
2. Product Data: Submit the number of copies which the Contractor requires, plus three copies, which will be retained by the Engineer.
3. Samples: Submit the number stated in each individual specification section, or as appropriate for review and approval.

C. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.
2. The Project title and number.
3. Contract identification
4. The names of:
   a. Contractor.
   b. Supplier.
   c. Manufacturer.
5. Identification of the product, with the specification section number.
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the Work or materials.
8. Applicable standards, such as ASTM or Federal Specification numbers.
9. Identification of deviations from the Contract Documents.
10. Identification of all revisions on resubmittals.
11. A blank space for Contractor and Engineer review stamps.
12. Contractor's certification that he has completed, along review of the submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and Contract Documents.

1.08 RESUBMISSION REQUIREMENTS

A. Make any corrections or changes in the submittals required by the Engineer and resubmit until approved.

B. Shop Drawings and Product Data:

1. Review initial drawings or data, and resubmit as specified for the initial submittal.
2. Indicate any changes which have been made other than those requested by the Engineer.

C. Samples: Submit new samples as required for initial submittal.

1.09 DISTRIBUTION

A. Distribute reproductions of Shop Drawings and copies of Product Data which carry the Engineer stamp of approval to:

1. Job site file.
2. Record documents file.
3. Other affected contractors.
4. Subcontractors.
5. Supplier or Fabricator.
6. Others as required.

B. Distribute samples which carry the Engineer stamp of approval as directed by the Engineer.

1.10 ENGINEER DUTIES

A. Review submittals with reasonable promptness and in accord with the established project schedule.

B. Affix review stamp and initials or signature, and indicate requirements for resubmittal, or approval of submittal.

C. Return submittals to the Contractor for distribution, or for resubmissions.

1.11 Project Record Documents

A. Maintain, at the job site, one set of the Contract Drawings for recording as-built conditions. Mark (in red) changes made during the course of construction as follows:

1. Indicate horizontal and vertical changes in location of pipes, conduits and manholes. Reference all elevations to datum as indicated on drawings.
2. Record the location of buried construction and utility features revealed during the course of construction which are not shown or which are not located accurately on the Drawings.
3. Field changes of dimension and detail.

B. At completion of the project deliver the marked up set of prints to the Engineer.

C. Do not use record documents for construction purposes and maintain documents clean, dry, and in a legible condition.

END OF SECTION

EROSION CONTROL

1. General Notes

a. The Contractor shall construct and maintain all erosion measures in accordance with the "Vermont Handbook for Soil Erosion and Sediment Control on Construction Sites", Current Edition.

2. Construction Sequence

a. The Contractor shall be responsible for establishing all erosion control measures delineated on the plans and any additional measures that are necessary to minimize erosion. The Contractor shall have erosion control materials and installation equipment on site at all times.

b. Silt fences shall be installed along the base of the fill slopes. This shall remain in place until the project site has been stabilized. Install stone check dams in grass-lined swales 50 feet on center to prevent silt from washing into the drainage system during construction. Check dams shall be removed when vegetation is established.

c. Dust shall be controlled through the application of calcium chloride or water.

d. Excavated material from earth excavation and ditch digging shall be disposed of offsite or used for project fill material if determined suitable by the Owner's Representative.

e. All temporary erosion control measures required for any proposed winter work shall be installed prior to October 1. These measures shall be in place prior to the commencement of any site work or earth-moving.

3. Temporary Measures

a. Stone Check Dam– Shall be installed as per detail
Check dams shall be repaired as needed. Once vegetation is established and the check dams are no longer needed for erosion control, they shall be removed. Sediment deposits shall then be removed and placed in an upland area where there is no danger of further erosion.

b. Silt Fences – The silt fences shall be constructed in accordance with the construction detail. The fence shall generally be placed 10 feet from the toe of the slope or as shown on the plan. The ends of the fence shall be placed uphill to form a horseshoe shape to trap all runoff.

The silt fences shall be inspected periodically for damage or buildup of sediment. All damaged silt fence shall be repaired or replaced. Sediment deposits shall be removed from the fence as they accumulate and placed in an area where there is no danger of further erosion.

c. Erosion Matting – Erosion matting shall be placed on all grass-lined swales with profile grades exceeding 5.0% and shall be placed and maintained in accordance with the Vermont Agency of Transportation Standard Specifications Sections 654 and 755.07.

d. Dust Control – During construction, dust will be controlled with water distributed by a truck-mounted spray bar. At the direction of the Engineer, Calcium Chloride AASHTO M 144 or Sodium Chloride M 143 may be used.

e. All stockpile material (topsoil, borrow, etc.) will a have a stone dike or silt fence constructed around the perimeter. Seed and mulch stockpile material as soon as possible to prevent soil erosion and sedimentation off site. Locate stockpiles on the uphill side of disturbed areas, if possible. During windy conditions, stockpiled material shall be covered or watered appropriately to prevent wind erosion.

f. All slopes greater than 1:3 shall have erosion control netting installed to stabilize the slope and reduce the erosion potential. Install netting over mulched slopes so that all parts are in contact with the soil and mulch. Pin netting with wire staples 3 feet o.c. to ensure full bonding with soil surface.

4. Permanent Measures

a. Grass Lined Swales – All swales that are not stone-lined shall be topsoiled, seeded, fertilized and mulched. Any area which shows signs of erosion shall be reseeded immediately and maintained until permanent vegetation is established.

b. Restoration – As soon as construction is completed in a given area, it shall be topsoiled, seeded, fertilized and mulched.

The topsoil shall be submitted to the Extension Service for analysis. Fertilizer shall be applied at approximately a rate of 400 pounds per acre depending on soil analysis. If necessary, lime shall be applied to the topsoil to produce a soil PH of approximately 6.0.

After the finished grade has been established and the fertilizer spread, plant the specific seed mixture and work firmly into the soil. Apply seed on the prepared seed bed with approved mechanical seeders or hydroseeding equipment. Upon completion of the above planting operations, roll all areas, leaving the surface of all area true to grade, smooth, and free from hollows or other irregularities. Thoroughly water all newly planted areas immediately after planting using a fine spray. Protect banks and swales from erosion and repair erosion that occurs. Banks, swales or other graded areas that have been washed out or have become damaged shall be repaired immediately. Unless approval is granted by the Engineer to plant off season, seeding will be conducted only during the period from April 15th to October 15th. Seeding shall not proceed before other phases of the work have progressed sufficiently and shall not interfere with other phases of work.

After seeding, mulch shall be applied at a rate of 2 tons per acre.

5. Winter Construction

a. If due to the project schedule, construction during the winter months is necessary, the contractor shall follow the winter construction procedures outlined in the "Vermont Handbook for Soil Erosion and Sediment Control on Construction Sites"

i. Minimize disturbance between October and May.

ii. All erosion control measures shall be in place prior to the ground freezing.

iii. Mulch shall be applied to all disturbed area at a rate of 90 pounds per 1,000 square feet. The Contractor shall maintain all areas that are mulched until permanent vegetation can be established.

6. Maintenance, Guarantee and Acceptance

a. The Contractor shall be responsible for the care and maintenance including watering of seeded areas, until the seeding is inspected and accepted by the Owner.

b. Reseeding shall be done until all areas are completely covered with a mature stand of grass. An area shall be considered covered when the entire surface contains a vardurous stand of grass. Areas that, in the opinion of the Engineer, are predominantly weeds shall be plowed up, fine graded, fertilized and reseeded in the manner specified previously, exercising caution not to cause damage to new or existing plant material.

c. Maintain and guarantee all seeded area until acceptance.

REVISION DATE & DESCRIPTION	BY
12/31/07 – ADT/TOWN	MEC
REVISION	
2/15/08 – TOWN REVISION	MEC

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STATE OF VERMONT MARTIN C. CHOMICKI NO. 6745 CIVIL LICENSED PROFESSIONAL ENGINEER

CBAY CARWASH
2 & 4 ROOSEVELT HIGHWAY
U.S. ROUTES 2 & 7
COLCHESTER VERMONT
SPECIFICATIONS

DRAWN	CCE
CHECKED	MEC
SCALE	NO SCALE
DATE	11/06/07
JOB NO.	27141
SHEET	C-10

OF 10 SHEETS