Department of Energy
Fermi Site Office
Post Office Box 2000
Batavia, Illinois 60510

JAN 28 2013

Mr. Jack W. Anderson
Chief Operating Officer
Fermilab
P.O. Box 500
Batavia, IL 60510

Dear Mr. Anderson:

SUBJECT: NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DETERMINATION AT FERMI NATIONAL ACCELERATOR LABORATORY (FERMILAB) – LONG BASELINE NEUTRINO EXPERIMENT (LBNE) SECOND SITE INVESTIGATION

Reference: Letter, from J. Anderson to M. Weis, dated January 16, 2013, Subject: NEPA Environmental Evaluation Notification Form (EENF) for the LBNE Second Site Investigation

I have reviewed the Fermilab EENF for the LBNE Second Site Investigation. Based on the information provided in the EENF, I have approved the following categorical exclusion (CX):

Project Name	Approved	CX
LBNE Second Site Investigation	1/17/2013	B3.1

I am returning a signed copy of the EENF for your records. No further NEPA review is required. This project falls under categorical exclusions provided in 10 *CFR* 1021, as amended in November 2011.

Sincerely,

Michael J. Weis
Site Manager

Enclosure:
As Stated

cc: P. Oddone, w/o encl.
Y. - K. Kim, w/o encl.
N. Grossman, w/encl.
T. Dykhuis, w/encl.

FERMILAB ENVIRONMENTAL EVALUATION NOTIFICATION FORM (EENF) for documenting compliance with the National Environmental Policy Act (NEPA), DOE NEPA Implementing Regulations, and the DOE NEPA Compliance Program of DOE Order 451.1

Project/Activity Title: Long Baseline Neutrino Experiment Second Site Investigation

ES&H Tracking Number: 01101

I hereby verify, via my signature, the accuracy of information in the area of my contribution for this document and that every effort would be made throughout this action to comply with the commitments made in this document and to pursue cost-effective pollution prevention opportunities. Pollution prevention (source reduction and other practices that eliminate or reduce the creation of pollutants) is recognized as a good business practice which would enhance site operations thereby enabling Fermilab to accomplish its mission, achieve environmental compliance, reduce risks to health and the environment, and prevent or minimize future Department of Energy (DOE) legacy wastes.

Fermilab Project Owner: Elaine McCluskey (X2193)
Signature and Date_____

Fermilab ES&H Officer: Michael Andrews (X8472)
Signature and Date_____

I. Description of the Proposed Action and Need

Purpose and Need:
The purpose of this project is to investigate some important aspects of the Fermilab site in preparation for the proposed Long Baseline Neutrino Experiment (LBNE) project construction. This project would inform the decision of where to borrow approximately 30,000 cubic yards of material suitable to construct a "test embankment" on the proposed LBNE site. This test embankment would simulate settling conditions in the soils in the area of the future embankment proposed as part of the LBNE project. The project would involve geotechnical borings in up to seven candidate borrow areas to determine whether the area's soil is suitable for constructing the test embankment. An additional purpose is to conduct borings that would extend to a depth of approximately 20 feet into bedrock to investigate the structural sub-surface characteristics of the proposed future site of the LBNE, including the embankment. Results from these borings would inform the design of sub-structural supporting elements for the LBNE beamline and service building structures.

This information is needed to gather information relevant to the design of the proposed LBNE beamline tunnels and buildings. The test embankment and the geotechnical borings to bedrock would inform decisions about the number and nature of caissons that would be necessary to provide a stable beamline for the LBNE project. In order to simulate as closely as possible the effect of the future embankment on the settling of soil at the site, materials borrowed for the test embankment should be comparable to materials that would be used for the final embankment. Examining a number of candidate sites from which to borrow material for the test increases the probability of finding the best available material.

Proposed Action:
The project would involve a series of approximately 10 geotechnical borings along the proposed beamline of the LBNE project. These borings would extend to a depth of approximately 20 feet below the level of the bedrock, or up to 120 feet below grade. The borings would be conducted using standard industrial techniques and safeguards to the surrounding environment. Some of these borings could be converted to piezometers at the conclusion of the project, while the remainder would be closed according to standards and state regulations.

A second set of borings would be conducted in each of the candidate areas (see attached map, indicating all seven of the candidate sites). In each site, we expect to require 1 to 3 borings to characterize the subsurface, for a total of up to 18 borings for this part of the project. All borings would then be closed according to standards and state regulations.

Once one or more borrow areas have been identified, the topsoil would be removed to expose the subsoil, and then stockpiled on site. Material to be used for the test embankment would then be excavated and trucked to the site of the proposed LBNE beamline, where a test embankment would be constructed. The test embankment would be approximately 180 feet on each side of a square area, with a final elevation of approximately 40 feet. The area of the top of the test embankment would be approximately 100 X 100 feet. The side slopes would be approximately 1:1. The test embankment top and side slopes would be vegetated for stabilization against erosion.

Alternatives Considered
Not conducting these tests (the "No Action" alternative) would force the designers of the proposed LBNE structure to make design decisions with no, or inadequate information, likely resulting in substantial over-design and cost. A second alternative would be to select a borrow site based on very little or no information as to the characteristics of the borrowed material. This would significantly decrease the probability of finding material for the embankment with optimal qualities.

II. Description of the Affected Environment

This project would require the excavation of approximately 30,000 cubic yards of soil from one or more areas on the Fermilab site. The area of excavation would be approximately 2.5 acres. The material would be transported from the eventual borrow site to the proposed LBNE site to construct the test embankment. The borrow area as well as the site where the test embankment would be constructed would be covered by a Notice of Intent for the NPDES general permit for construction activities (ILR10). Standard erosion control measures would be used to protect against erosion, following the Illinois Urban Manual. The borrow area(s) may require dewatering during the excavation process. All dewatering activities would be controlled using standard techniques to protect against erosion and sedimentation, following the Illinois Urban Manual.

III. Potential Environmental Effects (If the answer to the questions below is "yes", provide comments for each checked item and where clarification is necessary.)

A. Sensitive Resources: Would the proposed action result in changes and/or disturbances to any of the following resources?

- ☐ Threatened or endangered species
- ☐ Other protected species
- ☐ Wetland/Floodplains
- ☐ Archaeological or historical resources
- ☐ Non-attainment areas

B. Regulated Substances/Activities: Would the proposed action involve any of the following regulated substances or activities?

- ☒ Clearing or Excavation
- ☐ Demolition or decommissioning
- ☐ Asbestos removal
- ☐ PCBs
- ☐ Chemical use or storage
- ☐ Pesticides
- ☐ Air emissions
- ☒ Liquid effluents

- ☐ Underground storage tanks
- ☐ Hazardous or other regulated waste (including radioactive or mixed)
- ☐ Radioactive exposures or radioactive emissions
- ☐ Radioactivation of soil or groundwater

C. Other Relevant Disclosures: Would the proposed action involve any of the following actions/disclosures?

- ☐ Threatened violation of ES&H permit requirements
- ☐ Siting/construction/major modification of waste recovery or TSD facilities
- ☐ Disturbance of pre-existing contamination
- ☒ New or modified permits
- ☐ Public controversy
- ☐ Action/involvement of another federal agency
- ☐ Public utilities/services
- ☐ Depletion of a non-renewable resource

IV. Comments on checked items in section III.

Clearing or Excavation

This project would require the excavation of approximately 30,000 cubic yards of soil from one or more areas on the Fermilab site. The area of excavation would be approximately 2.5 acres. The material would be transported from the eventual borrow site to the proposed LBNE site to construct the test embankment. The borrow area as well as the site where the test embankment would be constructed would be covered by a Notice of Intent for the NPDES general permit for construction activities (ILR10). Standard erosion control measures would be used to protect against erosion, following the Illinois Urban Manual. Approximate area: 2.5 acres

Liquid Effluents

The borrow area(s) may require dewatering during the excavation process. All dewatering activities would be controlled using standard techniques to protect against erosion and sedimentation, following the Illinois Urban Manual.

New or Modified Permits

The only permit that would be required for this project would be coverage under the general permit for stormwater.

V. NEPA Recommendation

Fermilab staff have reviewed this proposed action and concluded that the appropriate level of NEPA determination is Categorical Exclusion. The conclusion is based on the proposed action meeting the description found in DOE's NEPA Implementation Procedures, 10 CFR 1021, Subpart D, Appendix B3.1 which states:

B3.1 Site characterization and environmental monitoring, (including but not limited to siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to: (a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing; (b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical

exploration tools); (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells; (d) Aquifer and underground reservoir response testing; (e) Installation and operation of ambient air monitoring equipment; (f) Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging or boreholes); (g) Sampling and characterization of water effluents, air emissions, or solid waste streams; (h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources); (i) Sampling of flora or fauna; and (j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.

Fermilab NEPA Program Manager: Teri L. Dykhuis
Signature and Date Teri L. Dykhuis 1/16/2013

VI. DOE/FSO NEPA Coordinator Review

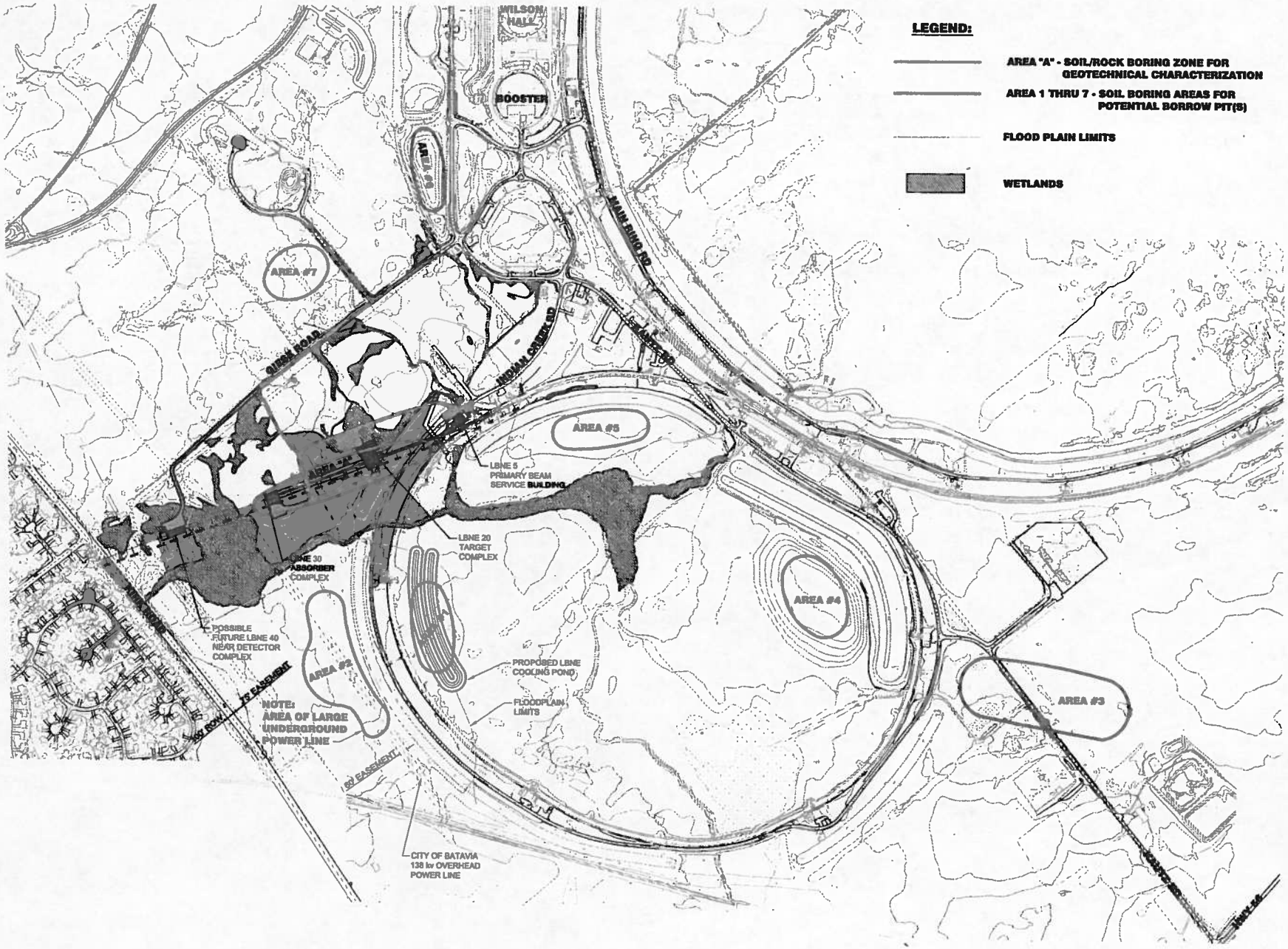
Concurrence with the recommendation for determination:

Fermi Site Office (FSO) Manager: Michael J. Weis
Signature and Date 1/28/2013

FSO NEPA Coordinator: Rick Hersemann
Signature and Date Rick Hersemann 1/17/2013

Appendix A

See attached map of potential Geotechnical Investigation Sites for LBNE Facilities, Cooling Ponds, and potential borrow pit locations.



SCALE: 1" = 200'-0"

200 0 200 400 600 800 1000 FEET

SCALE

PROJECT NORTH

W E S

LBNE CONVENTIONAL FACILITIES

GEOTECHNICAL INVESTIGATION SITES
FOR LBNE FACILITIES, COOLING POND(S),
AND POTENTIAL BORROW PIT LOCATION(S),
MI-10 SHALLOW

CDR

Fermilab

U.S. DEPARTMENT OF ENERGY

DATE

3 JAN., 2013

PROJECT NO.

6-14-1

DRAWING NO.

EXH A

Jan 04, 2013 - 3:46pm M:\Active Projects\6\14\16 - Design Documents\6b - Drawings\LBNE CDR\Drawing Sets\DWG-MI10 Shallow, Reconfiguration\CDR\EXH-A_3JAN2013 Geotechnical Investigation sites plan.dwg