U.S. DEPARTMENT OF ENERGY

GOLDEN FIELD OFFICE

Floodplain and Wetlands Assessment and Statement of Findings for

Construction of a Second Full Service Access Road over Lena Gulch from

South Golden Road to the National Renewable Energy

Laboratory's South Table Mountain Complex

Golden, Colorado

June 2011

1. INTRODUCTION

The U.S. Department of Energy (DOE) Golden Field Office (GO) is proposing to construct a second full service access road to the National Renewable Energy Laboratory's (NREL) South Table Mountain (STM) complex that would span Lena Gulch and the associated 100-year floodplain. This Floodplain and Wetland Assessment and Statement of Findings has been prepared in accordance with Title 10 Code of Federal Regulations (CFR) Part 1022, *Compliance with Floodplain and Wetland Environmental Review Requirements* which were promulgated to implement the requirements of the DOE's responsibilities under Executive Order 11988, *Floodplain Management* and Executive Order 11990, *Wetlands Protection*. These regulations and Executive Orders encourage measures to preserve and enhance the natural and beneficial functions of floodplains and wetlands. These regulations and Executive Orders also require federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and the occupancy and modification of floodplains.

According to 10 CFR 1022, a floodplain is defined as the lowlands adjoining inland and coastal waters and relatively flat areas and flood prone areas of offshore islands, including the base floodplain that is the area inundated by a 1% or greater chance flood in any given year. Per 10 CFR 1022.4, a wetland is defined as an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas. A Floodplain Action is any DOE action that takes place in a floodplain including actions in a wetland contained in a floodplain.

The project area is south of the STM site (Figure 1) and shown in greater detail in Figures 2 and 3. As reflected in Figure 3, this assessment evaluates the potential effects to floodplains and wetlands associated with the construction of a second full service access road to the NREL STM Site. DOE distributed the Notice of Proposed Floodplain and Wetland Action and made available the May 2011 Floodplain and Wetland Assessment report to appropriate government agencies and other interested parties for review and comment as discussed in Section 6. There were no substantive comments received during the public comment period. DOE has prepared and issued this Floodplain and Wetlands Statement of Findings and is distributing it to appropriate government agencies and to others who submitted comments on the proposed floodplain/wetlands action.

Alternative corridors for a second full service access road were considered and analyzed in the *Supplement- II to Final Site-Wide Environmental Assessment of the National Renewable Energy Laboratory's South Table Mountain Complex* (DOE/EA 1440-S-II), which concluded with a Finding of No Significant Impact (FONSI). Corridor B/C (Figure 2) was selected by DOE as the preferred alternative and the FONSI to the DOE/EA 1440-S-II concluded that a route connecting the STM to South Golden Road could be accomplished without significant impacts. This conclusion was based upon the analyses in DOE/EA-1440-S-II as well as consultations with federal, state, and local agencies. These documents are available at http://www.eere.energy.gov/golden/Reading_Room.aspx. All descriptions of affected

environment, overall project narrative, and overall environmental effects of this project with corridor alternatives are incorporated here by reference (DOE/EA 1440-S-II).

2. PROJECT DESCRIPTION

2.1. Description of the Project

The proposed second full service access road would allow access to the south end of the NREL STM site (Figure 1). This access road would extend from South (Old) Golden Road to the southern end of the recently expanded NREL property (Figures 2 and 3). The access road would consist of two-way traffic in two lanes, plus bicycle lanes, within an approximate 60 foot-wide right-of-way (Figure 3). The new access road would extend north along the property line between Jefferson County Open Space and private property to the west, connecting to South Golden Road by means of a roundabout, instead of a conventional intersection (Figure 3). The intersection currently extends south from South Golden Road via Moss Street, with an existing stop sign on Moss Street and no traffic control on South Golden Road. This project would extend Moss Street (Moss Street Extension) north to the STM site parking lots.

As stated in DOE/EA 1440-S-II, the B/C alternative was chosen (Figure 2), and a FONSI was issued for the project on November 6, 2009. Therefore, a discussion of the alternatives will not be included here. Because all routing options would have the potential to affect wetlands and/or floodplains, DOE is providing a single route (Moss Street Extension) to address in this floodplain and wetlands assessment.

2.2. Description of Floodplain

In the vicinity of the proposed project, the 100-year floodplain on Lena Gulch is approximately 300 feet wide at the bridge crossing (Figure 3) and much narrower (approximately 60 feet wide) at the north end turn-around point along a Lena Gulch tributary. The south bank at the bridge crossing is roughly 8 feet higher than the north bank, with the stream channel situated closer to the south bank. The banks support herbaceous vegetation, trees and shrubs, creating a relatively thick vegetative cover.

2.3. Description of Wetlands

Wetlands were delineated using the U.S. Army Corps of Engineers (USACE) Manual for Wetland Delineations in the Great Plains Region (USACE 2008). This delineation was sent to the USACE resulting in concurrence of jurisdictional Waters of the U.S. including wetlands (riparian fringe association comprised of riverine unconsolidated shore – vegetated or riverine streambed - sand). These areas are depicted on Figure 3. The wetlands along the banks of Lena Gulch have an understory of sedges and grasses with an overstory of willow and cottonwood. Downstream of the project area, in Pleasant View Park, constructed wetlands exist in a side-channel area that receives floodwater. This area currently consists of palustrine emergent wetlands. The lower portion of the constructed wetland is dominated by cattails while the upper portion contains rushes, sedges, and grasses.

3. ANTICIPATED IMPACTS OF THE PROPOSED PROJECT TO FLOODPLAINS AND WETLANDS

Changes to floodplains or wetlands, such as the activities involved in constructing a road, must be assessed and the results of those assessments must be reviewed and approved by government agencies. Changes in the floodplain (e.g., the installation of culverts, wingwalls, etc,) may change the flood regime of the local floodway. The affects of these changes need to be addressed so that the possibility of flooding in new areas, especially where structures exist, is avoided. This is done by modeling and providing a Conditional Letter of Map Revision (CLOMR) to both the Urban Drainage and Flood Control District in Denver, and the Federal Emergency Management Agency (FEMA).

Impacts to wetlands must be addressed under Section 404 of the Clean Water Act. Waters of the U.S., including wetlands, are administered under the U.S. Army Corps of Engineers (USACE). Wetlands provide flood control, aid in water quality, and provide wildlife habitat. Impacts to wetlands must be minimized and mitigated.

A CLOMR is required as part of the Moss Street Extension project, because road and bridge construction activities would occur in the floodplain. The affected Flood Insurance Rate Map is number 08059C0281E with an effective date of June 17, 2003. The affected water bodies are Lena Gulch and Lena Gulch Tributary (also known as Pleasant View Tributary). The proposed improvements for the Moss Street crossing of Lena Gulch would include a clear span bridge with concrete abutments, minor channel modifications, and riprap channel protection. The proposed Moss Street crossing of Lena Gulch Tributary would include two 10' span by 4' rise concrete box culverts with concrete headwalls and wingwalls and riprap channel protection. Approximately 300 linear feet of the Lena Gulch Tributary channel on the east side of the proposed Moss Street Extension would be shifted 40 feet to the east to allow for construction of the roadway. The proposed improvements associated with the Moss Street Extension Project would result in changes, such as improvements to 1% of the annual chance (100-year) and 0.2% of the annual chance (500-year) floodplain delineations for Lena Gulch and the Lena Gulch Tributary. Although these structures would be placed in the floodplain, there would be no increase in the Base Flood Elevations from pre-project conditions to post-project conditions. The conditions within Lena Gulch, Lena Gulch Tributary, and a CLOMR were confirmed by FEMA on February 25, 2011.

No long-term negative direct or indirect impacts to the beneficial values of the 100-year floodplain of Lena Gulch would be expected under the proposed action. No effects to lives and property associated with floodplain disturbance are anticipated. This is based on results of the CLOMR modeling. Short-term direct impacts to the floodplain would result from the temporary disturbance of the area during excavation and construction activities associated with the bridge and road construction. Additionally, the possibility of sediment run-off or erosion could occur as a result of a storm during the construction period. The erosion has the potential to result in a temporary localized reduction in the water quality of Lena Gulch. However, this action would abide by the requirements of the Colorado Water Quality Control Act as well as Colorado

Department of Public Health and Environment (CDPHE) Water Quality Control Commission Regulation No. 61 – Colorado Discharge Permit System (CDPS)(5 CCR 1002-61). Sediment and erosion controls such as silt fencing, rock socks, rip rap, silt dikes, etc. would prevent disturbance to adjacent areas of the floodplain and would protect Lena Gulch from the influx of silt containing runoff. Spill control measures would be utilized when necessary and spill control kits would be readily available for use at the project areas where heavy equipment would be utilized. After excavation and installation activities are completed, the remaining affected floodplain areas would be graded, seeded and restored to their previous. Permit coverage under the CDPS General Permit for Stormwater Discharges Associated with Construction Activity (COR-030000) would be obtained. A stormwater management plan would be developed and implemented prior to construction and NREL staff would oversee project activities.

Lena Gulch and associated tributaries were reviewed by a wetland biologist in summer of 2009 (DOE 2009). Wetlands were mapped along Lena Gulch and areas of impact were derived by overlaying construction drawings on top of the wetland map (Figure 3). The installation of the concrete abutments, minor channel modifications, and riprap channel protection will result in the permanent loss of 0.25 acres of wetlands along Lena Gulch. In addition to the permanent wetland impacts, there will be 0.035 acres of temporary wetland loss due to minor channel modifications and construction access. The project area within Lena Gulch Tributary has no jurisdictional wetlands (see north end of project area in Figure 3).

The survival, quality and function of wetlands would be changed due to the permanent loss of wetlands and these permanent impacts would be mitigated. Construction of short duration, with implementation of sediment and erosion controls, would ensure the survivability of wetlands located downstream along the banks and the constructed wetlands. Temporarily impacted Waters of the U.S., although small in area, would be graded, seeded and restored to their previous conditions. The area of temporarily impacted waters would be minimized due to project design considerations at the stream crossing that avoided and minimized temporary impacts to the gulch.

4. ALTERNATIVES EVALUATED

Alternative corridors were discussed and addressed in the DOE/EA 1440-S-II, and the B/C corridor was selected as the preferred alternative. A route within the B/C corridor has been selected for the Moss Street Extension, and additional required consultations with regulatory agencies have been or are being completed. Documentation of these consultations and the floodplain/wetland Statement of Findings will be consolidated into a Supplement Analysis document that will be posted on the DOE public reading room webpage at: http://www.eere.energy.gov/golden/Reading_Room.aspx. Any route within the B/C corridor requires a bridge across Lena Gulch; therefore, the analysis of the impacts from the Moss Street Extension (Figures 2 and 3) to the Lena Gulch floodplain and wetlands is provided as the preferred alternative.

5. MITIGATION

A CLOMR was submitted for review, first to Jefferson County, then Urban Drainage and Flood Control District, and subsequently to FEMA. A letter of concurrence regarding the CLOMR was received from FEMA on February 25, 2011. Once the Moss Street Extension project is completed, an application for floodplain map revision would be submitted to Urban Drainage and Flood Control District and FEMA. FEMA would issue a Letter of Map Revision (LOMR) upon concurrence with the findings of the map revision application.

The activities in Waters of the U.S. including wetlands would be conducted under a USACE Nationwide Permit No. 14 (NWP 14) for Linear Transportation Projects. DOE received approval to use the NWP 14 on February 15, 2011. The USACE requested wetland mitigation of 0.25 acres for this project; this request was met via the purchase of 0.25 acres of wetland banking credits through coordination with the South Platte Wetlands Bank in Brighton, Colorado. As stated in Section 2, the impact to Waters of the U.S., including wetlands, has been minimized by project design. Temporary impacts would be mitigated by grading to original contours and reseeding.

Overall, impacts to floodplain and wetlands would be mitigated through the establishment of stormwater erosion controls and oversight by NREL staff during construction.

6. NOTICE OF FLOODPLAIN AND WETLAND ACTION AND PUBLIC COMMENT PERIOD

In accordance with 10 CFR 1022.12, DOE GO sent notice of the proposed floodplain and wetland action to appropriate government agencies, to persons or groups of interest, and the public. This was accomplished electronically via email and by mail correspondence dated May 20, 2011 to 86 government agencies and groups of interest. DOE also published the notice in the May 19, 2011 and May 26, 2011 editions of the weekly local newspaper, The Golden Transcript. Additionally, the Notice of the Proposed Floodplain and Wetland Action and the May 2011 Floodplain and Wetland Assessment report were posted on the DOE public reading room webpage at: http://www.eere.energy.gov/golden/Reading_Room.aspx. The public and agency comment period ran from May 20, 2011 to June 6, 2011, thus meeting the 15-day requirement of 10 CFR 1022.15(a). DOE received two responses from agencies, the U.S. Fish & Wildlife Service and Jefferson County Planning and Zoning Division, which are attached and both indicated that they did not have any comments on the proposed action. DOE did not receive any comments from persons or groups of interest or the general public.

7. CONCLUSIONS AND STATEMENT OF FINDINGS

It is anticipated that this project would not result in adverse impacts to the 100-year floodplain. Temporary disturbance within the floodplain would cease following completion of construction activities associated with this proposed action. Proper erosion and sediment control measures would be utilized and site restoration would occur upon completion of the construction activity. This proposed action would not result in any increase in the Base Flood Elevations from pre-project conditions to post-project conditions or other long-term impacts to the floodplain and its functionality. No effects to lives and property associated with floodplain disturbance are anticipated. The CLOMR prepared for this action was approved by FEMA on February 25,

2011. Upon completion of this project, an application for floodplain map revision would be submitted to Urban Drainage and Flood Control District and FEMA. FEMA would issue a LOMR upon concurrence with the findings of the map revision application, thus completing the floodplain action mitigation process. Therefore, this action conforms to applicable floodplain protection standards.

The Moss Street Extension road alignment and the bridge spanning Lena Gulch have been located and designed to minimize impacts to Lena Gulch and its wetlands. The installation of the concrete abutments, minor channel modifications, and riprap channel protection would result in the permanent loss of 0.25 acres of wetlands along Lena Gulch. Pursuant with 40 CFR Part 230, *Compensatory Mitigation for Losses of Aquatic Resources*, as well as U.S. Environmental Protection Agency's and USACE's policy of "No Net Loss" of jurisdictional wetlands, DOE would purchase compensatory mitigation credits from an approved wetland mitigation bank in Brighton, Colorado.

In accordance with 10 CFR Part 1022 and based upon the information presented in this Statement of Findings, DOE concludes that this action conforms to applicable floodplain and wetland protection standards and the appropriate steps have been taken to minimize potential harm within the floodplain and wetlands. Upon publication of this document, DOE will initiate a 15-day public review period prior to implementing the proposed action.

8. REFERENCES

Code of Federal Regulations, Title 10, Energy, Part 1022, Compliance with Floodplain and Wetland Environmental Review Requirements.

Code of Federal Regulations, Title 40, Environment, Part 230, Compensatory Mitigation for Losses of Aquatic Resources.

DOE (U.S. Department of Energy), 2009. *Supplement- II to Final Site-Wide Environmental Assessment of the National Renewable Energy Laboratory's South Table Mountain Complex.* DOE/EA 1440-S-II. November.

DOE (U.S. Department of Energy), 2009. Wetland Delineation of Lena Gulch. Letter and Delineation to the U.S. Army Corps of Engineers from the U.S. Department of Energy. Corp File NOW-2011-255-DEN. November.

Environmental Laboratory. (1987). *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

U.S. Army Corps of Engineers. 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

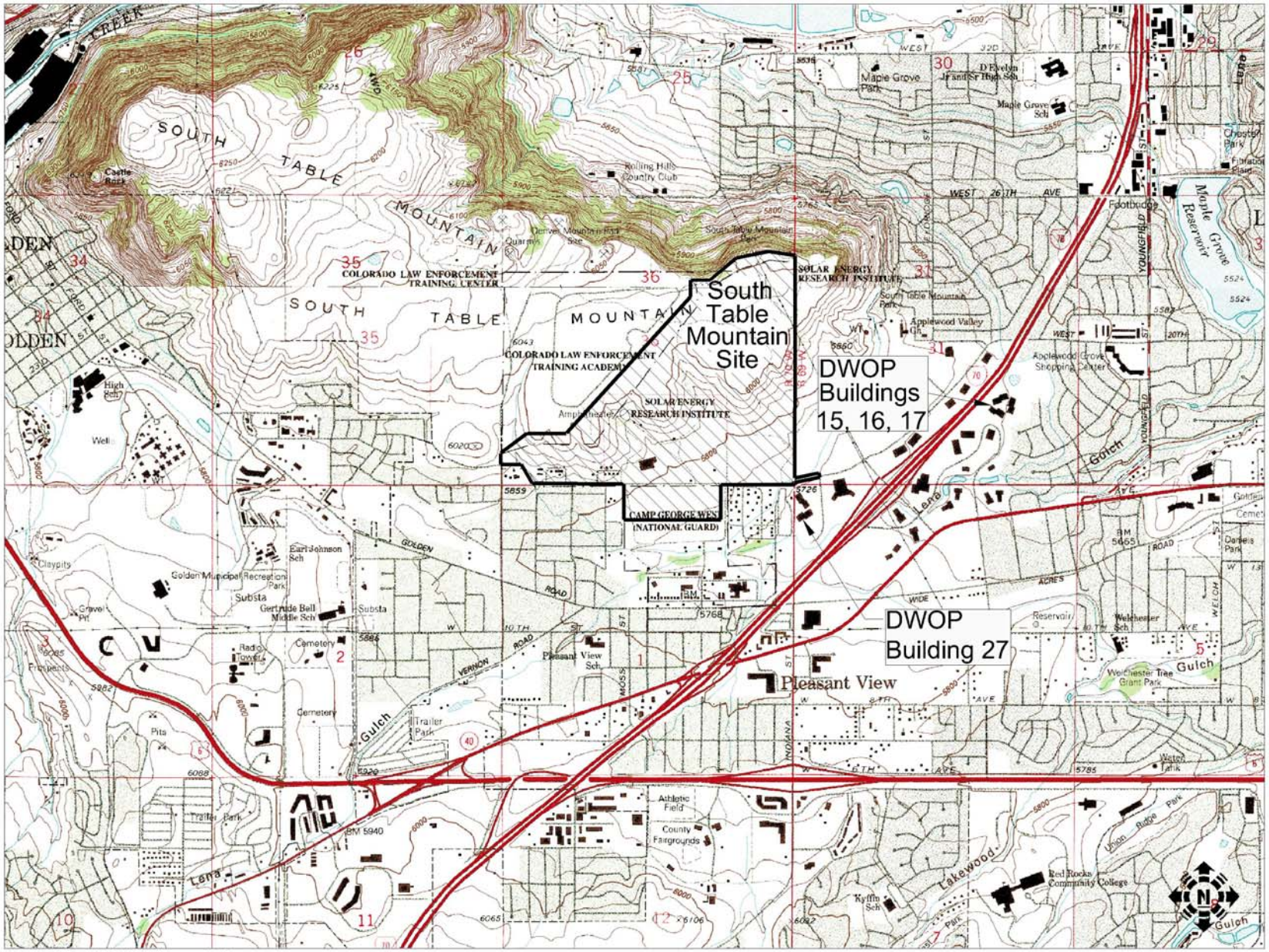


Figure 1. STM Site Vicinity

AFUF	Alternative Fuels User Facility
FTLB	Field Test Laboratory Building
IBRF	Integrated Biorefinery Research Facility
OTF	Outdoor Test Facility
RFHP	Renewable Fuel Heating Plant
RSF	Research Support Facility
S&TF	Science & Technology Facility
SEB	Site Entrance Building
SERF	Solar Energy Research Facility
SRRL	Solar Radiation Research Laboratory
TTF	Thermal Test Facility
WHF	Waste Handling Facility

Building in Progress
Existing Building
Solar Arrays
Note: This drawing is for environmental assessment purposes o

Conservation Easement

DEPARTMENT OF ENERGY
NREL CAMPUS

SRRL
WHF
RFHP
SERF
S&TF
FTLB
RSF
Shipping
IBRF
AFUF
Parking
TTF
OTF
Visitors' Center
Parking
Site Entrance Building

DETENTION POND

Surface Parking 300 Spaces
Proposed Surface or Structured Parking 300-900 Spaces
Proposed Surface or Structured Parking 300-900 Spaces
Potential Parking

DENVER WEST PARKWAY
I-70
WEST COLFAX AVENUE
GOLDEN ROAD
SOUTH GOLDEN ROAD
CHOSEN CORRIDOR

WEST 14th PLACE
WEST 14th AVENUE
WEST 13th PLACE
WEST 13th AVENUE
WEST 12th AVENUE
WEST 11th AVENUE
WEST 10th AVENUE
PIKE STREET
ORCHARD STREET
ORION STREET
QUAIL STREET
MT. VERNON ROAD
MILE HIGH STREET
MOSS STREET
NIGHTHAWK STREET
INDIANA STREET
APPLE WAY
MEADOWLARK CIRCUIT
BLUEBIRD COURT
HONEY STREET

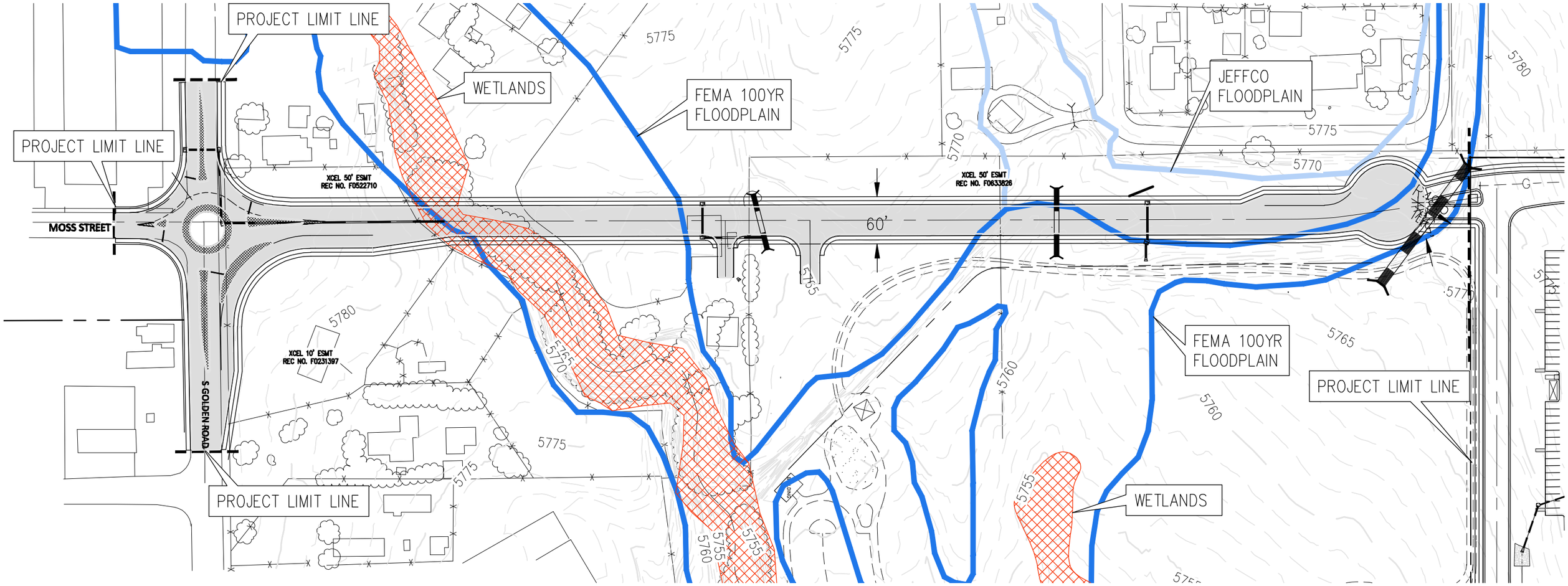
A
B
C
D
E

GRAPHIC SCALE
(IN FEET)
N

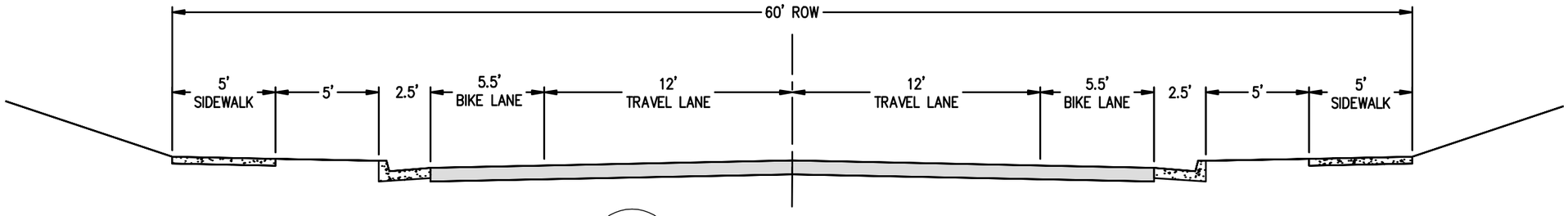
BASE MAP LEGEND
LAKEWOOD CITY BOUNDARY
NREL PROPERTY BOUNDARY
PROPERTY LINE
CORRIDOR A: OWNER
CORRIDOR B: OPEN SPACE OVERLAP
CORRIDOR C: MOSS/NIGHTHAWK
CORRIDOR D: LENA GULCH
CORRIDOR E: RAMEL
EXISTING TRAFFIC SIGNAL

SELECTED CORRIDOR FOR SECONDARY ACCESS ROAD PROJECT

FIGURE 2



1 C2 C2 MOSS STREET ALIGNMENT
ROUND-ABOUT INTERSECTION



2 C2 C2 TWO-LANE COLLECTOR STREET SECTION
SCALE: 1" = 5'

GRAPHIC SCALE
120 0 120 240
(IN FEET)
1 INCH = 120 FT

SECONDARY ACCESS ROAD SITE PLAN WITH ROADWAY CROSS-SECTION

FIGURE 3

ATTACHMENT

AGENCY COMMENT LETTERS

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

May 20, 2011

DISTRIBUTION LIST

SUBJECT: REQUEST FOR PUBLIC AND AGENCY COMMENTS ON FLOODPLAIN AND WETLAND ASSESSMENT FOR THE SECOND FULL SERVICE ACCESS ROAD TO THE NATIONAL RENEWABLE ENERGY LABORATORY'S SOUTH TABLE MOUNTAIN COMPLEX ACROSS LENA GULCH

The U.S. Department of Energy (DOE) has prepared a floodplain and wetland assessment to describe the potential floodplain and wetland impacts associated with the construction of an access road leading from South Golden Road to the National Renewable Energy Laboratory (NREL) South Table Mountain Complex in Golden, Colorado. The floodplain and wetland assessment was prepared in accordance with federal regulation 10 CFR Part 1022, *Compliance with Floodplain and Wetlands Environmental Review Requirements*.

The floodplain and wetland assessment for this project is available for review on DOE's electronic information kiosk in the NREL Visitors Center and the DOE Golden Field Office public reading room website at: http://www.eere.energy.gov/golden/Reading_Room.aspx.

Additional information on the proposed second full service access road is contained in the *Supplement II to Final Site-Wide Environmental Assessment of the National Renewable Energy Laboratory's South Table Mountain Complex* (DOE/EA 1440-S-II) and the associated Finding of No Significant Impact (FONSI). These documents are also posted on the public reading room website at: http://www.eere.energy.gov/golden/Reading_Room.aspx.

Public comments on the proposed floodplain and wetland action will be accepted until June 6, 2011 via post, facsimile or e-mail. Please submit your comments to:

NREL NEPA Comments
National Renewable Energy Laboratory,
EHS Office, M.S. RSF 103
1617 Cole Boulevard,
Golden, Colorado 80401-3393
Fax #: (303) 275-4002
E-mail: NREL_NEPA_Comments@nrel.gov

U.S. FISH AND WILDLIFE SERVICE

☐ CONCUR NO EFFECT
☐ CONCUR NOT LIKELY TO ADVERSELY AFFECT
☒ NO COMMENT

JUN - 2 2011

COLORADO FIELD SUPERVISOR (DATE)

Susan C. Linner

Please provide your input on or before June 6, 2011. We look forward to hearing from you.

Sincerely,

Lori Plummer

Lori Plummer, NEPA Compliance Officer
U.S. Department of Energy, Golden Field Office

Smith, Robert

From: Ross Klopf [rklopf@co.jefferson.co.us]
Sent: Monday, June 06, 2011 4:06 PM
To: 'NREL.NEPA.Comments@nrel.gov'
Cc: Charles Barthel; Mike Schuster; Mike Vanatta; Mark Hearon; 'Stewart'; Steven Snyder
Subject: Request for comments on Floodplain and Wetland Assessment

Good Afternoon,

Jefferson County has no comments or concerns with the proposed Conditional Letter of Map Revision that has been approved or the Wetland Assessment for the Moss Street connection.

Please let me know if you have any questions.

Kind Regards,

Ross Klopf, PE, CFM, Civil Planning Engineer

Planning and Zoning Division

100 Jefferson County Parkway, Suite 3550

Golden, Colorado 80419-3550

303-271-8733 Fax: 303-271-8744