

TOWN OF HINGHAM MASSACHUSETTS



Rules and Specifications Governing Street Excavation

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Revised Requirements for Street Preservation

- a. In accordance with the General By-Laws of the Town of Hingham, the DTE 98-22 Standards and the Regulations of the Department of Public Works Superintendent or Projects Engineer entitled "Street Excavations" adopted from time to time, may be amended and/or revised and updated by the Board of Selectmen in respect to rules, regulations and fees pursuant to these regulations. In addition, the Board of Selectmen may rule, regulate or specify particulars with the respect to any excavation or digging or other types of work performed within the Public Ways of the Town of Hingham.

General Requirements

- a. No person, utility or company shall make any opening or excavation in any public way or street without first obtaining a permit and approval for each specific excavation. The permit will be issued for a period not to exceed thirty days. It can, by permission from the DPW Superintendent, Projects Engineer or his or her agent, be extended to a period of no greater than sixty days from the date of issuance. Permits must be kept on the job site and must be shown upon request, to any authorized Town Official. Changes relative to the size of location of excavation must be first approved by the DPW Superintendent, Projects Engineer or his or her agent. Street openings will not be allowed during the period of time between November 15th to April 1st, except under emergency conditions.
- b. No Municipal Street, sidewalk, public right of way, or public easement shall be opened, cut, excavated, bored, tunneled under, drilled, or trenched without a street opening permit issued by the Department of Public Works. No municipal street restored or re-built within the past five years shall be cut, except in an emergency, or as approved by DPW Superintendent, Projects Engineer or his or her agent. The permit applicant shall be the person, entity, company, utility, or agency assuming responsibility for compliance with the permit requirements, including compliance with all requirements set out or referenced here. Where such work involves a grant of location for telecommunications or electric services, or approval required by the Board of Selectmen for the location of other utility structures or facilities, the permit applicant shall be required also to obtain approvals from the Board of Selectmen before a street opening permit will be effective. Further, the permit applicant shall obtain all necessary permits, including but not limited to those required from the Electrical Department, Water Company and Sewer Department before a street opening permit will be effective. Finally, the permit applicant shall obtain a "Dig Safe" number and shall arrange for disconnection of hazardous utilities prior to any work in or under a municipal street or sidewalk or public right of way. ***Permits are available through the Department of Public Works, 25 Bare Cove Park Drive, Hingham, Massachusetts.***
- c. ***In the event of an emergency*** requiring immediate work in or under a municipal street, sidewalk, public right of way, or public easement, the permit applicant shall notify the DPW Superintendent, Projects Engineer or his or her agent immediately by 24-hour emergency telephone **(781) 741-1430**. As soon as practical but in no event later than the next business day after the emergency work commences, the permit applicant shall file for a street opening permit and all other permits required by Town of Hingham departments.
- d. No permit applicant or contractor will be permitted to work in or under municipal streets, sidewalks, public rights of way, or public easements unless the Department of Public Works determines that the permit applicant or contractor has demonstrated competence and experience to restore municipal streets, sidewalks, public rights of way, and public easements in accordance with latest edition of the Massachusetts Highway Department Standard Specifications, Manual on Uniform Traffic Control Devices-FHWA and Massachusetts Department of Telecommunications and Energy Standards (to be employed

by public utility operators when restoring streets, lanes, and highways), DTE 98-22, as amended and revised from time to time.

- e. The Department of Public Works shall conditionally grant of a street opening permit on posting of a performance bond, provided that the Department of Public Works shall have discretion to waive or modify the performance bond.
- f. At all times during the course of work in or under a municipal street, sidewalk, public right of way, or public easement, the permit holder shall meet all safety requirements of the Department of Public Works, Electrical Department, Water Company, Police Department, and Fire Department.
- g. Where work in or under a municipal street or sidewalk or public right of way or public easement is to be undertaken by more than one person, entity, company, utility, or agency, the Department of Public Works may require the parties to designate a single permit applicant who shall be responsible for compliance with the permit and who shall act as agent for all of the parties.
- h. The Department of Public Works may establish a reasonable time limit for completion of work in or under and restoration of a municipal street or sidewalk or public right of way or public easement.

Testing requirements for all Permanent Patches and Final Road Restoration (excluding temporary patches)

Test results and certification to be provided to the Department of Public Works upon completion of work.

- a. Gravel will be defined as "Processed Gravel" M 1.03.1 Per the Massachusetts Highway Department (MHD) Standard Specifications 1995 or newer as amended. Sieve Analysis to be provided by the applicant.
- b. Soil Compaction will be defined as a minimum of 95% of the Proctor Value as determined in the lab for each source of material. Soils compaction test report to be provided by the applicant.
- c. Hot Mix Asphalt Compaction (HMA) will be defined as 95-100% of the marshal value as determined in the lab from the MHD approved plant. HMA compaction test report to be provided by the applicant.
- d. Hot Mix Asphalt analysis shall include an extraction, gradation, asphalt content; temperature at the plant all per the MHD approved Job Mix Formula (JMF). Volumetric properties will only be required if the JMF was submitted volumetrically to the MHD. HMA plant test report to be provided by the applicant.
- e. All other emulsions, hot rubber compounds and joints sealers will meet the requirements in the Massachusetts Highway Department Standard Specifications 1995 or newer as amended. Submittals will be proved by the applicant to the H.D.P.W. upon request.

Administrative Fees

- a. At the time of application a minimum fee of \$125 (One hundred and Twenty Five Dollars) will be charged for each permit as part of an administrative fee. Every permit applicant shall pay an administrative fee to the Department of Public Works at the time of application for a street opening permit. The administrative fee shall cover the reasonable cost to the Department of Public Works for processing the permit application, database entry, record retrieval and maintenance, research of the street or sidewalk or public right of way or public easement and its condition, location of underground utilities and systems, identification of required permits and authorizations, and regulatory coordination with other departments. The administrative fee shall be paid at the time of permit application. The fee must be made payable to the Town of Hingham in the form of a money order, cashiers or treasurer's check. No work, other than emergency work will be permitted prior to full payment of the administrative fee unless determined otherwise by the Department of Public Works. Information gathered by the Town of Hingham shall not diminish the applicant's responsibility to obtain all necessary research material, permits etc. to execute work in accordance with this document.
- b. In addition to the minimum \$125 (One hundred and Twenty Five Dollars) non refundable application fee.
- c. For a non-DPU (Department of Public Utilities) jurisdiction entities (public utilities companies), a minimum reimbursable deposit of \$1,500.00 or amount as deemed necessary by the Department of Public Works contingent upon the size and scope of the trenching/street opening shall be submitted and retained for one year in the form described below at the Department of Public Works Department. At any time dependant on the size and scope of the trenching, the Department of Public Works may request additional surety as outline on Page 5 under "Public Liability Insurance and Performance Bond".
- d. The deposit(s) must be in the form of a money order, cashiers or treasurer's check payable to the Town of Hingham. The deposit is reimbursable upon final inspection of the excavated area by the DPW Superintendent, Projects Engineer or his or her agent and his subsequent approval that repairs have been properly performed. There is no charge for the inspection.

IMPORTANT NOTE:

Failure to act within 48 hours of notification on any failing trench workmanship issue, traffic control issue or anything related thereto shall result in forfeiture in part or whole of reimbursable deposit/surety as stated above. It is up to the applicant to contact the Department of Public Works' office to obtain their reimbursable deposit after the one year noted.

Grant of Location

- a. In accordance with the Massachusetts General laws, Chapter 502 of the Acts of 1980 and additional requirements permitted under this statute as required by the Town of Hingham, all utility companies proposing to upgrade the size of the existing main, changing the location of a main, installing a new service main or locating and appurtenance to an existing or new main must first obtain a "Grant of Location" from the Board of Selectmen.
- b. Requests for the Grant of Location should be accompanied by a detailed plan which indicates all names and addresses of abutting properties and present owners; the proposed location and size of the main, lengths, proposed structures, existing structures, existing utilities near the proposed work (near proposed work to be defined a full length of

the proposed excavation longitudinally and to the limits of the R.O.W. horizontally. No case less than 10' past the limit of work in each direction within the R.O.W.). Also include the purpose of the proposed utility and any other information pertinent to the permanent location of the proposed utility and its appurtenances via a written construction plan (pumping required, traffic control, shoring etc.). Road restoration guidelines will be as outline in the street opening process or as modified by the Department of Public Works. However, dependent on the size of the project the Department of Public Works may at its discretion implement Special Provisions, which may include more extensive restoration.

Special Provisions

- a. In cases when a major project is to be undertaken outside of a routine service connection or the repair of an existing service, additional requirements pertaining to the project and permanent repairs to public property may be required. These additional requirements are termed "Special Provisions" to the Rules and Specifications Governing Street Excavations.
- b. Special Provisions will be issued by the DPW Superintendent, Projects Engineer or his or her agent prior to the issuance of a "Grant of Location". **The applicant when replacing an existing utility may be required to remove the old utility being replaced. See Fee's.**

Street Restoration

- a. After opening and completing work in or under a municipal street, sidewalk, public right of way, or public easement, the permit holder shall be responsible for restoration.
- b. Prior to restoration of the surface of a municipal street, sidewalk, public right of way, or public easement, the permit holder shall certify in writing that it has completed work and the opening and has been backfilled, closed, and compacted the opening to a soil density value of 95% modified Proctor density as specified in the American Association of State Highway and Transportation Officials standard AASHTO T180.
- c. 48 hours after the applicant has been notified, in the event the DPW Superintendent, Projects Engineer or his or her agent determines that the opening has not been backfilled, closed, and compacted to this standard, the Department will charge the permit applicant for all costs required to complete backfilling, closing, and compaction to the AASHTO T180 standard. Notification will be given to the name listed as the primary contact on the permit. This person should be available 24 hours a day 7-days a week via phone call. See DTE 4.4.

Road Restoration for Guaranteed Streets

- a. A guaranteed road will be defined as any newly paved road within the past 5 years. Any work performed on a guaranteed road under the moratorium definition shall require the Board of Selectmen approval. . The Department of Public Works may impose the remedial work/restoration deemed necessary to restore a guaranteed roadway within the 5 year moratorium to its former state/condition. Specific provisions will be issued.

Public Liability Insurance and Performance Bond

- a. A Certificate of Public liability Insurance must be presented on which the Town of Hingham shall be named as an additional insured, issued by an insurance company authorized to issue such insurance in Massachusetts. The following limits are to be indicated:
- b. Bodily Injury Liability for not less than \$500,000.00 for injury or death of any one individual, and not less than \$1,000,000.00 injury or death in any one accident. Property Damage Liability shall be not less than \$300,000.00 and shall include damage to property caused by explosives and blasting, or by vehicles or equipment, or on account of trenches or from any other cause. The DPW Superintendent, Projects Engineer or his or her agent may, in his sole discretion, require increased limits of insurance of property damage.
- c. Before an excavation permit, as herein provided, is issued, the applicant shall file with the Department of Public Works an Insurance Certificate acceptable to said Department of Public Works. Exemption to filing insurance endorsement may be made to self insurers and State and Federal Government agencies.
- d. Should any major projects be undertaken which involved extensive excavation to a particular roadway, the contractor or utility will be required to post security for performance. It is within the sole discretion of the DPW Superintendent, Projects Engineer or his or her agent as to what excavations will require security surety, as well as, the amount, type and method of security surety.
- e. If security in the form of a bond is approved by the DPW Superintendent, Projects Engineer or his or her agent, it must be from a surety company authorized to do business in the Commonwealth of Massachusetts. The bond is to be conditioned on the applicant's guarantee of the faithful and satisfactory performance of the work in all respects, and of replacement and restoration of that portion of any street, highway, way or road in which the applicant, his agents or employees, shall make such excavation. Bonds from utility companies that are self insured will be acceptable if the terms and conditions are similar. The bond must be written so as to allow the Town of Hingham to perform work deemed necessary by the DPW Superintendent, Projects Engineer or his or her agent to correct any deficiencies, and all costs incurred by the Town may be applied against the Performance Bond if they are not recovered after billing to the permit holder. Public Utility Companies and State and Federal agencies are exempt from this section.

Start of Work

- a. The Contractor shall notify Dig-Safe, 1-800-322-4844, and prior to excavation.
- b. Work shall start as near to the starting date specified in the permit. A 24-hours notice of starting work to the Department of Public Works is sufficient, except in critical areas. In critical areas, 48-hours notice to the Department prior to starting work is required.
- c. Critical areas are considered to be street intersections, arterial routes and streets within the Town shopping areas.
- d. If, in the judgment of the DPW Superintendent, Projects Engineer or his or her agent, traffic conditions, the safety or inconvenience of the traveling public or the public interest requires that the excavation work be performed as emergency work, the DPW Superintendent, Projects Engineer or his or her agent shall have full power to order that a crew and adequate facilities be employed by the Applicant to ensure that such excavation work may be completed as soon as possible.

Emergency Action

- a. Nothing in these rules shall be construed to prevent the making of such excavations as may be necessary for preserving life or property or for locating trouble in conduit, cable, or pipe, or for making repairs, provided that the person making such excavation shall apply to the DPW Superintendent, Projects Engineer or his or her agent for such a permit on the first working day after such emergency work is commenced.
- b. The person engaged in emergency action shall notify the Department of Public Works, and the Police Department or the Public Utility companies, or all, at the start of the emergency work.

Notification to Public Utility Companies

- a. The applicant shall, in accordance with the General laws of the Commonwealth of Massachusetts currently in effect, give notice to public utility companies before making excavation in a public way.
- b. See Appendix A, Chapter 502 of the Acts of 1980, An Act Further Regulating Excavations in Public Ways.
- c. See Appendix B. Chapter 370 of the Acts of 1963. An Act Relative to Notices Required to be Given to Public Utility Companies Before Excavations are Made in Public Ways.

Protective Measures/Protection of Traffic

- a. It shall be the duty of every person cutting or making any excavation in a street immediately following said excavation, to place and maintain such barriers and warning devices necessary for the public safety as may be required by the DPW Superintendent, Projects Engineer or his or her agent; but always in accordance with Manual on Uniform Traffic Control Devices, and the Police Department. The applicant shall notify the Fire Department of any detours or obstructions that may hinder fire apparatus.
- b. Barriers shall meet the approval of the DPW Superintendent, Projects Engineer or his or her agent. Warning lights shall be flares, torches, lanterns, electric markers, sign boards or flashers and shall be used to indicate the hazard to traffic from sunset of each day to sunrise the next day. Lanterns shall have clear, red or ruby globes. Electric markers or flashers shall emit light at sufficient intensity and frequency to be visible at a reasonable distance for safety. Reflectors or reflecting materials may be used to supplement, but not replace, light sources. The type of warning lights to be used in any particular location is subject to the approval of the DPW Superintendent, Projects Engineer or his or her agent.
- c. The applicant shall, where possible, maintain safe crossings for two lanes of vehicle traffic at all public intersections as well as safe crossings for pedestrians at intervals of not more than 300 feet. If any excavation is made across a public way, it shall be made in sections to assure maximum safe crossing for vehicles and pedestrians. If the way is not wide enough to hold the excavated materials for temporary storage, the materials shall be immediately removed from the location. If a road crossing is to be made only one half of

the road may be opened at one time. The applicant shall coordinate traffic protection measurers with the Police Department and notify the Fire Department.

Protection of Butters and Adjoining Property

- a. The applicant shall maintain all gutters free and unobstructed for the full depth of the adjacent curb and for a width of at least three (3) feet from the face of such curb at the gutter line. Catch Basins shall be kept clear and serviceable. The applicant shall make provisions for all surface water, muck, silt; residue or other run-off pumped or removed from excavations and shall be responsible for any damages. Dewatering into a catch basin will not be allowed without approval from the DPW Superintendent, Projects Engineer or his or her agent.

Tree Replacement

- a. Any person, firm, corporation, or agency that in the course of construction, sub-division development, or for any other such reason wishes to remove any living Public Shade Tree, 2 1/2 inches in **diameter at breast height (d.b.h.)** or greater shall, in accordance with Chapter 87, Section 3 of the Massachusetts General Laws, first obtain a permit from the Tree Warden; and if removal is permitted, shall at no cost to the Town, within the spring or fall months following completion of construction, replace in locations specified by the Tree Warden a number of small trees determined to be equivalent on the following basis:
- b. The total d.b.h. of all replacement trees shall equal or exceed the total d.b.h. of all trees to be removed, except in cases where a Public Shade Tree is cut or removed prior to obtaining a permit as required herein, for which replacement trees or equivalent shall be provided at double the d.b.h. of all lost trees.
- c. Replacement trees shall be balled and bur-lapped, not less than 2 1/2 inches d.b.h., and shall be planted by a professional arborist, nurseryman, or landscaper in accordance with I.S.A. standards. Species, size, and planting locations shall be determined by the Tree Warden.
- d. The Tree Warden may require a bond, escrow account, irrevocable letter of credit, or other such surety as may be determined necessary. Such surety may be held for one year from the date of planting to ensure survival of the replacement trees. At the option of the applicant, the Town may, upon payment of the agreed upon sum, replace said trees according to the standards herein set forth.
- e. Partial relief may be granted by the Tree Warden, from the replacement requirements herein only in cases where the health, location, or morphology of the tree to be cut warrants. However, in no case shall any less than one 2 1/2 d.b.h. tree be required for each tree lost.

Access to Vital Structures

- a. The excavation work shall be performed and conducted so as not to interfere with access to fire hydrants, fire stations, fire escapes, water gates, underground vaults, catch basins, or any other public necessities.

Relocation and Protection of Utilities

- a. The Applicant shall not interfere with any existing utility without the written consent of the DPW Superintendent, Projects Engineer or his or her agent and the owner of the utility. If it becomes necessary to relocate an existing utility, this shall be done by its owner and the cost of such work borne by the Applicant. The Applicant shall research all existing underground utilities and protect them from damage. The Applicant shall adequately support and protect by timbers, sheeting, etc. all pipes, conduits, poles, wires, cables or other appurtenances which may be in any way affected by the excavation work, and do everything necessary to support, sustain and protect them, under, over, along or across such work area. In the event any of said pipes, conduits, poles, wires, cables or appurtenance are damaged, and for this purpose pipe coatings or outer encasements or similar type protective devices are to be considered as part of the pipe, conduit, pole, wire, cable or other appurtenance that it protects, such damage shall be repaired by the agency or persons owning them and the expense of such repairs borne by the Applicant. The Applicant shall be responsible for any damage done to any public or private property by reason of the breaking of any water pipes, sewer, gas pipe, electric conduit or other such similar type appurtenance.

NOTE: All protective work carried out or deemed necessary affecting buildings must be approved by the Building Inspector.

Routing Of Traffic

- a. The Applicant shall take appropriate measures to assure that during the performance of the excavation, so far as practicable, normal traffic conditions shall be maintained at all times so as to cause as little inconvenience as possible to the occupants of the abutting property and to the general public. Closing of streets will not be permitted prior to notification of the DPW, Police and Fire Departments. If for any reason the contractor has to work on a street and his work interferes with two free travel lanes of traffic, the contractor will provide police protection at his expense.
- b. Warning signs shall be placed at sufficient distance from the construction operation to alert all traffic coming from both directions. Cones or other approved devices shall be placed to channel traffic, all in accordance with the requirements of the Police Department. All costs including those of traffic warning signs, barriers, traffic controllers, police officers, etc. shall be fully borne by the Applicant.

Noise

- a. Each Applicant shall conduct and carry out excavation work in such manner as to avoid unnecessary inconvenience and annoyance to the general public and occupants of neighboring property. During the hours from 10:00 pm to 7:00 am, he shall not use, except with express written permission of the DPW Superintendent, Projects Engineer or his or her agent or in case of an emergency as herein otherwise provided, any tool, appliance or equipment producing noise of sufficient volume to disturb the sleep or repose of occupants of the neighboring property. No work other than an emergency opening by a utility company may be performed on a Saturday, Sunday or legal holiday.

Construction Materials and Equipment

- a. The amount of space occupied by construction materials and equipment on the site shall be limited so as to not unduly hinder traffic and block the way. Vibration resulting from the work shall be minimized. No contractor shall use jackhammers or excessively large equipment. Pavement shall be sawn with diamond-tipped cutting wheels. Trucks and excavating equipment shall be as small as is practical to properly perform the work, in order to reduce the severe vibrations that are characteristic of larger equipment. Truck speed shall also be kept to a minimum within the affected area, in order to lessen vibrations.

Breaking through Pavement

- a. The use of hydro-hammers or heavy-duty pavement breakers for breaking pavement is limited on all streets unless written permission is granted by the DPW Superintendent, Projects Engineer or his or her agent for such use after due consideration of the location, the condition of the street and the depth of saw cutting required prior to the use of the hammers.
- b. Approved cutting of bituminous pavement surface before excavating is required to confine pavement damage to the limits of the trench.
- c. Sections of bituminous or cement concrete sidewalks shall be removed to the nearest score line or approved saw cut edge.
- d. Unstable pavement shall be removed over cave-outs and over breaks and the sub-grade shall be treated as the main trench.
- e. Pavement edges shall be trimmed to a vertical face and neatly aligned with the center line of the trench.
- f. Cut-outs outside of the trench lines must be normal or aligned parallel to the center line of the trench.
- g. Generally excavation shall be made in open cut. Tunneling will be allowed by special permission of the DPW Superintendent, Projects Engineer or his or her agent. Trenches and excavations shall be braced and sheathed when necessary as required by OSHA specifications.
- h. Before the Applicant starts any excavations, he must confer with the utility companies providing the Town with gas, water, television/cable and telephone service and with the Town's DPW, Water, Hingham Municipal Light Plant and Sewer Departments to obtain all information from each as to the depth of trench, location of all utilities, and other conditions as to where and how the excavation shall be made. All safeguards, barriers and signs shall be maintained at all times by the Applicant while the work is in progress.
- i. Street surface openings henceforth will be restricted for a period of at least five (5) years after a new permanent surface is laid; except in cases of extreme emergency. Since modern bituminous concrete surface materials remain in excellent condition for many years beyond the aforesaid period and since such openings are the greatest single contributor to pavement deterioration, utility companies and contractors will be strictly limited in resorting to this method of excavating Town Streets irrespective of surface age.

- j. **CDF roadway restoration will be as outlined:** When a street excavation is made on streets resurfaced within the past five (5) years, the Applicant must install a Massachusetts Highway Department (MHD) approved Control Density Fill (CDF) (excavatable flowable fill) patch from an MHD approved plant. The trench will be filled with the CDF to within 1½-2' of the finished grade (so as not to cause moisture damming under the pavement. The subsequent course to be placed over the CDF will be a MHD 'Processed Gravel' as outlined in the MHD Standard Specifications. The Processed Gravel will be compacted to 95% of the proctor value. The trench shall receive a Hot Mix Asphalt patch equal to the existing HMA cross section or 1½" of compacted State Top over 3" of compacted state binder. Hot Mix Asphalt will be produced by a MHD approved plant per the approved Job Mix Formula (JMF). The DPW Superintendent, Projects Engineer or his or her agent may modify or relax the specification as deemed necessary to facilitate the work.
- k. The Utility companies placing utilities in a shallow trench (up to three and one-half (3 ½) feet) in depth and narrow trenches (up to two (2) feet) in width may in certain instances be exempt from the cement concrete patch. Open excavations may not be allowed in which case jacking or other tunneling methods will be required. Following the completion of the finish patch, the excavated area will be using the grind and inlay method patched.

Trenches

- a. The trench shall be located as close as possible to the proposed area required to do work. The trench shall be as small as possible to facilitate the work efficiently and safely.
- b. Steel plates may only be used for 24 hours at the same location. Steel plates will not be used during any weekends, unless special permission is granted by the DPW Superintendent, Projects Engineer or his or her agent.
- c. Steel plates used by a Utility to protect an excavation shall be of sufficient thickness to resist bending, vibration, etc., under traffic loads and shall be anchored securely to prevent movement. If these conditions are not met, the Utility will be required to backfill and pave the excavations daily. No open trench shall be left unattended overnight.

Excavated Materials

- a. All materials excavated from trenches or excavations shall be removed from the site of the work except when the materials are suitable for, and permission has been granted by the DPW Superintendent, Projects Engineer or his or her agent to use it for, the back fill. No blasting of earth, ledge or rock may take place without first obtaining the necessary state and local blasting permits. Blasting may only be performed by a qualified, properly insured, licensed and experienced company. When and if rock is encountered within 200 feet of a dwelling, rock removal will be accomplished by means other than blasting whenever feasible. The town will be provided with copies of the precondition surveys and blast monitoring results.

Backfilling and Temporary Repairs

- a. The trench in the street must be filled and temporarily resurfaced on the same day that it is opened unless otherwise directed by the DPW Superintendent, Projects Engineer or his or her agent. The trench shall be backfilled to within twenty four (24) inches of the top with approved excavated material or clean MHD Processed Gravel per M 1.03.1. Twenty four

(24) inches of clean processed gravel shall be placed in the trench and the remaining two (2) inches shall be filled with a temporary bituminous surface. All road surfaces shall be pre-cut and damaged edges re-cut in order to avoid damaging existing surfaces surrounding the trench.

- b. The backfilled materials in the trench must be mechanically tamped in six (6) inch layers. If the temporary road surface is not placed the first day, then as soon as it is consistent with the permanency of the work or directed by the DPW, the gravel sub-base shall be excavated to the required grade in order to place temporary two and one-half (2 ½) inches of bituminous surface. The temporary pavement shall be placed and raked to a uniform surface, rolled to the required thickness and to a grade that will match the existing bituminous road surface. The Applicant shall maintain the temporary surfacing and shall promptly fill the similar material any depressions and holes that may occur so as to keep the surfacing in a safe and satisfactory condition for traffic.
- c. Temporary resurfacing will be plant mixed hot-asphalt aggregate, all as produced in accordance with standard specifications of the Massachusetts Department of Public Works and is to be a minimum of two and one-half (2 ½) inches compacted thickness.
- d. A minimum of three (3) months after the temporary resurfacing, unless a shorter period is approved by the DPW Superintendent, Projects Engineer or his or her agent, the temporary sub-base shall be excavated to the required grade in order to place the bituminous concrete surface.

Permanent Trench Repair

- a. All permanent paving shall be done in accordance with the specifications of the Massachusetts Highway Department and at the expense of the Applicant. The Applicant shall remove and acceptably dispose of all excavated material before proceeding with the remainder of the work and shall thoroughly compact the surface of the sub-base. Any broken or irregular edges of existing pavements shall be cut away in straight lines as directed leaving a sound vertical face at least six (6) inches back from the edge of the existing pavement.
- b. The bituminous concrete base and top shall be laid and rolled in two (2) courses. The binder (base course) shall be three (3) inches in depth and the top course shall be one and one-half (1 ½) inches in depth. The minimum total thickness of both courses, measured after rolling, shall be four and one-half (4 ½) inches. The base course of the permanent pavement shall be placed and carefully raked to a minimum surface and thoroughly rolled to the required thickness. Before placing the base course of the permanent pavement, the edge of the original bituminous surfacing shall receive an application of approved asphalt emulsion so that the new pavement material may be properly bonded to the old. The top course of the permanent paving shall be placed to a grade that will match the existing bituminous surface after rolling. The permanent paving shall not overlap the existing pavement and will be applied with a mechanical spreader to areas of extensive excavation (extensive excavation to be defined as trenches greater than 8' wide and 10' long when measured along the travel way) or unless otherwise directed.

NOTE: Base shall not be less than existing roadway base course and not less than three (3) inches.

- a. The Applicant shall furnish, place, grade and compact Mass Highway Department approved hot mix asphalt which meets the approved job mix formula as submitted. The

asphalt shall be compacted to within 95-100 percent of the marshal value as determined in the laboratory.

- b. Under certain circumstances where trench repairs are considered to be extensive, it may be required upon completion of permanent trench repairs, to crack-seal, level and overlay the effected area for the full width of the roadway and at least 30 feet beyond the effected area with up to two (2) inches of HMA mix type to be specified by the D.P.W.
- c. The DPW Superintendent, Projects Engineer or his or her agent will be notified as to annual construction projects prior to bidding the project and by March 31st of the construction year. Special provisions relating to pavement restoration will be issued by the DPW Superintendent, Projects Engineer or his or her agent at that time.
- d. On streets to which a curb-to-curb overlay of asphalt or reconstruction is required, the DPW Superintendent, Projects Engineer or his or her agent must approve the paving company to be used by the contractor. All curb-to-curb resurfacing will be performed under the supervision of the DPW Superintendent, Projects Engineer or his or her agent.
- e. On any project which a curb-to-curb overlay is required, and work is extensive, the final patch will be done by means of an automatic paving machine (spreader box). All trench edges will be sealed using a Polyester Fiber Reinforced Crack Sealer.
- f. Major structural changes to a roadway will require the restoration of the road profile to its original condition by means of reclamation and/or reconstruction. All costs resulting from the reconstruction of a roadway, including engineering, will be at the expense of the utility company/applicant. All contractors and subcontractors must be pre-approved by the DPW Superintendent, Projects Engineer or his or her agent. All lawn surfaces over the trench shall be replaced with sod or loam and reseeded to grade. All sidewalks dug through shall be carefully patched after backfilling. A bituminous concrete sidewalk shall be squared off and patched with the same material and rolled so as to provide a continuous smooth surface. Cement concrete sidewalks shall be repaired by making a new concrete block or blocks through which the trench passes. Pre-formed expansion joints, when deemed necessary, will be installed against buildings, walls, steps, foundations or existing concrete blocks or as directed. The new cement concrete square shall be made of Mass Highway Department (MHD) asphalt approved concrete for concrete sidewalks from a MHD approved plant. Applicant shall perform control testing on the concrete (air, slump, strength) and shall be matched in color with the remaining sidewalk. All concrete must be cured per Mass Highway Department's specifications. All walks shall be laid over a minimum of twelve (12) inches of well compacted gravel. Cement concrete shall be treated with silicone or linseed oil sealer for salt damage prevention. The Applicant shall be responsible for repairing any damage to public utilities (water, sewer, gas, electric, telephone, etc.) or to town trees, shrubs, poles or signs which may be disturbed or damaged during the course of maintenance of the street opening excavation trench for five (5) years after the date of completing the installation, except where such maintenance is made necessary by the act or neglect of another party. Exceptions to the permanent paving requirement of the Department of Public Works of the Town of Hingham may be made.

Restoration of Pavement Markings

- a. All permanent pavement markings (crosswalks, traffic center lines, etc.) that are removed or damaged during construction shall be repainted by or under the direction of the Department of Public Works of the Town of Hingham at the expense of the Applicant.

Dust and Clean-Up

- b. As the excavation work progresses, all ways shall be thoroughly cleaned of all rubbish, excess earth, rock and other debris. The Applicant shall take necessary precautions to prevent and avoid dust and to keep the ways clean each day. All cleanup operations shall be accomplished at the expense of the Applicant and shall be carried out to the satisfaction of the Superintendent or Projects Engineer or his agent. The regulations of the Department of Environmental Protection 310 CMR, and in particular Section 7.09 U, relating to Dust, Odor, Construction and Demolition, shall be complied with.
- c. Area cleanup shall be provided as the work progresses, such that no materials shall be exposed which may generate dust during high winds, or mud and silting during heavy rains. Stockpiles of materials which must remain in the area for more than one day, and which cause dust or mud, shall be suitably protected by plastic covering, filter fabric, or other appropriate means.

Prompt Completion of Work

- a. After an excavation is commenced, the Applicant shall proceed with diligence and expedition of all excavation work covered by the excavation permit and shall promptly complete such work and restore the way to its original condition or as near as may be, so as not to obstruct the way or travel thereon more than is reasonably necessary.

Revocation of Permits and Licenses

- a. The Board of Selectmen or DPW Superintendent, Projects Engineer or his or her agent may at any time, after notice, cancel or suspend permits. Cancellation of the insurance endorsement automatically cancels the permit.

Reference M.G.L. Chapter 82A. Excavation and Trench Safety

Chapter 82A: Section 2. Trench excavating permits; permits issued by board or officer; certificate of insurance; fees

Section 2. Each city, town or public agency shall designate 1 board or officer to issue permits for the excavation of trenches on privately owned land and for the excavation of a public way of a city or town. The permits, when issued, shall include a summary of sections 40 to 40D, inclusive, of chapter 82 and a summary of regulations promulgated by the department of public safety relative to chapter 146. No person shall, except in an emergency, contract for the making of or make a trench, in any public way, public property, or privately owned land until a permit is obtained from the appropriately designated person within the city, town, or public agency that is authorized to issue the permit. The person shall notify the local permitting authority of the exact location of the trench. A person making application for a trench excavation permit shall produce a certificate of insurance with general liability coverage of \$100,000 per person and \$300,000 per claim or provide evidence of self-insurance in equal amounts. The local permitting authority may charge a reasonable fee to cover the administrative costs of the trench excavation permitting process incurred by the municipality in connection with the review and processing of the permits; but, a gas company, as defined in section 1 of chapter 164, or any corporation that

is subject to the provisions of chapter 165, 166 or 166A which has already paid a fee in order to attain a permit to excavate a public way of a city or town shall not be responsible for paying an additional fee for the same excavation.

Reference MGL Chapter 520 Appendix A

Chapter 520 of the Acts of 1980.

AN ACT FURTHER REGULATING
EXCAVATIONS IN PUBLIC WAYS.

Be it enacted, etc., as follows:

SECTION 1. Chapter 82 of the General Laws is hereby amended by striking out Section 40, as amended by Section 1 of Chapter 403 of the acts of 1968, and inserting in place thereof the following section: -

Section 40. No person shall, except in emergency, contract for, or make an excavation, which shall include, but not be limited to, the discharge of explosives and the demolition of any structure by which shall not be deemed too include gardening or tilling the soil in the case of privately owned land, in any public way, any public utility company right-of-way or easement, or any privately owned land under which any public utility company, municipal utility department, or natural gas pipeline company maintains underground facilities, including pipes, mains, wires or conduits, unless at least seventy-two (72) hours, exclusive Saturdays, Sundays and legal holidays, but not more than sixty (60) days, before the proposed excavation is to be made, such person has given an initial notice in writing of the proposed excavation to such natural gas pipeline companies, public utility companies, and municipal utility departments as supply gas, electricity, or telephone service in or to the city or town where such excavation is to be made. Such notice shall set forth the name of the street or the route number of said way and a reasonable accurate description of the location in said way or on private property the excavation is to be made. If such notice cannot be given as aforesaid because of an emergency, it shall be given as soon as may be practicable. Copies of such notices together with a statement certifying that they had been mailed or delivered to such public utility companies as required by the preceding provisions of this section shall be filed with the officer or board having charge of any such public way before a permit to excavate may be approved or issued, except in case of an emergency.

Where an excavation is to be made by a contractor as part of the work required by a contract with the commonwealth or with any political subdivision thereof or other public agency, for the construction, reconstruction, relocation or improvement of a public way or for the installation of a railway track, conduit, sewer or water main, such contractor shall be deemed to have complied with the requirements of this section by giving one such notice setting forth the location and the approximate time required to perform the work involved to each of the said companies.

Within seventy-two (72) hours, exclusive of Saturdays, Sundays and legal holidays, from the time said notice is received or at such time as said company and the excavator agree in writing, said company shall respond to the original written notice or to subsequent oral or written notice by designating at the locus, the location of pipes, mains, wires or conduits, in that portion of the public way, public utility company right-of-way or easement or privately owned land in which the excavation is to be made, and the proving of such designation by the company shall constitute prima facie evidence of an exercise of reasonable precaution by the company as required by this section.

Any such excavation shall be performed in such manner, and such reasonable precautions taken to avoid damage to the pipes, mains, wires or conduits in use under the surface of

said public way, public utility company right-of-way or easement, or privately owned land, including, but not limited to, any substantial weakening of structural or lateral support of such pipe, main, wire or conduit, penetration or destruction of any pipe, main, wire or conduit or the protective coating thereof, or the severance of any pipe, main or conduit.

When any damage to any such pipe, main, wire or conduit or its protective coating occurs, the public utility company, natural gas pipeline company or municipal utility department shall be notified immediately by the person or public agency responsible for the excavation causing the damage.

The making of an excavation without providing notice or notices required by this section with respect to any proposed excavation which results in any damage to a pipe, main, wire or conduit or its protective coating shall be prima facie evidence in any legal or administrative proceeding that such damage was caused by the negligence of such person.

Notice to the public utility underground plant damage prevention system pursuant to Section 76D of Chapter 164, which notice provides the information required by this section with respect to any proposed excavation and which is given at least 72 hours, exclusive of Saturdays, Sundays and legal holidays, but not more than 60 days, before the proposed excavation is to be made, shall constitute compliance with the notice requirements of this section.

Nothing contained in this section shall be construed to affect or impair local ordinances or by-laws requiring permits to be obtained before excavating in a public way, except that, notwithstanding any contrary provision of local ordinances or by-laws, no permit to excavate in a public way shall be approved or issued by the officer or board having charge or any such way, except in an emergency, until such time as copies of such notices to public utility companies are filed by the applicant for a permit as required by this section.

Whoever violates any provision of this section shall be punished by a fine of \$200.00 for the first offense and not less than \$500.00 nor more than \$1,000.00 for any subsequent offense.

SECTION 2. Section 41 and 42 of said Chapter 82 are hereby repealed.

SECTION 3. Chapter 164 of the General laws is hereby amended by inserting after Section 76C, inserted by Chapter 645 of the acts of 1968, the following section: -

Section 76D. All natural gas pipeline companies and public utility companies, as defined in section three of Chapter 25, shall create, participate in and be responsible for the administration of a utility underground plant damage prevention system. Said system shall be operated during normal business hours each day of the year, exclusive of Saturdays, Sundays and legal holidays for the purpose of receiving owned land under which any public utility company, municipal utility department or natural gas pipeline company maintains underground facilities, including pipes, mains, wires or conduits, as are required by the provisions of section 40 of Chapter 82. Said system shall be responsible, upon receipt of such notices, for immediately notifying such natural gas pipeline companies, public utility companies, and municipal utility departments as supply gas, electricity or telephone service in or to such city or town where such excavation is to take place of such proposed excavation. The cost of operating the utility underground plant damage prevention system shall be apportioned equitably among all natural gas pipeline companies, public utility companies, and municipal utility departments as supply gas, electricity or telephone service within the commonwealth according to a formula to be fixed by agreement of the companies.

The department is authorized to investigate the operation of said system and to adopt procedures necessary and appropriate to hear and resolve complaints for failure to comply with the provisions of Section 40 of Chapter 82.

Reference MGL Chapter 370 Appendix B

Chapter 370 of the Acts of 1963.

AN ACT RELATIVE TO NOTICES REQUIRED TO BE GIVEN TO PUBLIC UTILITY COMPANIES BEFORE EXCAVATIONS ARE MADE IN PUBLIC WAYS.

Be it enacted, etc., as follows:

SECTION 2. Section 21 of Chapter 81 of the General Laws, as most recently amended by Chapter 219 of the acts of 1954, is hereby further amended by adding at the end the following two sentences: - Except in case of an emergency no permit for digging up or opening any state highway shall be approved or issued by the department until copies of the notices to public utility companies required by section forty of Chapter 82 have been filed with the department by the applicant for such permit. Except as provided herein any person who digs up or makes an opening in a state highway without a permit or violates any other provision of the section shall be punished by a fine of not more than fifty dollars (\$50.00) for the first offense and not less than fifty dollars (\$50.00) nor more than one hundred dollars (\$100.00) for any subsequent offense.

SECTION 3. Chapter 83 of the General Laws is hereby amended by striking out Section 8, as appearing in the Tercentenary Edition, and inserting in place thereof the following section: -

Section 8. No Person shall dig up or make an excavation in a public way for the laying, altering or repairing of a drain or sewer without obtaining a written permit from the board or officer having charge of the maintenance and repair of sewers in the town in which such way is situated. Notwithstanding any contrary provision of any local ordinance or by-law, no such permit shall except in case of an emergency, be approved or issued by said board or officer until copies of the notices to public utility companies required by section forty of Chapter 82 have been filed with said board or officer by the applicant for such permit. Whoever violates any provision of this section shall be punished by a fine of not more than fifty dollars (\$50.00) for the first offense and not less than fifty dollars (\$50.00) or more than one hundred dollars (\$100.00) for any subsequent offense.

Reference Department of Telecommunication and Energy (DTE) – Currently referred to as D.P.U.

Standards to Be Employed by Public Utility Operators When Restoring any of the Streets, Lanes and Highways in Municipalities

Section

- 1.0** Purpose and Scope
- 2.0** Definitions
- 3.0** Permit Requirements
- 4.0** Work Standards
- 5.0** Safety
- 6.0** Protection of Adjoining Facilities

- 7.0 Excavations
- 8.0 Backfill and Compaction
- 9.0 Pavement Restoration
- 10.0 Sidewalks and Driveways
- 11.0 Compliance with these Standards

1.0 Purpose and Scope

1.1 The purpose of these standards is to ensure that a Utility, after excavating in any municipal street, lane and highway ("public ways"), restores such street, lane and highway to the same condition in which they were found before the excavation.

1.2 Nothing in these standards may be construed to restrict the Constitutional or statutory authority of cities or towns ("Municipalities") with respect to public ways. Nothing in these standards is intended to prevent a utility and a municipality from mutually agreeing to exceptions to these standards.

1.3 Nothing in these standards is intended to be inconsistent with any ordinance or by-law and the constitution and laws of the Commonwealth.

1.4 Nothing in these standards is intended to create a contractor relationship between a Municipality and the Utilities regulated by the DTE.

1.5 Nothing in these standards is intended to be inconsistent with the Department's regulations concerning the Design, Construction, Operation, and Maintenance of Intrastate Pipelines Operating in Excess of 200 PSIG, 220 C.M.R. §§ 109.00 et seq. Inasmuch as the cover and backfill requirements in these standards are more stringent than those included in 220 C.M.R. § 109.09, these standards shall apply. See 220 C.M.R. § 109.05(2).

1.6 The Utility is responsible for insuring compliance, for itself and its contractors, with these standards. However, Utility work may be inspected by the Municipality to assure that proper procedures are being followed. In the event a Utility fails to comply with these standards a Utility shall, at its own expense, correct such failures.

1.7 A Utility's performance in following these standards shall be considered by the Department when a Utility seeks recovery of costs related to these standards in a rate proceeding.

2.0 Definitions

AASHTO means The American Association of State Highway and Transportation Officials.

Clay means very finely textured soil which, when moist, forms a cast which can be handled freely without crumbling/breaking; that exhibits plasticity; and when dried, breaks into very hard lumps (i.e., high dry strength) and is difficult to pulverize into a soft, flour-like powder.

Cold Patch means a bituminous concrete made with slow curing asphalts and used primarily as a temporary patching material when hot mix plants are closed.

Compaction means compressing of suitable material and gravel that has been used to backfill an excavation by means of mechanical tamping to within 95% of maximum dry density as determined by the modified Proctor test in accordance with AASHTO T180.

Controlled Density Fill ("CDF"), meeting MHD Specification M4.08.0 Type 2E (flowable, excavatable), also called flowable fill means a mixture of portland cement, fly ash, sand and water. High air (25% plus) may be used instead of fly ash with an adjustment in sand content. CDF is hand-tool excavatable.

Department means the Department of Telecommunications and Energy.

Emergency Repair Work means street opening work which must be commenced immediately to correct a hazardous condition whose continuation would unreasonably risk injury, loss of life or property damage. Gravel means coarse to very coarse-grained soil ranging from approximately 0.1 inch to 3.0 inches. Gravel exhibits no plasticity.

Infrared Process means a recycling procedure whereby an infrared heater plasticizes the surface of an asphalt pavement, preparatory to the introduction of additional compatible paving materials uniformly re-worked and compacted to achieve a density and profile consistent and thoroughly integrated with the adjacent pavement.

MHD means the Massachusetts Highway Department.

Mass Highway Standards means the "Commonwealth of Massachusetts Department of Public Works Standard Specifications for Highways and Bridges, 1988 edition."

Municipality means any Massachusetts city or town having subordinate and local powers of legislation.

Newly Paved Road means a road whose re-paving is less than five years old.

Organic Soil means soil high in organic content, usually dark (brown or black) in color. When considerable fibrous material is the principal constituent, it is generally classified as "peat." Plant remains or a woody structure may be recognized and the soil usually has a distinct odor. Organic soil may exhibit little (or a trace of) plasticity.

Permanent Patch means a final repair of street opening work to be performed in accordance with these standards and intended to permanently return the opened portion of the roadway to as good a condition as it was prior to the performance of the street opening work.

Permit means a permit granted by a Municipality to a Utility for permission to do street opening work in a public way.

Plasticity means that property of soil that allows it to be deformed or molded without crumbling (e.g., like dough or soft rubber). This property reflects the capacity of soil to absorb moisture. Poorly Graded Soil means soil that contains a large percentage of its constituent particles within a relatively narrow range; also referred to as "uniform" soil.

Sand means coarse grained soil in which the individual grains can be visually detected. When moist it forms a cast which will crumble when lightly touched; when dry, it will not form a cast and will fall apart when confining pressure is released. Sand exhibits no plasticity.

Silt means finely-textured soil. When moist, it forms a cast which can be freely handled; when wet, it readily puddles; when dry, it may be cloddy and readily pulverizes into powder with a soft flour-like feel (i.e., low dry strength). Silt exhibits little or no plasticity.

Street Opening Work means any cutting, excavating, compacting, construction, repair or other disturbance in or under a public way together with restoration of the public way in accordance with these standards, municipal ordinances and any other applicable law following such disturbance.

Temporary Patch means the application of either cold patch or Type I bituminous concrete compacted to achieve a density equal to that of the surrounding pavement.

Utility means any corporation, city, town or other governmental subdivision, partnership or other organization or any individual engaged within the Commonwealth in any business which is, or the persons engaged in which are, in any respect made subject to the supervision or regulation by the Department of Telecommunications and Energy. For the purposes of these Standards, a Utility shall also mean any person or entity engaged by or on behalf of a Utility to perform Street Opening Work.

Well Graded Soil means soil having its constituent particles within a wide range, also referred to as "non-uniform" soil.

3.0 Permit Requirements

Each Municipality may incorporate in its permit procedures the portions of these standards that shall apply to Utility excavations within its jurisdiction. A permit may be issued with the stipulation that it may be modified or revoked with just cause at any time at the discretion of the Municipality without rendering the Municipality liable in any way. It is recognized that each Municipality shall have the authority to inspect work in progress and the Utility shall correct any deficiencies identified during said inspections. The following are the requirements that a Municipality may require of a Utility when granting Permits.

3.1 The work shall be performed in accordance with plans on file with the Municipality.

3.2 The Utility shall notify the Municipality two (2) days prior to the start of work. No work shall be authorized or proceed (except Emergency Repair Work) without said notification.

3.3 The Utility shall notify Dig Safe, in accordance with G.L. c. 82 § 40, at least 72 hours prior to the start of work for the purpose of identifying the location of underground utilities.

3.4 The Utility shall be responsible to contact the Municipality regarding the field location of any underground traffic control devices on this project.

3.5 A copy of the Permit must be on the job site at all times for inspection (except for emergency repair work). Failure to have the permit available could result in suspension of the rights granted by the Permit.

3.6 Work, day, and time constraints shall be conditions of the Permit.

3.7 If it becomes necessary to open the roadway surface in a larger area than specified in the Permit, the Utility shall apply for an additional Permit to cover the project.

3.8 The Utility shall notify the Municipality within 14 days after completion of the physical work.

4.0 Work Standards

4.1 All work shall be in compliance with the Mass. Highway Standards as it pertains to utility street excavations and repairs unless modified by these standards.

4.2 The Utility shall be responsible for any settlement that may occur as a result of the work done in accordance with the Permit.

4.3 The Utility shall be responsible for the ponding of water that may develop within the roadway which was caused by this work.

4.4 In the event a street opening failure presents a nuisance or a public safety problem, the Utility shall respond to all trench restoration requests by the Municipality within 48 hours. Non-response within the specified time will result in the required restoration work being done by the Municipality, with all expenses to be paid by the Utility. The Utility shall reimburse the Municipality for the invoiced amount within thirty (30) days.

4.5 Failure to respond to trench restoration requests may result in denial of future Permit requests.

5.0 Safety

5.1 Provisions shall be made for the safety and protection of pedestrian traffic during the construction period.

5.2 The Utility shall be responsible to furnish and erect all required signs and traffic safety devices.

5.3 Cones and non-reflecting warning devices shall not be left in operating position on the highway when the daytime operations have ceased. If it becomes necessary for the Municipality to remove any construction warning devices or the appurtenances from the project due to negligence by the Utility, all cost for this work will be charged to the Utility.

5.4 Flashing arrow boards will be used as directed when operations occupy the roadway and shall be available for use at all times.

5.5 All signs and devices shall conform to the 1988 edition, Revision 3, or subsequent current edition, of the Manual on Uniform Traffic Control Devices (MUTCD).

5.6 Efforts shall be made to maintain normal traffic flow, but interruptions or obstructions to traffic shall be defined by conditions of the Permit.

5.7 When, in the opinion of the Municipality, the work constitutes a hazard to traffic in any area the Utility may be required to suspend operations during certain hours and to remove any equipment from the roadway.

5.8 When a snow or ice condition exists during the progress of this work, the Utility shall keep the area affected by the work safe for travel. The Municipality may restrict work during snow, sleet, or ice storms and subsequent snow removal operations.

5.9 The highway surface shall be kept clean of debris at all times and shall be thoroughly cleaned at the completion of the work.

5.10 At the completion of the work done in accordance with the Permit, all disturbed areas shall be restored to a condition equal in kind to that which existed prior to the work.

5.11 Blasting, if necessary, shall be done in accordance with state law and local ordinance.

5.12 The Utility shall supply copies of all log data and analyses collected from groundwater monitoring wells as required by state law and local ordinance.

5.13 Massachusetts Highway Department Standards for Line Clearance will conform to the National Electric Safety Code Standard Clearance for Highway Crossings.

6.0 Protection of Adjoining Facilities

6.1 If directed by the Municipality, photographs shall be taken prior to the start of work to insure restoration of designated areas to their former conditions within the limits of the work areas. Copies of the photographs shall be delivered to a place designated by the Municipality.

6.2 Care must be taken to not interfere with underground structures that exist in the area.

6.3 Care shall be exercised not to disturb any existing traffic duct systems. Any such system, if disturbed, shall be restored immediately to its original condition.

6.4 The Utility shall be responsible to replace all pavement markings in kind which have been disturbed as a result of work done in accordance with the permit. These pavement markings shall be restored within ten (10) days after this work is performed or as deemed necessary by the Municipality.

6.5 Existing guardrail that may be removed or damaged shall be reset or replaced to Mass Highway Standards.

6.6 The Utility will be responsible for any damage caused by its operation to curbing, structures, roadway, etc.

6.7 No trees shall be cut or removed under this Permit.

6.8 Hand digging shall be required around roots of trees.

6.9 Tree Removal

6.9.1 The Utility shall obtain written permission from the tree warden of the Municipality if it becomes necessary to remove any tree. Replacement trees must be obtained from an established nursery in accordance with "USA Standard for Nursery Stock". The trees will be replaced in size and specie as directed by said tree warden.

6.9.2 The tree stump shall be removed a minimum of six inches below the surrounding surface and all debris shall be disposed of outside the right-of-way line.

6.9.3 The tree shall be removed under the supervision of a qualified tree surgeon.

6.10 Every effort shall be made to protect bound markers. However, if it becomes necessary to remove and reset any bound marker, the Utility shall hire a registered professional land surveyor to perform this work. It shall be the responsibility of this land surveyor to submit to the Municipality a statement in writing and a plan containing his stamp and signature showing that said work has been performed.

6.13 These standards do not cover the installation of any utility poles.

7.0 Excavations

7.1 The surface of a roadway to be excavated for utility work shall be cut in reasonably straight and parallel lines using a jack hammer, saw or other accepted method to insure the least amount of damage to the roadway surface. The pavement, including reinforcing steel on concrete roadways, shall be cut the full depth of surfacing. The excavation shall only be between these lines. The cutting operation shall not be done with a backhoe, gradall or any type of ripping equipment.

7.2 Steel plates used by a Utility to protect an excavation shall be of sufficient thickness to resist bending, vibration, etc., under traffic loads and shall be anchored securely to prevent movement. If these conditions are not met, the Utility will be required to backfill and pave the excavations daily. No open trench shall be left unattended overnight.

7.3 Steel sheeting, shoring or bracing shall be driven or placed for all depths over five (5) feet. At the discretion of the Municipality, said sheeting shall be left in place and cut off two (2) feet below the surface.

7.4 When a Utility installs a service lateral to a customer an opening may be made over the common supply line to make the proper connection, but the service should be bored or driven the remainder of the way wherever possible.

7.5 Water jetting of the trench area is prohibited.

8.0 Backfill and Compaction

In restoring municipal streets, lanes and highways, Utilities may utilize approved backfill material compacted to achieve soil density values of 95% modified Proctor density (as described in AASHTO T180), which may include, as the conditions warrant, the use of Controlled Density Fill ("CDF")

8.1 If CDF is the selected option of the Utility, when backfilling excavations made for the installation or maintenance of a natural gas line, the Utility may backfill with sand and compact to a level six inches over the gas line before adding CDF to the trench.

8.2 If CDF is the selected option of the Utility, excluding the exception granted in 8.1, CDF shall flow under and around the pipe, conduit, or bedding material providing uniform support without leaving voids. CDF shall be discharged from the mixer by a reasonable means into the trench area to be filled. Filling operations shall proceed simultaneously on both sides of the pipe or conduit so that the two fills are kept at approximately the same elevation at all times. An external load shall be applied to the pipe or conduit, sufficient to hold it in place before filling.

8.3 The trench in all cases shall be filled to the bottom of the existing pavement to provide room for the pavement restoration.

8.4 CDF shall be utilized for those excavations where compaction cannot be readily accomplished with normal compaction methods (i.e. vacuum holes, utility clusters).

8.5 The following subsections provide general guidelines and criteria to determine whether a soil is suitable as backfill for Utility excavations in roadways. They prescribe proper procedures for backfilling and compaction to achieve soil density values of 95% modified Proctor density. The ultimate objective is to obtain a finished road surface repair which will undergo settlements only within acceptable performance limits as defined within these standards for the functional life of the existing road. The guidelines are based on good engineering practice and testing of both materials and equipment.

8.6 Compliance with these standards will insure satisfactory compaction. These standards are to be used in the field when there is an absence of sieve analysis of materials, Proctor values of the soils and the corresponding

inability to utilize a nuclear density gauge or sand cone field density test. The Utility shall not be required to use other accepted testing methods. However, the Municipality reserves the right, at its own expense, to utilize other accepted testing methods to verify compaction. In the event of test failure the Utility shall be responsible for re-compacting the excavation to meet the required standards.

8.7 Suitability of Backfill Material

8.7.1 This section addresses suitability of materials to obtain an adequate level of compaction.

8.7.2 Suitable backfill material is free of stones larger than half the size of the compacted lift as provided for in Mass. Highway Standards, construction debris, trash, frozen soil and other foreign material. It consists of the following:

- a. Well graded gravel and sand;
- b. Poorly graded gravel and sand;
- c. Gravel-sand mixtures with a small amount of silt;
- d. Gravel-sand mixtures with a small amount of silt and trace amounts of clay.

8.7.3 Unsuitable backfill materials consist of the following:

- a. Inorganic silts and clays;
- b. Organic silts;
- c. Organic soils including peat, humus, topsoil, swamp soils, mulch, and soils containing leaves, grass, branches, and other fibrous vegetable matter.

8.8 Evaluation of Excavated Soil

8.8.1 The soil excavated from a trench shall be evaluated by trained personnel to determine whether or not it is suitable as a backfill in accordance with Subsection 8.7.

8.8.2 An excavated soil that has been evaluated as suitable for backfill shall be reused provided its moisture content has been determined to be "suitable" in accordance with Subsection 8.9.

8.8.3 An excavated soil that has been evaluated as unsuitable for backfill shall be removed from the site and disposed of properly.

8.8.4 New material, which meets the requirements of Subsection 8.7, shall be brought in to replace excavated soil found to be unsuitable.

8.9 Proper Moisture Content for Backfill Material Proper moisture content (i.e., ratio of moisture to mineral solid by weight in a soil) in a backfill is essential for effective compaction. Soils with too much moisture (wet) or too little moisture (dry) would not yield an adequate level of compaction. All material used as backfill shall be examined by testing a sample prior to backfilling. This requirement applies to excavated soil to be reused as backfill and to new replacement material.

8.10 Field Determination of Moisture Content

8.10.1 Trained personnel will conduct the following field test of moisture content, also referred to as a "soil ball" test.

8.10.2 The personnel conducting the soil ball test must do the following:

- a. first take a handful of the particular soil from beneath the surface of a stockpile (i.e., excavated from a trench or obtained from a borrow area) and then;
- b. squeeze the sample firmly making a closed fist;
- c. open the hand and observe the condition of the soil ball;
- d. if the soil ball is loose and crumbly, the soil is too dry for compaction;
- e. if the soil ball drips water, the soil is too wet for compaction;
- f. If the soil ball holds together firmly or breaks into large chunks, the soil has suitable moisture content for compaction.

8.11 Corrective Treatment When Moisture Content is Not Suitable:

- a. if the soil is too dry, small amounts of water may be added by sprinkling;

- b. if the soil is too wet, the soil may be dried out by spreading it out and exposing it to the atmosphere;
- c. after the remedial treatment, the soil shall be tested again (Subsection 8.10.2);
- d. if the corrective treatment is not effective, the soil shall be removed from the site and disposed of properly.

8.12 Backfill and Compaction Of Excavations

8.12.1 Backfill and compaction shall be performed in accordance with Subsections

8.12.2 Through 8.12.6, or Subsections 8.12.7 and 8.12.8. All utility lines shall be properly bedded with materials and in depths as specified by the appropriate utility prior to backfilling to obtain compaction values of 95% modified Proctor density.

TABLE A

Tool Thickness of Lifts

Pneumatic Air Tamper 6"

Percussive Wacker Rammer 6" – 12"

Vibratory Compactor 6" – 12" (7000lb)

Pavement Breaker Tamping Foot 6"

8.12.2 Compaction equipment which may be used is specified in Table A. Compactors shall be operated in approximately the vertical position.

8.12.3 Care should be exercised when compacting near a buried facility to avoid damage to the facility.

8.12.4 The bottom of the excavation shall be level, free of stones and compacted in accordance with Subsection 8.12.5 prior to commencement of backfilling.

8.12.5 Compaction shall be performed by making a minimum of four (4) passes per lift with the compactor. The passes shall start around the perimeter of the excavation and move toward the center in an inward spiral.

8.12.6 Backfill material shall be placed in lifts with the loose thickness (i.e., prior to compaction) as specified in Table A.

8.12.7 The effectiveness of any compaction method used other than that specified in this Section, including Table A, shall be determined by testing to establish the precompacted or loose thickness of lifts, the number of passes with the compactor required to obtain the desired results, the type of compacting tool used and the soil type.

8.12.8 All maintenance work shall be compacted in 6" lifts. Construction work shall, based on the specific compaction equipment used, utilize Table A to determine appropriate lifts. Construction work shall be defined as the installation of new or replacement facilities.

8.12.9 Well graded gravel that may exist immediately under the paved surface shall be replaced in like-compacted depth.

8.12.10 All leak detection holes (i.e., bar holes) shall be filled in lifts with an appropriate mineral filler and compacted to the bottom of the pavement.

8.13 Compaction Verification

8.13.1 Compaction verification shall be performed in accordance with the following to assure that 95% modified Proctor density has been achieved:

- a. The compaction of each lift shall be verified using a Dynamic Cone Penetrometer (DCP), or equivalent as approved by the Municipality. For standard maintenance excavations, each lift shall be verified at one location. For longer excavations (e.g., trenches), a DCP test shall be made approximately every 25 feet for each lift.

- b. A DCP test shall be considered acceptable if, after 15 drops, the pass/fail reference line on the DCP is above the soil surface.
- c. An unacceptable DCP test shall require that corrective measures be taken until an acceptable DCP test is achieved. This may include making additional passes with the compactor or, in some cases, removing the backfill material and starting over.

8.14 Training Field personnel performing backfill and compaction operations shall be trained in the implementation of this procedure. Personnel shall receive retraining every two years. The Utility shall certify with the submission of a Permit application that all personnel are properly trained.

9.0 Pavement Restoration

9.1 The Utility shall be responsible to replace all pavement disturbed by work under the Permit with homogeneous and in-kind pavement, unless otherwise stipulated, to the original strength and condition.

9.2 Single gradation (Type I, surface course) bituminous concrete patches may be used when the existing pavement depth is less than three inches, provided that the new patch is installed to a depth 1 inch greater than the surrounding pavement.

9.3 Single gradation (Type I, binder course) bituminous concrete may be used where post grind and inlay method is a condition of the Permit. Minimum allowable depth of pavement shall be four inches when utilizing the grind and inlay method. When the grind and inlay method is performed, the surface of the pavement shall be uniformly ground and removed to a minimum depth of 1.5 inches for subsequent pavement replacement. The grinding procedure shall provide a cutback into existing undisturbed pavement and shall encompass all disturbed pavement areas of the excavation. Grinding shall be done in reasonably straight lines.

9.4 All non-emergency pavement excavations shall be repaired with same day permanent patches unless specifically exempted in the permit.

9.5 Same day patches installed in conformance with these standards will not require reexcavation and may utilize the infrared method or the grind and inlay method to correct subsequent settlements. However, the restoration of single patches up to five feet by seven feet in area shall be by the infrared method, unless another method is agreed to by the Municipality.

9.6 Immediately following the procedures outlined in the section for Backfill and Compaction, the adjacent pavement shall be cut back, full depth, to encompass all disturbed pavement areas and underlying cavities associated with the excavation. All cutbacks shall be done in reasonably straight and parallel lines.

9.7 All existing pavement surfaces shall be swept clean of dirt, dust, and debris prior to patching. The existing vertical pavement surfaces shall be tack coated with an appropriate asphalt tacking material prior to patching and subsequent to cleaning.

9.8 Pavement repair depths shall equal or exceed adjoining pavement depths. When existing pavement depths are greater than 2 inches, pavement repairs shall be made utilizing Type I, binder course in the underlying patch courses. The wearing surface shall be a minimum 1.5 inches of Type I, surface course. Pavement courses shall not exceed two inches. All pavement courses shall be thoroughly compacted prior to placement of subsequent courses.

9.9 When the pavement remaining between an excavation and the edge of the roadway is less than two feet, the remaining area shall be removed and replaced in conjunction with the permanent pavement repair.

9.10 All leak detection holes (i.e. bar holes) shall be filled to refusal with an appropriate asphalt filler to a depth equal to the surrounding pavement depth.

9.11 Temporary pavement repairs shall be permitted under the following conditions:

- a. Emergency Repair Work completed outside normal Monday through Friday working hours.
- b. Work performed between December 1 and March 30 when bituminous concrete is not available on a daily basis.
- c. Excavations which shall be reopened within five (5) working days.

9.12 The Utility shall make every effort to limit excavations conducted under the aforementioned conditions.

9.13 All excavation, back fill, and compaction work associated with temporary patches shall be performed in accordance with these standards.

9.14 Temporary patches shall be made with high-performance cold patch or Type I, bituminous concrete to a minimum depth of 4 inches. Temporary patches made between December 1 and March 30 shall be removed and replaced with a permanent patch as outlined above within five (5) working days. Temporary patches made between April 1 and November 30 shall be removed and replaced with a permanent patch as outlined above within two (2) working days.

9.15 The Utility shall be responsible to maintain temporary patches in a safe condition for all types of travel until a permanent pavement repair has been made.

9.16 The Municipality shall have jurisdiction to determine the pavement repair method to be utilized on all pavements which have been installed for less than five years.

9.17 Completed pavement repairs shall not deviate more than 0.25 inches from the existing street surface.

9.18 No less than thirty (30) days and no more than sixty (60) days from the completion of the permanent pavement repair, the Utility shall inspect the excavation for settlements, cracking and other pavement defects. Any such excavation which has required repair shall then be reinspected no less than thirty (30) days and no more than sixty (60) days from the completion of the subsequent repair. The Utility shall further inspect all excavations after a one-year time period. Pavements that deviate more than 0.25 inches from the existing street surface, shall be repaired by the infrared or grind and inlay methods. Surface or joint cracking 0.25 inches wide or greater shall be repaired utilizing a modified asphalt pavement sealant.

9.19 The Utility shall prepare, document and maintain records of these inspections and make them available to the Municipality and the Department upon request.

9.20 All excavations made within concrete roadways shall be repaired with concrete in depths equal to the existing concrete.

9.21 Concrete used for repairs shall conform to the requirements of Mass. Highway Standards for concrete roadway construction.

10.0 Sidewalks and Driveways

10.1 All work shall be performed in accordance with 521 CMR Rules and Regulations of the Architectural Access Board (AAB) and Americans with Disabilities Act (ADA).

10.2 A sidewalk area that is disturbed shall be restored, full width, in kind a minimum of one foot beyond the disturbed area for bituminous concrete and to the next joint line for concrete.

10.3 After the subgrade has been prepared, a foundation of gravel shall be placed upon it. After thorough mechanical compaction, the foundation shall be at least 8 inches thick and parallel to the proposed surface of the walk.

10.4 If applicable, the bituminous concrete sidewalk surface shall be laid in 2 courses to a depth after rolling of 3 inches. The bottom course shall be 1½ inches thick and its surface after rolling shall be 1½ inches below the parallel to the proposed grade of the finished surface. The top course shall be 1½ inches thick after rolling.

10.5 If applicable, the concrete sidewalk shall be placed in alternate slabs 30 feet in length. The slabs shall be separated by transverse preformed expansion joint filler ½ inch thick (shall conform to AASHTO- M153). Preformed expansion joint filler shall also be placed adjacent to or around existing structures.

10.6 On the foundation as specified above, the concrete (Air-Entrained 4000 psi, 3/4" 610) shall be placed in such quantity that after being thoroughly consolidated in place it shall be 4 inches in depth. At driveways, the sidewalk shall be 6 inches in depth.

10.7 Driveways shall be surfaced with Bituminous Concrete, Type I and shall be laid in two courses to a depth of three inches, after rolling, with a foundation of at least six inches of compacted gravel. The finished surface shall butt into and not overlap the existing highway grade at the road edge.

10.8 Driveways shall be so graded that no water shall enter the layout, pond or collect thereon, including the roadway.

11.0 Compliance with these Standards

11.1 Utilities shall file with the Department, by May 1 of each year, written statements or policies designed to insure that managers, supervisors and other distribution personnel are aware of, and held accountable to, these Standards.

11.2 Utilities shall track the success and failures of their programs to include the restorations and the inspections of such restorations. Utilities shall specify the number of failed restorations compared to the total number of restorations made during the preceding calendar year, the number of failures reported by a party other than a utility inspector and the age of the failed restoration.

11.3 Utilities shall record the number of failed restorations encountered during the inspections required in Section 9.19. They shall also document the cause of the failure and their policy changes to prevent the recurrence of a similar failure.

11.4 Utilities shall record the number of failed restorations and cost incurred when Municipalities perform the corrective action in accordance with Section 4.4.