



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

April 3, 2017

Ms. Pamela G. Monroe, Administrator
NH Site Evaluation Committee
21 South Fruit Street, Suite 10
Concord, NH 03301-2429

Subject: Northern Pass Transmission, LLC & Public Service of New Hampshire d/b/a Eversource Energy – Docket No. 2015-06

Dear Ms. Monroe:

I'm writing regarding the Department of Transportation's (NHDOT) review of Northern Pass Transmission, LLC and Public Service of New Hampshire d/b/a Eversource Energy's application to the NH Site Evaluation Committee (Docket No. 2015-06).

NHDOT has been meeting with the Applicant on a monthly basis for over a year in an effort to identify, discuss, and resolve major design concerns with the proposal. The final horizontal and vertical location of the installation within the highway right-of-way remains to be resolved. Resolution to concerns raised during the review process is iterative in nature. In many cases, this process will not be complete until the design is finalized and documented on final construction drawings.

With that said, the NHDOT will issue a permit for the application subject to conditions. Attached are the draft permit conditions based upon the Department's review of the preliminary plans received to date. The NHDOT is confident we will execute the necessary agreements, licenses and permits for this project with the assumption that the Applicant will conform to the draft conditions presented herein.

Please contact Melodie Esterberg at 603-271-2171 if you have any questions or need additional information.

Sincerely,

Victoria F. Sheehan
Commissioner

cc: W. Cass
D. Rodrigue
S. Winters
M. Esterberg

**NORTHERN PASS TRANSMISSION
NHSEC DOCKET #2015-06**

RECOMMEND APPROVAL WITH THE FOLLOWING PERMIT CONDITIONS:

PROJECT DESCRIPTION:

This is a 192 mile high voltage electrical transmission line project submitted as a joint application by Northern Pass Transmission LLC (NPT) and Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource), hereinafter referred to jointly as the Applicant. The project includes the construction of aerial and underground electric transmission lines, including related conduit, cable, wires, poles, structures and devices across, over, under and along certain state highways and railroads.

Aerial Crossings: The proposal includes sixty six (66) aerial crossings over state maintained highways. These include twenty nine (29) existing crossings owned by Public Service of New Hampshire (PSNH) and thirty seven (37) are new proposed crossings owned by Northern Pass Transmission (NPT). The proposal includes six (6) aerial crossings of state-owned railroad corridors.

Underground Installations within State-maintained Highways: The proposal includes approximately 56 miles of underground conduit construction impacting several segments of roadway within state—maintained highways. These locations are as follows:

Highway Maintenance District 1

- Beecher Falls Rd in Pittsburg from the proposed transition station access road to the intersection of US Route 3
- US Route 3 in Pittsburg from the intersection of Beecher Falls Road to the Clarksville/Pittsburg town line.
- US Route 3 in Clarksville from the Clarksville/Pittsburg town line to a point approximately 650 south of the town line.
- NH Route 145 in Clarksville from a point approximately 1200 feet north of the intersection with Old County Road to the intersection of Old County Road
- Bear Rock Road in Stewartstown from the intersection of North Hill Road to the easterly limit of NHDOT maintenance responsibility.
- US Route 302 /NH Route 10 in Bethlehem from a point approximately 800 feet east of Brook Road to the intersection of NH Route 18/NH Route 116
- NH Route 18/NH Route 116 in Bethlehem from the intersection of Us Route 302/NH Route 10 to the Bethlehem/Sugar Hill town line.
- NH Route 18/NH Route 116 in Sugar Hill from the Bethlehem/Sugar Hill own line to the Sugar Hill/Franconia town line
- NH Route 18/NH Route 116 in Franconia from the Sugar Hill/Franconia town line to the intersection of NH Route 18/NH Route 116 and Wallace Hill Road.
- NH Route 116 in Franconia from the intersection of NH Route 18 and Wallace Hill Road to the Franconia/Easton town line.

- NH Route 116 in Easton from the Franconia/Easton town line to the intersection of NH Route 112.
- NH Route 112 in Easton from the intersection of NH Route 116 to the Easton/Woodstock town line.
- NH Route 112 in Woodstock from the Easton/Woodstock town line to the intersection of US Route 3.
- US Route 3 in Woodstock from the intersection of NH Route 112 to the intersection of NH Route 175.

Highway Maintenance District 3

- US Route 3 in Woodstock from the intersection of NH Route 175 to the Woodstock/Thornton town line.
- US Route 3 in Thornton from the Woodstock/Thornton town line to the Thornton/Campton town line.
- US Route 3 in Campton from the Thornton/Campton town line to the Campton/Plymouth town line.
- US Route 3 in Plymouth from the Campton/Plymouth town line to the intersection of NH Route 25 and NH Route 3A.
- US Route 3/NH Route 25 in Plymouth from the intersection of US Route 3, NH Route 3A and NH Route 25 to the Plymouth/Bridgewater town line.
- US Route 3/NH Route 25 in Bridgewater from the Plymouth/Bridgewater town line to a point 350 feet south of John Jenness Road.

GENERAL CONDITIONS OF APPROVAL:

The NH Department of Transportation is reviewing the proposed Electrical Transmission line projects for conformance to the Utility Accommodation Manual (UAM), which provides guidance for the placement and construction of public utilities within NHDOT Right-of-way (ROW), and the Highway Maintenance District permits, which provide guidelines for construction within the NHDOT Right-of-Way. These guidelines and permits are intended to protect public safety, mobility and the economic investment made to the roadway infrastructure within the State's highway Right-of-Ways. The Department does not review and issue permits based on permit plans. They instead rely on the actual construction plans for permit review and approval. Due to the scope and size of the proposed project, the construction plans are still in development and they will continue to be reviewed and revised as the project proceeds through the design process. Based on the initial design reviews, the location of the transmission corridor within the Department's ROW will require some fine tuning to better conform to the UAM. However, assuming the final construction plans and specifications address the Department's concerns, meet the design guidelines, or documentation is provided and approved by the Department to justify specific exceptions to the guidelines, the Department would issue permit approval for the project construction within the Department's Right-of-Way.

As noted above the Project construction plans and specifications are still in development, therefore, the following Conditions of Approval are intended to provide additional clarification and further guidance for the project design in order to obtain Department construction permit approvals.

1. The applicant shall execute a Use and Occupancy Agreement (U&O) with the NHDOT prior to final issuance of other Department permits and licenses. The applicant shall be bound to the requirements of each permit as outlined in the individual permit instructions. The general conditions are intended to highlight major issues that need to be addressed as well as serve as part of the permit process, but are not intended to summarize all requirements. The final approved plans and specifications used to obtain the Department permits shall clarify conflicts between the various design guidelines referenced during the design process.
2. The applicant shall modify their plans and address all NHDOT review comments, including the preliminary NHDOT comments dated December 2, 2106 and general and segment specific comments dated February 10, 2017 and March 24, 2017 respectively.
3. Final construction plans shall be submitted to and approved by NHDOT prior to final issuance of other Department permits and licenses. This shall include Department review to evaluate the limits of construction impact, general and location specific constructability issues and traffic control requirements.
4. The Applicant shall provide a certified survey report delineating means and methods of determining the right of way shown on the plans. The report shall include notations on all records and plans used and the monumentation held to control the right-of-way lines. The report will be certified by the Licensed Land Surveyor in charge that the right-of-way lines shown on the submitted plans are accurate locations defined by ground survey and all pertinent research.
5. The Applicant shall be responsible for the acquisition of all other applicable permits and compliance with all local, state or federal rules, ordinances, and regulations.
6. The Applicant shall obtain driveway permits for all temporary and permanent access points from the state highway system at aerial crossing locations.
7. The Applicant shall complete the Environmental Documentation Checklist for each excavation and driveway permit. This shall include a copy of the Stormwater Pollution Prevention Plan (SWPPP) for each permit.
8. The Applicant shall reimburse NHDOT for the cost of all State inspection services and administrative overhead assigned to this project. Based on the project scale and schedule the Department may need to use outside inspection and administration services to handle the construction oversight.
9. All work shall be conducted in a manner that maintains safety and minimizes inconvenience to the travelling public.

10. The NHDOT permits concern only the type and manner of work to be performed within the NHDOT Right of Way (ROW). The Department cannot and does not grant permission to enter upon or use any privately owned land.
11. The Applicant agrees to defend, indemnify and hold harmless the NHDOT, its agents and employees, from and against any and all claims arising from or which can be claimed to arise from performance under this permit.
12. In accordance with the UAM, underground facilities shall be located outside of pavement areas and as close to the ROW line as practicable. Where construction activity is adjacent to or under paved surfaces, roadway and traffic maintenance become a major concern. The Department has invested heavily in the roadway infrastructure and needs to preserve and maximize the life of the roadway system. As noted in Section 1 of the UAM, "Utilities locating and operating facilities within the ROW must accept responsibility to protect the public investment in ROW, roadbed and structure." The initial utility construction and facility maintenance can impact and degrade the operations, safety and longevity of the roadway. Therefore, any impacts to the paved roadway shall require documentation and justification for why the impacts cannot be avoided and how the applicant will mitigate both initial construction and then maintenance (both planned and unplanned) impacts to the roadway and traffic. Differential settlement and frost heaving of the roadway can adversely impact winter maintenance activities as well as the drivability of the roadway. It could also lead to increased damage claims from motorist that encounter pavement distress. The Department will be looking for the Applicant to implement pavement distress mitigation/ preventative measures to address differential settlement and heaving where structures and equipment are placed under paved surfaces. Mitigation or preventative measures could include, but are not limited to, placement of the equipment and structures below frost levels, stabilizing the roadway structure above and around the structures to create a more homogeneous roadway base and subbase to resist the differential frost impacts, or rehabilitation of the roadway pavement structure to reduce moisture in the subbase and to improve its resistance to differential settlement.
13. The minimum horizontal and vertical design criteria for the location of underground power lines are outlined in the UAM. Any variation from these minimum requirements shall be accompanied by an exception request for each location the UAM requirements cannot be met as well as documentation to support/justify the variance from the design criteria as outlined in the UAM. As outlined in the UAM the Department prefers to locate underground facilities where they will not conflict with highway improvements or planned and unplanned maintenance.
14. For safety and future maintenance considerations, all proposed underground electrical conduit or electrical equipment shall at least meet the separation and cover requirements set forth in the UAM. Unless exceptions are granted the minimum depth to the top of the facility shall be no less than eighteen (18) inches below the bottom of the roadway structural box, which are the granular soil layers supporting the pavement structure. The top of the facility shall be considered to be the top of the protective layer (AKA Lean Concrete) above the proposed facility. For the purposes of this application, the bottom of the roadway structural box is considered

to be thirty-six (36) inches below the bottom of the pavement for Tier 2 highways including shoulders and twenty-four (24) inches below the bottom of the pavement for Tier 3 and 4 highways. When recommended minimum pavement depths are included, the minimum depth to the protective layer will be fifty-nine (59) inches and forty-six (46) inches respectively.

15. The top of the proposed facility shall be placed under all existing utilities and drainage structures to the maximum extent feasible. Minimum separation shall meet standard code requirements, but in no case be less than a minimum of twenty-four (24) inches below any existing utility or drainage structure that they directly cross or that will be constructed within four (4) feet of the existing structure. This recommendation is to address safety and long term maintenance concerns by minimizing potential future excavation and construction conflicts with the high voltage electrical lines during roadway, drainage and utility maintenance and/or replacement of existing underground structures. An exception shall be required for any location the proposed facility cannot be placed under the existing facilities.
16. Underground facilities near bridge structures shall be located to eliminate the need for adjustment to the proposed facility for bridge maintenance or replacement. Existing bridge information must be shown on the plans to adequately address potential conflicts with bridge substructures. The Applicant/Owner understands that they will be solely responsible to relocate their facilities, at their own cost, if their facility adversely impacts future maintenance, repair or replacement of a bridge.
17. Aerial crossings near bridge structures shall be located as far away as feasible to eliminate the need for adjustment to the proposed facility for bridge maintenance or replacement. The Applicant/Owner understand that they will be solely responsible to relocate their facilities, at their own cost, if their facility adversely impacts future maintenance, repair or replace of a bridge.
18. Unless exceptions are granted, the facility shall not be permitted to be attached to Department structures.
19. In general, when excavation below paved surfaces is permitted (i.e. roadway crossing or minor shoulder encroachment); the Applicant shall replace with acceptable materials the existing pavement and roadway base structure to match the depth found in the roadway. Pavement shall be placed in lifts of base, binder and wearing course as appropriate, using Department approved asphalt mixes and binders. Where complete lane reconstruction is needed, pavement designs shall be prepared by the Applicant in conformance with the NHDOT Highway Design manual to reflect the project location, traffic and roadway class. The designs shall be submitted to the Department for review and approval before a permit will be issued. All rehabilitation/replacement pavement designs shall be the sole responsibility of the Applicant.
20. In order to minimize the construction impacts to paved surfaces the following are general guidelines for replacement of roadway surfaces. The actual pavement remediation may vary and shall be defined as part of the approved construction plans needed to obtain construction permits.

- a) In areas where the project excavation impacts any portion of a paved shoulder the entire shoulder pavement and structural base material shall be replaced. The pavement shall be sawcut at the edge of the travel lane.
- b) In sections where the excavation extends into the travel lane, the pavement shall be sawcut at the center line of the roadway. All roadway pavement will be replaced to the saw cut and structural base materials within the excavation limits may be required to be replaced.
- c) In sections where the excavation extends into more than one travel lane, the entire width of the pavement shall be replaced. All base material within the excavation limits may be required to be replaced.
- d) There are areas where the project may impact concrete roadways. In general reinforced concrete slabs are ten (10) feet wide and fifty (50) feet long. For longitudinal impacts, the entire concrete slabs are generally removed and replaced with appropriate sub-base and base materials. For transverse crossings, generally the reinforced concrete slab is replaced in-kind within the limits of disturbance. However, the actual treatment of the slabs will be evaluated and determined by the Department on a case by case basis. Where concrete slabs are removed, designs shall be prepared by the Applicant in conformance with the NHDOT Highway Design manual to reflect the project location, traffic and roadway class. The designs shall be submitted to the Department for review and approval as part of the construction plans before a permit will be issued.
- e) In no case shall the excavation be located where it would impact more than a single lane of traffic at any one time without prior Department approval and implementation of appropriate traffic control measures.

21. Prior to the start of work the Applicant shall furnish to the Department a continuing Surety Bond guaranteeing the fulfillment of the provisions, instructions, and regulations prescribed herein, and any later instructions that may be issued by the Department during the performance of the work. Following the acceptance of the project by NHDOT, the bond amount may be reduced guaranteeing satisfactory maintenance of the disturbed areas for a period of two (2) years.

22. Traffic Control:

- a) Due to the project scale and the type of roadways to be impacted by the construction, the Applicant shall obtain approval of their Traffic Management Plan by the NHDOT Traffic Control Committee prior to issuance of Department permits and licenses.
- b) A Traffic Management Plan shall be prepared for each construction phase and section of roadway impacted by construction. Any modification to the plans to match the Contractors means and methods shall require further review and approval of the revised plan prior to any construction. In order to determine the project's traffic impact significance, a project evaluation sheet must be completed along with a Work Zone ITS Needs Scoring Sheet. These shall be prepared by the Applicant prior to meeting with the Traffic Control

Committee. The Traffic management plan shall be designed and stamped by a NH Professional Engineer with relevant Department and MUTCD experience in the preparation of Traffic Management Plans.

- c) Due to the scale and duration of the project, Work Zone ITS may be required for all or part of the construction where roadway and traffic impacts warrant. It will be the sole responsibility of the Applicant to pay for and implement the Work Zone ITS requirements. These shall include, but are not being limited to, keeping Traffic Systems Management & Operations as well as the appropriate Highway Maintenance District dispatch office informed of all construction locations, daily and weekly roadway and lane closures, and restrictions to travel.
- d) Detour of state highway traffic requires prior approval by the Department and shall be in accordance with an approved Traffic Management Plan. The Department's review and approval of traffic control plans and measures apply to NHDOT roadways only.
- e) Traffic must be maintained in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) as revised, during the performance of the work.
- f) During performance of the work, traffic shall be protected by suitable barricades, standard warning and advance warning signs, uniformed officers as appropriate and/or flaggers, as well as proper lighting at night. All signs shall be kept clean and in good repair.
- g) Approval of the Traffic Management Plan in no way transfers liability from the Applicant and/or his/her agents to the State of New Hampshire, its agents and/or employees.

23. Aerial Railroad Crossings – The Applicant shall execute a crossing agreement for each location with the NHDOT Bureau of Rail and Transit prior to final issuance of other department permits and licenses. All agreements will require Insurance and Indemnification of the State and the Operating Railroad, in a form acceptable to the Bureau of Rail and Transit.

CONSTRUCTION REQUIREMENTS:

24. Photographs or videos in sufficient detail to show the existing condition of the area to be disturbed within the ROW shall be furnished to the Department prior to the start of work. Photographs of all State underground structures shall be taken just prior to backfill and furnished to the Department.
25. The Applicant shall be responsible for the construction and maintenance of all necessary sediment and erosion control facilities required to minimize impacts to adjacent water resources from construction storm water runoff.
26. No work in the highway ROW shall be permitted during the following conditions unless prior approval is obtained from NHDOT:
 - Inclement weather
 - The hours of darkness

- Saturdays, Sundays, Holidays, or peak traffic times before and after holidays as determined by the Department
 - During the period from November 15th to April 15th.
27. A winter shutdown meeting will be required for each work site prior to October 15th of each year and any needed repairs and adjustments to the work areas shall be completed as directed by the Department prior to November 1st.
28. All temporary yellow centerline markers in place on two-way roadways prior to placement of full MUTCD standard pavement markings shall be removable. The temporary markers shall be placed in pairs, separated by a lateral space of approximately three (3) inches, using a maximum spacing of eighty (80) feet. On sections of roadway with severe curvature, lesser spacing should be used so that at least three (3) pairs of markers are visible to approaching traffic at all times. Temporary markers shall be removed following placement of standard pavement markings.
29. During the hours the job is inactive, a standby crew shall be available in case they are needed for the protection and maintenance of traffic. One or more telephone numbers, which will reach the standby crew, shall be furnished to the following people: local NHDOT Highway Maintenance District Dispatch, NHDOT Traffic Systems Management & Operation center, local police chief, local superintendent of public works or road agent (if the project is municipally owned), and the local NHDOT highway patrolman foreman.
30. In areas where the pavement is to be excavated, it shall be neatly and uniformly sawcut, with square edges by machine, at each side of all trenches. Every precaution shall be used to prevent undermining of the remaining pavement, utilizing sheeting as required, to prevent cave-in. Undermined areas inadvertently developed shall have the projecting pavement cut square and removed.
31. Excavation and handling of material shall be performed in a manner that will minimize trench width and the possibility of cave-ins. The pavement and base course materials are to be discarded appropriately. Excavation below subgrade is to be saved and used for backfill to prevent differential frost heaving. Any blasting required shall be cautiously performed to minimize disturbance beyond the trench limits. Overburden shall be removed prior to blasting. All blasting operations shall be performed in accordance with the NHDOT Standard Specifications for Road and Bridge Construction Section 203.
32. All backfill material in trenches and below base courses shall consist of excavated material suitable for backfill as defined in NHDOT Standard Specifications for Road and Bridge Construction, Section 603. All backfill shall be compacted at or near optimum moisture content, in layers not exceeding six (6) inches compacted thickness, using pneumatic tampers, vibratory compactors, or other approved means. The material shall be compacted to not less than ninety five (95) percent of maximum density as determined by AASHTO T99 (Standard Proctor Test). Water shall be uniformly applied during compaction in the amount necessary for proper compaction.

33. Within paved areas, crushed gravel, NHDOT Standard Specifications for Road and Bridge Construction Section 304, or approved equal to the existing gravel course, shall be placed in layers not exceeding six (6) inches compacted thickness, and thoroughly compacted. An approved bituminous plant mix, NHDOT Standard Specifications for Road and Bridge Construction Section 401, shall be placed the same day and carefully graded and rolled to the adjacent pavement grade, as a temporary patch unless an alternative temporary treatment to accommodate traffic is approved by the Department. Just before completion of the project and after suitable exposure of temporary patches to traffic compaction, the pavement shall be sawcut as directed, with a two (2) foot minimum overlap of the final pavement on undisturbed material. Within the sawcut limits, the existing pavement and temporary patch material shall be removed, the sawcut edges tack coated, and the material replaced with an equal depth, but not less than four (4) inches, of hot bituminous concrete, placed in lifts as directed, and compacted to meet the existing pavement edge exactly. Finished pavement grades must replicate the original pavement layout to the extent feasible or as directed by the Department including normal crown, superelevations, and breaks in superelevated shoulders. Sawcuts for final paving shall be as directed by the Department. In all cases, the utility trench shall be filled and/or covered to be flush with the existing pavement at the end of each working day.
34. Shoulders, other than paved, disturbed during the construction, shall be restored by providing a similar depth of crushed gravel, per NHDOT Standard Specification for Road and Bridge Construction Section 304, which shall be graded and compacted on a slope to match the cross slope of the existing roadway shoulder, or as directed by the Department.
35. In other areas disturbed by construction activity, the preconstruction surface type shall be restored, by placing similar material to a depth and quality equal to that existing before excavation. Reestablish existing grassland to equal what existed before excavation. Reestablish lawns to pre-construction condition, using a minimum of four (4) inches of loam, lime, fertilizer, similar seed, and mulch. The surface shall be reasonably smooth, free of stones larger than two (2) inches or debris, and be graded to drain.
36. No trench shall be left open at night or over weekends unless specifically approved by the Department. In general, steel plates are not permitted for temporary cover of excavation areas unless they are buried or otherwise stabilized.
37. Suitable unrestricted ingress and egress to properties abutting the highway shall be maintained at all times. The abutting property owners shall be notified in writing a minimum of two (2) working days before construction impacts that may impact the use of their access or driveway. Provisions for alternate access shall be the sole responsibility of the Applicant when maintenance of the existing access points is disrupted. Two-way traffic on adjacent roadways shall be maintained at all times during nights, weekends, and holidays unless alternative traffic control is reviewed and approved by the Department prior to implementation of said traffic control.

38. Any future surface distortion within the proposed utility trench area, due to settlement or other causes attributable to the construction, shall be corrected by the Applicant as required during construction and for a period of two (2) years following the acceptance of the project by NHDOT.
39. The roadway shall be cleared of all foreign material at the end of each working day or as directed by the Department.
40. Equipment must be removed to a minimum distance outside the clear zone as defined in the current edition of the AASHTO Roadside Design Guide, but in no case less than eight (8) feet from the edge of pavement during weekends, holidays, and periods of shutdown. Suitable barricades and illumination shall be erected to properly protect the work areas. Periodic maintenance of signs during periods of shutdown is required to restore blown over or missing signs, cones, and other traffic control devices. Routine NHDOT maintenance operations shall not be hindered by the Applicant's activities.
41. Pipe, equipment, and supplies shall not be stored within the NHDOT ROW without prior approval by the Department. Pipe or materials shall not be laid out ahead of construction without prior approval by the Department.
42. Excavation dewatering shall not be pumped onto the State highway pavement. Dewatering activities shall be conducted in accordance with State resource agency guidelines and require Department concurrence on location and impact when within the ROW. The Applicant is encouraged to look at the potential need for easements to accommodate the dewatering activities, as experience has shown the ROW may not be of adequate size for all this activity.
43. The Applicant will be required to plow, salt, and/or sand any portion of the State highway that becomes encumbered due to the Applicant's operations. The Applicant shall ensure that NHDOT snow removal and maintenance operations shall not be impeded in areas outside active utility construction areas.
44. The Department shall have the right to suspend any or all construction activities, which in the Department's opinion, are unsafe to the traveling public.
45. Damage to existing drainage structures and systems shall be repaired in a manner approved by the Department. Methods and materials utilized shall be subject to prior approval. Drainage structures or systems shall be cleaned of all material that has accumulated as a result of the work.
46. Damage resulting from work or detoured traffic to the roadway shall be repaired to the Department's satisfaction.
47. If a highway sign or guardrail must be moved to allow construction of the facility, said sign and guardrail shall be reinstalled or replaced at the location of removal at the end of each work day, or replaced by approved temporary devices pending permanent installation.
48. The Department or their designee may inspect, test, or monitor any and all of the Applicant's activities within the highway ROW to insure compliance with this permit.

49. Following completion of the construction activities, the Department or their designee will inspect the completed work. Final acceptance may be reasonably withheld should the work not be completed in an acceptable manner and in accordance with the terms of this permit.
50. The Owner shall, upon project completion, submit a complete set of “as-built” drawings to the Department.

EXCEPTIONS TO NHDOT STANDARDS AND GUIDELINES REQUESTED:

1. The Applicant has requested that Fluidized Thermal Backfill (FTB) be used instead of the material excavated from the trench as required by the NHDOT Standard Specifications for Road and Bridge Construction. The Department’s construction standard is to reuse the existing excavated material in a trench below the pavement structure in order to limit differential settlement and heaving between adjacent materials. In order to evaluate this request, test sections of FTB were placed within state ROW. If the material performs in a manner acceptable to the Department, FTB may be allowed in the trench excavations for the electrical conduit in lieu of existing excavated material beneath the roadway structural material. A decision regarding the use of FTB will be rendered following evaluation of the performance of the test sections through the 2017 winter season. Frost heaving and differential settlement within the paved areas of roadways are a major concern for the Department on all construction projects. If allowed, it is likely that FTB will not be permitted within the frost susceptible area beneath the roadway and should not extend above the bottom of the roadway structure (see paragraph 14). Additionally, if used, the Applicant shall enter into an agreement with the NHDOT, to mitigate any detrimental impacts or roadway degradation related to the FTB and to replace all sections of pavement and base material distress related to the utility installation. Pavement heaving, cracking, and other deformations in the vicinity of the excavation areas compared to the adjacent non disturbed sections of roadway will be considered indications of roadway degradation.
2. UAM Section VIII General Highway Standards item A.2 and Section X Underground Power Lines, items A.5 – these standards require that longitudinal installations shall be located on a uniform alignment as near as practicable to the right-of-way line, so as to provide a safe environment for traffic operation and to preserve space for future highway improvements or other utility installations. There may be some discrete locations within the proposal where an exception to this provision may be permitted. Those locations will be determined as part of the final constructions plans submitted to and approved by NHDOT. Location specific documentation, as outlined in the UAM, shall be required for each discrete location the exception is requested.
3. UAM Section VIII General Highway Standards item A.3 and Section X Underground Power Lines, items A.2 – these standards require that to the extent feasible and practicable, utility line crossings of the highway shall cross on a line generally normal to the highway alignment. There may be some locations within

the proposal where an exception to this provision may be permitted due to the limitations in bending the cables and/or conduit, or to avoid conflicts with existing conditions. Those locations will be determined as part of the final construction plans submitted to and approved by NHDOT.

4. UAM Section X Underground Power Lines, items A.3 – requires that all underground power lines within the highway right-of-way shall be in conduit. Conduit placed below pavement structure limits shall equal or exceed Schedule 80 PVC-EPC (Electrical Plastic Conduit). Conduit placed beyond horizontal pavement structure limits shall equal or exceed Schedule 40 PVC-EPC. The Applicant has requested to use Schedule 40 PVC-EPC in all locations including under the pavement structure. Given the nature of the facility being proposed, this request is denied and Schedule 80 PVC-EPC shall be required within the roadway and shoulder limits.