Attachment 2

Memorandum

To: VGS ARNGP Phase 1 Project File

Date: November 3, 2015

Project #: 57563.00

From: Jeffrey A. Nelson & Joshua Sky

Re: Attachment 2 - Natural Resource Assessment for Rotax Road Reroute
Vermont Gas Systems Addison Rutland Natural Gas Project – Phase 1

VHB has prepared this memorandum to provide our assessment of impacts to certain natural resource criteria reviewed under 30 V.SA. Section 248(b)(5) with respect to a proposed reroute in the vicinity of Rotax Road in Monkton, VT ("Rotax Road Reroute" , "Reroute", or "PH1-NAN1") to the Vermont Gas Systems, Inc. ("VGS") Addison Rutland Natural Gas Project Phase 1 ("ARNGP" or "Project") as specified in the associated Non-Substantial Change Summary Memorandum. Based on the evaluation presented below and prior review of the change with Vermont Department of Environmental Conservation ("VT DEC") staff, VHB concludes that the proposed Project change, while resulting in minor changes to impacts to individual natural resource features, does not alter our prior conclusions with respect to conformance with the natural resources criteria to which the Board must give due consideration. Furthermore, the Rotax Road Reroute has incorporated natural resource avoidance into the design process to avoid and reduce potential impacts. The potential impacts and associated mitigation measures associated with the Reroute are of a similar nature and type discussed in past testimony and exhibits in PSB Docket 7970 and approved in previously issued VT DEC permits for the Project. The location where the Rotax Road Reroute is proposed is entirely within an area where full field investigations for natural resources have been completed.

The Rotax Road Reroute is presented in the Non-Substantial Change ("NSC") Summary Memorandum prepared by Mr. John Stamatov on behalf of VGS (Attachment 1 to PSB Filing) and also presented in the change summary table as change PH1-NAN1, provided as Attachment 1A. The Rotax Road Reroute treated in this assessment is shown on orthographic maps (Attachment 1B to PSB Filing), the updated EPSC Plans prepared by CHA (Attachment 1C to PSB Filing) and VHB Natural Resource Series maps (last revised October 27, 2015) which are provided as Attachment 2A to the PSB Filing.

This memorandum reviews the proposed change with respect to the specific criteria covered by the testimony of Mr. Jeffrey A. Nelson for the Project, for which due consideration is to be given by the PSB, including:

- Outstanding Resource Waters (10 V.S.A. § 1424a(d)
- Headwaters (10 V.S.A. § 6086(a)(1)(A))
- Waste Disposal (10 V.S.A. § 6086(a)(1)(B))
- Water Conservation (10 V.S.A. § 6086(a)(1)(C))
- Floodways (10 V.S.A. § 6086(a)(1)(D))
- Streams (10 V.S.A. § 6086(a)(1)(E))
- Shorelines (10 V.S.A. § 6086(a)(1)(F))
- Wetlands (10 V.S.A § 6086(a)(1)(G))
- Water Supply (10 V.S.A. § 6086(a)(2)&(3))
- Soil Erosion (10 V.S.A § 6086(a)(4))
- Rare or Irreplaceable Natural Areas ("RINA")(10 V.S.A. § 6086(a)(8))

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- Necessary Wildlife Habitat and Endangered Species (10 V.S.A § 6086 (a)(8)(A))

Of these, the following criteria are not applicable to the consideration of the Project change as there is no change from VHB's earlier assessments of such:

- Outstanding Resource Waters
- Headwaters
- Waste Disposal
- Shorelines
- Rare or Irreplaceable Natural Areas
- Necessary Wildlife Habitat and Endangered Species

Relevant Section 248 criteria assessments, presented below, are based primarily on VHB's natural resource studies of the Project area, including the Rotax Road Reroute. VHB's assessment also relies in part on an updated EPSC Plan set prepared by CHA (last revised October 26, 2015) and the NSC Summary Memorandum. The Rotax Road Reroute was presented to VT DEC staff at a meeting on May 22, 2015, which enabled the ARNGP Project team to incorporate VT DEC input as appropriate on the proposed change. VGS is currently preparing collateral permit amendments for the Rotax Road Reroute, for the following permits:

- Vermont Individual Wetland Permit No. 2012-0184, issued June 9, 2014 ("VWP")
- Vermont Stream Alteration Permit No. SA 5 9029, issued June 9, 2014 ("SAP")
- Vermont Construction Stormwater Permit No. 6949-INDC, issued June 9, 2014 ("INDC")
- Section 401 Water Quality Certification issued June 9, 2014 ("401 WQC")

VGS anticipates submittal of these amendments in the near future with subsequent decisions to follow from VT DEC. Also, all permits remain valid for portions of the Project not affected by this change, or other changes currently under review by the PSB and/or ANR, and VGS is continuing construction within certain such areas.

The remaining relevant Section 248 criteria assessments associated with the Rotax Road Reroute are presented in the attached matrix (see Attachment 2B), which includes a listing of the various collateral permits and their status, and notes with respect to each criterion evaluated by VHB. In addition, we are providing a detailed evaluation of the relevant criteria below.

Water Conservation (10 V.S.A. § 6086(a)(1)(C)) & Water Supply (10 V.S.A. § 6086(a)(2)&(3))

The Rotax Road Reroute will not result in any impacts that will alter VHB's prior assessments with respect to water conservation or water supply. The Reroute does not pass through any source protection areas for public water supplies. The Reroute does pass in the vicinity of private water supplies including one well that is within 50 feet of the proposed alignment. VGS will comply with the Town of Monkton MOU, dated June 12, 2013, and individual agreements with landowners associated with the Reroute to maintain the integrity of existing wells or develop suitable replacement wells. Therefore, our opinion continues to be that the proposed Rotax Road Reroute will not cause an unreasonable burden on existing water supply.

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Floodways (10 V.S.A. § 6086(a)(1)(D))

The Rotax Road Reroute will not result in any impacts that will alter VHB's prior assessment of the impact of the Project on floodways and fluvial erosion hazard ("FEH") area. None of the streams or ditches crossed by the Reroute are located in Federal Emergency Management Area ("FEMA") mapped Special Flood Hazard Area. The currently approved route crosses the perennial stream, identified as 2013-SC-CM-6[1], at the crossing location via HDD. However, the purpose of the HDD at this location was in response to a PSB requirement to avoid above ground impacts on LLN 134.05 during construction and was not a VT DEC requirement for the stream crossing. As a result of the Rotax Road Reroute, the Project will cross perennial stream (2012/2015-TB/SC-PW-28) in a different location and using a different construction method than as currently permitted. The Reroute would cross the stream and associated FEH[2] area via open trench construction methods during low flow conditions, and would be restored following construction, resulting in temporary impacts as specified in the Project EPSC plans.

Based on past discussions with VT DEC personnel regarding prior changes of similar scale and type, the change in crossing method and location will necessitate an amendment of the SAP. Burial depth of the pipeline for Stream 2012/2015-TB/SC-PW-28 will comply with VT DEC recommendations for similar stream crossings for the Project as determined through the SAP amendment process. These requirements are anticipated to be a minimum burial depth of 7-feet below the channel low point and equal to or lower than the channel elevation at the limits of the FEH. Potential temporary impacts to the stream and associated FEH area will occur during low flow conditions using prior approved construction techniques and design. Therefore, our opinion continues to be that the Project will not permanently restrict or divert the flow of flood waters, or endanger the health, safety and welfare of the public or of riparian owners during flooding; and the Project work within a floodway fringe will not increase the peak discharge of the river or stream within or downstream of the Project area or endanger the health, safety, or welfare of the public or riparian owners during flooding.

Streams (10 V.S.A. § 6086(a)(1)(E))

The Rotax Road Reroute will result in minor changes in impacts to wetland and stream features. Intermittent stream 2012-SC-PW-29, (not previously impacted) and perennial stream 2012/2015-TB/SC-PW-28[1] would be affected by the Reroute, resulting in 500 square feet of new temporary stream impacts. However, temporary impacts to the jurisdictional ditch feature (2012-DITCH-PW-30), crossed by the permitted route at a slightly different location, would be reduced by 104 square feet as a result of the Reroute. As shown on the EPSC Plans, the Rotax Road Reroute construction corridor is narrowed from 75-feet to 50-feet across the two streams, thus minimizing stream corridor impacts.

Stream 2012/2015-TB/SC-PW-28 is a perennial stream with a watershed area of approximately 1.5 square miles and is within a forested corridor approximately 180-feet wide at the location of the proposed Reroute crossing. The stream flows through wetland 2015-CM-3 and the recommended 50-foot riparian buffer and 50-foot class II

[1] The features identified as Stream 2013-SC-CM-6 and Stream 2012/2015-TB/SC-PW-28 are two different field-mapped segments of a single stream.

[2] The Vermont Flood Hazard Area and River Corridor Rule, Effective March 1, 2015, utilizes the term River Corridor which includes the FEH plus a 50 foot buffer.

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wetland buffer almost entirely overlap each other at the crossing location. Post construction vegetation management for approximately 110 feet of the entire 180 foot forested area (inclusive of the 50-foot riparian/class II wetland buffer) within the VGS permanent easement area (50 feet wide) would consist of Vegetation Management Type B1 for perennial stream corridors or forested class II wetlands as defined in the ANGP Phase 1-Vegetation Management Plan dated September 16, 2014. Intermittent stream 2012-SC-PW-29 and ditch 2012-DITCH-PW-30 are located in agricultural areas with ongoing crop rotation activities which would resume post construction.

In summary, the proposed Project change will result in minor changes in temporary impacts to streams. The change is anticipated to be permitted under the 401 WQC and SAP through upcoming permit amendment requests. Therefore, our opinion continues to be that the design and implementation measures, taken in combination with the review and conditional requirements included with Project permits as well as post construction vegetation management, will maintain the natural condition of streams, and will not result in endangerment to the health, safety, or welfare of adjoining or downstream landowners from stream channel impacts.

Wetlands (10 V.S.A § 6086(a)(1)(G))

The Rotax Road Reroute will result in changes in impacts to Class II wetlands and wetland buffer features. One previously impacted wetland (2013-CM-3) would be avoided by the Reroute and one newly delineated wetland (2015-CM-3) would be impacted by the Reroute. Additionally, Wetland 2014-CM-3 would have reduced impacts as a result of the Rotax Road Reroute. Overall, Class II wetland impacts would be reduced by 7,508 square feet, from 10,209 square feet to 2,701 square feet. Class II Wetland Buffer impacts would be reduced by 2,284 square feet, from 9,497 square feet to 7,213 square feet, as shown in Table 1.

Table 1: Summary of Class II Wetland and Wetland Buffer Temporary Impact Changes

Change ID	Class II Wetland ID	Permitted Wetland Impacts (sf)	Revised Wetland Impacts (sf)	Permitted Buffer Impacts (sf)	Revised Buffer Impacts (sf)
Rotax Road Reroute (PH1-NAN1)	2013-CM-3	7,423	0	7,804	0
	2014-CM-3	2,786	2,168	1,693	1,758
	2015-CM-3	0	533	0	5,455
Overall Total (sf)		10,209	2,701	9,497	7,213
Change in Impacts (sf)		-7,508		-2,284	

Therefore, our opinion continues to be that the design and implementation measures, taken in combination with the review and conditional requirements included with the 401 WQC and VWP, will ensure that undue adverse effects to significant Vermont wetlands are avoided.

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Soil Erosion (10 V.S.A § 6086(a)(4))

As a result of the proposed Project change, the total area of proposed earth disturbance associated with the Project will likely increase by a nominal amount, approximately 0.2 to 0.3 acres. The Project EPSC Plan (Attachment 1C to PSB Filing) has been updated to capture these revisions, including adjustments to the Limit of Disturbance ("LOD"), where relevant. The Project will continue to implement appropriate Best Management Practices associated with all earth-disturbing activities. The revised EPSC Plan set will be provided to ANR as a component of an INDC permit amendment submittal. There would be no changes to the prior VHB testimony with respect to impacts under this criterion resulting from the Rotax Road Reroute.

Groundwater changes due to the Reroute will be minimal as the proposed design, consistent with the rest of the Project, calls for the installation of trench breakers at specified intervals along the pipeline, based on surface topography. In addition, the design calls for bentonite trench breakers at the limits of each wetland and stream crossed by the Project. The trench breakers are filled with bentonite and will reduce the trench's overall transmissibility while still allowing water to pass. Trench breakers are designed to maintain the status quo for ground water flow, preventing the pipeline from becoming a conduit for the movement of water that was not moving through a given location prior to the pipeline's installation. Trench breaker details are found on Sheet EPSC-T-G-015 of the EPSC Plan set (Prepared by CHA and dated June 2013). The installation of these mitigation devices will minimize impacts on groundwater and surface water flows associated with the installation of the pipeline trench. Thus, there is no change from our prior conclusions that the Project conforms to the requirements of this criterion; namely, that the Project will not cause unreasonable soil erosion or cause significant drainage or runoff problems.

Summary

Overall, when compared to the permitted route, the Rotax Road Reroute would reduce impacts to natural features while improving the constructability of the Project. The Reroute will still require necessary amendments to the existing collateral permits due to changes in disturbance area, impacts to regulated features, and the baseline data used to evaluate relevant natural resource criteria. However, given the overall reduction in wetlands impacts and minor increase in temporary stream impacts due to the careful planning of the Reroute, and prior permit authorization of similar impacts for other portions of the Project, VGS anticipates VT DEC approval of the permit amendments for the Project. In summary, it is our professional opinion that the proposed Project change does not result in any change to our conclusion that the Project conforms with these natural resources criteria, to which the Board must give due consideration, as supported by previously prepared and admitted testimony.

ATTACHMENTS

- 2A: VHB Natural Resource Map Series (revision date: October 27, 2015)
- 2B: Collateral permit and 248 Natural Resource Criteria matrix