Proposed Landfill Expansion

USACE RAI and Public Comment Response

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1.0 INTRODUCTION

This document constitutes the response of the Development Authority of the North Country (the Authority) to the U.S. Army Corps of Engineers (USACE) letter dated February 1, 2012, concerning the proposed landfill expansion in Rodman, New York. The February 1, 2012 letter included a request for additional information (RAI) by USACE and a copy of public comments received in response to the Joint Permit Application (JPA) No. 1989-98111 Public Notice dated October 11, 2011. A copy of the USACE letter, including the RAI and public notice comments, is included in Appendix A of this response document. Table 1 correlates the February 1, 2012 USACE RAIs and public comments to their response locations within this document.

The landfill expansion footprint previously described in the March 18, 2011 JPA submission and the October 11, 2011 Public Notice has been modified in response to USACE and public comments and concerns. The landfill expansion footprint described in the March 18, 2011 JPA submission and the October 11, 2011 Public Notice will be referred to as the "2011 Southern Expansion". The revised southern expansion footprint presented in this document will be referred to as the "Proposed Southern Expansion". The revisions made to the landfill expansion project are summarized below:

1. Alterations to reduce the size of the footprint of the Proposed Southern Expansion;
2. A reduced site life (due to a smaller proposed expansion area, partially offset by updated waste volume projections);
3. Reduced potential impacts to wetlands and other aquatic resources; and
4. Updates to the on and off-site wetland and aquatic resource mitigation strategies.

This response document references background and baseline information along with relevant environmental studies presented in the March 18, 2011 JPA submission. Details associated with changes to the landfill expansion project and other responses to the RAIs and public comments are provided to facilitate continued review of the JPA and to assist USACE to arrive at a permit decision.

Table 1. Location of USACE RAI and Public Comment Responses*			
USACE RAI/PN Number	**Comment Reference**	**Brief Description of USACE RAI/Public Comment**	**Location of Response**
1	USACE USFWS[1] CTHC[2]	Use of Jefferson County land requires delineation and impact report.	Not required due to project revisions
2	USACE	Detailed grading plans including all aspects of stream diversion	Not required due to project revisions
3	USACE USFWS Valentine[3] Blodgett[4] Taylor[5] PWFL[6] CTHC	Downstream impact, intermittent label, routing stream into stormwater basins and temperature change, stream impact, additional stream assessment, additional mitigation, Fish Creek flows into Sandy Creek, not North Branch.	This document, Section 2.0
4	USACE Merrill[7] Valentine Taylor	Waste reduction. No stream impact alternative may be LEDPA based on 18 years and waste reduction efforts which may meet overall project purpose and avoidance of HQ stream. Waste reduction versus expansion.	This document, Sections 2.0 and 4.3
5	USACE	More details on amount and implementation of financial assurances for mitigation (33 CFR pts 325/332)	Appendix B, Section 10.0
6	USACE USFWS	More details on preservation of on-site resources (real estate instruments or other available mechanisms, as appropriate)	Appendix B, Section 6.0 and Appendix C
7	USACE USFWS	Additional detail of existing buffer. On-site performance goals: 15% to 5% invasives (reed canary) in buffer and more detailed planting success criteria	Appendix B, Section 7.0
8	USACE	On-site detailed planting plan	Appendix B, Section 5.1
9	USACE	Show location of open water in off-site mitigation plan or reword performance standard 3.	Appendix B, Section 7.2
10	USACE	Performance standard associated with survivorship of woody plant species in off-site mitigation plan	Appendix B, Section 7.2
11	USACE	Percent cover of woody plants by year 3 may be unrealistic	Appendix B, Section 7.2
12	USACE	Monitoring must continue for 10 year period, report requirement may be waived if performance standards met for 3 consecutive years	Appendix B, Section 8.0
13	USACE	Submit off-site planting plan on 8.5x11 b/w	Appendix B, Figure 4
14	USACE	Off-site mitigation protection details – sample agreement and implementation schedule	Appendix B, Section 6.2 and Appendix D
15	USFWS	Protection mechanisms	Appendix B, Appendices C&D
16	USFWS	Specify which alternatives were found impracticable and for what reason and identify LEDPA according to 404(b)1 and existing tech, costs, logistics	JPA document, Section 5.0
17	USFWS	On-site areas identified to be “enhanced” – FWS questions enhancement opportunity?	Appendix B, Section 2.0

Table 1. Location of USACE RAI and Public Comment Responses*			
USACE RAI/PN Number	**Comment Reference**	**Brief Description of USACE RAI/Public Comment**	**Location of Response**
20	USFWS	Additional bat survey required every 5 years or until project completed (2014)	This document, Section 4.1
21	Larrabee[8]	No public input and questionable data	This document, Section 4.4
22	Larrabee Valentine Blodgett PWFL Merrill	Offsite versus onsite mitigation of stream	This document, Section 3.2
23	Hutchinson[9]	Current landfill only 66 acres full by 2022 why need for 146-acre expansion with impacts? Consider smaller expansion.	This document, Section 4.3
24	NYSDEC[10]	No construction should begin prior to 360 permit and updates to air quality if needed.	This document, Section 4.5

* In addition to the public comments and commenters referenced in this table, other comments were received from the following individuals during the USACE's Public Notice comment period: Sally and Shawn Reynolds (undated); Robert Hutchinson (undated); and James Saxton (dated November 9, 2011).

[1] USFWS – U.S. Fish and Wildlife Service, comments submitted by David A. Stilwell, Field Supervisor, dated November 22, 2011

[2] CTHC – Cooperative Tug Hill Council, comments submitted by Roger E. Tibbetts, Chairman, dated December 12, 2011

[3] Valentine – comments submitted by Charles E. Valentine, dated October 11, 2011

[4] Blodgett – comments submitted by William A. Blodgett, dated November 9, 2011

[5] Taylor – comments submitted by Roselyn Taylor, dated November 9, 2011

[6] PWFL – Pure Water for Life, comments submitted by Roger E. Tibbetts, President, dated November 17,2011

[7] Merrill – comments submitted by Jerry S. Merrill, undated

[8] Larrabee – comments submitted by David S. Larrabee, October 29, 2011

[9] Hutchinson – comments submitted by David L. Hutchinson, October 29, 2011

[10] NYSDEC – New York State Department of Environmental Conservation, comments submitted by Jessica Hart, Environmental Analyst 1, dated November 8, 2011

2.0 REVISED PROPOSED SOUTHERN EXPANSION

The Authority has revised the footprint of the 2011 Southern Expansion. These revisions are based on careful consideration of agency and public comments on the JPA and revised solid waste projections based on the Authority's most current information and solid waste management practices. The primary objective of these revisions is to further minimize impacts to aquatic resources including the elimination of impacts to Stream Segment 4 and resulting potential indirect impacts to the Southern Tributary. Figure 1 and Table 2 illustrate and quantify the change from the 2011 Southern Expansion to the current Proposed Southern Expansion. Additional details are presented in the sections below.

Table 2 - Summary of 2011 Southern Expansion and Proposed Southern Expansion On-site Alternatives

Footprint Alternatives	Liner Acreage[1]	Potential Disturbance Acreage[2]	Overlay Acreage[3]	Volume of Potential Disposal Capacity (cubic yards)	Site Life[4] (yrs)	Potential Stream Impacts (linear feet)	Potential Impacts to Wetlands[5]									
							Total Impact Acreage	Total Impact Acreage Per Year of Site Life	Emergent-Submerged Beaver Complex		Scrub-shrub		Forested - Deciduous		Wet Meadow	
									acres	% of total	acres	% of total	acres	% of total	acres	% of total
Proposed Southern Expansion (as detailed in this document)	76	110	18	12,600,000	51	2,143	12.26	0.24	1.70	13.87	4.97	40.54	0.79	6.44	4.80	39.15
2011 Southern Expansion*	107	141	18	19,368,000	78	3,609	13.50	0.17	0.02	0.15	3.14	23.26	1.69	12.52	8.67	64.22

*As detailed in the JPA document and adjusted using a projected annual waste disposal rate of 220,000 tons per year.

[1] Liner acreage is the footprint area of the limits of waste; additional area will be disturbed for supporting facilities.

[2] Potential disturbance acreage includes the liner acreage plus additional area for supporting facilities (perimeter roads, landfill berms, stormwater detention basins, etc.).

[3] Overlay acreage for the extension areas is for an overlay onto the existing landfill.

[4] Site life estimated on basis of an in-place density and annual disposal rate as follows:

Site life assumptions:

In-place density – 1,781 pounds per cubic yard
% of air space for non-waste – 0.00%
Annual tonnage disposal rate – 220,000 tons per year
Annual air space usage rate – 247,052 cubic yards per year

[5] All potential wetland impacts are based upon the potential disturbance acreage for each alternative and may include some temporary construction impacts.

2.1 Existing Condition of Proposed Southern Expansion Area

Descriptions of the land use, soils, topography, and watershed characteristics for the Authority's Solid Waste Management Facility (SWMF) and surrounding property, including the area of the Proposed Southern Expansion, were provided in the JPA. The 110-acre Proposed Southern Expansion area includes 33.55 acres of operational and disturbed Borrow Area No.1 and several upland and wetland vegetative covertypes, including approximately 64.54 acres of upland vegetative communities and 12.26 acres of wetland communities. The upland vegetative communities and their approximate acreages included within the Proposed Southern Expansion are provided in Table 3. There are approximately 2,143 linear feet of stream resources mapped within the Proposed Southern Expansion footprint (Figure 3, Table 3). The delineated wetlands located within the Proposed Southern Expansion consist of the following classes, as denoted in the March 2011 Wetland Delineation Report: Class B (wetlands B, C, and BB) and Class C (wetlands NX, A, and D5).

Table 3 – Covertypes within the Proposed Southern Expansion Area

Covertype	Proposed Southern Expansion (acres)
Upland Communities:	
Deciduous Forest	50.17
Coniferous Forest	8.30
Mixed Forest	4.58
Open Field	1.49
Upland Communities Total	**64.54**
Wetland Communities:	
Palustrine Forested - Deciduous	0.79
Palustrine Emergent/Wet Meadow	4.80
Palustrine Emergent/Submerged Beaver Complex	1.71
Palustrine Scrub-Shrub	4.96
Wetland Communities Total	**12.26**
Disturbed Area (existing landfill operations)	33.55
Total Proposed Southern Expansion Area	**110.35**

2.2 Development Description

The Proposed Southern Expansion will be constructed to provide approximately 12.6 million cubic yards of disposal capacity at the SWMF. The Proposed Southern Expansion will ultimately consist of the construction of approximately 76 acres of additional liner area with a total development area of approximately 110 acres (Figure 1). The additional development area includes landfill berms, access roads, stormwater detention basins, and leachate conveyance infrastructure (Figures 2 and 3).

The Proposed Southern Expansion will be located to the south and wrap around to the west of the existing landfill footprint, partially contiguous to the existing landfill liner system. This will allow for a cell overlay on the south end of the existing landfill. The currently permitted borrow areas (Borrow No. 1, No. 2, and No. 3) will be used during construction of the landfill subgrade and berms, as well as for required operational soils. Aside from the revised footprint, the currently permitted 33.20-acre Borrow Area No. 3 and 3.10-acre proposed haul road are also included as part of this project, though both of these elements are located outside and southeast of the Proposed Southern Expansion footprint. The proposed haul road will be constructed to provide access to Borrow Area No. 3 for use during construction and operation of the Proposed Southern Expansion (Figure 2). The haul road will include the installation of a main bridge structure to completely span Stream Segment 4 and one additional smaller structure to completely span the outlet drainage of Wetlands I, O and M. Currently, the permitted access for Borrow Area No. 3 uses a haul road extending to the northwest from the borrow area and extending north of the existing operational landfill. The proposed haul road to Borrow Area No. 3 illustrated in Figure 2 will provide a shorter and more direct access route to the borrow area than the existing permitted haul road. The revised alignment and proposed updated construction methods of using clear span structures on the proposed haul road to Borrow Area No. 3 have been established to eliminate any temporary or permanent impacts to Wetlands I, M, O, or Stream Segment 4, while providing feasible access to Borrow Area No. 3. These project additions are included on Figure 2.

2.2.1 Stormwater Management

At full build out of the Proposed Southern Expansion, approximately 76 additional acres of impervious area will be created at the site due to the construction of the landfill capping system. Although runoff from the capping system will behave more closely to that of a vegetated field, as

it will be covered with approximately two feet of soil and vegetation, the quantity of runoff from the capping system will be similar to an impervious area. As described above, 35 additional acres of area will be disturbed during development to construct perimeter access roads, stormwater detention basins, and ancillary facilities. This development will alter the current conditions within the disturbance areas (Figure 3) due to the clearing of existing vegetation and replacement with reclaimed materials such as grasses and gravel, and sloping embankments. These changes in covertype will require the construction of stormwater management facilities to attenuate changes in stormwater quality and quantity resulting from construction activities and the landfill liner and capping systems.

The disturbance limits include areas slated for stormwater conveyance swales, detention basins, and controlled outlet structures (Figure 3). The stormwater detention basins will serve two purposes for the site; quantity control and quality control. These basins will help to control quantity by attenuating peak flows from the site during storm events through storage capacity. The basins will be equipped with outlet structures that will allow water to flow from the basins at a steady, controlled rate. Storage volume above the level of the outlet will allow for storage capacity in the basin during large storm events. The storage provided by the detention basins also provides stormwater quality control. By holding the stormwater prior to discharge off site, sediment and other suspended solids are allowed to drop to the bottom of the basin. This keeps these solids from being deposited into the receiving waters at the site. These permanent basins will be supplemented with temporary detention basins, constructed to provide stormwater quality and quantity attenuation during each phase of construction and landfill development (Figure 4).

2.2.3 Access, Utilities, Other

Perimeter roads will be constructed around the entire Proposed Southern Expansion area to provide access for waste trucks as well as access for site maintenance activities. A temporary haul road to Borrow Area No. 3 will be constructed to provide access to soils during the construction of the initial cells of the expansion.

Leachate sideriser pump stations will be constructed at the western edge of each new cell in the expansion to pump the leachate from the low point of each cell into the leachate conveyance and treatment system. Conveyance of the leachate will require the installation of an additional dual contained leachate force main to tie into the existing conveyance system. The operation of the sideriser pump stations will require the continuation of the on-site three phase electrical

service to each of the proposed leachate pump stations. This will involve the installation of additional electrical poles or underground electrical service and extension of the service wires. Other ancillary items to be constructed as part of the Proposed Southern Expansion include monitoring wells, litter fence, and a landfill gas collection and conveyance system. Construction of these utilities will occur entirely within the proposed development footprint or within portions of the site already developed as part of the existing landfill development.

2.3 Construction Sequence

General construction methods, best management practices (BMPs) and Erosion and Sediment Control Measures previously described in the JPA also apply to the Proposed Southern Expansion. The Proposed Southern Expansion will be implemented in phases (Table 4). Each cell in the expansion area will be constructed as additional disposal capacity is needed. It is currently anticipated that the expansion will consist of 11 individual and monitored cells with construction of the first cell completed by mid-year 2023. It is anticipated that Cells 12 and 13 would be constructed as one project and that the subsequent cells would be constructed as separate construction phases. Approximately one year's worth of disposal capacity will be reserved in the existing landfill to serve as a backup disposal area when operations commence in the first cell of the Proposed Southern Expansion. Approximately 6 months of disposal capacity will be required for non-select waste placement during the initial filling stages of Cell No. 12. The phasing plan that identifies the construction of cells, access roads, and stormwater detention basins is shown on Figure 4.

Table 4 – Estimated Cell Construction Timeline

Cell Number	Lined Acreage	Estimated Site Life* (Years)	Start Construction
12**	5.8	N/A	2020
13**	7.3	3.3	2020
14	6.0	3.0	2026
15	6.0	3.5	2029
16	6.1	4.4	2032
17	5.2	4.4	2037
18	7.9	4.4	2041
19	6.8	4.8	2046
20	7.7	6.0	2050

Table 4 – Estimated Cell Construction Timeline			
Cell Number	**Lined Acreage**	**Estimated Site Life* (Years)**	**Start Construction**
21	7.7	6.2	2056
22	9.5	11.0	2062
Total	76.0	51.0	

*Site life estimate based on preliminary fill volume calculations for each cell, an in-place waste density of 1,781 lbs/cubic yard and an annual average waste acceptance rate of 220,000 tons/year.

** The existing landfill is comprised of 11 cells; therefore, the expansion landfill will begin with Cell 12. Cells 12 and 13 are anticipated to be constructed as a single project with an estimated 3.3 years of combined site life. The Borrow Area No. 3 haul road, landfill expansion perimeter road, and stormwater infrastructure will also be constructed as part of this phase of the project.

2.3.1 Proposed Wetland and Stream Impacts

The Proposed Southern Expansion significantly reduces potential impacts to aquatic resources when compared to the 2011 Southern Expansion. As summarized in Table 5 and illustrated in Figure 5, the Proposed Southern Expansion will impact approximately 12.26 acres of federally jurisdictional wetlands and 2,143 linear feet of stream. Potential wetland impacts consist of the following covertypes: 0.79 acres of palustrine forested (deciduous) wetland, 4.96 acres of palustrine scrub-shrub wetland, 4.80 acres of palustrine emergent marsh/wet meadow wetland, and 1.71 acres of palustrine emergent marsh/submerged beaver complex wetland.

Stream Segments 2 and 3, which total approximately 386 linear feet of potentially impacted stream resources within the Proposed Southern Expansion, consist of small ephemeral drainages which convey overflow from wetlands to receiving areas in the spring, during snowmelt and spring rains. Stream Segment 11 represents a NYSDEC unmapped stream and side tributary that originate in wetlands NX and A, respectively. This stream segment continues southwest through the remainder of wetland NX and discharges into the Southern Tributary outside of the Proposed Southern Expansion limits. Approximately 234 linear feet of Stream Segment 11 are located outside of the Proposed Southern Expansion area. Proposed impacts to Stream Segment 11 include the removal of the majority of the stream's original drainage area (wetlands NX and A) (Figure 5). However, this remaining stream portion will receive stormwater runoff from the adjacent landfill expansion embankment that will be constructed at the southwest terminus of wetland NX (Figure 3).

Table 5 – Summary of Proposed Wetland and Stream Impacts		
	2011 Southern Expansion	**Proposed Southern Expansion**
Wetland – Covertypes		
PFO – Palustrine forested (deciduous)	1.70 acres	0.79 acres
PSS – Palustrine scrub-shrub	3.13 acres	4.96 acres
PEM – Palustrine emergent/wet meadow	8.66 acres	4.80 acres
PEM – Palustrine emergent/ submerged beaver complex	0.02 acres	1.71 acres
Stream – Mapped Type		
New York State Department of Environmental Conservation (NYSDEC) mapped perennial waters	2,425 linear feet	0
NYSDEC Intermittent mapped waters	0	0
Other intermittent Water of U.S.	1,184 linear feet	2,143 linear feet

Once approved and permitted, construction of the Proposed Southern Expansion will begin with Cell 12. A phased cell construction process will be implemented so that subsequent cells are constructed as the need for additional disposal capacity is realized at the site. A total of 11 cells are currently proposed for the Proposed Southern Expansion. Due to the phased cell construction process, the wetland and stream impacts associated with the Proposed Southern Expansion will also occur in stages. Table 6 illustrates the impacts to streams and wetlands as each additional cell in the Proposed Southern Expansion is constructed. This projected timeline is subject to change during construction of the Proposed Southern Expansion based on factors such as actual waste volumes received each year, construction and operational considerations, and permit conditions and approval timelines.

Table 6 – Estimated Timeline of Aquatic Resource Impacts				
Phase	**Impact Area/ Cell Number**	**Estimated Construction Start Date**	**Wetland Impacts (acre)**	**Stream Impacts (linear feet)**
1	12, 13, Haul Road, Stormwater Area, Perimeter Road	2020	0.66	216.75
2	14	2026	0.22	94.66
3	15	2029	0.60	161.84
4	16	2032	3.62	1088.86
5	17	2037	0.75	195.33

Table 6 – Estimated Timeline of Aquatic Resource Impacts				
Phase	**Impact Area/ Cell Number**	**Estimated Construction Start Date**	**Wetland Impacts (acre)**	**Stream Impacts (linear feet)**
6	18	2041	1.47	0.00
7	19	2046	1.55	0.00
8	20	2050	1.35	63.91
9	21	2056	0.79	165.37
10	22	2062	1.25	156.28

3.0 AQUATIC RESOURCE MITIGATION STRATEGY

Changes to the mitigation strategy from that proposed in the JPA submission are summarized in this section. Details are provided in the Final Aquatic Resource Mitigation Strategy attached as Appendix B. Changes to the mitigation strategy reflect updates in response to the USACE's RAIs (Appendix A) and adjustments related to the Proposed Southern Expansion footprint. These changes reflect an overall increase in mitigation ratios. This is due to a decrease in quantity and quality of aquatic resource impacts and an equivalent, and in some cases greater, quantity and quality of aquatic resource conservation action. Table 5 in Section 2.3.1, above, provides a comparison between the aquatic resource impacts associated with the Proposed Southern Expansion and the 2011 Southern Expansion.

3.1 Mitigation Objectives

Wetland functions and values impacted by the Proposed Southern Expansion will be mitigated by restoring wetlands of similar type in the same watershed at a 2.3:1 replacement ratio and by preserving wetlands of similar type and equal or greater value on site at an 8.5:1 ratio. The proposed stream mitigation strategy strives to replace impacted stream functions by preserving high quality streams of greater value on-site at a preservation ratio of 21.4:1 and to enhance a portion of these preserved streams. This on-site enhancement and the enhancement and restoration of additional stream habitat off-site, in the same watershed, represent a combined stream habitat enhancement ratio of 4.1:1. This is also an important component of the proposed stream mitigation plan.

To accomplish the proposed on-site wetland mitigation objectives, approximately 105 acres of wetlands and 272 acres of associated upland buffer will be protected in perpetuity on the SWMF (Figure 6). To accomplish the proposed off-site wetland mitigation objectives, 28.6 acres of wetland will be restored along Sandy Creek, including 7.9 acres of palustrine forested (PFO) wetland, 7.0 acres of palustrine scrub-shrub (PSS) wetland, 6.1 acres of palustrine emergent (PEM) wetland, and 7.6 acres of palustrine emergent-wet meadow/transitional wetland (Figure 7).

To accomplish the proposed stream mitigation objectives, approximately 45,844 linear feet of streams and 198 acres of associated stream buffers (some of which overlap the protected wetland buffers) will be preserved on site. In addition, approximately 8,102 linear feet of these existing on-site streams will be enhanced through tree and shrub plantings, as needed, within

these 100-foot stream buffer areas for a maximum total of 30.4 acres of enhanced riparian buffer (Figure 8). This number reflects an adjustment in the amount of stream being proposed for buffer enhancement. Riparian buffers located adjacent to fallow agricultural areas or other disturbed areas were recognized as areas of high priority; any forested buffers initially proposed for enhancement have been removed from this portion of the mitigation strategy but are still included in the buffer preservation component. The protection and enhancement of these streams and stream buffers will augment on-site wetland preservation also proposed as part of this mitigation strategy and will contribute toward providing greater ecological connectivity with state and county preservation areas located immediately adjacent to the SWMF property. The off-site mitigation project along Sandy Creek will contribute to achieving the stream mitigation objectives by enhancing approximately 650 feet of stream bank and stream channel (Figure 7). Table 7 displays a comparison between the on-site and off-site wetland and stream mitigation actions included in the Final Aquatic Resource Mitigation Strategy for the Proposed Southern Expansion and the 2011 Southern Expansion.

Table 7 – Summary of On and Off-site Wetland and Stream Mitigation

	2011 Southern Expansion	**Proposed Southern Expansion**
On-Site Actions		
Wetland preservation	104 acres	105 acres
Upland buffer preservation (100 feet around wetlands)	256 acres	272 acres
Stream preservation	44,377 linear feet	45,844 linear feet
Stream buffer preservation (100 feet around streams)	194 acres	198 acres
Stream buffer enhancement (100 feet around streams)	42.5 acres (9,900 linear feet of enhanced stream segments – also included in stream buffer preservation above)	30.4 acres (8,102 linear feet of enhanced stream segments – also included in stream buffer preservation above)
Off-Site Actions		
Wetland restoration	28.6 acres	28.6 acres
Stream bank restoration	650 linear feet	650 linear feet

3.2 On-site and Off-site Mitigation

The final mitigation strategy includes conservation actions on the SWMF property (on site) and within the watershed (off site) as described above and in Appendix B. A significant portion of the proposed aquatic resource mitigation is located on site via preservation and enhancement of wetlands and streams on the SWMF property. Additional mitigation is proposed off site at Skinner Road in response to the emphasis placed on watershed-based mitigation by the USACE as described in 33 CFR Part 332 – Compensatory Mitigation for Losses of Aquatic Resources (http://www.epa.gov/owow/wetlands/pdf/wetlands_mitigation_final_rule_4_10_08.pdf). To support mitigation planning at the watershed/landscape level, the Authority conducted a SWMF Watershed Assessment (detailed in the JPA). The watershed assessment provided an analysis of land use features of local and regional watersheds that encompass the SWMF and evaluated the connection between natural resources on the SWMF and site-specific and watershed conservation priorities.

The SWMF property is located in the upper reaches of the Salmon-Sandy Creek Watershed (U.S. Geological Survey Cataloging Unit and 8-digit Hydrologic Unit Code: 04140102) in an area with relatively abundant, high quality headwater wetlands and streams with minimal quantities of invasive species. Based on watershed priorities that have been determined for the Salmon-Sandy Creek Watershed, preservation and enhancement of existing high quality resources that provide connectivity between existing habitat and preservation areas is most important in these upper reaches of the watershed where the SWMF is located.

The Skinner Road mitigation area (off-site mitigation area) is located in the lower reaches of the Salmon-Sandy Creek Watershed which has had significant wetland loss and impacts to streams from high intensity land uses and loss of riparian buffers. Restoration of wetlands and stream buffers is a priority in the lower reaches of the watershed toward Lake Ontario where these types of impacts have occurred.

Mitigation plans ideally build upon the value of the existing natural resources by strategically protecting and restoring lands to maintain and enhance habitats such as those on the SWMF in the headwater reaches of the basin (on site) and restore habitats that have been degraded in the lower reaches (off site). Based on natural resource assessments conducted at the site and the watershed assessment, three conservation priorities were identified that pertain to the landfill expansion project in the Salmon-Sandy Creek Watershed; 1) protect and restore

headwater streams and wetlands in the Fish Creek subwatershed, 2) protect and connect large forest blocks in the Fish Creek subwatershed, and 3) reestablish stream buffers with native vegetative cover and restore riparian wetlands in the Sandy Creek subwatershed. The proposed on- and off-site mitigation components have been developed to adhere to these watershed priorities. The mitigation strategy is to yield the greatest benefit to the function of the watershed as a whole through protection and enhancement of forest blocks, headwater streams and stream buffers in the upper reaches of the basin in the Fish Creek subwatershed (on site), and restoration of riparian forested wetlands and stream buffers in the highly fragmented lower portion of the Sandy Creek subwatershed (off site).

3.3 Mitigation Plan Details

Appendix B provides details of the Final Aquatic Resource Mitigation Strategy, includes changes associated with the Proposed Southern Expansion, and addresses specific USACE RAIs including:

1. Financial assurances;
2. Protection of mitigation areas;
3. Updates to performance goals; and
4. Detailed planting plans reproducible on 8.5x11 sheets in black and white.

4.0 OTHER ISSUES OF CONCERN

The following section provides responses to the USACE RAIs and public comments received during the Public Notice period for the JPA that are not directly related to aquatic resource impacts.

4.1 Indiana Bat Surveys

The Proposed Southern Expansion will impact approximately 63.84 acres of forested habitats (upland and wetland); this is a reduction from the 106.35 forested acres proposed in the 2011 Southern Expansion. The Indiana bat (*Myotis sodalis*) is known to inhabit areas of Jefferson County. To help determine whether this species was using the Authority's property for roosting or foraging activities, a mist-netting survey was conducted by Skelly & Loy, Inc. between July 9 and July 27, 2007, which followed the U.S. Fish and Wildlife Service's (USFWS) mist-netting survey protocol that was current at that time. Ten mist net sites were selected and surveyed, focusing on lands south, west, and northwest of the existing landfill footprint. No Indiana bats were captured or observed during this mist-netting study. A report detailing the results of the survey was completed in August 2007 and was provided to the USACE and USFWS for review. The USFWS issued a letter in October 2007 which determined that the likelihood of significant or regular use of the site by Indiana bats is low. The USFWS also determined that with the completion of tree removal activities between the recommended tree-cutting timeframe of October 1 to March 31, no anticipated "take" of the Indiana bat would occur as part of future activities on the SWMF property.

In accordance with the comments received by the USFWS as part of the Public Notice for the JPA, the Authority intends to reinitiate consultation with the USFWS pursuant to Section 7 of the Endangered Species Act as a result of the modification to the Proposed Southern Expansion footprint and the addition of Soil Borrow Area No. 3. An additional Indiana bat survey may be required in the future since the project will not be completed by February 13, 2013, as outlined by the USFWS as the date when the 2007 survey results would no longer be considered relevant. Additional surveys that may be required will be conducted after February 13, 2013 and prior to construction activities associated with the Proposed Southern Expansion.

4.2 Groundwater/Aquifer

The United States Environmental Protection Agency's (USEPA) designation of the Northern Tug Hill Glacial Aquifer as a Sole Source Aquifer (SSA) is based not only upon the mapped extent of the aquifer, which is located more than 2.5 miles from the Authority's property, but also on the extent of its tributary surface watershed. Since drainage from the Authority's property is ultimately conveyed to Sandy Creek via Fish Creek and the on-site tributaries, the property is considered by the USEPA to fall within the "streamflow source zone" of the aquifer. Field investigations completed by the United States Geological Survey (USGS) (Unconsolidated Aquifers in Upstate New York – Finger Lakes Sheet, WRIR 87-4122, Todd S. Miller, 1988) indicate that the aquifer extends northeastward from the Village of Adams for a distance of approximately 1.5 miles and does not reach the confluence of Fish Creek and Sandy Creek. This observation was established during the original hydrogeologic investigation of the site when field reconnaissance confirmed that bedrock underlies Fish Creek near the confluence with Sandy Creek.

The mapped aquifer is unchanged from the time when the New York State Department of Environmental Conservation (NYSDEC) held adjudicatory permit hearings for the SWMF site. During these hearings the question of potential impacts upon surface water quality in Sandy Creek, and by extension in the aquifer, were considered. At that time, a worst-case scenario involving an undetected release of leachate into the site tributaries was evaluated. The worst-case analysis conservatively presumed low flow conditions in Sandy Creek, no degradation of leachate during migration within the groundwater system and no attenuation of the leachate during transport via surface water from the site to the confluence of Fish and Sandy Creeks. The results indicated no significant impact upon surface water quality in Sandy Creek. With no impact upon surface water quality at the confluence, there is no potential for water quality impacts upon the Northern Tug Hill Glacial Aquifer, which is located approximately one mile downstream from the confluence and more than 2.5 miles from the Authority's property.

4.3 Solid Waste Projections, Reductions and Project Need

Waste quantities requiring landfill disposal vary from year to year. This variation is caused by a variety of factors including economic conditions, waste processing, recycling and waste reduction measures, changes in law, and population changes. The Authority's landfill is currently permitted by the NYSDEC to accept a maximum of 346,320 tons of waste per year.

The Authority does not plan to request from NYSDEC an increase in the amount of waste that is allowed to be disposed of in its landfill each year. The Proposed Southern Expansion will be designed to provide for the environmentally sound disposal of all non-recyclable solid wastes generated in the Authority's four-county service area, including the municipal solid wastes from the growing Fort Drum Military Installation, which will require landfill disposal.

The projected annual average disposal rates have been adjusted to reflect a slightly lower average disposal rate of 220,000 tons per year; 40,000 tons less than the previously projected 260,000 tons per year. The adjusted average disposal rate is based on the downward trend of recent annual tonnages and the anticipation of continued increases in waste reduction and recycling efforts throughout the region.

The Authority is coordinating with its county and municipal partners to implement waste reduction and recycling measures to further reduce the amount of waste requiring landfill disposal in future years. Disposal of municipal solid waste in the Authority's landfill is not the Authority's sole focus; the Authority continues to implement and improve waste diversion and reduction activities within its service area, including entering into a regional waste diversion program. In 2010, the Authority introduced a public education campaign effort to focus on regional recycling improvements and benefits. Additional information about the Authority's recycling efforts can be found at the following websites: www.danc.org/operations/solid-waste-management/regional-recycling and www.NorthCountryRecycles.org.

The Authority's existing landfill provides a reliable, environmentally sound disposal service for the residents, businesses and institutions of four counties – Jefferson, Lewis, St. Lawrence and Hamilton. The available disposal capacity in the existing landfill is limited, and at projected landfill usage rates of 220,000 tons per year is expected to be filled to capacity during the year 2024 if an expansion of the landfill is not implemented.

The Proposed Southern Expansion will secure uninterrupted, long-term disposal capacity that is locally controlled, environmentally sound, and cost efficient; a critical resource for the economic stability and security in the region.

4.4 Development Authority of the North Country

The Authority is a New York State public benefit corporation that serves the common interests of Jefferson, Lewis and St. Lawrence Counties by providing technical services and infrastructure, which enhance economic opportunities in the region and promote the health and well being of its communities. The Authority is committed to environmental sustainability, fiscal integrity and partnerships. To achieve these objectives, the Authority works with its municipal partners through shared service solutions using advanced technology and fostering municipal cooperation to achieve cost-effective services for the region.

The Authority works closely with permitting agencies to ensure that all phases of the planning and implementation of landfill operations are in line with regulatory requirements and protect environmental, economic and social interests. Formal public review and comment opportunities are facilitated throughout the environmental review and permitting process. In addition to the formal comment periods, the Authority has encouraged the public to informally comment and ask questions throughout the review process. The Authority seeks to keep the public informed and involved throughout the environmental review and permitting process. Project documents and resources will frequently be uploaded to www.danc.org/operations/solid-waste-management/solid-waste-facility-expansion-project for public review. Comments and questions may be submitted on an on-going basis to the Authority in writing at the Dulles State Office Building, 317 Washington Street, Watertown, New York 13601 or by email at INFO@DANC.ORG. All comments and concerns are reviewed and taken into consideration.

All substantive comments submitted during the JPA Public Notice and those that may be submitted during the ongoing State Environmental Quality Review (SEQR) impact review process will be specifically addressed in response documents such as this or in a final environmental impact statement. A careful consideration of public comments and concerns helps to ensure that no significant adverse environmental impacts are missed during the review process and that all potential impacts are minimized and/or mitigated appropriately.

4.5 Relationship to SEQRA and other permit requirements

There are three main steps in the environmental review and permitting process for the proposed landfill expansion: (i) federal wetlands permitting, (ii) the State Environmental Quality Review Act (SEQRA) process, and (iii) New York State Department of Environmental Conservation permitting. A brief introduction to these steps is provided below:

Federal Wetlands Permitting -- The USACE is currently undertaking an environmental review of the proposed expansion project, with a focus on federal wetlands and water resources, in response to the Authority's application for a federal wetlands permit. The Authority must obtain a federal wetlands permit before it can obtain a construction permit from the NYSDEC for the Proposed Southern Expansion. The USACE published a Public Notice for the project on October 11, 2011; the associated public comment period expired on November 10, 2011 (November 24, 2011 for the USFWS), and is the basis for this response document.

SEQRA – The State Environmental Quality Review Act is set forth in Article 8 of the New York State Environmental Conservation Law. The Act's implementing regulations can be found at 6 NYCRR (Codes, Rules and Regulations of the State of New York) Part 617. SEQRA establishes a process for the consideration of environmental factors in the planning stages of discretionary actions that are directly undertaken, funded or approved by local, regional and state agencies. These agencies include districts, special boards and public authorities. SEQRA requires the approving or sponsoring entity to identify and mitigate the significant adverse environmental impacts of the activity it is proposing, funding or permitting. Completion of – and compliance with – the SEQRA review process must occur before the Authority can obtain a construction permit for the proposed landfill expansion from the NYSDEC.

NYSDEC Permitting – The NYSDEC has the primary responsibility at the state level for environmental oversight and regulation of solid waste management facilities. The NYSDEC enforces a stringent set of solid waste regulations (found at 6 NYCRR Part 360; see www.dec.ny.gov/regs/2491.html), which include requirements that must be satisfied before a permit (known as a Part 360 permit) can be issued to the Authority for the construction and operation of the Proposed Southern Expansion. The permit application materials for a Part 360 permit include an extensive set of engineering reports and drawings. The Authority will make drafts of these permit application materials available to the public and the NYSDEC during the SEQRA process.

Figure 1

Comparison of the 2011 Southern Expansion and Proposed Southern Expansion

EXISTING MAINTENANCE FACILITY AREA

EXISTING OPERATIONAL LANDFILL

PROPOSED SOUTHERN EXPANSION STORMWATER MANAGEMENT AREAS

EXISTING LANDFILL CELL OVERLAY AREA

EXISTING STORMWATER POND

STREAM SEGMENT 4

2011 SOUTHERN EXPANSION LIMITS OF WASTE

2011 SOUTHERN EXPANSION LIMITS OF DISTURBANCE

PROPOSED SOUTHERN EXPANSION LIMITS OF WASTE

PROPOSED SOUTHERN EXPANSION LIMITS OF DISTURBANCE

SOUTHERN TRIBUTARY

100' SEPARATION FROM STREAM TO REVISED LIMITS OF DISTURBANCE FOR PROPOSED SOUTHERN EXPANSION

250' 0 250' 500'
1"=250'

LEGEND

- PROPERTY LINE
- EXISTING CONTOURS (OR PROPOSED FINAL CONTOURS FOR EXISTING OPERATIONAL LANDFILL)
- EXISTING UNPAVED ROAD
- EXISTING PAVED ROAD
- EXISTING WATERCOURSE
- EXISTING STRUCTURE
- EXISTING WETLANDS
- 2011 SOUTHERN EXPANSION LIMITS OF WASTE
- 2011 SOUTHERN EXPANSION LIMITS OF DISTURBANCE
- 2011 SOUTHERN EXPANSION LINED AREA
- PROPOSED SOUTHERN EXPANSION LIMITS OF WASTE
- PROPOSED SOUTHERN EXPANSION LIMITS OF DISTURBANCE

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By _____ Date _____

Ck'd _____ Date _____

REVISIONS

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

COMPARISON OF THE 2011 SOUTHERN EXPANSION AND PROPOSED SOUTHERN EXPANSION

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Barton & Loguidice, P.C.

REVIEW DRAFT
APRIL 23, 2012

Date
APRIL, 2012

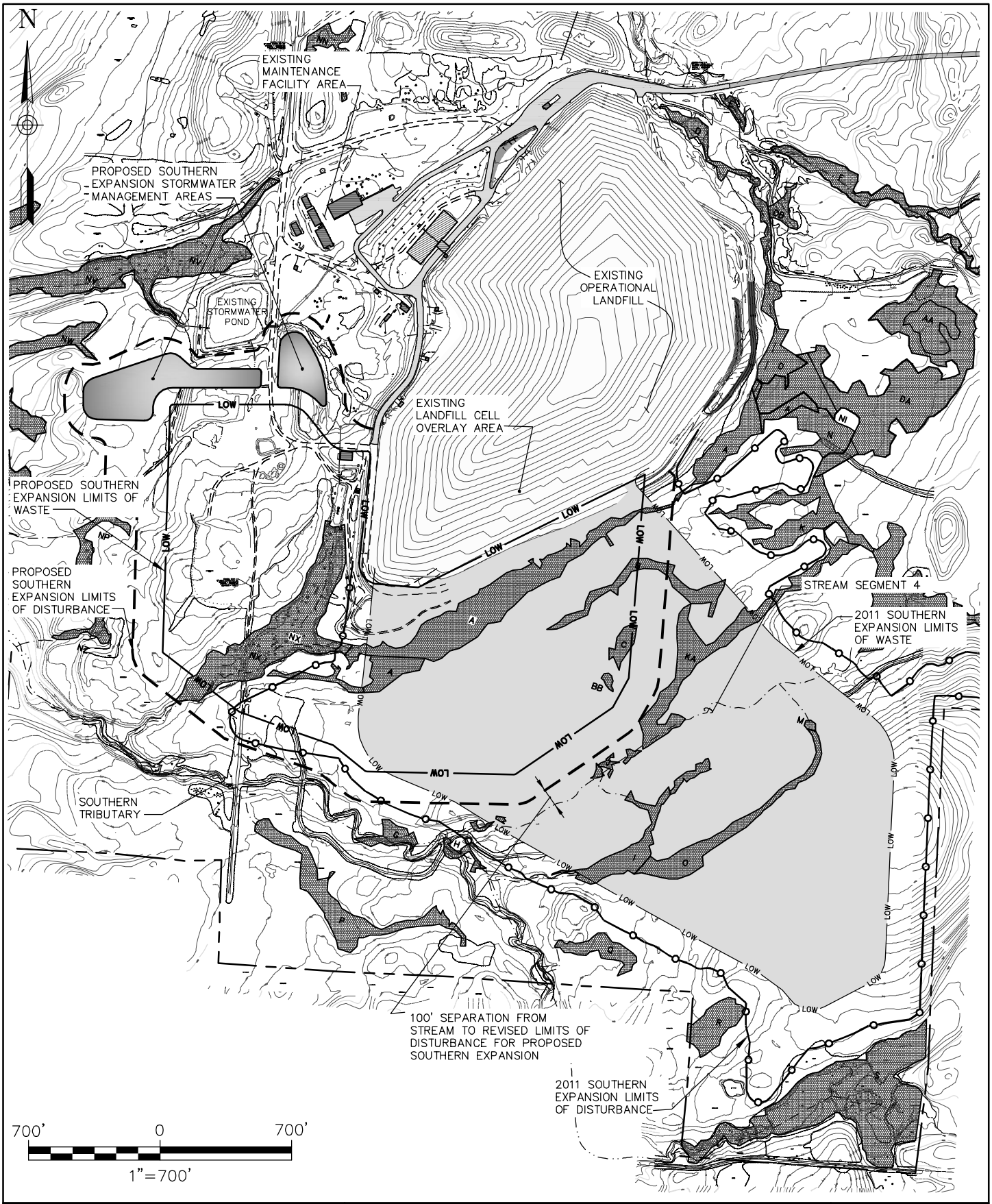
Scale
1" = 250'

Sheet Number
FIGURE 1

File Number
394.041

Plotted: Apr 24, 2012 - 9:39AM SYR By: mj
I:\Shared\300\394041\2012 FOOTPRINT MOD\PUBLIC COMMENT RESPONSE FIGS\394041_SOUTH EXP_FIG1_EXPAN COMPARISON.dwg

Checked by _____ Drawn by JGS Designed by CWH In charge of PRC



Barton & Loguidice, P.C.

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

COMPARISON OF THE 2011 SOUTHERN EXPANSION AND PROPOSED SOUTHERN EXPANSION

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number	Project Number
1	394.041

Date	Scale
MAY, 2012	AS SHOWN

Plotted: May 07, 2012 – 10:53AM SYR By: mj
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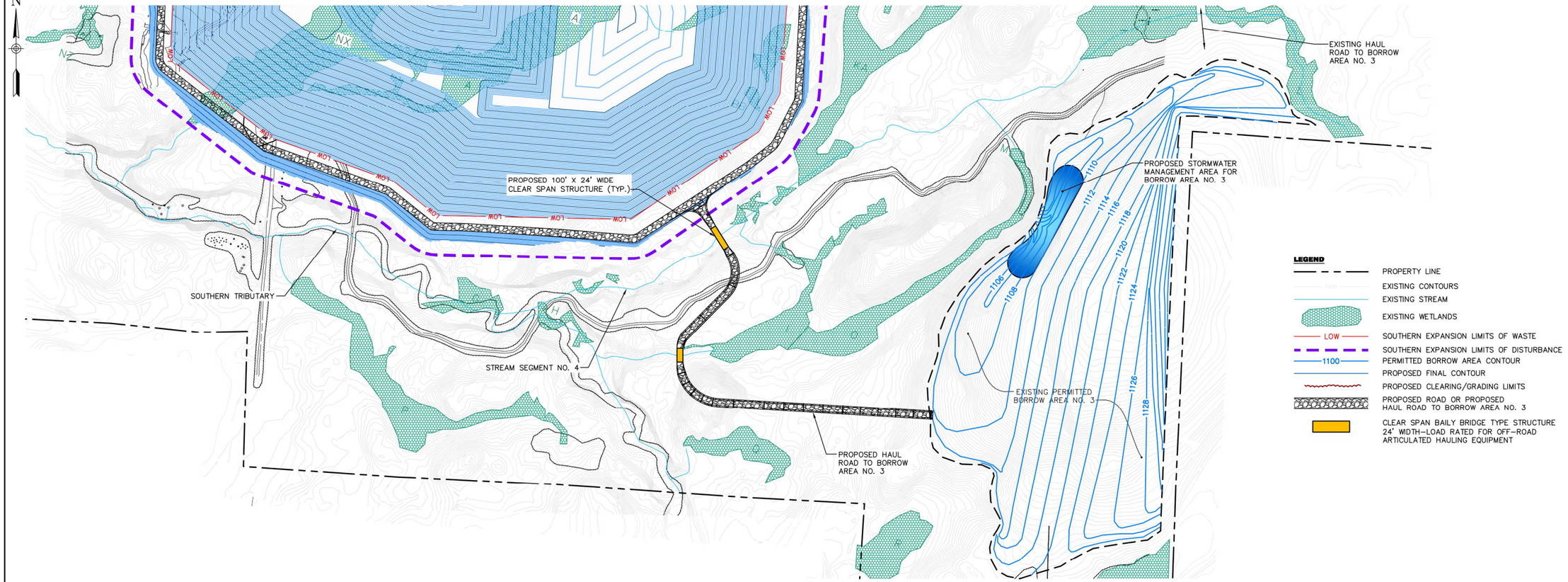
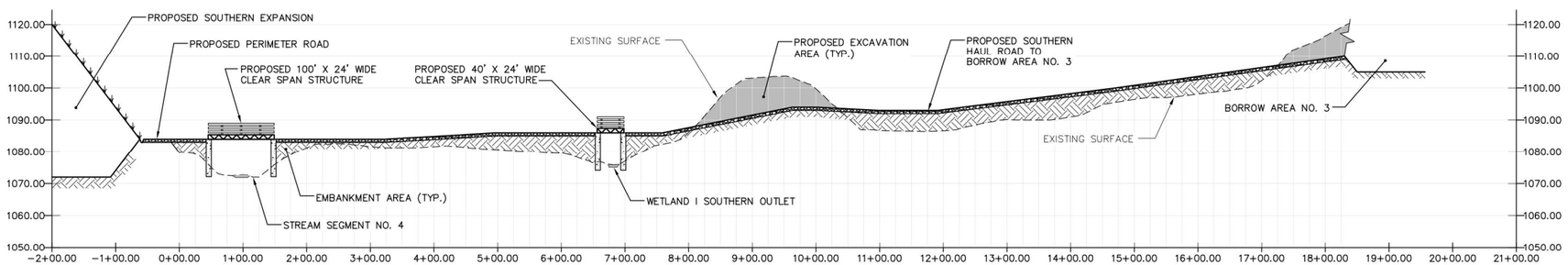
Figure 2

Proposed Haul Road to Borrow Area No. 3



PROPOSED HAUL ROAD SITE PLAN

SCALE: 1" = 200'



PROPOSED HAUL ROAD PROFILE

HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 20'

20' 0 20' 40' 1"=20'
100' 0 100' 200' 1"=100'
200' 0 200' 400' 1"=200'

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By _____ Date _____

Ck'd _____ Date _____

REVISIONS

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED HAUL ROAD TO BORROW AREA NO. 3

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Barton & Loguidice, P.C.

REVIEW DRAFT
APRIL 23, 2012

Date
APRIL, 2012

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FIGURE 2

File Number
394.041

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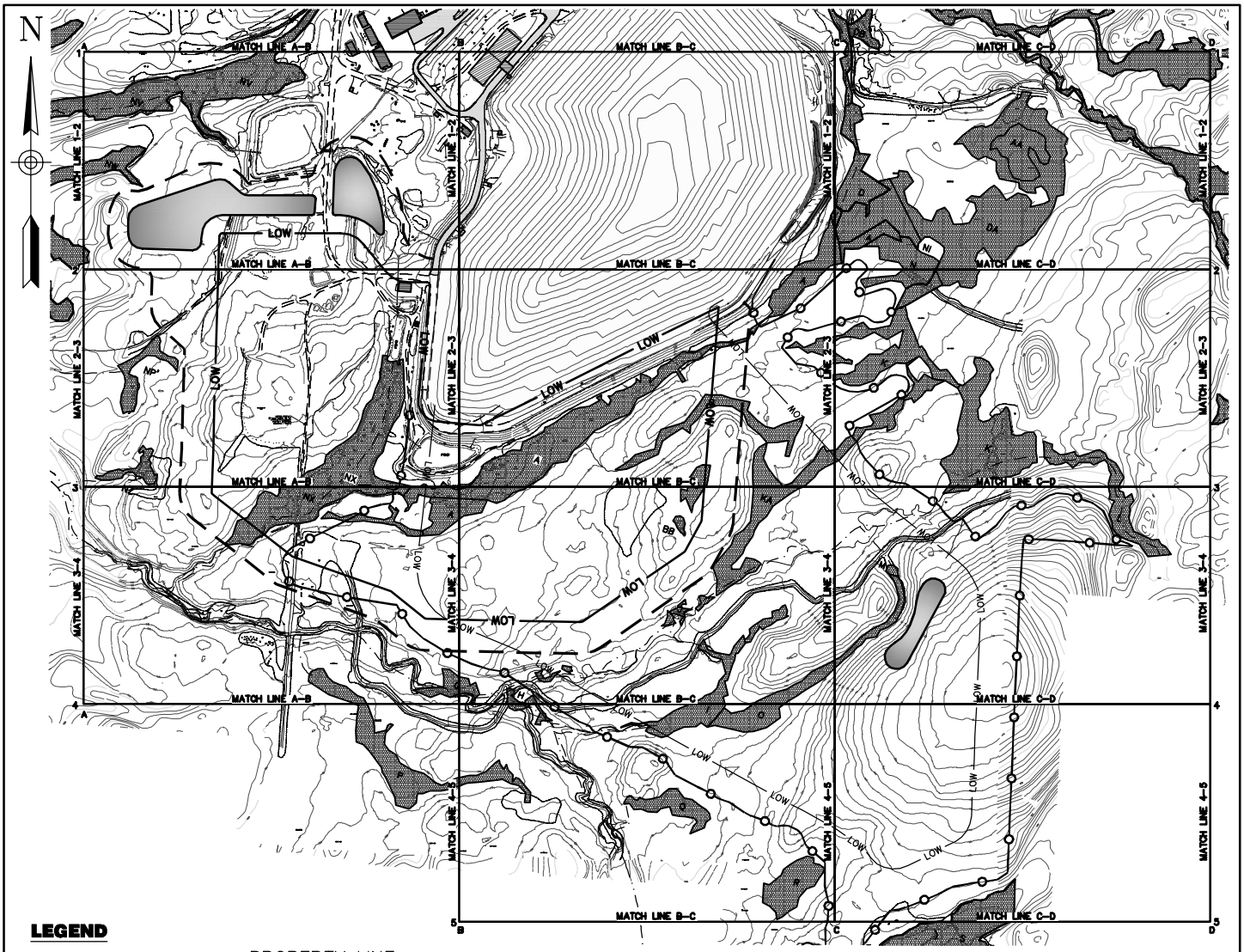

LEGEND

- PROPERTY LINE
- EXISTING CONTOURS (OR PROPOSED FINAL CONTOURS FOR EXISTING OPERATIONAL LANDFILL) — 1000
- EXISTING UNPAVED ROAD
- EXISTING PAVED ROAD
- EXISTING WATERCOURSE
- EXISTING STRUCTURE
- EXISTING WETLANDS
- 2011 SOUTHERN EXPANSION LIMITS OF WASTE — LOW
- 2011 SOUTHERN EXPANSION LIMITS OF DISTURBANCE
- 2011 SOUTHERN EXPANSION LINED AREA — LOW / LOW
- PROPOSED SOUTHERN EXPANSION LIMITS OF WASTE — LOW
- PROPOSED SOUTHERN EXPANSION LIMITS OF DISTURBANCE
- PROPOSED SOUTHERN EXPANSION PERIMETER ROAD
- PROPOSED RIPRAP LINED DOWNCHUTE
- PROPOSED RIPRAP LINED SWALE
- PROPOSED GRASS LINED SWALE
- PROPOSED SOUTHERN EXPANSION FINAL CONTOUR
- SOIL BORROW ARE 3 CONTOUR — 1120
- PROPOSED STORMWATER MANAGEMENT AREA
- PROPOSED LIMITS OF PHASE 1 AREA — L
- CLEAR SPAN BAILY BRIDGE TYPE STRUCTURE 24' WIDTH–LOAD RATED FOR OFF–ROAD ARTICULATED HAULING EQUIPMENT

Barton & Loguidice, P.C.

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

COVER SHEET AND LEGEND

TOWN OF RODMAN — JEFFERSON COUNTY, NEW YORK

Date	Scale	Figure Number	Project Number
MAY, 2012	AS SHOWN	0	394.041

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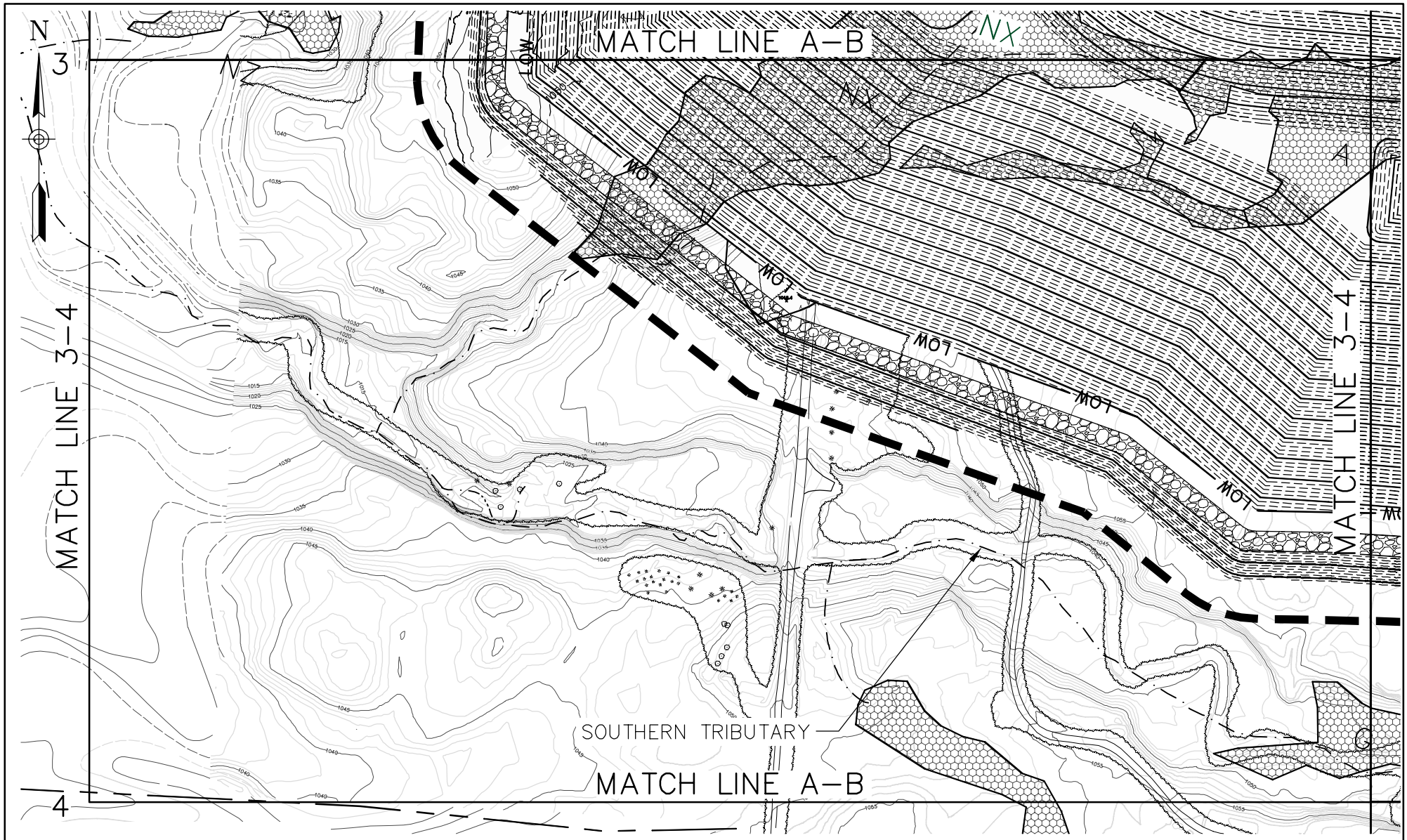

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED HAUL ROAD TO BORROW AREA NO. 3

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
2.1

Project Number
394.041

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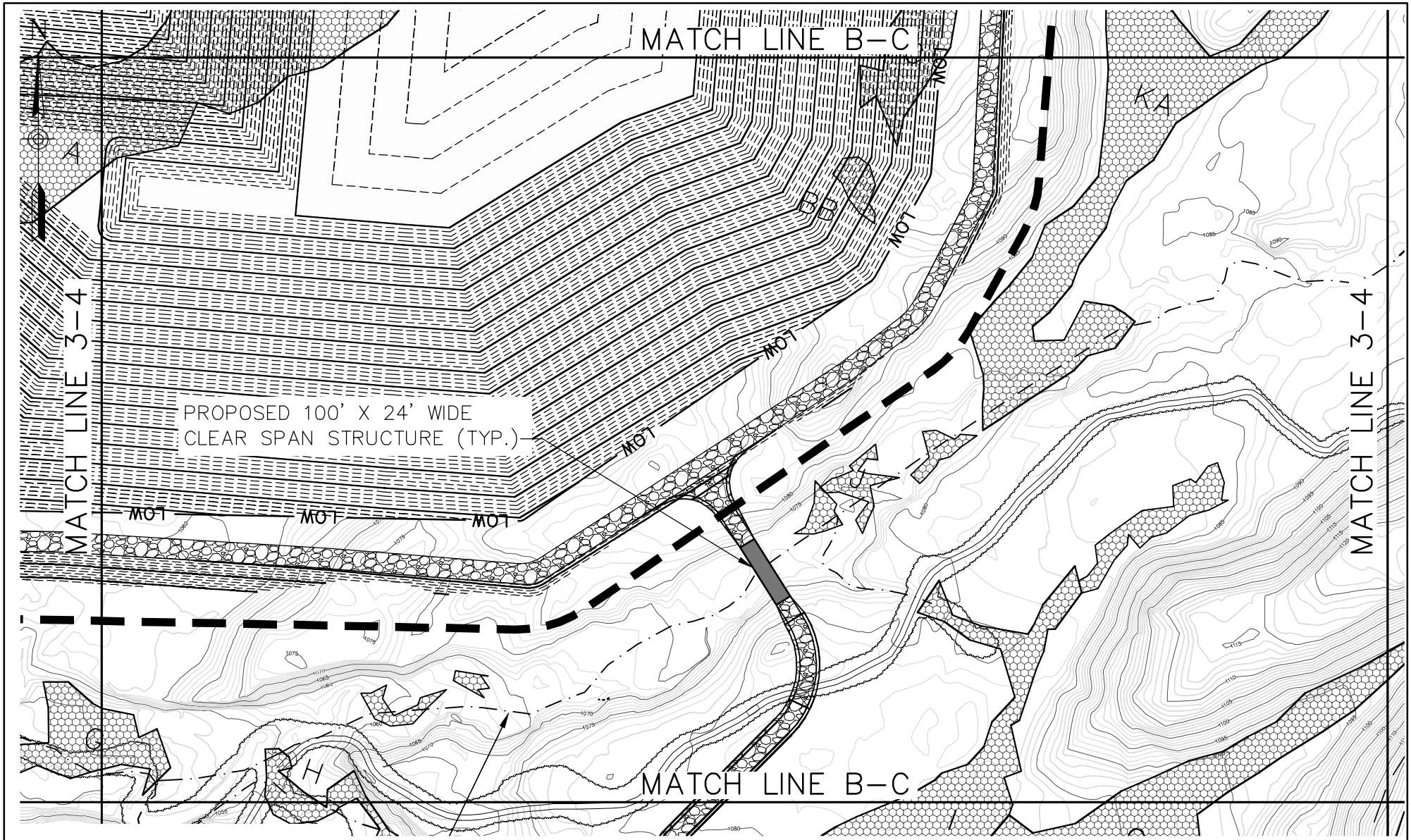

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED HAUL ROAD TO BORROW AREA NO. 3

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
2.2

Project Number
394.041

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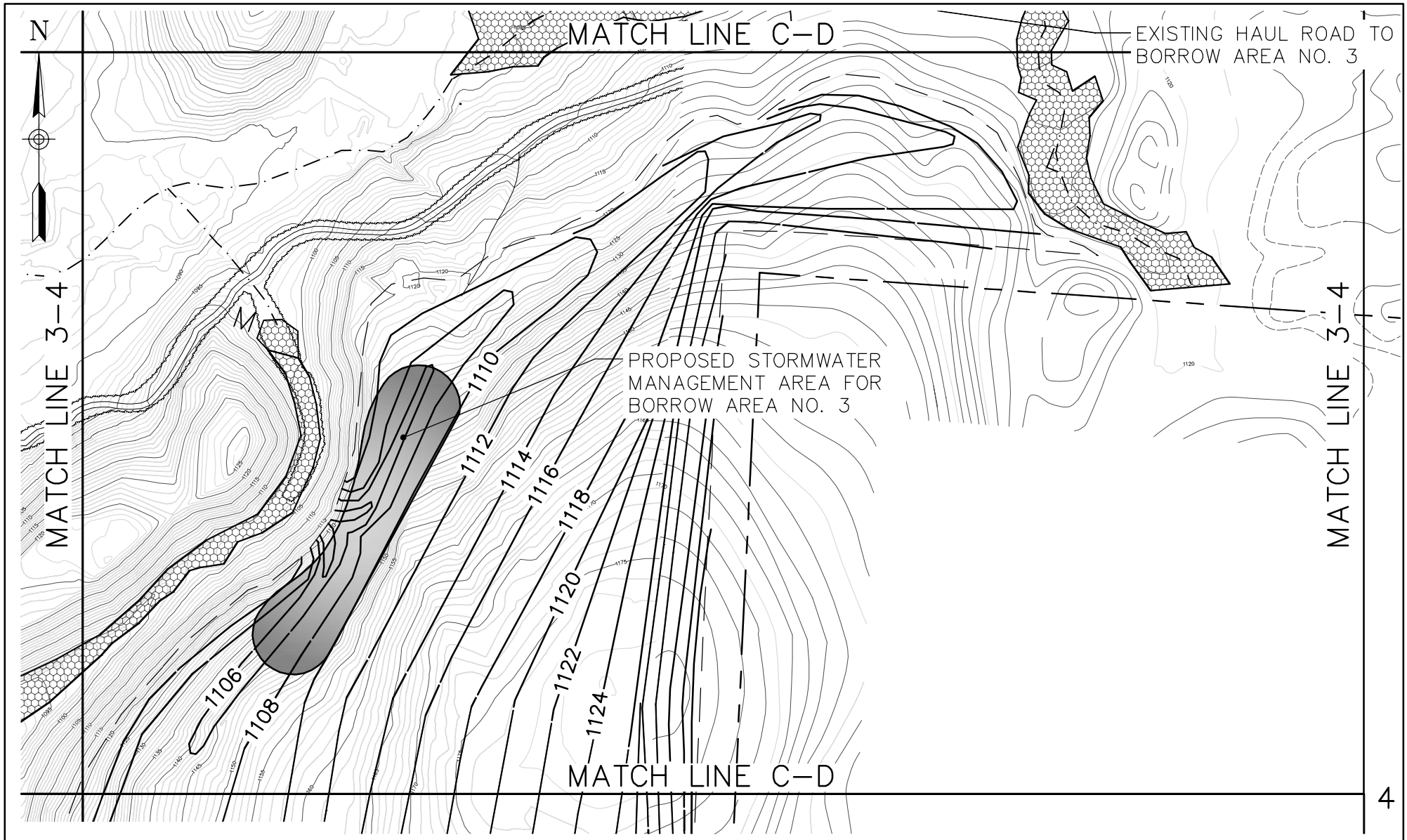

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED HAUL ROAD TO BORROW AREA NO. 3

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
2.3

Project Number
394.041

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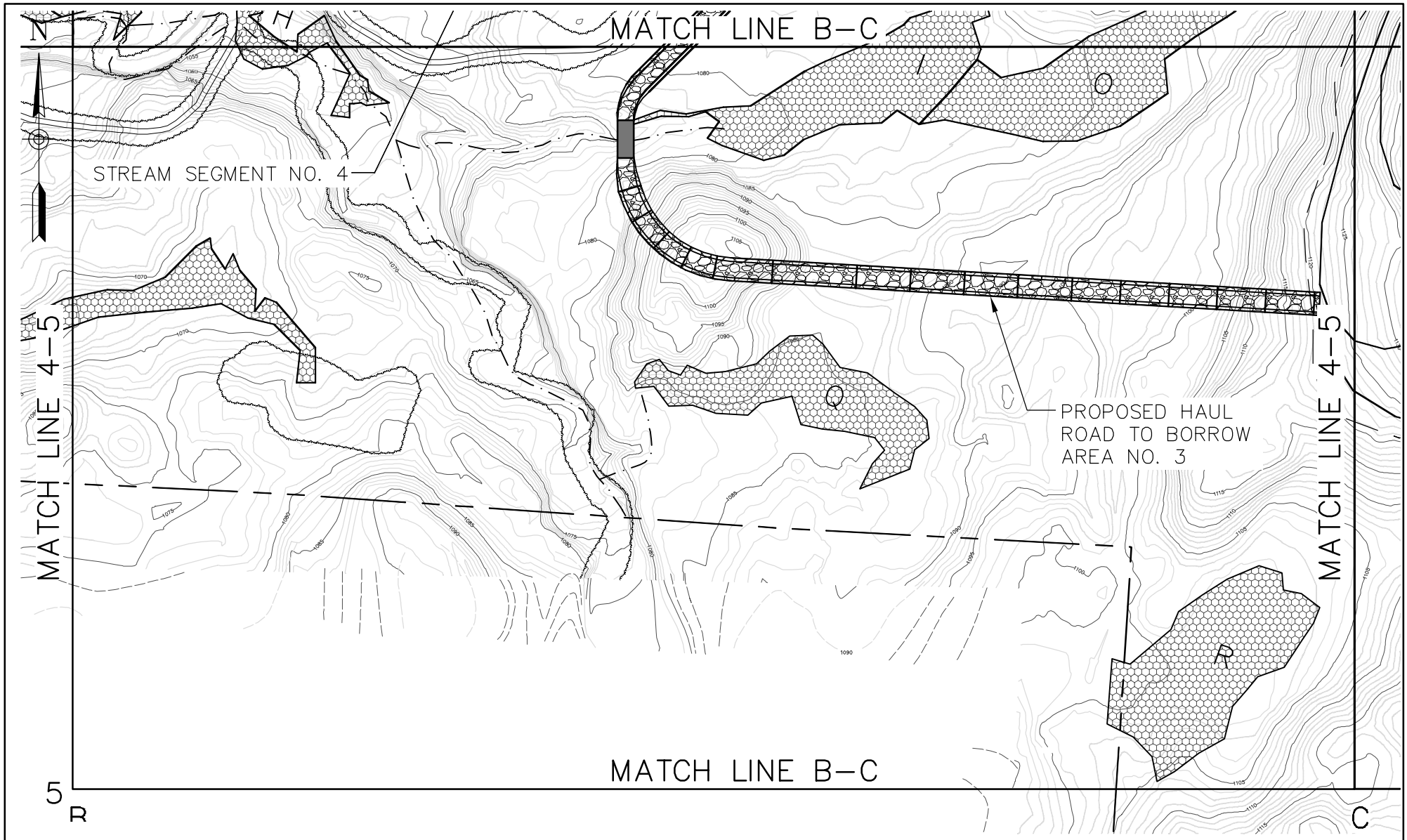

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED HAUL ROAD TO BORROW AREA NO. 3

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
2.4

Project Number
394.041

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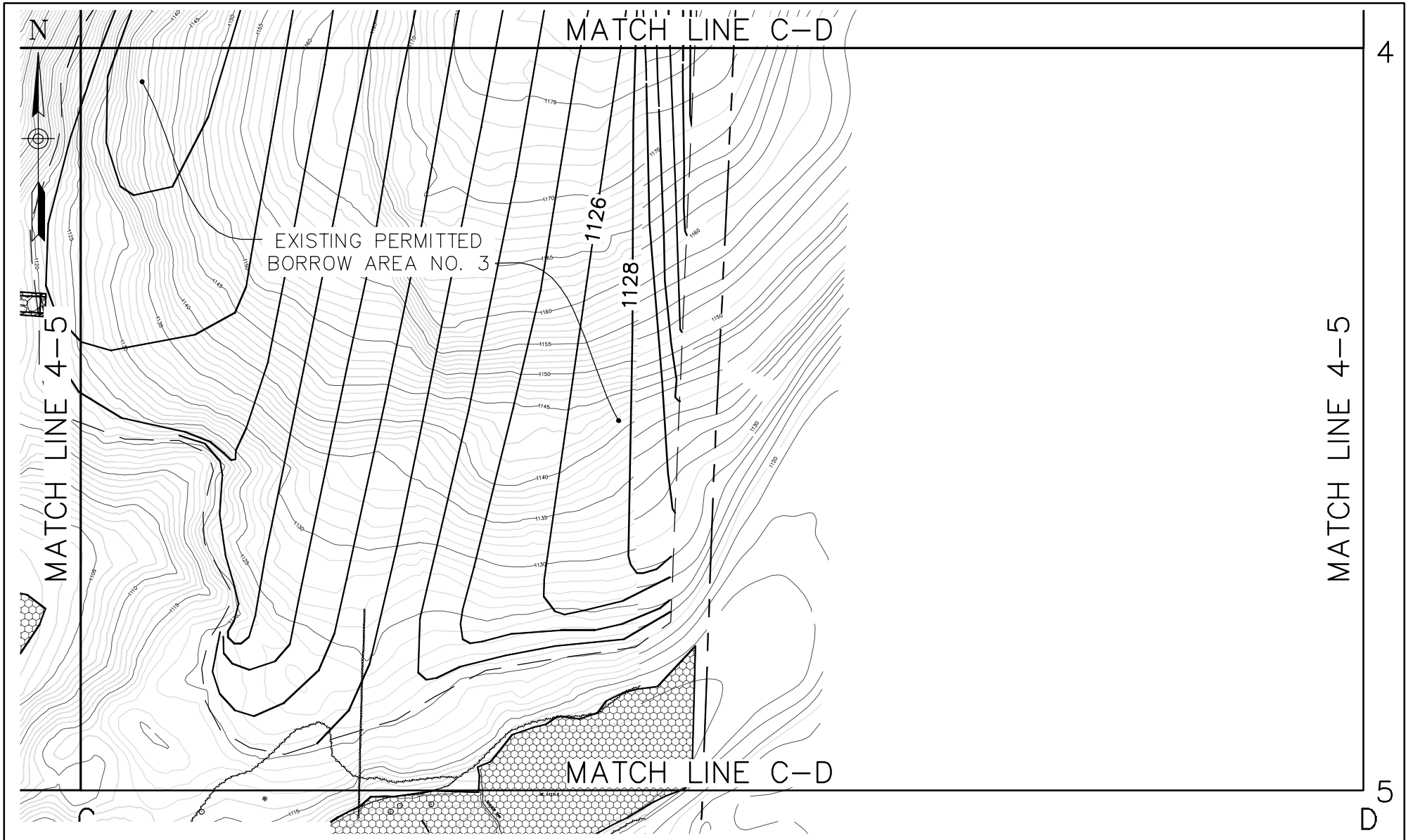

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED HAUL ROAD TO BORROW AREA NO. 3

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
2.5

Project Number
394.041

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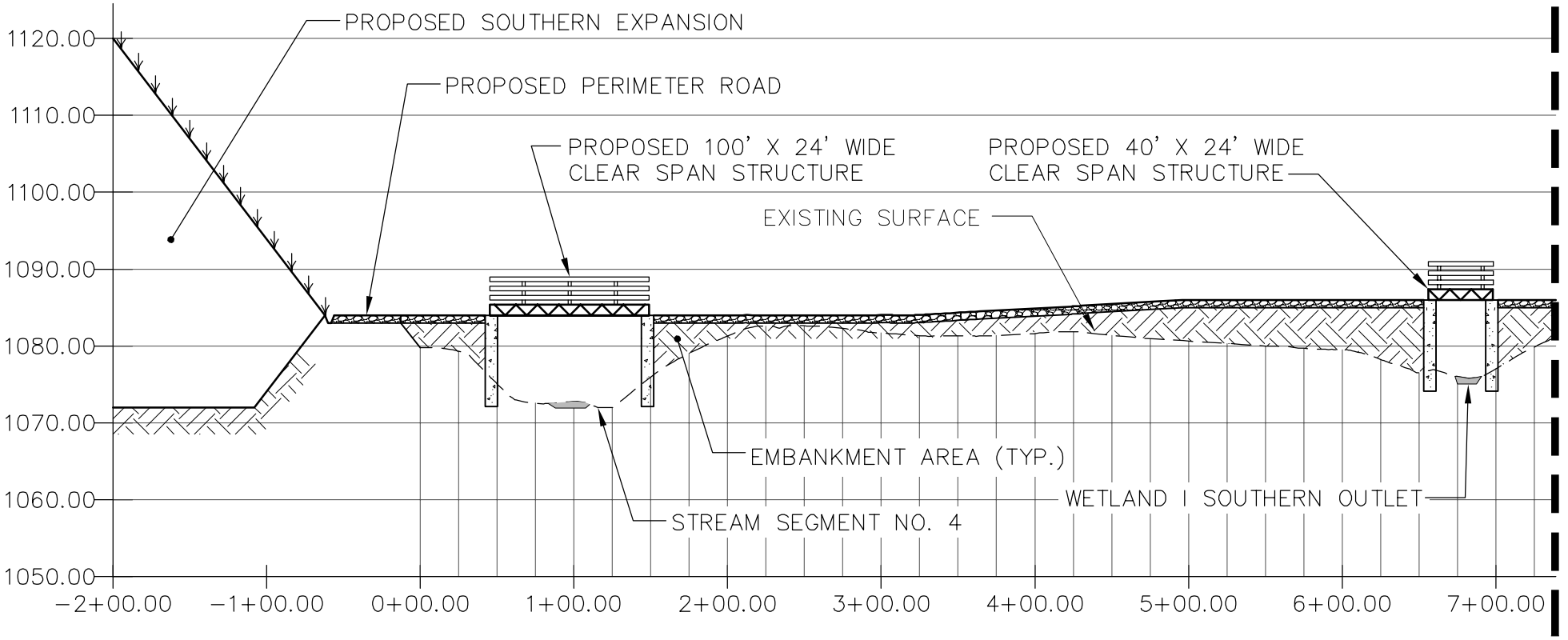

PROPOSED HAUL ROAD PROFILE

HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 20'

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED HAUL ROAD TO BORROW AREA NO. 3

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
2.6

Project Number
394.041

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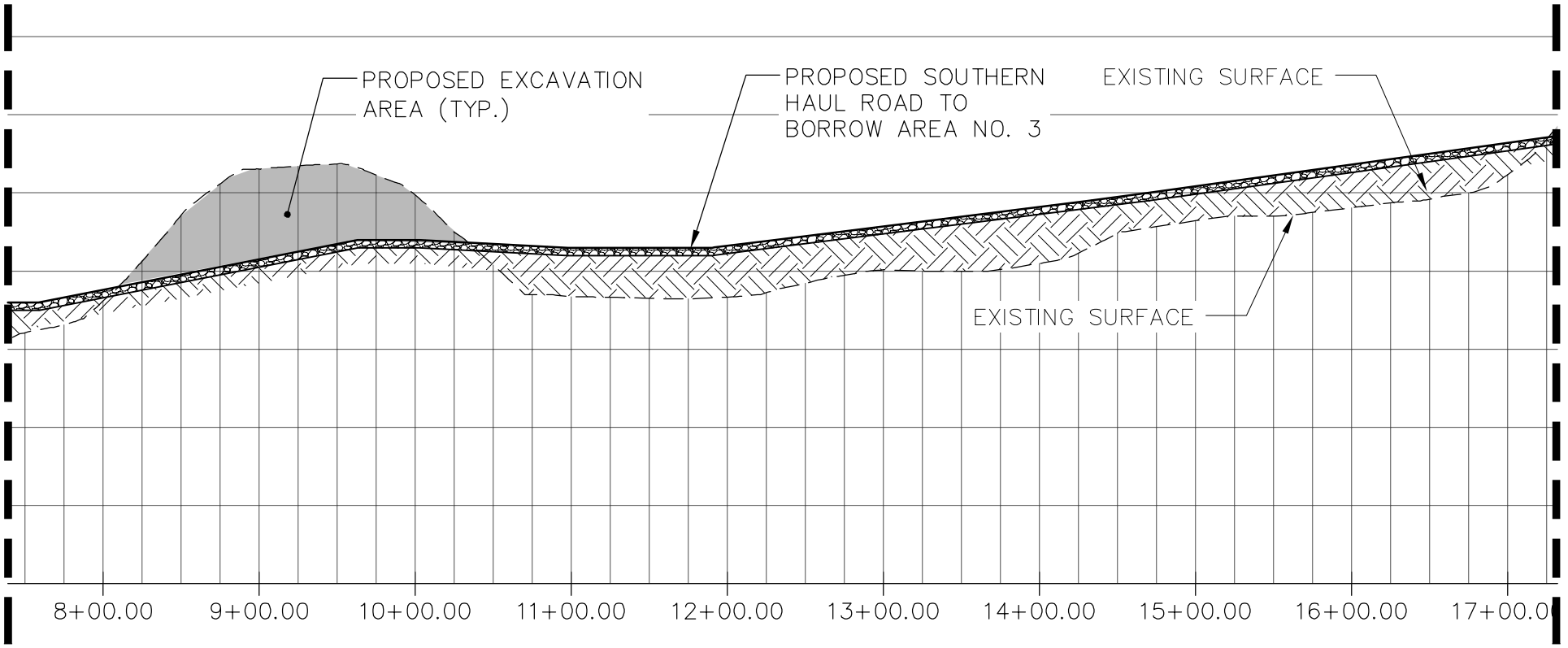

PROPOSED HAUL ROAD PROFILE

HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 20'

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED HAUL ROAD TO BORROW AREA NO. 3

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
2.7

Project Number
394.041

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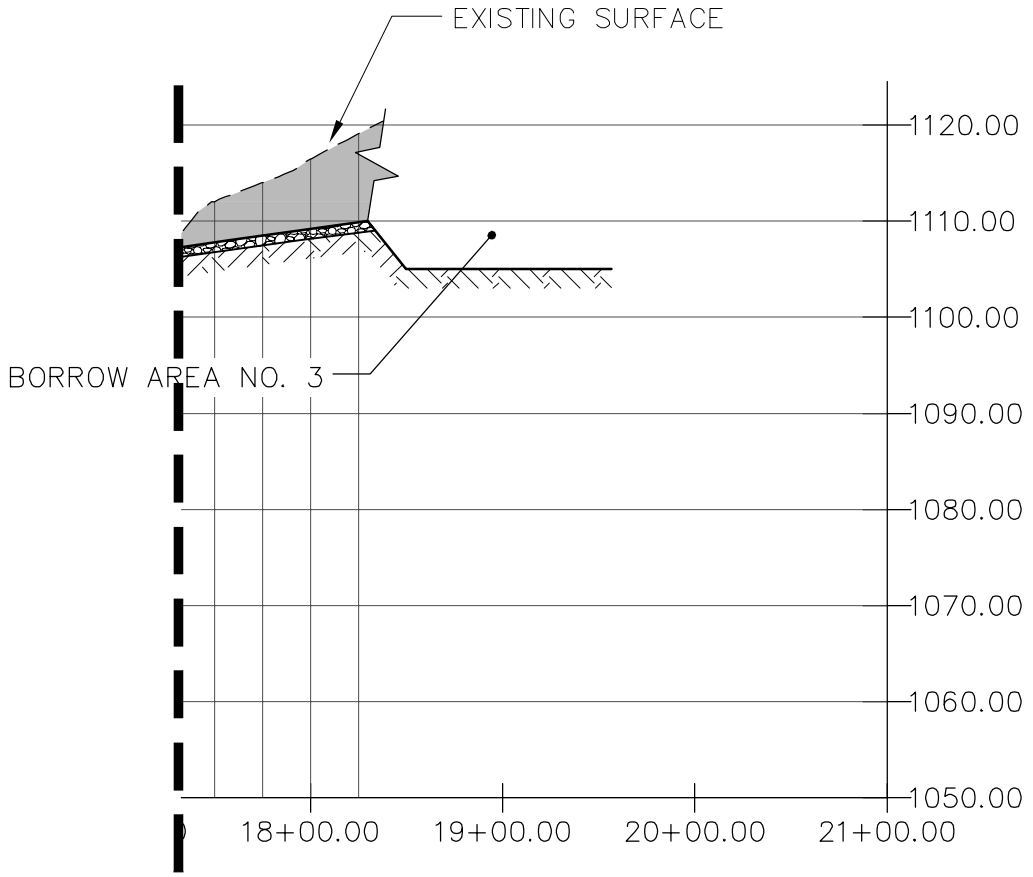


PROPOSED HAUL ROAD PROFILE

HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 20'

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED HAUL ROAD TO BORROW AREA NO. 3

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
2.8

Project Number
394.041

Figure 3

Stormwater Overiew

N

TRUE OR CALLED NORTH

EXISTING MAINTENANCE FACILITY AREA

EXISTING STORMWATER DISCHARGE STRUCTURE

EXISTING PERMITTED OUTFALL LOCATION

EXISTING STORMWATER POND

EXISTING OPERATIONAL LANDFILL

CELL OVERLAY AREA

EXISTING PERIMETER ROAD

EXISTING DRAINAGE SWALE

TYPICAL FLOW PATH THROUGH PROPOSED STORMWATER MANAGEMENT AREA

PROPOSED SOUTHERN EXPANSION LIMITS OF WASTE

PROPOSED SOUTHERN EXPANSION LIMITS OF DISTURBANCE

PROPOSED PERIMETER ROAD

UNMAPPED STREAM SEGEMENT NO. 11

SOUTHERN TRIBUTARY

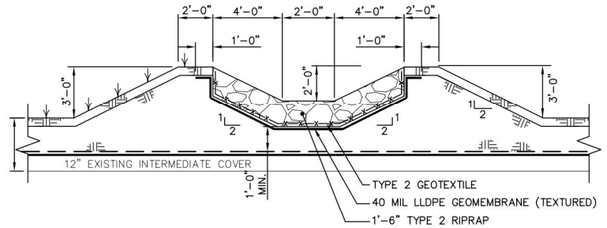
STREAM SEGMENT 4

100' SEPARATION FROM STREAM TO REVISED LIMITS OF DISTURBANCE FOR PROPOSED SOUTHERN EXPANSION

200' 0 200' 400'
1"=200'

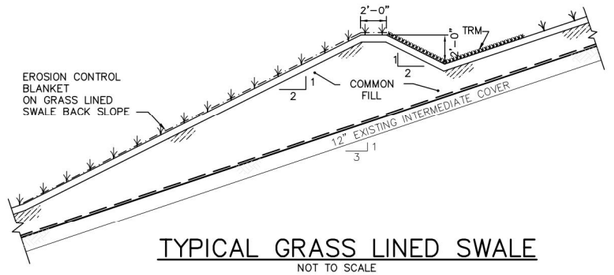
LEGEND

- PROPERTY LINE
- EXISTING CONTOURS (OR PROPOSED FINAL CONTOURS FOR EXISTING OPERATIONAL LANDFILL)
- EXISTING UNPAVED ROAD
- EXISTING PAVED ROAD
- EXISTING WATERCOURSE
- EXISTING STRUCTURE
- EXISTING WETLANDS
- PROPOSED SOUTHERN EXPANSION LIMITS OF WASTE
- PROPOSED SOUTHERN EXPANSION LIMITS OF DISTURBANCE
- PROPOSED SOUTHERN EXPANSION PERIMETER ROAD
- PROPOSED RIPRAP LINED DOWNCHUTE
- PROPOSED RIPRAP LINED SWALE
- PROPOSED GRASS LINED SWALE
- PROPOSED SOUTHERN EXPANSION FINAL CONTOUR



TYPICAL DOWNCHUTE ON CAPPING SYSTEM

NOT TO SCALE



TYPICAL GRASS LINED SWALE

NOT TO SCALE

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By _____ Date _____

Ck'd _____ Date _____

REVISIONS

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

STORMWATER OVERVIEW

JEFFERSON COUNTY, NEW YORK

TOWN OF RODMAN

Barton & Loguidice, P.C.

REVIEW DRAFT
APRIL 23, 2012

Date
APRIL, 2012

Scale
1" = 200'

Sheet Number
FIGURE 3

File Number
394.041

Plotted: Apr 23, 2012 - 3:57PM By: mj
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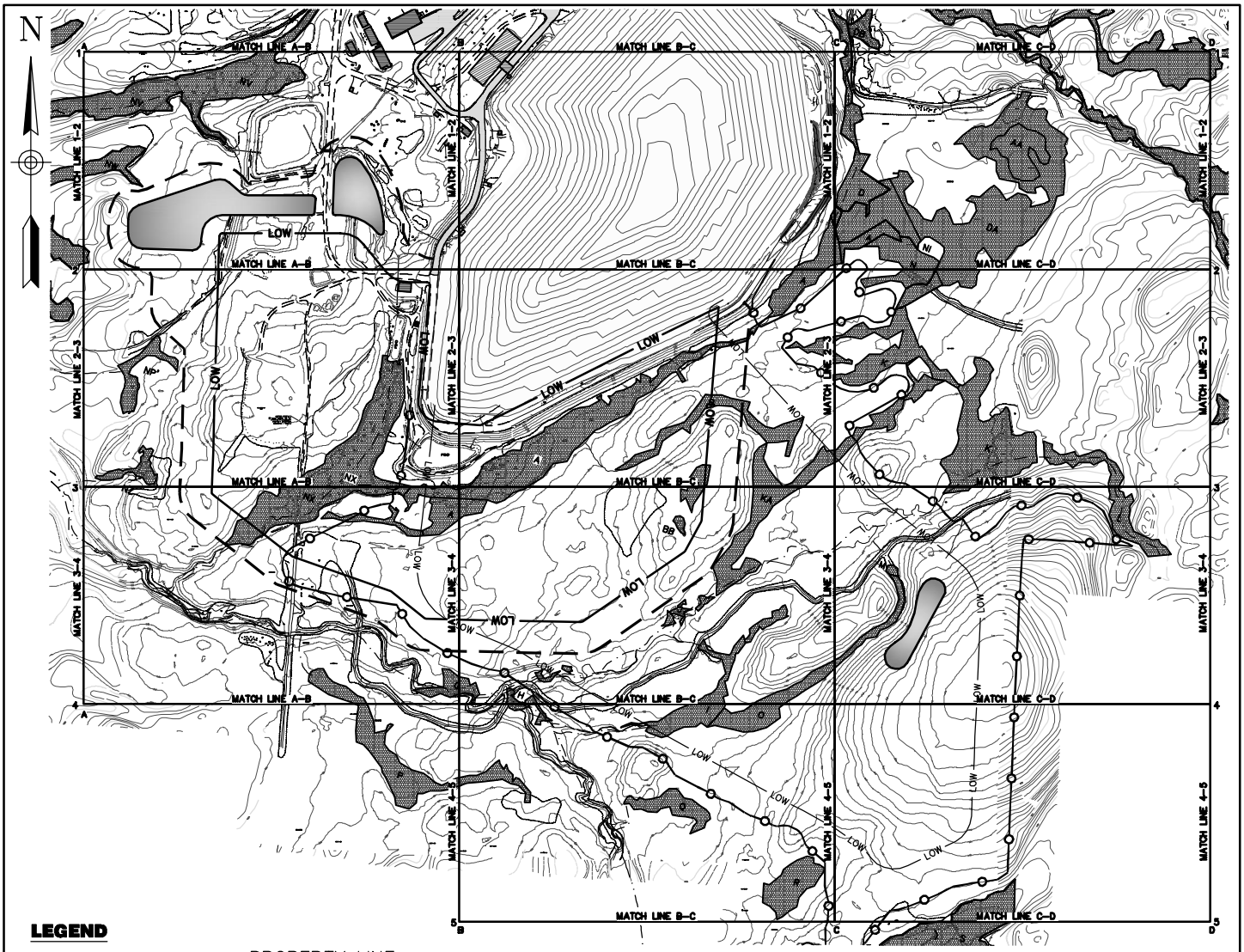
Checked by _____ Drawn by JGS Designed by CWH In charge of PRC



LEGEND

- PROPERTY LINE
- EXISTING CONTOURS (OR PROPOSED FINAL CONTOURS FOR EXISTING OPERATIONAL LANDFILL) — 1000
- EXISTING UNPAVED ROAD
- EXISTING PAVED ROAD
- EXISTING WATERCOURSE
- EXISTING STRUCTURE
- EXISTING WETLANDS
- 2011 SOUTHERN EXPANSION LIMITS OF WASTE — LOW
- 2011 SOUTHERN EXPANSION LIMITS OF DISTURBANCE
- 2011 SOUTHERN EXPANSION LINED AREA — LOW / LOW
- PROPOSED SOUTHERN EXPANSION LIMITS OF WASTE — LOW
- PROPOSED SOUTHERN EXPANSION LIMITS OF DISTURBANCE
- PROPOSED SOUTHERN EXPANSION PERIMETER ROAD
- PROPOSED RIPRAP LINED DOWNCHUTE
- PROPOSED RIPRAP LINED SWALE
- PROPOSED GRASS LINED SWALE
- PROPOSED SOUTHERN EXPANSION FINAL CONTOUR
- SOIL BORROW ARE 3 CONTOUR — 1120
- PROPOSED STORMWATER MANAGEMENT AREA
- PROPOSED LIMITS OF PHASE 1 AREA — L
- CLEAR SPAN BAILY BRIDGE TYPE STRUCTURE 24' WIDTH–LOAD RATED FOR OFF–ROAD ARTICULATED HAULING EQUIPMENT

Barton & Loguidice, P.C.

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

COVER SHEET AND LEGEND

TOWN OF RODMAN — JEFFERSON COUNTY, NEW YORK

Date	Scale	Figure Number	Project Number
MAY, 2012	AS SHOWN	0	394.041

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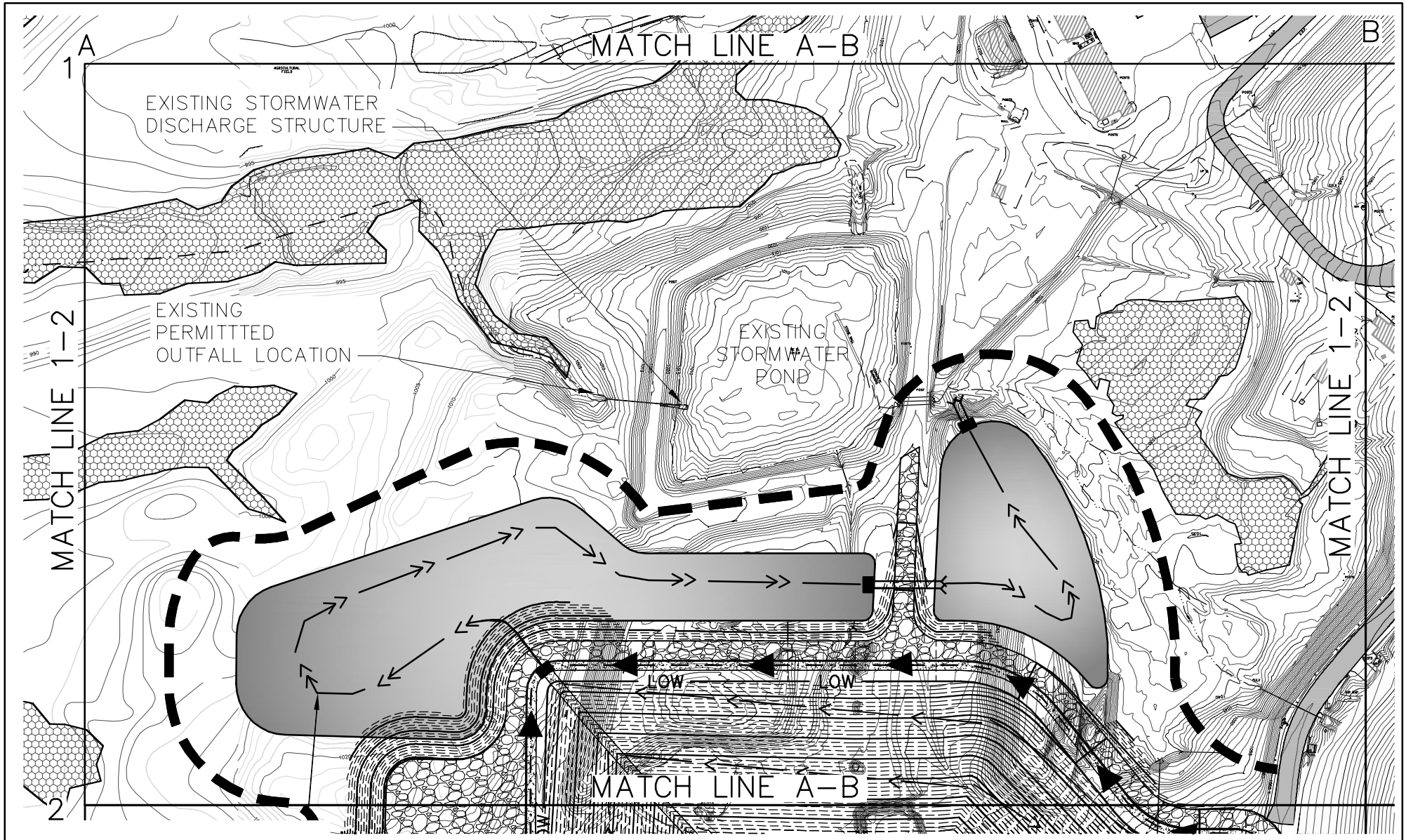

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

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1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

STORMWATER OVERVIEW

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
3.1

Project Number
394.041

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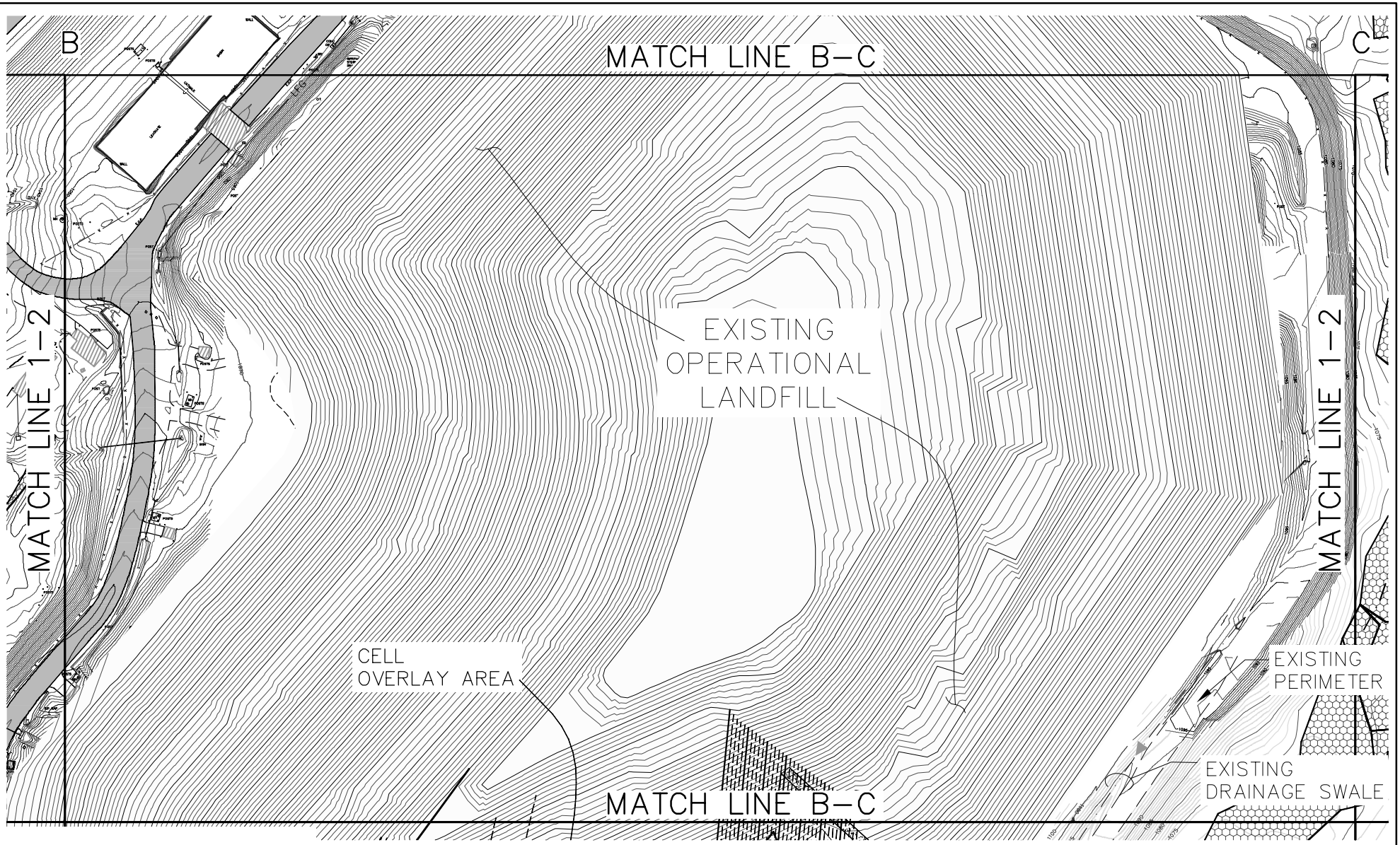

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

STORMWATER OVERVIEW

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
3.2

Project Number
394.041

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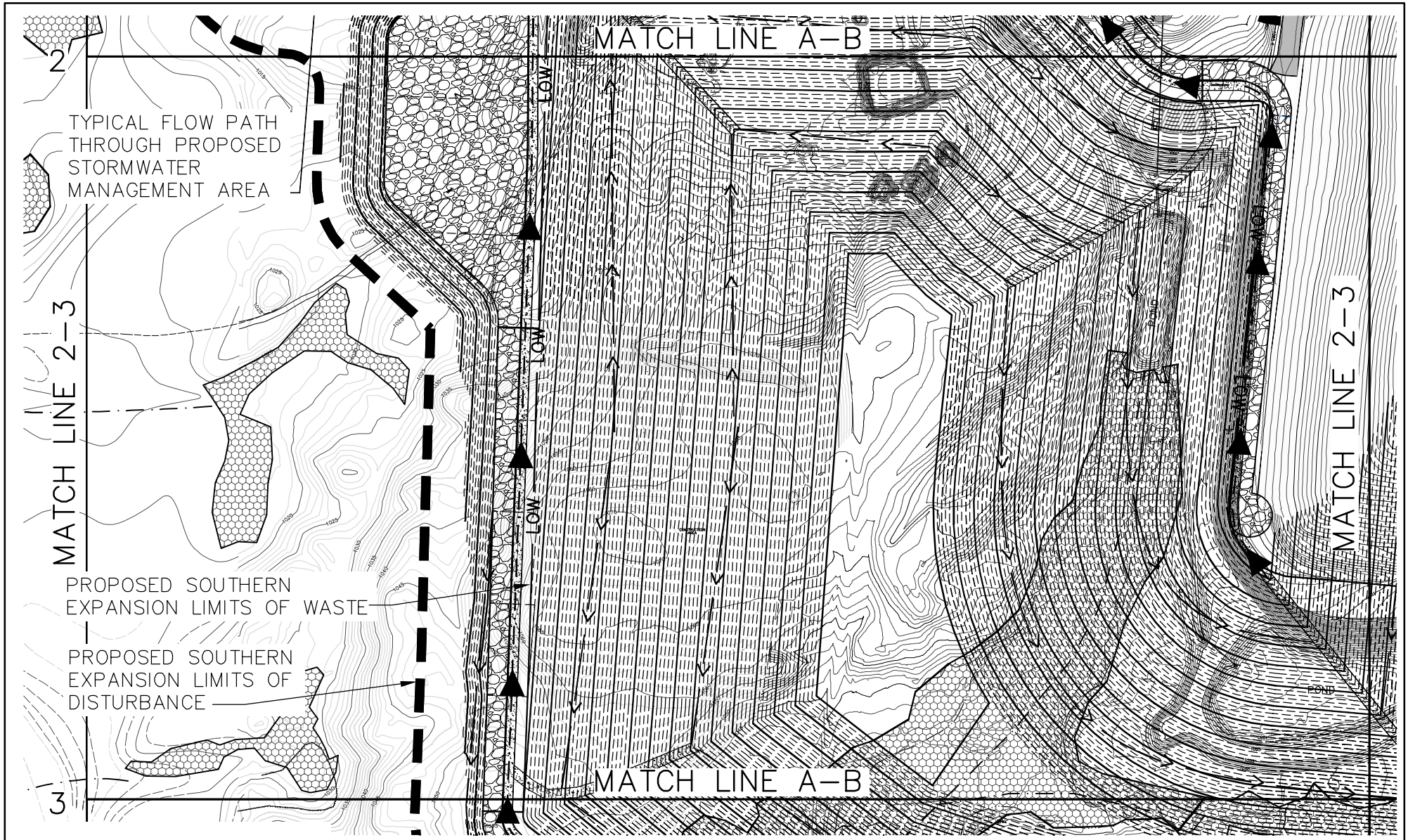

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

STORMWATER OVERVIEW

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
3.3

Project Number
394.041

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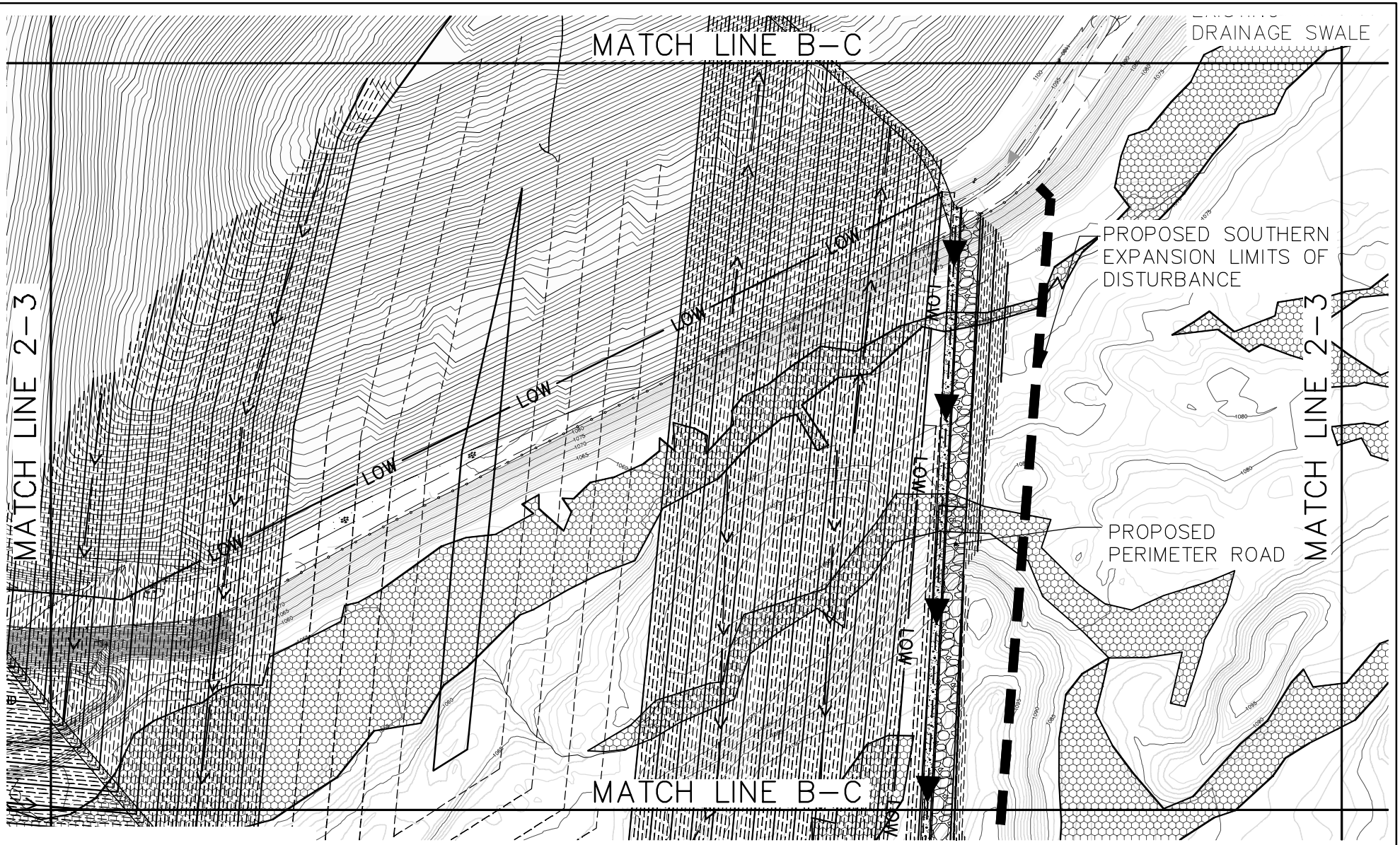

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

STORMWATER OVERVIEW

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
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Project Number
394.041

Plotted: May 07, 2012 – 11:35AM SYR By: mj
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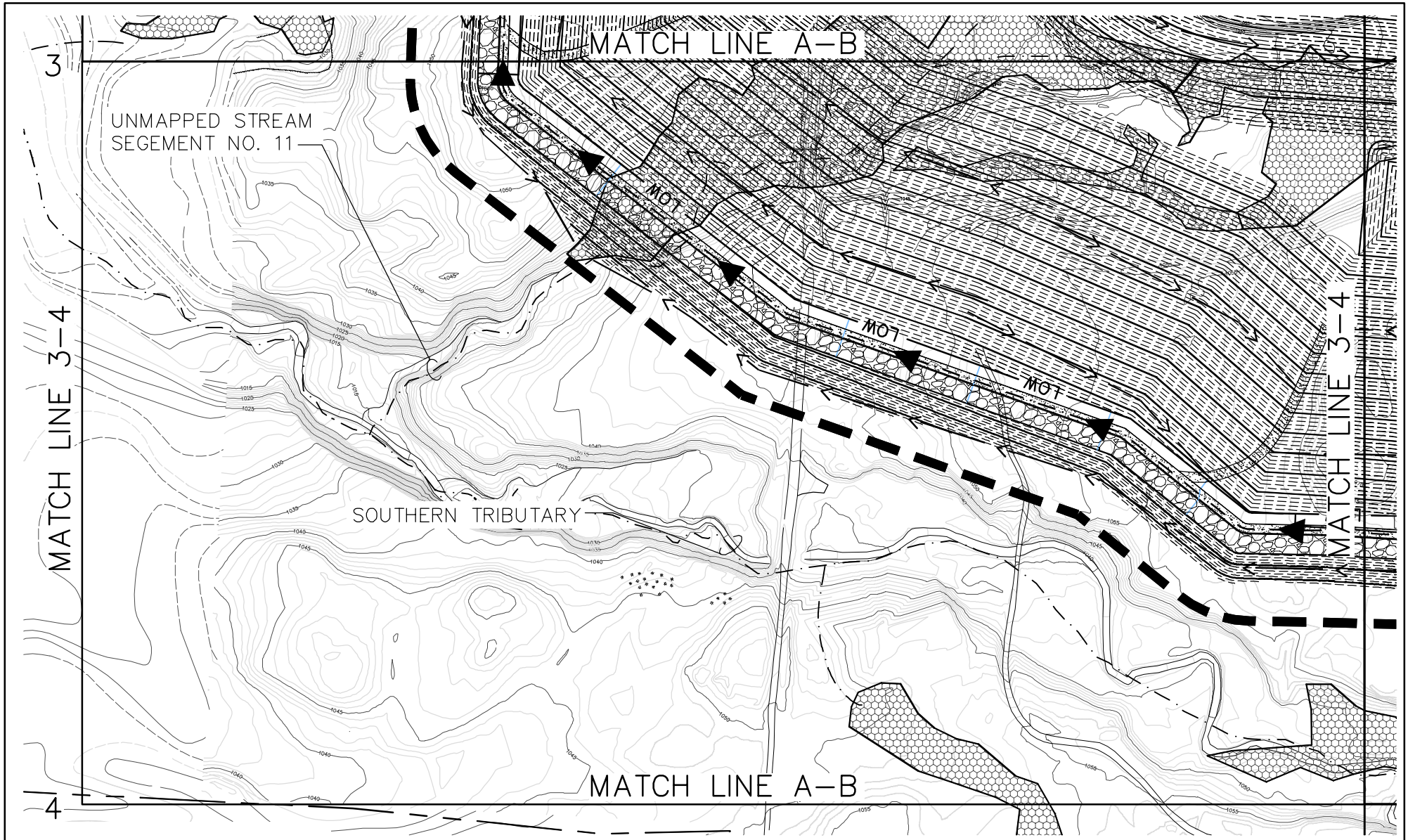

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

STORMWATER OVERVIEW

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
3.5

Project Number
394.041

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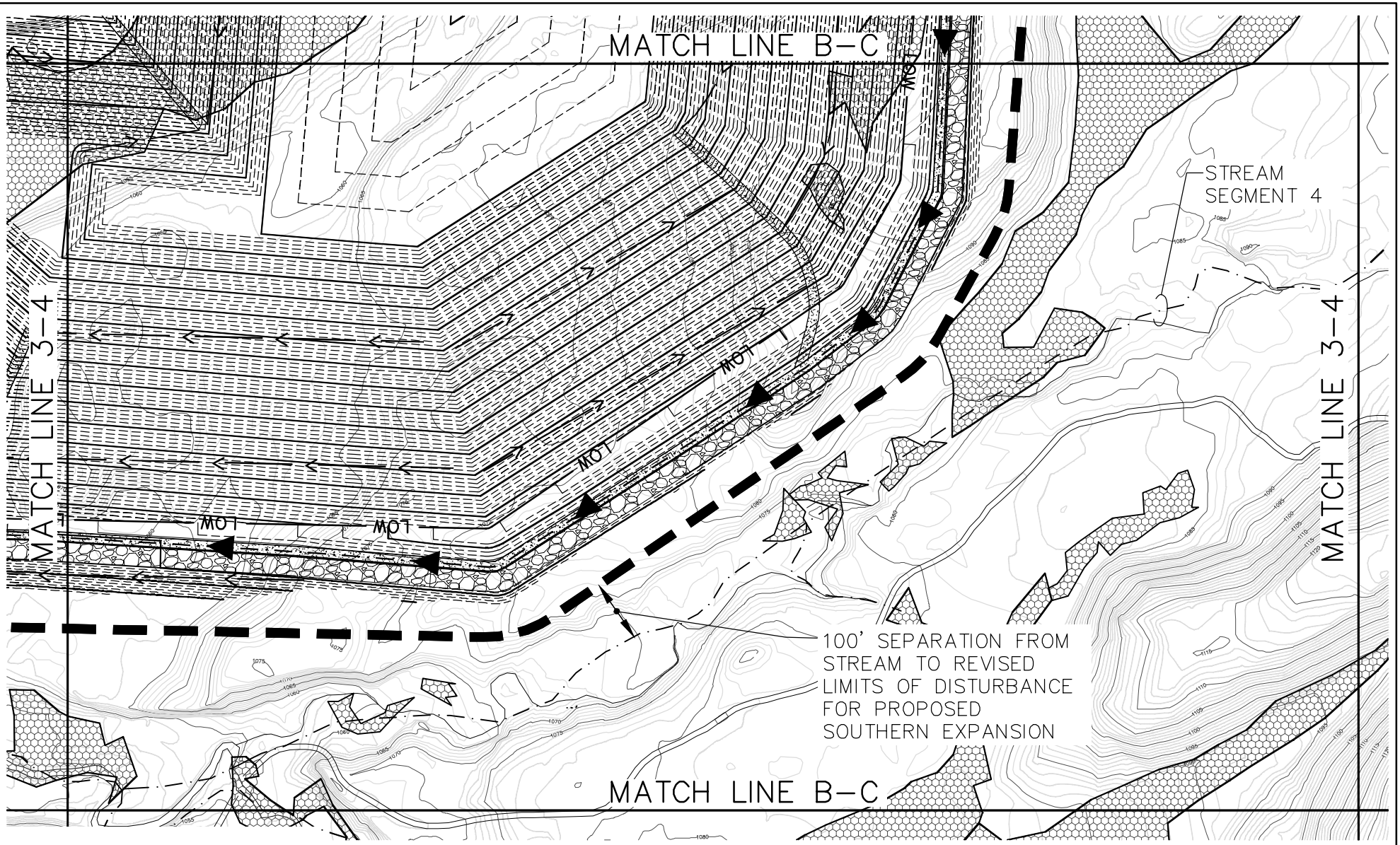

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

STORMWATER OVERVIEW

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
3.6

Project Number
394.041

Plotted: May 07, 2012 – 11:39AM SYR By: mj
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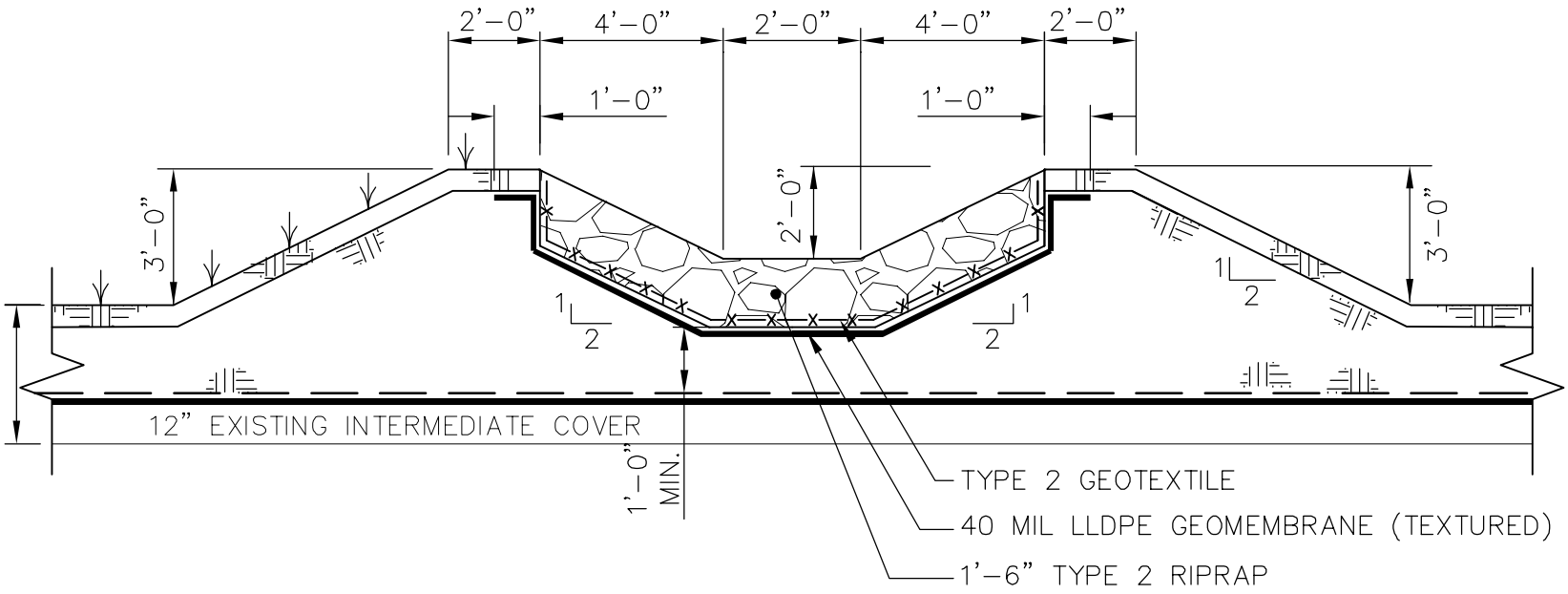

TYPICAL DOWNCHUTE ON CAPPING SYSTEM

NOT TO SCALE

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE
STORMWATER OVERVIEW

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number 3.7

Project Number 394.041

Plotted: May 07, 2012 – 11:39AM SYR By: mj
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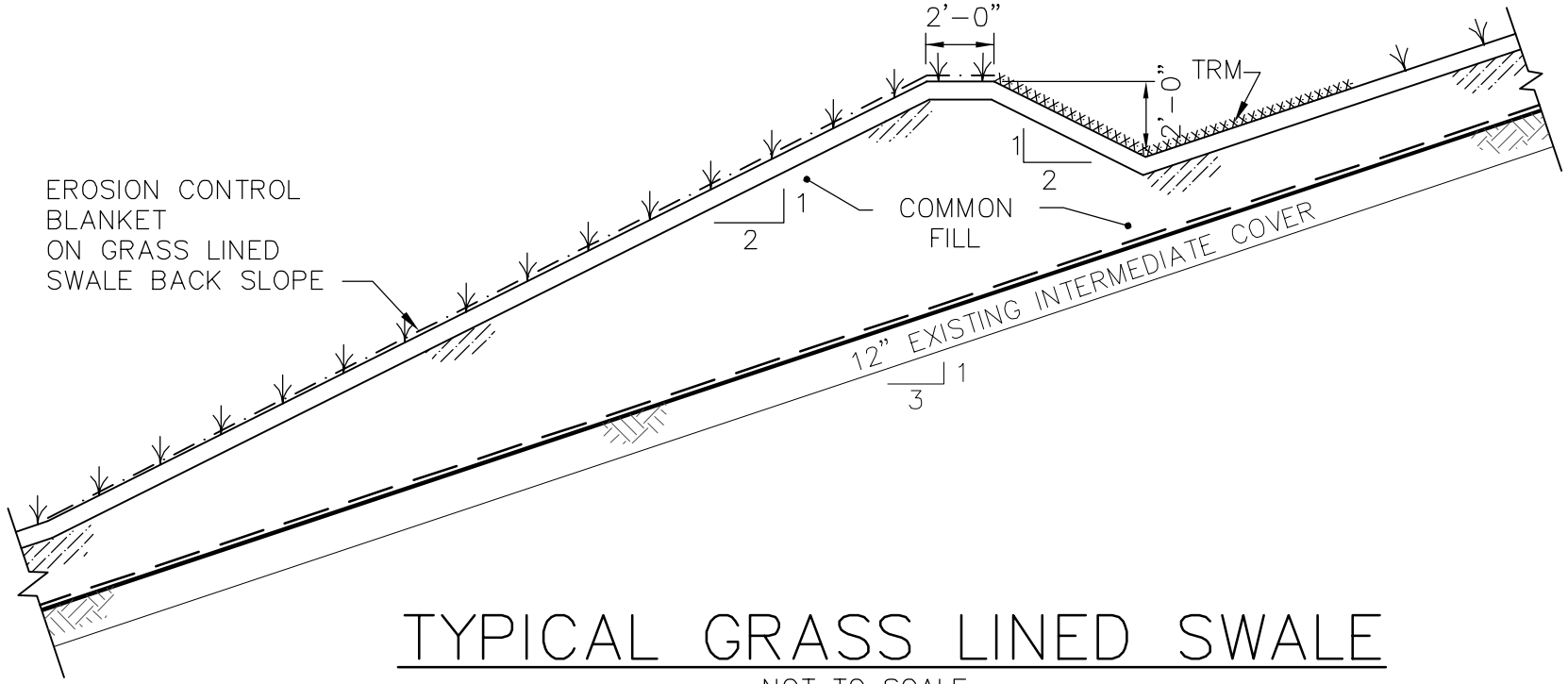

TYPICAL GRASS LINED SWALE

NOT TO SCALE

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'

1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

STORMWATER OVERVIEW

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
3.8

Project Number
394.041

Figure 4

Proposed Southern Expansion Construction Sequence

N

TRUE OR CALLED NORTH

EXISTING STORMWATER POND

EXISTING OPERATIONAL LANDFILL

EXISTING LEACHATE TRANSFER MANHOLES TO REMAIN OPERATIONAL (TYP.)

PROPOSED LIMITS OF PHASE 1 AREA

PROPOSED SOUTHERN EXPANSION LIMITS OF WASTE

CELL NO. 12

CELL NO. 13

CELL NO. 14

CELL NO. 15

CELL NO. 16

CELL NO. 17

CELL NO. 18

CELL NO. 19

CELL NO. 20

CELL NO. 21

CELL NO. 22

LOW

POND

1106 1108 1110 1112 1114 1116 1118 1120 1122 1124 1126 1128

200' 0 200' 400'

1"=200'

LEGEND

- PROPERTY LINE
- EXISTING CONTOURS (OR PROPOSED FINAL CONTOURS FOR EXISTING OPERATIONAL LANDFILL)
- EXISTING UNPAVED ROAD
- EXISTING PAVED ROAD
- EXISTING WATERCOURSE
- EXISTING STRUCTURE
- EXISTING WETLANDS
- PROPOSED SOUTHERN EXPANSION LIMITS OF WASTE
- PROPOSED LIMITS OF PHASE 1 AREA
- PROPOSED SOUTHERN EXPANSION PERIMETER ROAD
- CLEAR SPAN BAILY BRIDGE TYPE STRUCTURE 24' WIDTH–LOAD RATED FOR OFF–ROAD ARTICULATED HAULING EQUIPMENT

Proposed Southern Expansion Construction Sequence

Phase	Construction Item	Estimated Start Date
1	Stormwater Area, Cell No. 12 & 13, Haul Roads to Borrow Area No. 3	2020
2	Cell No. 14	2026
3	Cell No. 15	2029
4	Cell No. 16	2032
5	Cell No. 17	2037
6	Cell No. 18	2041
7	Cell No. 19	2046
8	Cell No. 20	2050
9	Cell No. 21	2056
10	Cell No. 22	2062

The estimated start date of each construction phase is based upon preliminary fill volumes calculations for each cell, an in-place density of 1,781 lbs./cubic yard and an annual waste acceptance rate of 220,000 tons per year.

The existing landfill is comprised of 11 cells, therefore the proposed southern expansion will begin with Cell No. 12.

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By _____ Date _____

Ck'd _____ Date _____

REVISIONS

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED SOUTHERN EXPANSION CONSTRUCTION SEQUENCE

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Barton & Loguidice, P.C.

REVIEW DRAFT
APRIL 23, 2012

Date
APRIL, 2012

Scale
1" = 200'

Sheet Number
FIGURE 4

File Number
394.041

Plotted: Apr 24, 2012 – 8:35AM By: mj
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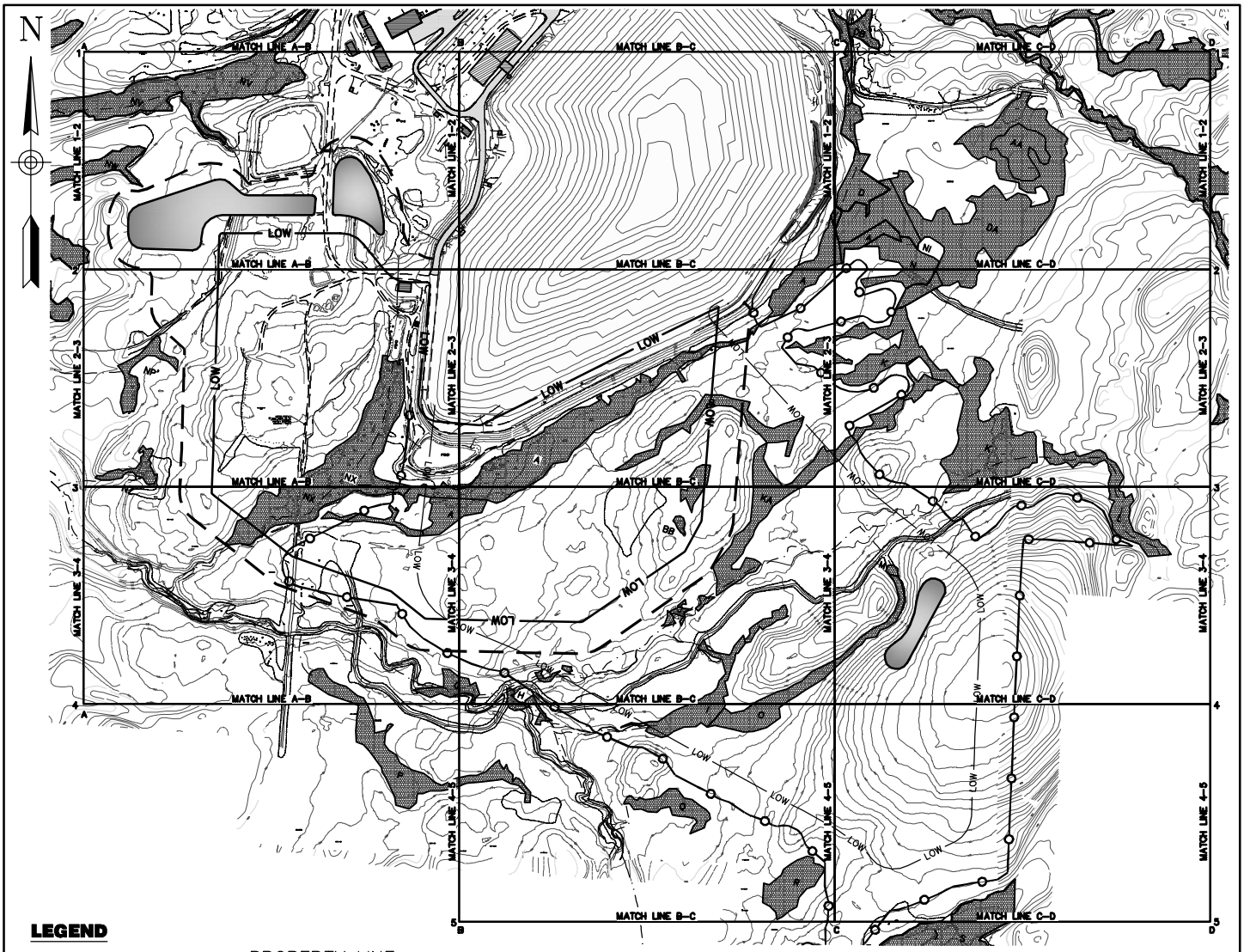

LEGEND

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- EXISTING UNPAVED ROAD
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- EXISTING STRUCTURE
- EXISTING WETLANDS
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- 2011 SOUTHERN EXPANSION LIMITS OF DISTURBANCE
- 2011 SOUTHERN EXPANSION LINED AREA — LOW / LOW
- PROPOSED SOUTHERN EXPANSION LIMITS OF WASTE — LOW
- PROPOSED SOUTHERN EXPANSION LIMITS OF DISTURBANCE
- PROPOSED SOUTHERN EXPANSION PERIMETER ROAD
- PROPOSED RIPRAP LINED DOWNCHUTE
- PROPOSED RIPRAP LINED SWALE
- PROPOSED GRASS LINED SWALE
- PROPOSED SOUTHERN EXPANSION FINAL CONTOUR
- SOIL BORROW ARE 3 CONTOUR — 1120
- PROPOSED STORMWATER MANAGEMENT AREA
- PROPOSED LIMITS OF PHASE 1 AREA — L
- CLEAR SPAN BAILY BRIDGE TYPE STRUCTURE 24' WIDTH–LOAD RATED FOR OFF–ROAD ARTICULATED HAULING EQUIPMENT

Barton & Loguidice, P.C.

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

COVER SHEET AND LEGEND

TOWN OF RODMAN — JEFFERSON COUNTY, NEW YORK

Date	Scale	Figure Number	Project Number
MAY, 2012	AS SHOWN	0	394.041

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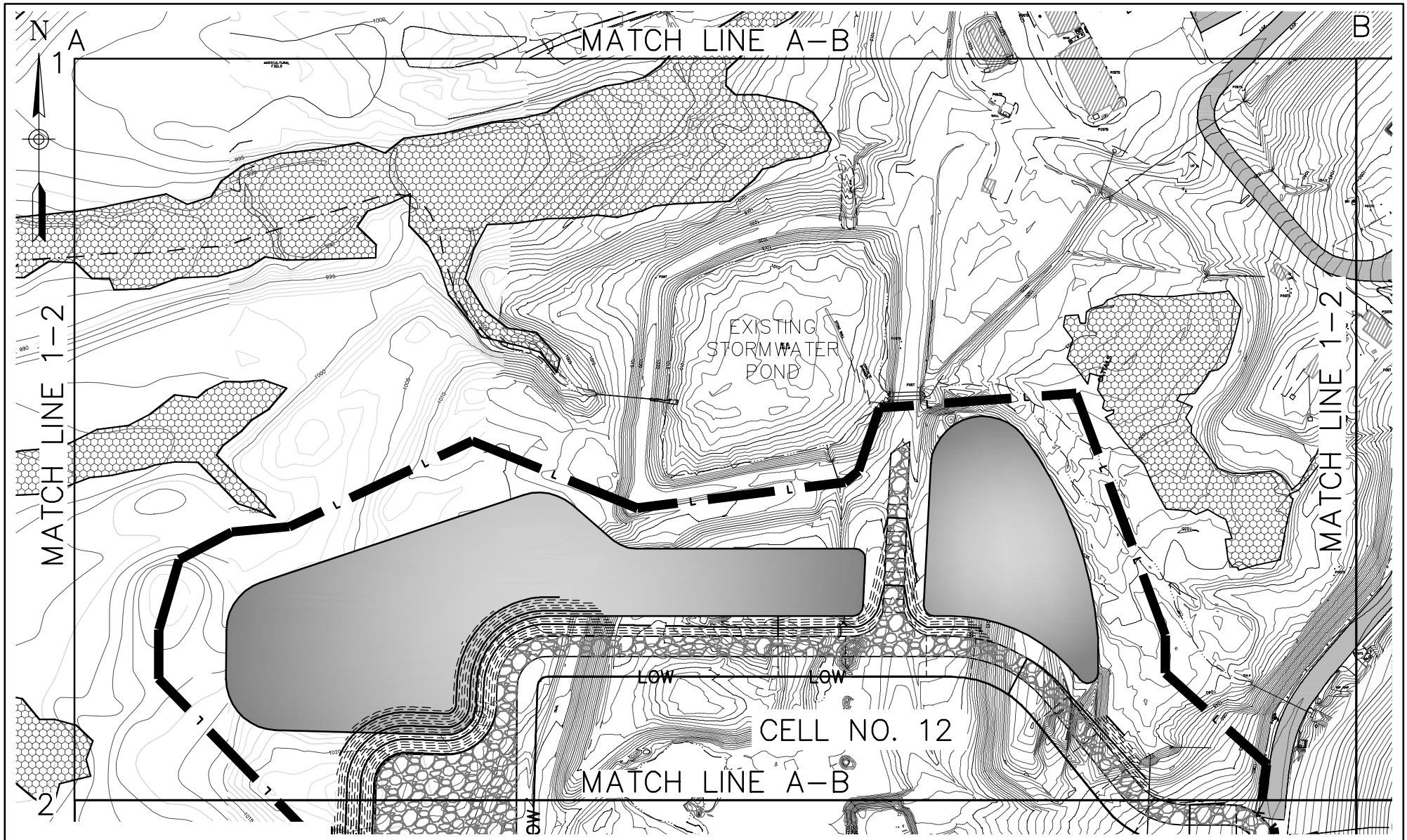

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED SOUTHERN EXPANSION CONSTRUCTION SEQUENCE

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
4.1

Project Number
394.041

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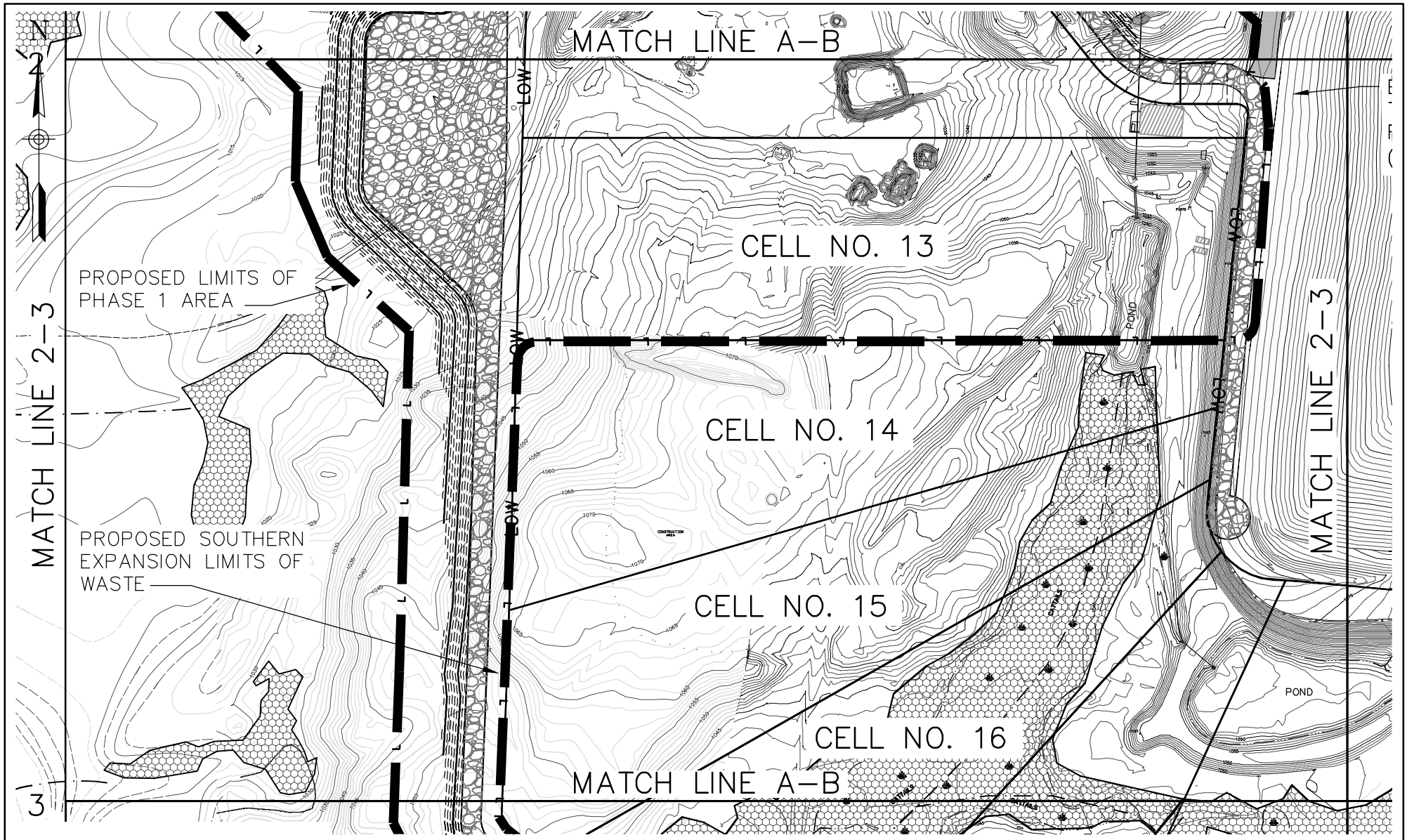

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
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DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED SOUTHERN EXPANSION CONSTRUCTION SEQUENCE

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
4.2

Project Number
394.041

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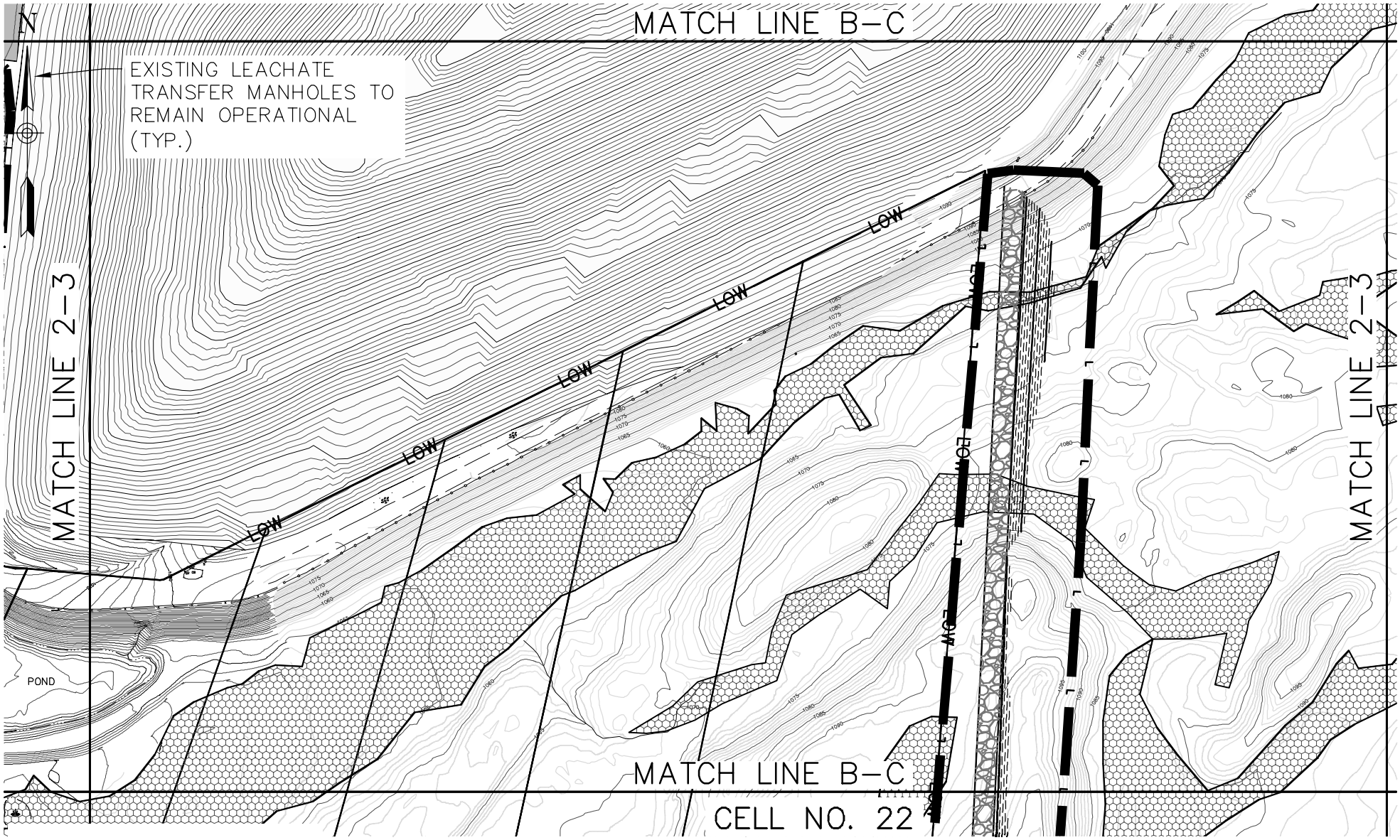

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED SOUTHERN EXPANSION CONSTRUCTION SEQUENCE

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
4.3

Project Number
394.041

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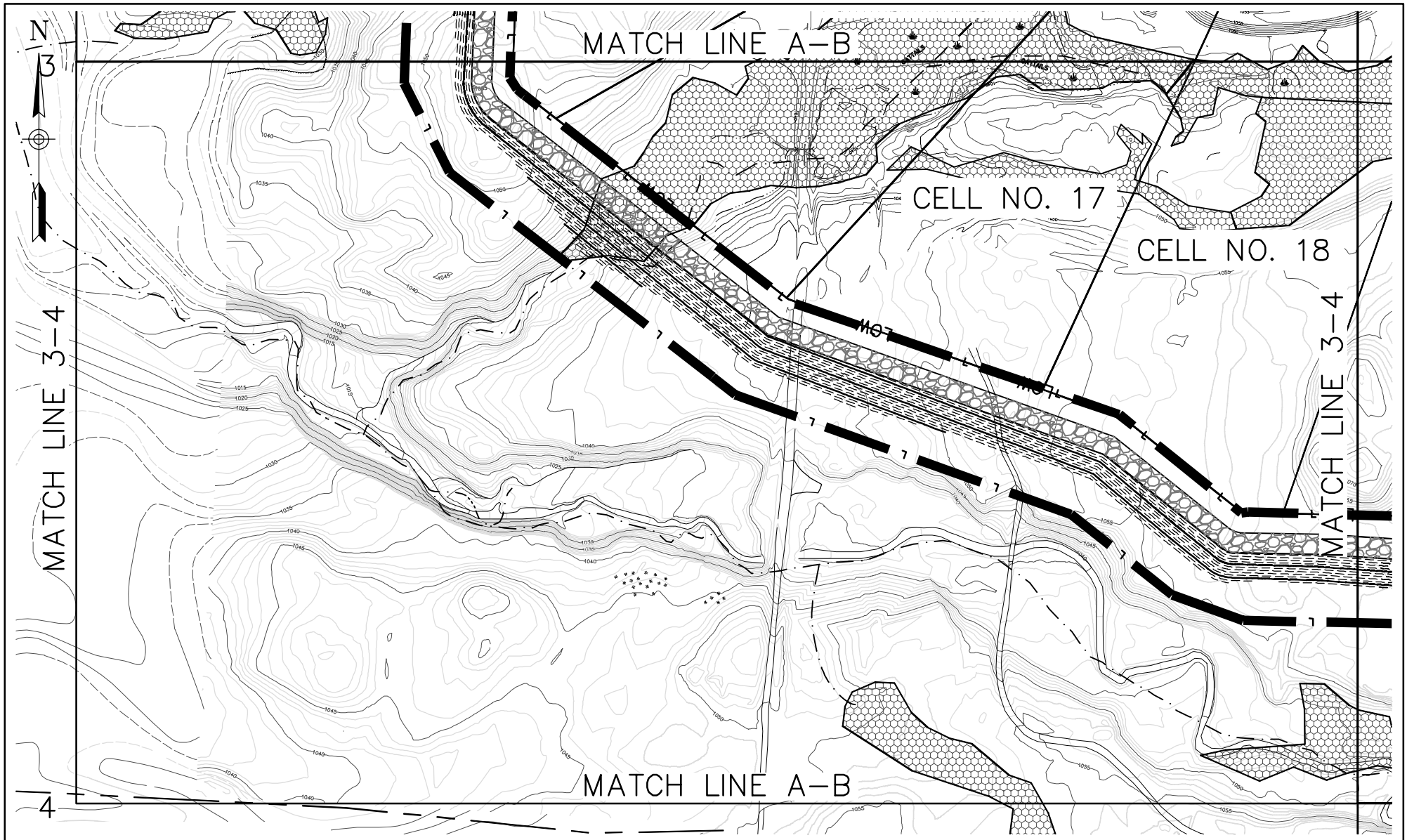

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED SOUTHERN EXPANSION CONSTRUCTION SEQUENCE

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
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Project Number
394.041

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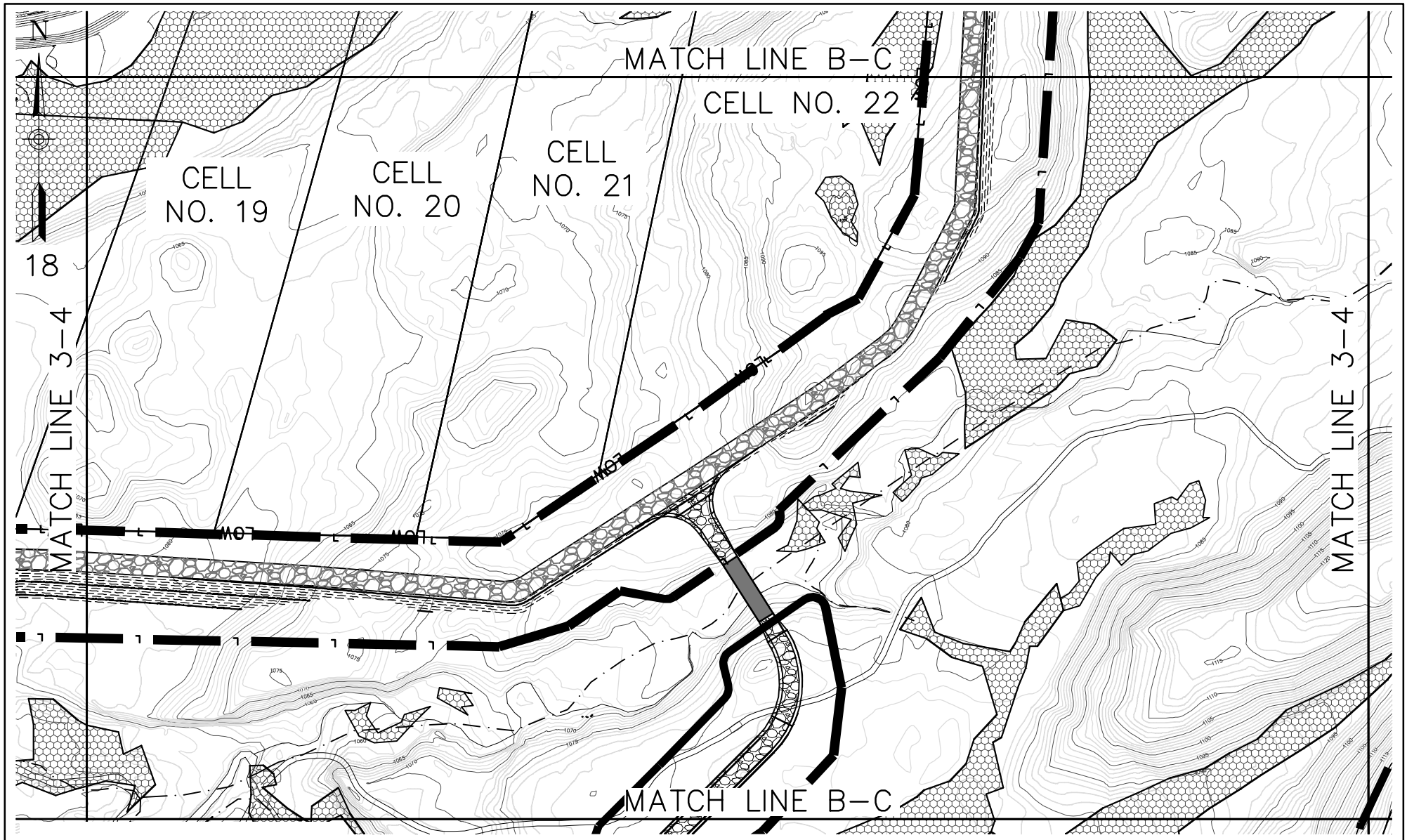

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED SOUTHERN EXPANSION CONSTRUCTION SEQUENCE

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
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Project Number
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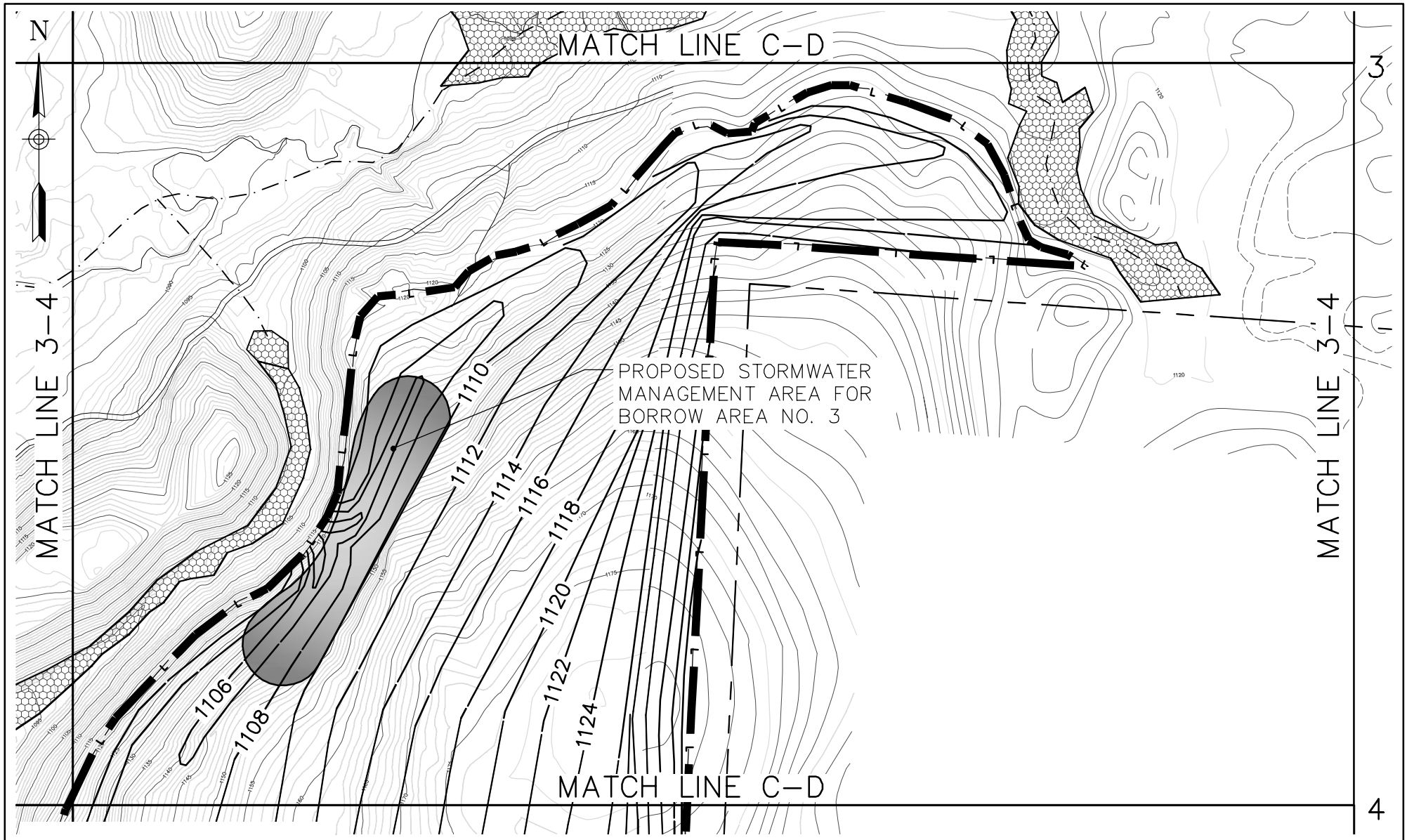

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED SOUTHERN EXPANSION CONSTRUCTION SEQUENCE

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
4.6

Project Number
394.041

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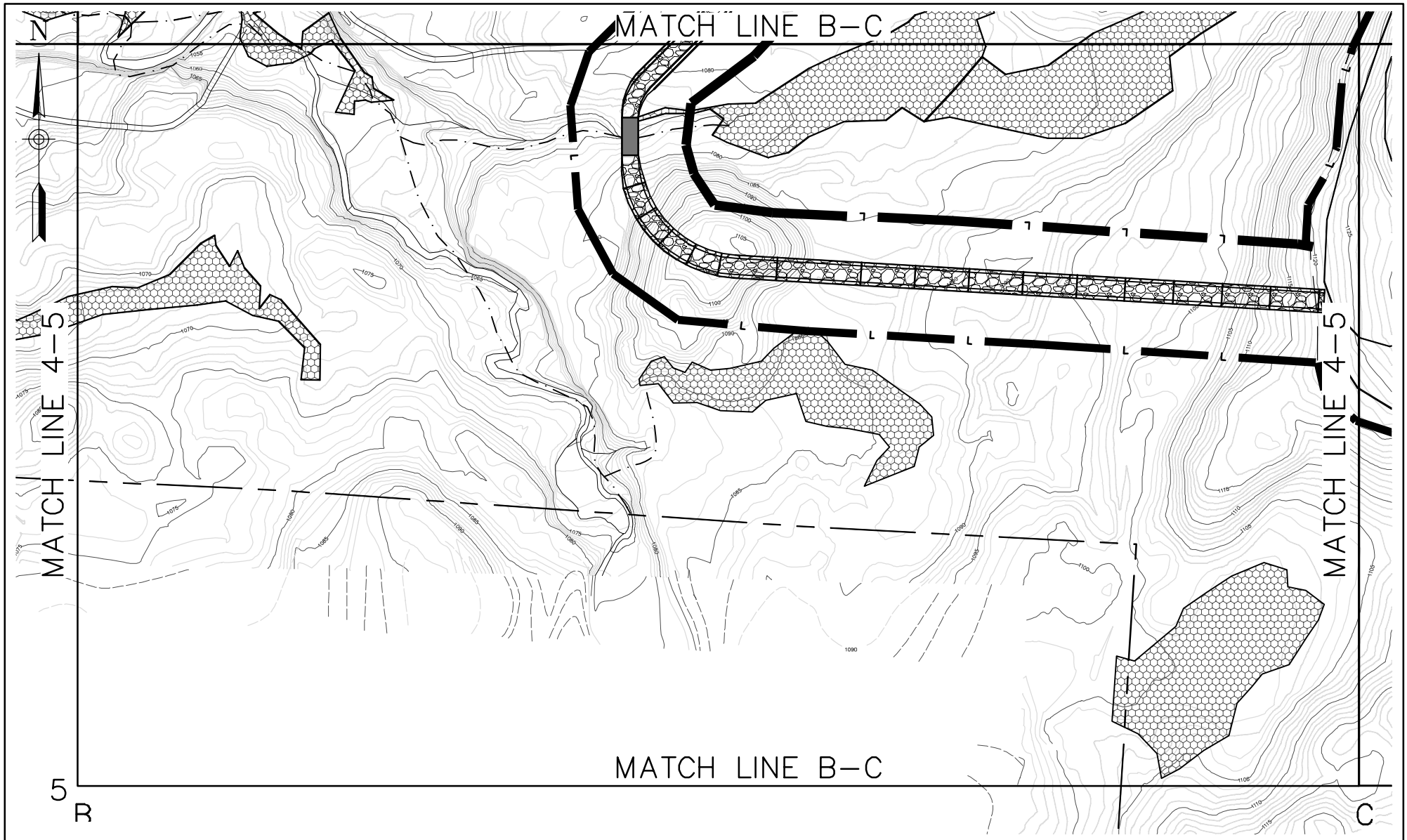

Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED SOUTHERN EXPANSION CONSTRUCTION SEQUENCE

TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
4.7

Project Number
394.041

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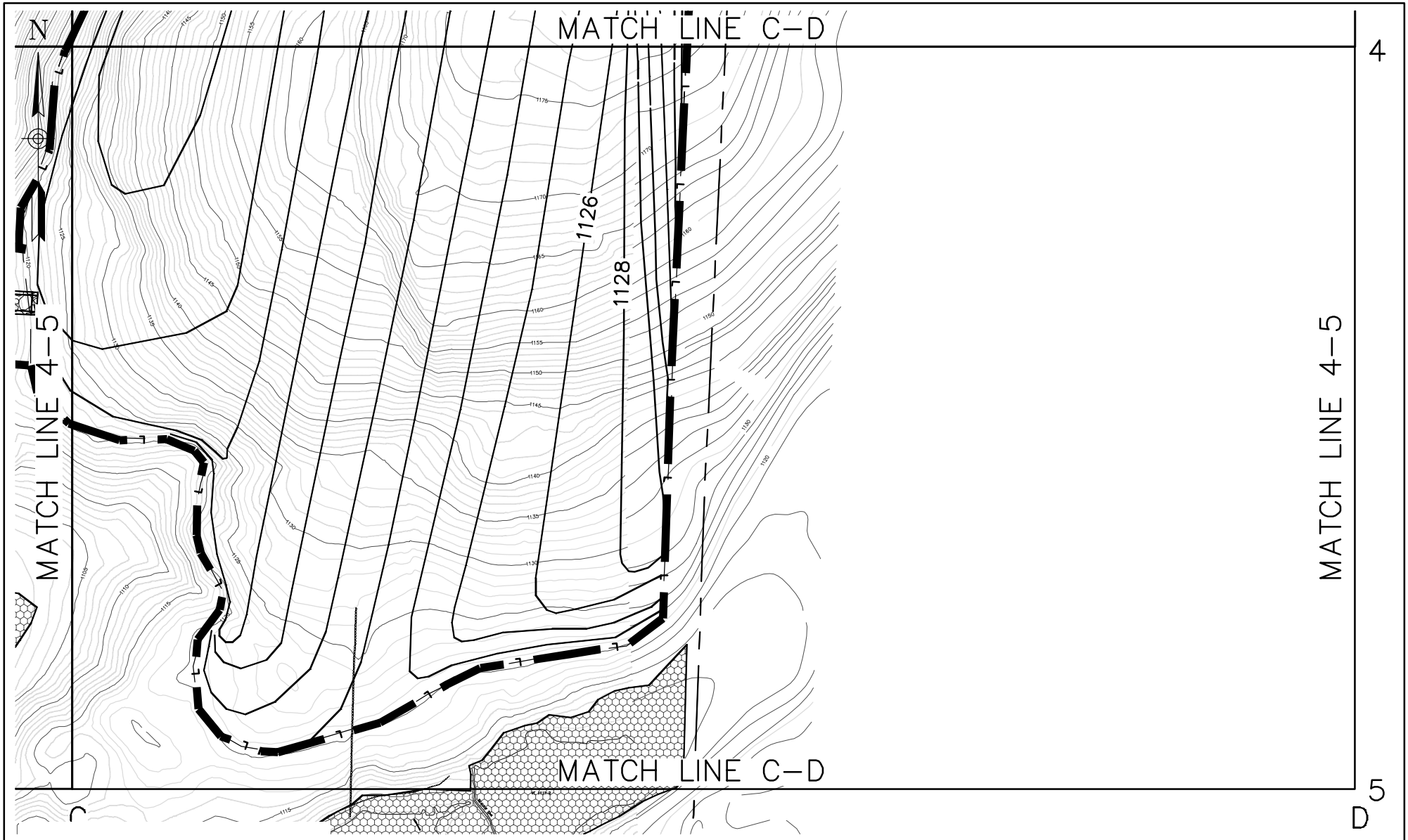


Barton & Loguidice, P.C.

Date	Scale
MAY, 2012	AS SHOWN

200' 0 200'
1"=200'

DEVELOPMENT AUTHORITY OF THE NORTH COUNTRY
PROPOSED LANDFILL EXPANSION
USACE RAI AND PUBLIC COMMENT RESPONSE

PROPOSED SOUTHERN EXPANSION CONSTRUCTION SEQUENCE

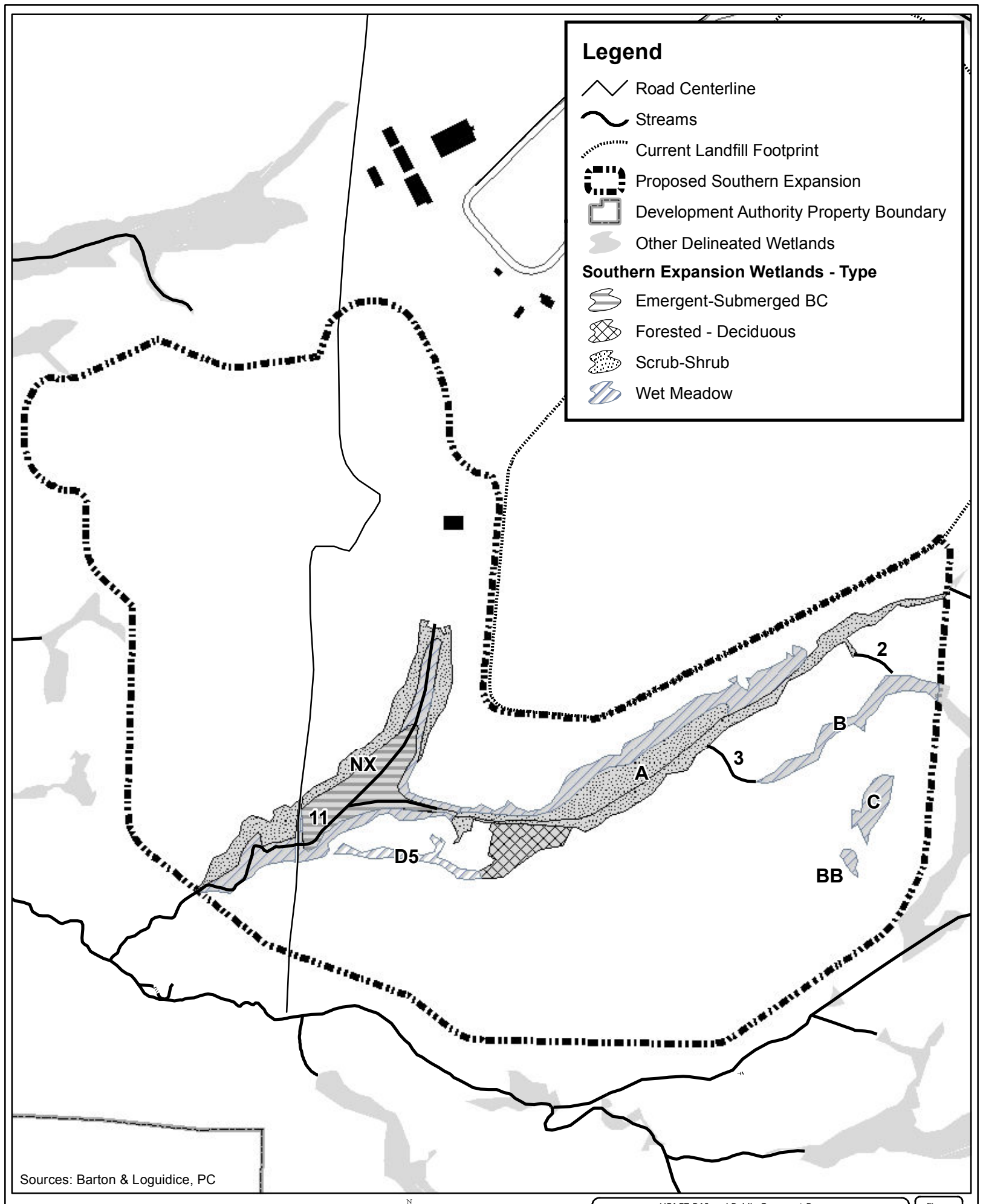
TOWN OF RODMAN JEFFERSON COUNTY, NEW YORK

Figure Number
4.8

Project Number
394.041

Figure 5

Proposed Southern Expansion – Aquatic Resources



Barton & Loguidice, P.C.
Engineers · Environmental Scientists · Planners · Landscape Architects

N
W E
S

0 200 400 800 Feet

USACE RAI and Public Comment Response

Proposed Southern Expansion - Aquatic Resources

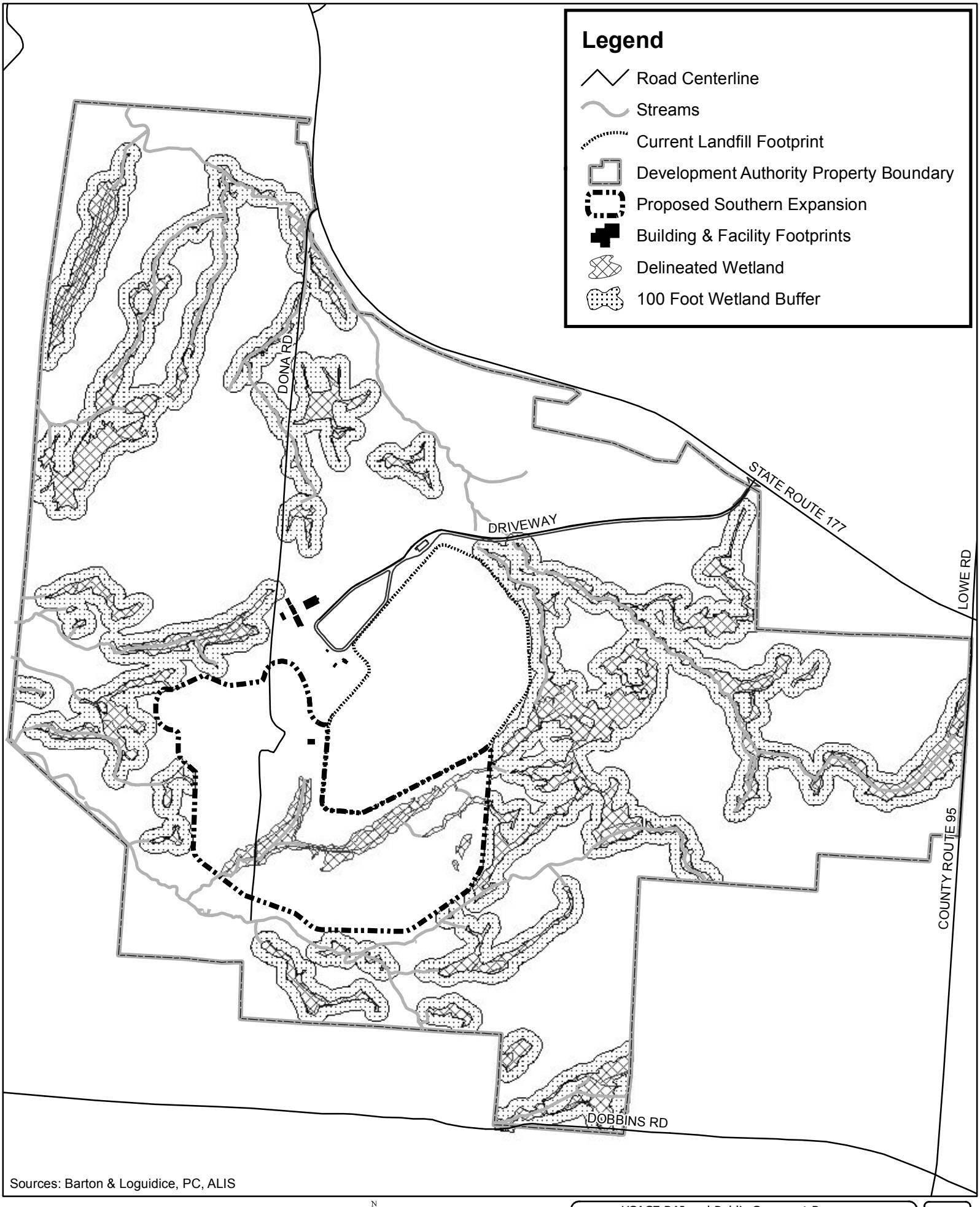
Jefferson County May 2012 New York

Figure 5

Project No. 394.041

Figure 6

On-site Wetland Mitigation Plan



Sources: Barton & Loguidice, PC, ALIS

Barton & Loguidice, P.C.
Engineers · Environmental Scientists · Planners · Landscape Architects

N W E S

0 500 1,000 2,000 Feet

USACE RAI and Public Comment Response

On-site Wetland Mitigation Plan

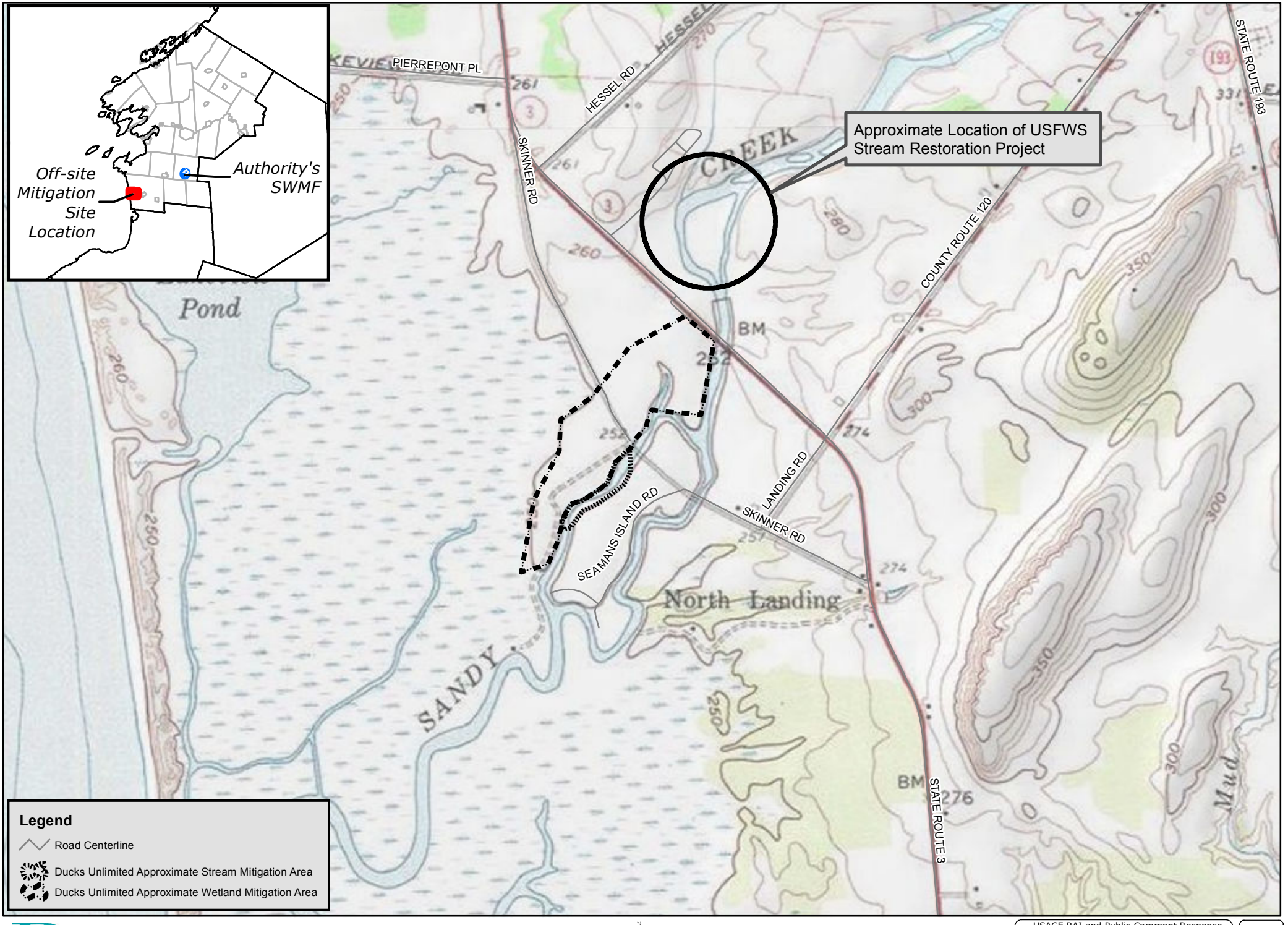
Jefferson County May 2012 New York

Figure 6

Project No. 394.041

Figure 7

Off-Site Wetland and Stream Mitigation Plan



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USACE RAI and Public Comment Response

Off-site Wetland and Stream Mitigation Plan

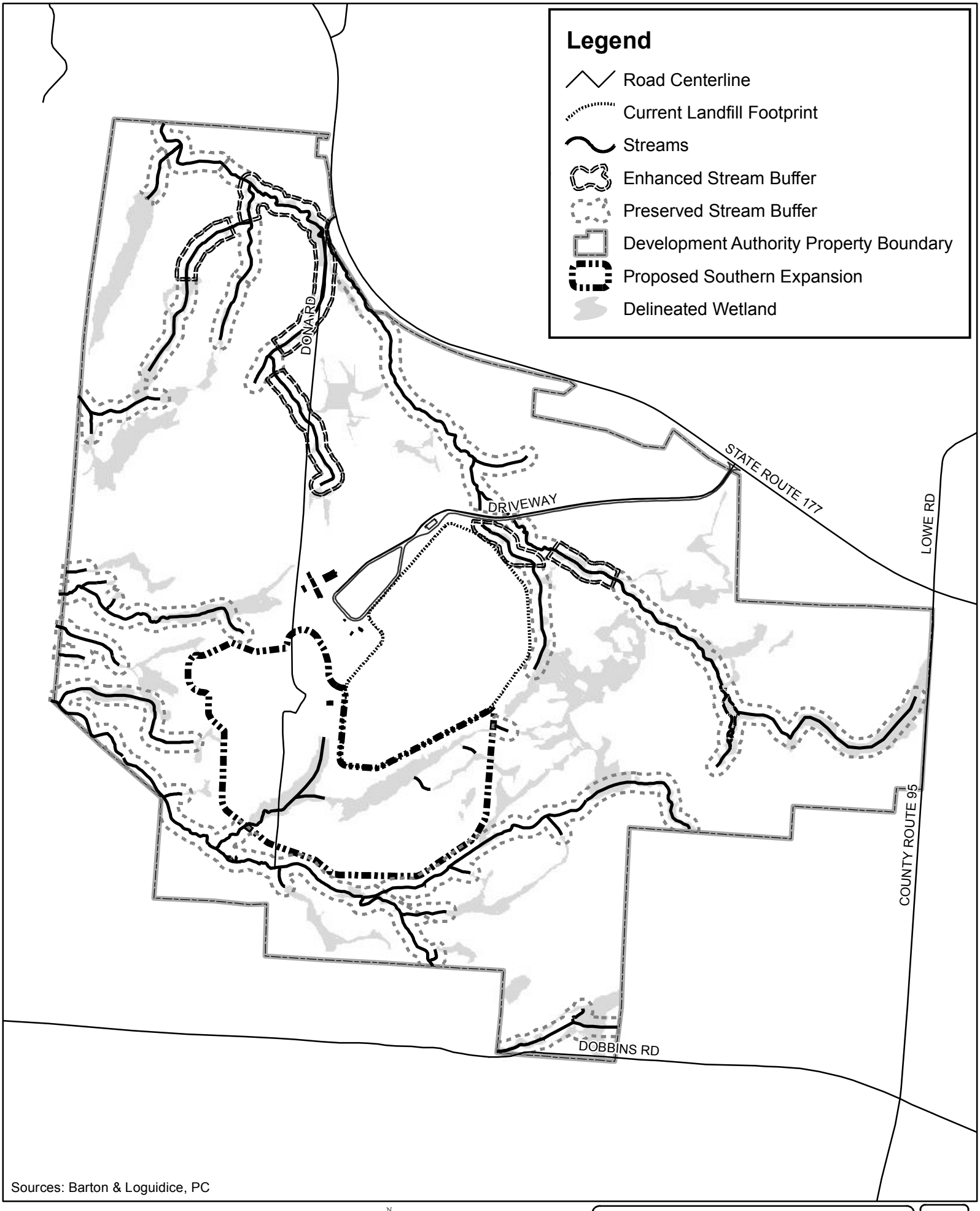
Jefferson County May 2012 New York

Figure 7

Project No. 394.041

Figure 8

On-Site Stream Mitigation Plan



Sources: Barton & Loguidice, PC

Barton & Loguidice, P.C.
Engineers • Environmental Scientists • Planners • Landscape Architects

N W E S

0 500 1,000 2,000 Feet

USACE RAI and Public Comment Response

On-site Stream Mitigation Plan

Jefferson County May 2012 New York

Figure 8

Project No. 394.041

Appendix A

USACE February 1, 2012 Letter, RAIs and Public Comments

See Separate PDF File

Appendix B

Aquatic Resource Mitigation Strategy

See Separate PDF File